Analysing the factors that influence investment intentions in South Africa

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DECLARATION

I declare that:

"ANALYSING THE FACTORS THAT INFLUENCE INVESTMENT INTENTIONS IN SOUTH AFRICA"

is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references, and that this dissertation has not previously been submitted by me for a degree at any other university.

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DECLARATION OF LANGUAGE EDITING

15 October 2020

To whom it may concern

This is to confirm that I, the undersigned, have language edited the completed research of TE Mankuroane for the Magister Commercii *in Risk Management* entitled: Analysing the factors that influence investment intentions in South Africa.

No changes were permanently affected and were left to the discretion of the author. The responsibility of implementing the recommended language changes rests with the author of the thesis.

Yours truly

Jomoné Müller

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LIST OF ABBREVIATIONS

ANOVA	Analysis of variance
CWB	Cognitive well-being
MPT	Modern portfolio theory
SCF	Survey of Consumer Finance
SDA	Secondary data analysis
SML	Security market line
SPSS	Statistical Package for the Social Studies
SWB	Subjective well-being
SWL	Satisfaction with life
SWLS	Satisfaction with life scale
VIF	Variance inflation factor

ABSTRACT

Keywords: Subjective well-being (SWB), life satisfaction, demographic factors, risk tolerance, behavioural biases, personality traits, short-term investment intentions, long-term investment intentions, Survey of Consumer Finances (SCF).

Analysing the factors that influence the long- and short-term investment intentions of investors is critical to provide investment institutions a framework that will assist to compile suitable investment products for investors. Risk tolerance is one of the elements that has been used over time to profile investors, however, this study revealed that other factors, such as behavioural biases, personality measures, and demographic factors must also be included. The behavioural biases of investors include representativeness, overconfidence, anchoring, gambler's fallacy, availability bias, loss aversion, regret aversion, mental accounting, and self-control bias. The personality measures comprise personality traits and three subcategories. Personality traits include neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. The three subcategories are risk aversion, short-term investment intentions and long-term investment intentions.

Elements of behavioural biases, personality traits, and demographic factors should be added in order to accurately profile the client. Theoretical and empirical objectives were formulated in order to provide an insight into the intentions of investors to invest. The theoretical objectives thoroughly analysed the theory of Subjective well-being (SWB), risk tolerance, behavioural bias, and personality traits. Previous studies revealed that demographic factors can influence life satisfaction and the level of risk tolerance that investors are willing to accept. Furthermore, the literature on behavioural biases and personality traits have been found to influence the investment intentions and decisions of investors.

The primary objective of this study was to analyse the factors that influence investors' investment intentions in South Africa. An empirical study and a literature review were included in the research design through the application of a quantitative research approach and a positivistic paradigm. The target population selected for this study included investors emanating from a South African investment company. The sampling method that was used in this study was a purposeful sampling method, which encompasses selecting information-rich cases while using limited resources effectively.

Although this is an existing questionnaire, the research instrument was a self-administered questionnaire compiled by the original researcher that was circulated electronically to 3000

investors who form the client base of the investment company. The sample size of this study was determined by the investment company that distributed the questionnaire. This study reached a sample size of 593 participants. Demographic factors were obtained for this study to gather the background information of the respondents by means of demographic questions. The questions on demographics comprised age, gender, race, marital status, province, annual income, religion, and the highest level of education. The following scales were also included in the questionnaire: Survey of Consumer Finances (SCF), behavioural biases, satisfaction with life scale (SWLS), and personality measures.

The findings from the study revealed that a demographic factor, age, has a significant impact on long-term investment intentions. The results also indicated that the factors that influence the intentions of investors to invest in the short term are personality traits (extraversion, agreeableness, openness to experience, conscientiousness), risk tolerance, as well as behavioural bias (overconfidence bias). Concerning long-term investment intentions, the factors that were found to have a significant influence on the intentions of investors to invest in the long term are personality traits (extraversion, openness to experience), risk tolerance, and behavioural biases (overconfidence bias). As a result, it can be concluded that these factors have the potential of influencing the intentions of investors to invest in both the short and long term.

The results gathered from this study have the ability to contribute significantly towards the financial industry as well as for the research that will be undertaken in the future. By incorporating the above-mentioned factors, financial planners and institutions will offer investors financial products that are more suitable for them. Future research can contribute by including more demographic factors that may have an impact on the investment intentions of investors. Since financial institutions usually consider risk tolerance when profiling the client, they should also consider factors such as personality measures, Satisfaction with Life (SWL), and behavioural biases as these factors can have an impact on short-term and long-term investment intentions.

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CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

1.1　INTRODUCTION

There has been an increased interest in subjective well-being (SWB) over the past few years. It covers studies that have utilised various terms, such as positive affect, satisfaction, happiness, and morale (Diener, 1984:542). SWB refers to the manner in which people experience happiness and SWL overall. SWB comprises three separate components which are life satisfaction; positive affect as well as negative affect (Emmons, 1986:1058). The first component refers to the cognitive-judgemental aspects and the latter two refer to the affective or emotional aspects of an individual (Bergstad *et al.*, 2011:2; Busseri & Sadava, 2011:290; Ettema *et al.*, 2010:723).

Among the essential components of SWB, life satisfaction has been identified as a separate component representing a cognitive and total evaluation of the quality of an individual's whole life. Life satisfaction is defined as the process whereby a person assesses the quality of their life according to the criteria of their choice (Diener *et al.*, 1985:71). Although an association between life satisfaction and the affective elements of SWB exists, life satisfaction forms a distinguished element from the other categories of well-being (Pavot & Diener, 2008:137). It has been revealed that individual differences in overall life satisfaction are associated with several factors such as demographic factors as well as mental and physical health (Lewis *et al.*, 2011:250). For example, Ferreira (2018:84) reported that male investors tend to possess a higher positive life satisfaction in comparison to female investors. Life satisfaction may also be influenced by the different types of personality traits (Schimmack *et al.*, 2004:1063).

The Big Five personality traits have been included in studies that concentrated on the notion of meaning in life (Halama, 2005:167; Steger *et al.*, 2008:199; Soldz & Vaillant, 1999:208;). The five-factor model consists of five main personality traits, which are neuroticism, extraversion, openness to experience, conscientiousness, and agreeableness (Isik & Üzbe, 2015:588). Moreover, Schimmack *et al.* (2002:582) indicated that personality influences life satisfaction and the affective categories of SWB. A study conducted by Francis (1998:6) on SWB further proposes that "happiness is a thing called stable extraversion" because consistent predictors of SWB are extraversion and neuroticism. There are strong relations among the Big Five personality traits and SWL with neuroticism and extraversion as the most consistent predictors (Zhang *et al.*, 2011:1261). Warnings for one to be true to oneself are as old as prehistoric philosophy and as constant as moral lessons themselves (Sherblom, 2012:130). There are at least two different answers that can be provided to explain the meaning of one being true to oneself from modern theories of personality (Sheldon *et al.*, 1997:1380). First, people are viewed in terms of constant and enduring behavioural tendencies, and

secondly, they are viewed in terms of a struggle for self-expression as well as authenticity (Newman *et al.*, 2015:98). Trait theorists have presented the first of these two perspectives, many of whom have in the past motivated around the personality's Big Five model (McCrae & John, 1992:180). In the trait view, it is assumed that people tend to have trans-contextual personality characters that are highly steady over time, circumstances, and social roles. Not only are people characterised by their traits, certainly, but they may also be "our very selves" (McCrae & Costa, 1994:175). This view holds one implication, which is to consistently act following one's own hidden traits to be true to oneself.

Previous studies show that researchers are developing an interest in the effect that personality traits have on economic outcomes, i.e. status of employment and earnings (Caliendo *et al.*, 2012:394; Heineck & Anger, 2010:535). It is evident that financial decision-making at the individual and the household level, with regard to debt acquisition and the holding of financial assets, may be influenced by personality traits (Brown & Taylor, 2014:197). Furthermore, previous studies reported that individual personality traits influence the management of investments, spending, and risk tolerance (Krishnan & Beena, 2009:39; Nga & Ken Yien, 2013:233).

Concerning risk tolerance, there is a general recognition of risk tolerance assessment as a requirement for the development of a secure financial plan for a client within the financial institution (Grable, 2000:628). Risk tolerance may be defined as the level of risk that an individual is prepared to accept to attain a desired future objective (Hallahan *et al.*, 2004:57; Kannadhasan, 2015:176). It is significant to indicate that risk tolerance is a multifaceted attitude. It is made up out of four aspects – social, ethical, physical and financial (Sulaiman, 2012:109). The investor's ability to bear risk may be related to demographics, i.e. age, gender, marital status, occupation, and income, as well as investment knowledge, liquidity needs, portfolio size, time horizon and an attitude towards the fluctuation of the price (Sulaiman, 2012:109). Risk tolerance has been found to diminish with age. For example, younger investors possess a higher number of years to recover from losses accumulated with investments that are risky compared to older investors (Hallahan *et al.*, 2004:58). An important question that requires consideration is whether financial risk tolerance is a characteristic that is changing in investment decisions or not. Even though risk tolerance is a largely consistent personality trait (Van de Venter *et al.*, 2012:794), it can be influenced by different situations (i.e. mood) and life circumstances may be the result for it to change (Roszkowski & Davey, 2010:42).

Another influencing factor in investment decision-making is behavioural biases that originated as a result of market inefficiencies and investors' irrational behaviour. Behavioural finance is concerned with understanding the reasoning of investors during the investment decision-making process (Cahudhary, 2013:86). The main aspects of behavioural biases are anchoring, mental accounting, gambler's fallacy, overconfidence, representativeness bias, loss aversion, self-control, regret

aversion, and availability bias (Isidore & Christie, 2019:129). Behavioural finance demonstrates how different investors understand and respond to the information accessible on the market. Investors do not always behave rationally or predict quantitative models in a similar and unbiased manner. As a result, behavioural finance provides meaning to the investors' behaviour resulting in numerous market anomalies (Jahanzeb, 2012:532).

In light of the preceding discussions, the role of financial institutions, especially investment companies, is becoming more important to assist individuals with their financial and investment planning. In order to determine the risk profile of a client, investment firms apply risk assessments to facilitate their investment planning. These risk assessments that financial institutions apply consider factors such as investment objectives, preferences, time horizon, as well as the individual's level of risk tolerance and risk personalities to determine their risk profile (Marx *et al.*, 2013:267). However, these risk assessments are limited in order to incorporate factors such as life satisfaction and personality traits that may affect an investor's long- and short-term investment intentions. By considering these factors together with the investor's level of risk tolerance and behavioural biases, these factors can be beneficial for financial institutions to incorporate in risk assessments. In this way, financial institutions will be able to establish a more accurate profile of their clients with the aim of offering investment products that are suitable according to their risk profile.

1.2 PROBLEM STATEMENT

Previous studies in financial planning are limited in terms of the influence of personality traits, life satisfaction, and behavioural biases on the long- and short-term investment intentions of investors. These previous studies have researched the influence of these factors separately for South African investors (Dickason, 2017:2; Dickason & Ferreira, 2018:2), however, this study incorporates all these factors in order to determine their influence on short- and long-term investment intentions. Financial institutions do consider how risk tolerance influences the behaviour of investors in financial planning (Hanna *et al.*, 2011:98; Van de Venter *et al.*, 2010:796). However, these risk assessments are limited in order to incorporate factors such as life satisfaction, personality traits and behavioural biases that may affect an investor's long- and short-term investment intentions. By not incorporating these factors during financial planning may result in a less accurate investor profile, and therefore financial institutions may not offer financial products suitable for their clients.

1.3 RESEARCH QUESTION

From this problem statement, the following research question was formulated:

Are the intentions of investors to invest in the short and long term affected by their satisfaction with life, demographic factors, personality traits, level of risk tolerance, and behavioural biases?

1.4   OBJECTIVES OF THE STUDY

The subsequent objectives have been constructed for the study:

1.4.1   Primary objective

The primary objective of this study is to analyse the factors that influence investment intentions in South Africa.

1.4.2   Theoretical objectives

In order to achieve the primary objective of the study, the succeeding theoretical objectives were constructed for this study:

- Thoroughly analyse the theory of SWB;
- Investigate literature on demographic factors that influence the life satisfaction of individuals;
- Review the fundamental principles of investment, such as risk versus return, the security market line and Markowitz portfolio theory;
- Provide literature on risk tolerance;
- Review the literature influence of demographic factors on risk tolerance of individuals;
- Analyse the theory of behavioural biases; and
- Review literature on different personality traits.

1.4.3   Empirical objectives

In order for the primary objective of this study to be achieved, the succeeding empirical objectives were identified:

- Determine the life satisfaction of the sample;
- Determine the personality traits of the sample;
- Determine the level of risk tolerance for the sample;
- Determine the behavioural biases of the sample;
- Determine how risk tolerance, demographic factors, personality traits, behavioural biases and life satisfaction influence the intentions of investors to invest in the short-term investment intentions in South Africa; and
- Determine how risk tolerance, demographic factors, personality traits, behavioural biases and life satisfaction influence the long-term investment intentions of investors in South Africa.

1.5   RESEARCH DESIGN AND METHODOLOGY

This study comprises a literature review as well as an empirical study. Given that this study analysed the factors that impact the investment intentions of investors in South Africa, a quantitative research approach was followed by adopting the positivistic paradigm. Positivists are of the belief that reality is consistent and can be observed and described from a perspective that is objective without the studied phenomena being interfered with. Zikmund *et al.* (2013:8) suggest that positivism is entrenched in the ontological principle and doctrine that both reality and truth are unrestrained of the viewer and observer. Positivistic research depends mainly on quantitative research approaches where data encompass numbers and analysis and are conducted by statistical methods rather than verbal methods (Saunders *et al.*, 2009:119). Secondary data analysis was conducted for this study. Secondary data analysis is defined as an analysis of data collected by an individual for a different main research purpose (Johnston, 2017:619). The data used for this study were collected from an existing questionnaire distributed to individual investors from a South African investment company.

1.5.1   Literature review

This study concentrated on previous research to support the empirical portion of this study. The relationship between investment decisions and personality traits, risk tolerance, behavioural biases, and life satisfaction were discussed. This theory included literature sources such as journal articles, textbooks, and reports.

1.5.2   Empirical study

The empirical portion of the study consisted of the following methodology elements:

1.5.2.1   Target population

For the purpose of this study, the target population consisted of individual investors from one of the biggest and oldest investment firms in South Africa. Both male and female investors investing in any of the investment products offered by the investment company were included in the study.

1.5.2.2   Sampling frame

The sampling frame included in this study is a purposeful sample of a South African investment company. The researcher selected a South African investment company that received funds from individual investors and professionally manage those funds on their behalf.

1.5.2.3 Sampling method

The sampling method used by the researcher was a non-probability purposeful sampling method. Purposeful sampling deals with the selection of cases that are information-rich whereby limited resources are used effectively (Duan *et al.*, 2015:525). It involves individuals or classifications of individuals being identified and selected based on their knowledge about or experience regarding a phenomenon of interest (Palinkas *et al.*, 2015:534). The selection criteria of a purposeful sample can offer a significant qualitative component to quantitative data (Collins *et al.*, 2007:281). The criterion sampling strategy is a type of purposeful sampling of cases on predetermined criteria, such as scores entered on an instrument (Sandelowski, 2000:248). Consequently, purposeful sampling was more appropriate to identify people who invest. The sample selection was done in order to obtain an unbiased sample and the sample was selected randomly.

1.5.2.4 Sample size

Larger sample sizes are sufficient when forecasting the study's reliability, suggesting that the larger sample size improves generalisability (Ahmand & Halim, 2017:33). As a result, the determination of the sample size was consistent with Avikaran (1994:15) who recommended that empirical, consumer-based studies should use a sample size that ranges from 200 to 500. Furthermore, the choosing of a sample size that is large was made with the consideration of the expected variability within the data, thus improving the overall reliability of data in this study. An investment company in South Africa distributed the questionnaire electronically to 3000 of its investors. The researcher aimed to analyse a final sample size of 593. The sample included both female and male investors from all the nine provinces of a selected investment company.

1.5.2.5 Measuring instrument and data collection method

The data gathered by the investment company were obtained by using an existing questionnaire that was administered to separate investors from a South African investment company. In order to measure risk tolerance, personality traits behavioural biases, and life satisfaction of individual investors, a verified questionnaire was used. The questionnaire's reliability and validity were established.

The questionnaire had the following sections that needed to be completed:

- **Section A: Demographic information**

The first section of the questionnaire comprised demographic questions that enabled the researcher to incorporate the correct sample into the study. Demographic information was made up of general

information, for example, age, gender, ethnicity, occupation, marital status, province, education, and annual income.

As a result, it is significant to determine if the demographics used affected the risk tolerance, personality traits, behavioural biases, life satisfaction, as well as the investor's investment intentions.

- **Section B: Survey of Consumer Finances**

The Survey of Consumer Finances (SCF) does not entirely include all of the factors of financial risk tolerance (four-item scale), however, it is an inclusive measure for investment choice perspectives and experience (Grable & Lytton, 2001:43). The SCF scale is the only single measure of risk tolerance. SCF provides detailed information on assets and liabilities of investors, as well as income, demographics, and activities of the labour force (Shum & Faig, 2006:2580).

- **Section C: Behavioural biases**

Behavioural biases are captured on a ranking scale to determine the bias to which an investor is subjective to.

- **Section D: The satisfaction with life scale**

The scale assesses the level of satisfaction an individual has with his/her life where the researcher asked participants for an overall judgement of their life (Diener, 1985:71).

- **Section E: Personality measures**

In order to measure personality, the Big Five personality traits were used as a measuring instrument. Each trait has two extremities (extraversion versus introversion), which summarises several more specific facets (i.e. sociability) (Gosling *et al.*, 2003:506). The scale used to measure personality is valid and verified. Three subscales form part of the personality measure, known as short-term investment intentions, long-term investment intentions and risk aversion (Mayfield *et al.*, 2008:232).

- **Section E.1: Short-term investment intentions**

A ranking scale was used to determine the intentions of investors to invest in the shortterm.

- **Section E.2: Long-term investment intentions**

A ranking scale was used to determine the intentions of investors to invest in the long term.

1.5.3 Statistical analysis

Secondary data were analysed by making use of descriptive and inferential statistics. An analysis of the captured data was performed using the Statistical Package for the Social Studies (SPSS), Version 25. The following statistical techniques were applied to achieve the empirical objectives of the study: descriptive analysis (frequencies, measures of central tendency, shape, and dispersion) and inferential analysis (ANOVA test, t-test, correlation analysis, and regression analysis).

1.6 ETHICAL CONSIDERATIONS

The study conforms with the ethical standards of academic research approved by the North-West University (NWU, 2016:23). A representative sample from the nine provinces was obtained. Permission required was obtained from the investment company to voluntarily take part in this research study and the data gathered by the company was carried out ethically. Participants involved in the study were screened by the investment company, whereby this ensured anonymity, and the researcher had no access or knowledge of the client database of the concerned company. The investment company concerned provided the researcher with the raw data only. Investors were guaranteed confidentiality concerning the information they provided in the questionnaire. The investment company that assisted with collecting data, indicated that the publishing of data is permitted, as long as the name of the company is not revealed in any way.

1.7 CHAPTER OUTLINE

This study comprises the following chapters:

Chapter 1: Introduction and background to the study

In this chapter, the background on SWB, personality traits, risk tolerance, as well as behavioural bias were introduced. The problem statement, research question, research objectives and research method, were discussed.

Chapter 2: Life satisfaction

Chapter 2 focuses on the SWB of individuals. This included a literature overview of the components that form part of subject well-being (for example, life satisfaction). In addition, this chapter analysed the theory of demographic factors that influence individuals' life satisfaction, as well as their risk attitudes.

Chapter 3: Risk tolerance, behavioural biases and personality traits

Chapter 3 provides background on risk tolerance, behavioural biases and personality traits. First, given that investors have different risk tolerance levels, the association among risk and return is explained. Furthermore, an overview of previous studies conducted on risk tolerance as well as demographics that influence an individual's risk tolerance is also discussed. In terms of behavioural biases, the different behavioural biases in investment decision-making are also reviewed. Finally, a literature overview of the Big Five personality traits is provided and how these personality traits influenced investor's long- and short-term investment intentions.

Chapter 4: Research design and methodology

A detailed explanation of the research design and methodology is discussed. It includes the research approach, research design, sampling procedure, measuring instrument, data collection procedure and methods applied to the empirical portion of the study. This chapter also discusses the employed statistical procedures and analysis of data used to achieve the empirical objectives in this study.

Chapter 5: Results and findings

In this chapter, there is a presentation of the results and findings of this study. The data received from the questionnaire were assessed, statistically analysed and interpreted.

Chapter 6: Conclusions and recommendations

This chapter reconciled the problem statement, research question, the objectives and empirical findings to provide a conclusion to this study. Additionally, there is an emphasis on the recommendations emanating from the study concerning avenues for further research.

CHAPTER 2: THEORETICAL ANALYSIS OF INVESTOR LIFE SATISFACTION

2.1   INTRODUCTION

Chapter 2 addresses the first and second theoretical objectives of this study. Section 2.2 provides a literature overview of SWB and its components. Since this study aims to analyse the factors that influence investors' investment intentions in South Africa, an emphasis must be directed to the literature on life satisfaction, which stems from SWB. Section 2.3 continues with a discussion of demographic factors that affect an individual's life satisfaction, as well as their risk attitude. These demographic factors include age, gender, religion, education, marital status, income, and unemployment.

2.2   SUBJECTIVE WELL-BEING

SWB is a comprehensive category of phenomena that comprises life satisfaction's global judgements, emotional responses of individuals as well as domain satisfaction (Diener *et al.*, 1999:277). The three general components of SWB are life satisfaction judgements, positive affect, and negative affect (Diener, 1984:547). These three general components of SWB can be further differentiated between two components namely cognitive and affective (Diener, 1984:547). The affective component is the hedonic balance among the pleasant and unpleasant effect of an individual (actual or perceived). In contrast, the cognitive component is the life satisfaction of an individual, which is, using determined standards for a person to evaluate their life (Schimmack *et al.*, 2002:582). As such, affect may influence life satisfaction indirectly but is not itself a direct measure of emotion (Diener, 1984:550). In fact, life satisfaction has occasionally been labelled as a subjective manner of assessing the quality of life.

According to Diener and Ryan (2009:391) and Fredrickson (2001:218), happiness is a term that can be used to refer to pleasurable emotions and moods experienced at any given moment (positive affect), to common assessments of life such as life satisfaction, also known as SWB.

Table 1.1 presents the main divisions and subdivisions of SWB, which are divided into pleasant and unpleasant effect; life satisfaction; and domain satisfaction. Both pleasant and unpleasant affect (moods and emotions) are labelled as affective reactions and represent the evaluations of events that transpire in the lives of individuals. Blore *et al.* (2011:13) proposed that pleasant and unpleasant effect should be measured separately since they form two separate factors. Contrary to the affective components, life satisfaction and domain satisfaction are labelled as the cognitive components (Kong & You, 2013:271). Specifically, domain satisfaction refers to the cognitive evaluation of an

individual with regard to several facets of his/her life experiences, for example, work and leisure (Leung *et al.*, 2011:156). A decline in domain satisfaction is expected to decrease SWB and an increase in domain satisfaction tends to increase SWB (Cho & Tay, 2016:449).

Table 2.1: Components of subjective well-being

Pleasant affect	Unpleasant affect	Life satisfaction	Domain satisfaction
Affection	Stress	Satisfaction with future	Finances
Joy	Guilt and shame	Desire to change life	Work
Happiness	Depression	Significant others' views of one's life	Self
Pride	Anger	Satisfaction with past	Health
Elation	Sadness	Satisfaction with current life	Family
Contentment	Anxiety and worry		Leisure
Ecstasy	Envy		One's group

Source: Diener *et al.* (1999:277).

It is significant to mention that while well-being is subjective in that it takes place within the experience of a person (Sanchez & Vazquez, 2014:435), appearances of SWB can be measured accurately in verbal and non-verbal behaviour, attention, actions, memory, and biology. Self-report measures are frequently utilised to assess SWB. These measures necessitate participants to specify either their life satisfaction or the degree to which they experience certain feelings (Watkins *et al.*, 2003:437). Furthermore, SWB is inclined to be stable over the long term. Steel *et al.* (2008:140) have indicated that approximately 80 per cent of this stability is the result of genes. Influences of the environment are still imperative, but only the present mood is primarily affected by them, having a little impact that lasts in the long term.

An individual with high SWB experiences life satisfaction and joy frequently, and rarely experiences emotions that are negative, for example, sadness and anger (Garcia, 2014:659). Contrariwise, an individual with low SWB experiences dissatisfaction with life experiences, less affection and joy and often feels unpleasant emotions (i.e. anxiety or anger) (Diener *et al.*, 1997:26). High levels of SWB are advantageous to the societies' effective functioning more than the benefits they present to individuals (Diener & Ryan, 2009:392).

SWB offers the following advantages:

Social relationships: Although there has been a consistent correlation between high SWB and high levels of sociality (Bruni, 2010:395), evidence proposes that the causal arrow among these two variables moves in both directions. People who have a larger number of family members and friends

are inclined to possess higher levels of SWB. However, individuals with higher well-being to start with are likely to have more supportive and closer social relationships compared to individuals with lower levels of life satisfaction. With regard to daily interactions of people and the effects of social bonds, it is evident that a higher SWB is the result of supportive relationships. Several studies reveal that people enjoy themselves when they are taking part in social interaction (Veenhoven, 1991:2). Generally, people are simply elated when they are among other people.

Furthermore, SWB can also be increased by social bonds such as marriage, which is demonstrated by the fact that married people experience higher levels of SWB on average when compared to unmarried people (Dolan *et al.*, 2008:106). However, evidence shows that people with high SWB are inclined to have higher levels of sociability, leadership ability, warmth, self-confidence, and additional friends (Gui & Stanca, 2010:112). That is, individuals with high SWB create their own social support systems. The difference among individuals who get married and divorced is an example of this phenomenon. While people who experience high life satisfaction before marriage tend to get married, stay married and experience happiness within their marriages (Helliwell & Putnam, 2004:1436), it is highly probable for people with low life satisfaction before marriage to get divorced.

Work and income: An additional benefit of SWB relates to the fact that those individuals who possess high SWB tend to earn more income than compared to others (Malka & Chatman, 2003:737), irrespective of occupation, and they tend to enjoy their work. Notably, this outcome demonstrating that well-being is the result of career success has been duplicated in research conducted in other parts of the world (Konstam *et al.*, 2015:466).

Continuing studies also propose that people who enjoy their work are more inclined to possess higher supervisor ratings and are judged by possessing more dependability, more productivity (Russell, 2008:119), and creativity while on the job. Furthermore, happy workers are also more likely to have higher levels of organisational citizenship, which means that they tend to do tasks that do not form part of their job, such as lending a helping hand to co-workers (Boehm & Lyubomirsky, 2008:101).

Health and longevity: Numerous studies provide evidence that both longevity and health are improved by SWB (Diener, 2012:590). Generally, individuals that have high SWB also report improved health and fewer physical symptoms that are unpleasant (Friedman *et al.*, 2010:206). Diener and Ryan (2009:392) stated that participants who were infected with the common cold, those who had higher levels of SWB were more unaffected to the virus.

Moreover, people who report high SWB are more likely to have superior cardiovascular health (Boehm & Kubzansky, 675:2012) (such as fewer heart attacks and less blockage in the arteries) and stronger immune systems. These individuals also take part in healthier behaviours, such as applying sunscreen and wearing seatbelts and to have fewer lifestyle diseases, such as being addicted to drugs or alcohol (Diener & Chan, 2011:8).

Societal benefits of happiness: High SWB does not only benefit individuals but also benefits society as a whole (Diener *et al.*, 2008:43). People who search for happiness are sometimes thought to be irresponsible and selfish, taking part in activities that are beneficial to them rather than for the benefit of their community. In fact, those who seek happiness, have a high SWB and are more frequently engaged as being volunteers in the community and charity groups compared to people with low SWB in altruistic and pro-social activities (Lyubomirsky & Layous, 2013:59).

The people who do volunteer in community engagement, those who have high SWB are more likely to invest the most hours (Thoits & Hewitt, 2001:115). Furthermore, individuals who report high levels of well-being on an average are inclined to have more pro-peace, co-operative, trusting and pro-peace attitudes. The support of these people for democracy is strong, has more confidence in the government and the levels of their intolerance for racial groups and immigrants are low. Consequently, while citizenry's well-being may be the result of a sound society, high levels of SWB can also contribute towards a productive, more stable, and effectively functioning community.

Daukantaitė *et al.* (2016:894) point out that the overemphasis on SWL within the SWB approach may in itself include the forcing of standards since it persuades people to participate in the judgemental process that defines satisfaction. Life satisfaction is defined as a global assessment of an individual's quality of life in its entirety (Emmons, 1986:1058; Zullig *et al.*, 2005:196).

Cognitive well-being (CWB) as a component of SWB is based on well-being's subjective evaluation theories. Therefore, people can evaluate their lives in the best manner possible (Diener *et al.*, 2003:404). These individuals do so based on comparing a subjectively ideal that they constructed and comparing their actual life with their ideal life. In order to assess CWB, one or more life satisfaction items are utilised. It is found that CWB is more likely to reveal a correlation with age that is slightly positive (Baird *et al.*, 2010:185), although the effective well-being component inclines to decline with age (Stone *et al.*, 2010:9986). Previous studies have reported that different demographic factors can influence life satisfy action. Hence this chapter explores the correlation among different demographic factors and life satisfaction in the next section.

2.3 THE INFLUENCE OF DEMOGRAPHIC FACTORS ON LIFE SATISFACTION AND RISK ATTITUDE

Section 2.3.1─2.3.7 discuss literature on different demographic factors that have an influence on individuals' life satisfaction and risk attitude, respectively. The literature on demographic factors includes age, gender, religion, education, marital status, income, and unemployment.

2.3.1 Age, life satisfaction and risk attitude

There are two separate opinions concerning the relationship between life satisfaction and age. Older people are less happy, moreover, life satisfaction stays comparatively stable in adulthood, with some decline taking place in old age, predominantly when there is a decline in functional health (Lachman *et al.*, 2008:890). The opposing view is that people who are older are happier. A study conducted by Zhang and Leung (2002:89) on the age ranging from 14─88 reveals that age is associated with life satisfaction and the findings proved that older Chinese people had a higher level of life satisfaction in comparison with their descendants. Previous studies reported that there is often an increase in life satisfaction, or at least does not diminish with age (Angelini *et al.*, 2012:294). The trend in life satisfaction was slightly upward from individuals in their twenties to those in their eighties.

Youth with a purpose (for example, the purpose is recognised by theoretical research as a developmental asset and a vital component of human flourishing) are healthier psychologically than compared to their peers and this similarly appears to hold for when taking adults into consideration. With regard to youth, purpose makes it easier for young people to effectively navigate and resolve the crises they encounter with their identity (Cotton Bronk *et al.*, 2009:502). Findings from Cotton Bronk *et al.* (2009:506) revealed at least two theoretically significant conclusions that are interesting with regard to purpose at three stages of life. First, being able to identify a purpose in life in adolescence, emerging adulthood, and adulthood has been related to greater life satisfaction. Seeking a purpose for adolescents and emerging adults is correlated with higher life satisfaction, but not for adults. Second, the aspects of hope mediate the manner in which purpose and life satisfaction are related at all three stages of life.

Frijters and Beatton (2012:525) examined the relationship between age and life satisfaction. The findings reported that there is a U-shaped association among life satisfaction and age with a minimum being at approximately 55 years. In comparison with computations for other countries, showing a value of around 45 years. When adult life begins, errors inherent in socio-economic forecasts diminish life satisfaction: individuals encounter increasing frustration as a result of unfulfilled life aspirations. Sooner or later, these individuals begin to realise that they have high expectations and downscale their expectations. In other words, as people become older, they gain

wisdom in assessing what their lives can provide them. Indeed, these are merely preliminary outcomes and conjectures (Ferrante, 2009:554). Furthermore, De Ree and Alessie, (2011:177) state that life satisfaction increases when people retire.

Age has also been found to influence investment choices (Lim, 2013:19). Investors in any industry consist of individuals from dissimilar age groups and their investment pattern also varies considerably based on the age group. Das *et al.* (2008:95) conclude that various avenues of investment do not afford an equal level of satisfaction and the reason that investors decide to make investments is because of their age.

Furthermore, research in learning proposes that as one accumulates experience, older investors may gain greater knowledge about investment and display greater awareness of the fundamental principles of investing (Davar & Gill, 2007:126). Goetzmann and Kumar (2008:447) report that portfolio diversification increases as investors grow older and wiser, and therefore tend to accept moderate to low risk. Young investors, on the other hand, hold a less diversified portfolio due to overconfidence and accepting higher risk. There is a possibility that investors may also be less inclined to behavioural biases as they grow older and end up becoming more experienced (Korniotis & Kumar 2011:244).

It is evident from previous studies that there are differing findings regarding an individual's age and life satisfaction. In terms of individuals' risk attitude, older investors appeared to make less risky investment choices compared to younger investors as a result of the knowledge gained throughout the years of investing.

2.3.2 Gender, life satisfaction and risk attitude

Gender appears as a significant factor to explore in connection to life satisfaction due to changes in psychological and biological hormones during adolescence as gender differences begin to increase (Moksnes & Espnes, 2013:2925). Women experience happiness when entering adult life compared to men, but end up less happy. This reversal is mainly the result of a comparable turnaround in the relative satisfaction of females and males in each of two life domains — finances and family. As the course of adult life begins, women tend to be more satisfied compared to men with both their financial situation and family life; at the retirement phase, they are less satisfied (Plagnol & Easterlin, 2008:601).

Contradicting results have been produced from previous studies on gender differences in life satisfaction. On the one hand, studies revealed that women had higher life satisfaction and happiness than men on positive well-being (Murphy *et al.*, 2005:185). Additionally, succeeding research (Al-Attiyah & Nasser, 2016:90; Joshanloo & Jovanović, 2019:331) denotes that women

indeed had a higher life satisfaction than males. A meta-analysis found that men were happier when compared to women (Moksnes & Espnes, 2013:2925), but it was a very small difference. On the other hand, women were found to have additional problems emotionally from studies on psychological symptomatology and negative affect (Shields *et al.*, 2009:425).

Alarcon *et al.* (2009:248), Warr *et al.* (1983:644) as well as Watson *et al.* (1988:1063) suggested that there is no correlation between positive and negative affect. However, studies of Batz and Tay (2018:7) as well as Businaro *et al.*, (2015:453) tried to explain these baffling results by utilising the gender difference in emotional intensity. This view argued that women reported higher levels of both positive and negative affect because their level of emotional intensity was high. The findings revealed that the male participants possessed a higher level of life domain satisfaction compared to their female counterparts.

Another challenging clarification for the lower level of life satisfaction of women is associated with social status (Jenkins *et al.*, 2013:138). In mainland China, even though during the previous half-century there has been a great improvement in women's social status, their social status is generally still less than men (Eagly & Steffen, 1984:740). General observation indicates that female babies in rural areas are seriously discriminated against. Female graduates encounter more difficulties compared to men when trying to find a job (Zhang & Leung, 2002:88).

Research has consistently revealed that men and women stay more attracted towards careers in which the majority of the workforce is represented by employees of their own sex (Adams, 2010:454; Rajacich *et al.*, 2013:79). Despite being in their profession's distinct minority, men working as nurses revealed having work satisfaction (Liminana-Gras *et al.*, 2013:137) and comparable levels of life satisfaction and social support compared with other published normative data for men. When taking general relations between gender and life satisfaction into consideration, it was found that gender role conflict, family-related conflict, and balancing work, in particular, were related to life satisfaction (Rochlen *et al.*, 2009:52). Evidently, previous research revealed that women, in general, tend to have higher life satisfaction compared to men.

Bhushan and Medury (2013:148) stated that gender has also had an influence on the risk attitude and investment decisions of individuals. Findings from Eckel and Grossman (2008:1071) reveal that women are more risk averse than men, resulting in taking less risky investment products. Furthermore, Graham *et al.* (2002:18) propose that women are less risk-tolerant investors due to being less confident and having a dissimilar style of processing information compared to men. Women tend towards being less confident in their capability to make good financial decisions (Beckmann & Menkhoff, 2008:379). Investment decision-making is viewed by women as being difficult and frightening (Mittal & Vyas, 2011:48). However, male investors displayed overconfidence

in their decision-making. The overconfidence of men makes them at ease with risk and motivates them to take risks that are unjustifiable and excessive (Mittal & Vyas, 2011:56).

2.3.3 Religion, life satisfaction and risk attitude

Religiosity has been identified as the main factor that can influence well-being across the life span (Abdel-Khalek, 2010:1135). An examination of religious beliefs and involvement concerning several factors such as happiness, life satisfaction, health, and social involvement has been made. Religiosity refers to the various dimensions related to religious beliefs and religious involvement (Achour *et al.*, 2015:986). Existential certainty and private devotion (prayer) are aspects of religiosity, which are also regarded as significant components of this trait (Bergan & McConatha, 2001:30). Being involved in religious activities encourages a sense of belonging and community, which in turn has a positive effect on life satisfaction (Tiliouine *et al.*, 2009:56).

The psychological health of an individual assisted or hindered as the result of religion, depends on the attributions or how an individual interprets religion. Fiori *et al.* (2006:240) defined religiosity in terms of taking both objective religiosities (for example, religious attendance) as well as subjective religiosities (for example, the importance of religious beliefs) into consideration. There is an association among both forms of religiosity and life satisfaction (Leondari & Gialamas, 2009:246). Religiosity may be positively correlated to SWL through a social support group (Hayward & Elliott, 2009:592), the enjoyment of attending services, health-related behaviours (Rosmarin *et al.*, 2009:180), and positive attributions (for example, viewing the world as meaningful). Powerful religious faith at times may result in negative life events that may be viewed as opportunities for spiritual growth and religion may act as a way to prevent stress. Moreover, religion can be utilised in terms of assisting with solving problems and preventing depression (Abdel-Khalek, 2011:132).

However, subject to one's beliefs, there may be a negative relationship between religiosity and life satisfaction. Religiosity's negative effects may be associated with how individuals view the relationship that they have with God and how they use spirituality or religion as a way of coping (Abraído-Lanza *et al.*, 2004:93).

When considering previous research, individuals that possess a stronger religious belief tend to have higher life satisfaction and those with a weak belief in religion are more likely to have low satisfaction with life. Religiosity moulds the values and norms of people that influence their inclination of risk-taking and, therefore, impacts their actions with regard to personal finance, as well as risk attitude and investment decision (Mahdzan *et al.*, 2017:435). Babatunde *et al.* (2019:85) revealed that people who are religiously affiliated are generally more risk averse compared to individuals who are not

religious. Leon and Pfeifer (2017:106) for example, found that Christians show more willingness to take financial risk than non-religious individuals.

2.3.4 Education, life satisfaction and risk attitude

There is a positive and strong correlation between life satisfaction and the number of years of education, construed as the enduring propensity for one to be happy with their life (Meeks & Murrell, 2001:112). Education may be viewed as a consumption good that will positively contribute to the life satisfaction of an individual. Moreover, with a focus on education, Del Mar Salinas-Jiménez *et al.* (2011:412) discovered that individuals overestimate their socio-economic prospects comparative to real opportunities, proposing that education may be negatively correlated to life satisfaction.

Results found by Del Mar Salinas-Jiménez *et al.* (2010:790) reveal that education appears not to be significant to explain individuals' life satisfaction in the high-income class. However, in the middle-income group, there is a positive correlation among both secondary and higher education as well as SWL (Bjørnskov *et al.*, 2008:120). Furthermore, only secondary education showed that it had a significant impact on individual well-being for those in the low-income group. Lastly, where 50 per cent of people in the low-income class have not finished secondary schooling, this education level becomes that which allows one to differentiate from others. Hence, it is found that secondary education is significantly correlated with SWL for people who belong in this income group.

Generally, women appear to prefer men who are highly educated compared to themselves. Women prefer older and highly educated men to a certain extent, to guarantee financial security. Groot and Van Den Brink (2002:162) found that the effect of education of respondents on their SWL is positive for both men and women. Men who are highly educated are happier as their life satisfaction escalates with years of education. According to Frey and Stutzer (2000:150), an individual who is highly educated has a positive life satisfaction and individuals who are less educated are more likely to possess a negative life satisfaction.

Education has been found to influence risk attitude and investment decisions. Individuals who are educated make well-judged investment decisions and are related to greater wealth (Noussair *et al.*, 2013:328). In addition, individuals with higher education show higher risk acceptance, whereas less-educated individuals are more risk averse (Rana *et al.*, 2014:82).

2.3.5 Marital status, life satisfaction and risk attitude

On average, husbands in most cultures are older than their wives (Drefahl, 2010:318). One explanation that exists for the age difference within marriage for the male-female is that women do not only look for a husband whom they want to share their life with and are attracted to but also for

a man that will be able to provide financially for her and their children. Men and women have a preference for a partner who is healthy because this contributes towards reproductive success. Healthiness is interpreted into physical attractiveness (Groot & Van Den Brink, 2002:153). It has also been found that men who have high status and income jobs tend to get married compared to those with low paid jobs with little status.

Marriage plays a central role for most adults in their lives even when in comparison to other social relationships (Stevenson & Wolfers, 2007:39). Henceforth, this specific relationship has been of importance to provide an understanding with regard to the association with well-being. For example, previous research proposes that adults who are married possess lower rates of morbidity and mortality compared to their unmarried counterparts (Robards *et al.*, 2012:296). However, Chipperfield and Haven (2001:176) state that people who are married possess greater life satisfaction, happiness, and lower risk for depression. Nevertheless, many adults choose or are forced by circumstances to stay unmarried (Holt-Lunstad *et al.*, 2008:239). Marriage brings forth benefits of health, it is suggested that married individuals tend to be more satisfied with their lives and have better blood pressure dipping when in comparison with unmarried individuals (Holt-Lunstad *et al.*, 2008:243). Indeed, the results of married individuals reported higher life satisfaction compared divorced, single, widowed, and cohabiting individuals has been well-documented (Botha & Booysen, 2013:151).

Research reveals that a married individual will have a positive life satisfaction and a single individual will possess a negative SWL. In terms of risk attitude, Hertog *et al.* (2002) as well as Rickman *et al.* (2002) indicated that married couples tend to be more risk averse compared to single individuals.

2.3.6 Income, life satisfaction and risk attitude

According to conventional economics, happiness can be bought by money since it can be traded for goods that will increase the utility of a person (Boyce *et al.*, 2010:471). As a result, it is assumed that a causal link exists among money and happiness, and higher incomes should result in greater happiness. In line with this absolute-income hypothesis, individuals that are richer tend to be happier compared to those less well-off living in the same community (Diener, 1984:568). Additionally, an assumption of a direct causal link: an increase in income will lead to an increase in utility for an individual, provided everything else is held constant. People gain utility to the degree that their income is more than the individual's average income in their comparison set and lose utility to the degree that their personal income diminishes lower than the average level. Kahneman and Deaton (2010:16492) state that an increase in happiness is not necessarily due to more money, but less money is connected with emotional pain.

An economic situation of an individual has an influence on their level of life satisfaction. This implies that more SWL is produced by an increase in income. Nevertheless, the relationship between income and life satisfaction is curvilinear (Hanslmaier, 2013:518). As there is an increase in earning potential because of experience and age, older men tend to have the capability of supporting a household compared to younger men. A study done in 37 countries revealed that women on average have a preference for men who are three to four years older (Groot & Van Den Brink, 2002:154). Previous studies on life satisfaction conclude that the association among economic prosperity and SWL across countries is concave (Kahneman & Deaton, 2010:16489; Senik, 2014:99).

On average, individuals living in countries that have a high income per capita tend to be happier when in comparison to people residing in low-income countries (Camfield & Esposito, 2014:215). However, the income effect on happiness reduces as the average income becomes higher. With regard to the correlation among income and life satisfaction, people in high or middle-income groups showed higher life satisfaction than people in the middle or low-income groups, respectively (del Mar Salinas-Jiménez *et al.*, 2011:420). An individual with a high income will have a positive life satisfaction and the one with low income will have negative life satisfaction.

In terms of income, risk attitude and investment, the main objective of investors to participate in investment is to increase their income as well as decrease their expenses (Islamoğlu *et al.*, 2015:531). The interest of investors in investment instruments and their level of income influenced the decision of investment maturity (Islamoğlu *et al.*, 2015:540). Investors can invest their assets more widely across investment categories and also include riskier investment when having a high level of income. With smaller levels of income, an individual will not participate in riskier investments, therefore, decreasing investment in riskier vehicles (Maula *et al.*, 2005:464)

2.3.7 Employment status, life satisfaction and risk attitude

If an unemployed person breaks a social custom, which may lead to a reputation loss as well as henceforth in lowering the level of utility, there will be a decrease in SWL (Kassenboehmer & Haisken-DeNew, 2009:450). While literature suggests that a decline in SWL levels is due to unemployment, it is also possible for reverse causation, whereby low SWL leads to unemployment. Boyce *et al.* (2010:539) found that on average unemployment has a causal impact on life satisfaction.

Employment status has a greater effect on life satisfaction. This implies that unemployed individuals are less satisfied with their lives than individuals who are employed when controlled for other covariates and loss of income (Hanslmaier, 2013:518). Findings of Schimmack *et al.* (2008:45) revealed that unemployment is an important negative predictor of CWB. Longitudinal studies prove that most of the association is because of unemployment's causal effects on CWB.

Prior cross-sectional studies of unemployment have revealed that unemployed people are more likely to be considerably less happy than people who are employed. Additionally, people who have been unemployed in the past have a tendency of being less satisfied compared to people who have never been unemployed in their lives (Oesch & Lipps, 2012:965). Lucas *et al.* (2004:11) found that the unemployment experience, on average, altered individuals' set-point levels SWL. Individuals were less satisfied in the years succeeding unemployment than they were before entering unemployment, and this decrease happened even though people eventually became re-employed.

General economic shocks affect individuals working in the private sector more strongly compared to those working in the public sector (Martin, 2011:13). Private sector employees experience a substantial decline in life satisfaction as a result of high unemployment rates. Public sector employees experience minimal variations in their well-being when there are changes in unemployment rates (Luechinger *et al.*, 2010:1000).

Employment status is one of the demographic factors that may influence risk attitude. Individuals with different employment status reveal different attitudes towards risk (Sadiq & Ishaq, 2014:47). Individuals who are employed have a higher financial risk tolerance than unemployed individuals because the employed tend to have a higher income and can take on more risks (Chattopadhyay & Dasgupta, 2015:607).

Table 2.2 and Table 2.3 provide a summary of demographic factors and the influence it has on individual life satisfaction and risk attitude, respectively.

Table 2.2: Summary of demographic factors and individuals' life satisfaction

Demographic factors		Individual's SWL	Source
Age	Younger Older	Low SWL High SWL	Frijters & Beatton (2012)
Gender	Male Female	Low SWL High SWL	Joshanloo & Jovanović (2019)
Religion	Strong religious belief Weak religious belief	High SWL Low SWL	Tiliouine *et al.* (2009)
Demographic factors		**Individual's SWL**	**Source**
Education	Slightly educated Highly educated	Low SWL High SWL	Frey & Stutzer (2000)
Marital status	Married Unmarried	High SWL Low SWL	Holt-Lunstad *et al.* (2008)

Income	High income Low income	High SWL Low SWL	del Mar Salinas-Jiménez *et al.* (2011)
Employment status	Unemployed Employed	Low SWL High SWL	Hanslmaier (2013)

Source: Author compilation.

Table 2.3: Summary of demographic factors and individuals' risk attitude

Demographic factors		Risk attitude	Source
Age	Younger Older	Risk-aggressive Risk-averse	Goetzmann & Kumar (2008)
Gender	Male Female	Risk-aggressive Risk-averse	Eckel & Grossman (2008)
Religion	Strong religious belief Weak religious belief	Risk-averse Risk-aggressive	Babatunde *et al.* (2019)
Education	Less-educated Highly educated	Risk-averse Risk-aggressive	Rana *et al.* (2014)
Marital status	Married Unmarried	Risk-averse Risk-aggressive	Hartog *et al.* (2002)
Income	High income Low income	Risk-aggressive Risk-averse	Maula *et al.* (2005)
Employment status	Unemployed Employed	Risk-averse Risk-aggressive	Chattopadhyay & Dasgupta (2015)

Source: Author compilation.

2.4   SYNOPSIS

Chapter 2 aimed to provide literature pertaining to the concepts of life satisfaction and its relationship with demographic factors. This chapter commenced by providing an overview of SWB and the components it comprised, called cognitive and affective components. Literature on life satisfaction as a cognitive component from SWB revealed that demographic factors have an impact on the level of satisfaction of an individual. For example, an individual who achieves higher educational levels will have higher life satisfaction. Also, achieving one's goals has a positive impact on the overall satisfaction of an individual (Boyce *et al*., 2013:287; Taft *et al.*, 2013:66). The purpose of this chapter was to explore the influence demographic factors have on individuals' life satisfaction as well as their risk attitudes. This also highlights the purpose of this study by analysing factors such as demographic factors and life satisfaction, which can have an influence on investors' attitude towards risk (i.e. risk-averse and risk-aggressive) and consequently their investment intentions (i.e. investing in the long

term or short term). Therefore, it is important for investment companies to take into consideration the factors that impact the investment intentions of an investor when profiling an investor.

CHAPTER 3: RISK TOLERANCE, BEHAVIOURAL BIASES AND PERSONALITY TRAITS

3.1 INTRODUCTION

Investment decisions are dependent on motivational factors and efforts that the investor is making (Ali, 2011:877). The investor's reason for investing is known as investment intention. A direct association exists among investment intentions and personal investment as well as portfolio management. In general, investment intentions are separated between short-term and long-term investment intentions. Short-term investment intention can be regarded as intentions towards investing in products that have a shorter time period, yield quick returns, and have high liquidity (Sashikala & Chitramani, 2018:183). Long-term investment intention, on the other hand, refers to intentions towards investing in investment products that generally have stable returns, low liquidity and are held for a longer time period (Rikhardsson & Holm, 2008:386).

The investment decision-making process of an individual is an analytical process that is influenced by different factors. The individual is centred on a multifaceted mixture of factors, such as demographics, personal characteristics (for example, emotions, risk tolerance, personality traits and values) and markets (for example, expected risk, rate of return and transaction costs) (Pak & Mahmood, 2015:370). Although an individual's investment intention is based on these factors and other related factors, the risk factor cannot be avoided when investment decisions are made. The risk factor is determined based on the knowledge, experience, and information the investor must have in order to make an informed investment decision (Sung & Hanna, 1996:11). Also, the amount of risk that a person is able to tolerate is determined by their financial situation. This implies that risk tolerance has a significant role in the optimal portfolio decisions of each household (Sulaiman, 2012:109).

Apart from the fact that investment decisions are influenced by the risk tolerance of investors, Pak and Mahmood (2015:370) indicated that personality traits also affect investment decisions. The study of Filbeck *et al.* (2005:175) revealed that personality traits known as the Big Five do explain certain characteristics of investment behaviour. The Big Five traits are usually considered the most comprehensive and recognised, predominantly for applied research. The traits resulted from years of statistical analysis and well thought out study across situations and cross-culturally applicable (Mayfield *et al.*, 2008:221).

Understanding how personality traits influence investment decisions to assist with knowing the reason behind individuals' intentions. Furthermore, personality traits help to comprehend the reactions of individuals towards uncertainty when investing and also tempering the irrational elements of investment decisions (Chitra & Ramya Sreedevi, 2011:47). Investors with an understanding and ability to control their emotions, and integrate those emotions into an investment strategy are inclined to feel more confident about the investment choices (Chitra & Ramya Sreedevi, 2011:48).

Chapter 3 addresses the last four theoretical objectives of the study. This study aims to analyse the factors that influence investors' investment intentions in South Africa. Therefore, the literature on risk tolerance, behavioural biases and personality traits form the theoretical framework of this chapter, since these factors may have an influence on an individual's investment intentions during the investment decision-making process.

This chapter commences with the correlation among risk and return (Section 3.2) that needs to be considered during investment decisions. Section 3.3 continues with the types of financial risks that can influence an individual's investment choices. Section 3.4 explains the concept of risk tolerance and how demographic factors (Section 3.5) influence the risk tolerance levels of individuals. Both investors and financial organisations need to have an understanding of the risk perception, capacity and risk tolerance because perceived and actual risk needs to be taken into consideration. Furthermore, behavioural biases (Section 3.6) and personality traits (Section 3.7) must also be incorporated during the investment decision process. Section 3.7 provides an overview of the Big Five personality traits. The two extremities of each trait are explained and the manner in which individuals behave with each trait or view different situations.

3.2 THE RELATIONSHIP BETWEEN RISK AND RETURN

In every investment decision process, an investor has to evaluate and adjust the risk and associated level of return of an investment in order to make an informed decision (Hunjra *et al.*, 2011:471). This evaluation process assists the investor to select and invest in a single security or a portfolio consisting of a mix of securities to achieve a desirable level of return during the investment period.

Risk can be defined as the difference between the actual outcome from the expected outcome (Valsamakis *et al.* 2010:29). Furthermore, risk implies the presence of uncertainty where uncertainty is the inability of knowing future occurrences (Aradau & Van Munster, 2007:101). The greater the level of uncertainty, the higher the level of risk. The ability to take a risk can be

measured in terms of the standard deviation and is determined by the investor's time horizon, size of the portfolio and the income relative to the investor's objectives. Return, on the other hand, refers to the sum of cash dividends, interest and any capital appreciation or loss as a result of an investment (Marx *et al.*, 2013:7). The risk-return principle simply means that the more risk is taken, the higher the return on an investment will be for the investor and vice versa (Prabhu, 2018:8). Therefore, each investor must decide on the amount of risk they are willing to take for a desired level of return.

In the early 1960s, the investment community was curious regarding risk, but risk lacked a specific measure. In order for a model to be built, the risk variable had to be quantified by investors (Reilly & Brown, 2012:100). Harry Markowitz (1952) developed the basic portfolio model that derived a measure for the expected risk and rate of return for a portfolio of assets. There are numerous assumptions that Markowitz's model is based on the behaviour of an investor (Reilly & Brown, 2012:100):

- The investor evaluates every investment alternative as being represented by the expected returns' probability distribution over a certain holding period.
- Investors maximise one-period expected utility, and the utility curves of investors exhibit diminishing marginal utility of wealth.
- Investors use the variability of expected returns to estimate the risk of the portfolio.
- The decisions of investors are based only on expected return as well as risk, as a result, their utility curves are a function of expected return and the standard deviation of returns only.
- For a particular risk level, higher returns are preferred compared to lower returns. Likewise, for a particular expected return, less risk is preferred compared to more risk.

Based on the Markowitz basic portfolio model, individual investors will select investments based on their risk preferences. Markowitz created the efficient frontier which represents a set of portfolios (that incorporates risky investments) that has the maximum return for every given risk level, or the minimum risk for every level of return. Individual securities are less likely to be represented on the efficient frontier because of the benefits of diversification (Marx *et al.,* 2013:36).

The Security Market Line (SML) and Capital Market Line (CML) are aspects of the Capital Asset Pricing Model (CAPM), which is a general equilibrium model. The SML is a trade-off between expected return and the risk of a security (beta risk) comparative to market portfolio. Every

investor will make a selection to the market portfolio and the risk-free asset in consideration to their own risk tolerance (Lee & Su, 2014:69). Capital Market Line (CML) represents the allocation of capital between risk-free securities and risky securities for all investors combined (Garcia, 2017:8). An investor is willing to accept higher risk provided the return on an investment increases proportionally. The optimal portfolio for an investor is the point where the new CML in tangent to the old efficient frontier when only risky securities were graphed (Lee & Su, 2014:69). Figures 3.1 to Figure 3.3 illustrate the security market line (SML), which shows the best combinations of risk and return available on alternative investments (Marx *et al.,* 2013:35). The trade-off between risk and expected return is reflected on the SML as a straight line that meets the vertical axis (the zero-risk point) at the risk-free rate. A security's sensitivity to market movements is indicated by beta (β) (Lee & Su, 2014:69). A security is considered undervalued if it offers higher returns compared to what is anticipated based on its systematic risk exposure and is plotted above the SML. Contrarily, a security is considered overvalued if it offers lower returns than anticipated for its systematic risk exposure and is plotted under the SML (Hodnett & Hsieh, 2012:854). Three changes may exist concerning the initial SML. These changes are: positions of individual investments can change on the SML (movements along the SML); a change in the slope of the SML; and a parallel shift in the SML.
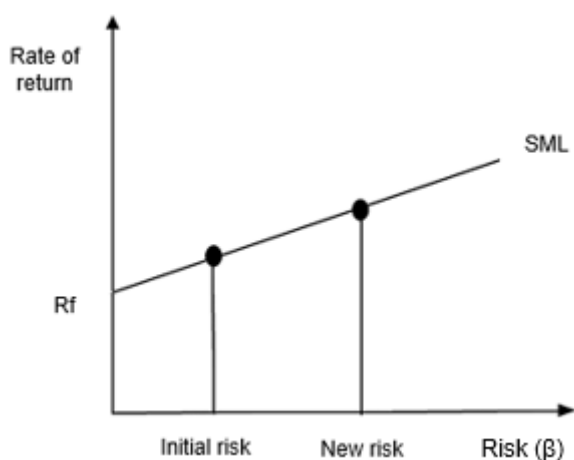
Figure 3.1: Movement along the SML

Source: Marx *et al.* (2013:36).

As depicted in Figure 3.1, alternative investments are placed along the SML as a result of investors' risk perceptions of the investment (Levišauskaite, 2010:59). The change in the risk of an investment may be due to a change in one of its risk sources (for example, business risk). As a result, the SML will not change, but only the position of securities on the SML (Reilly & Brown, 2012:20).
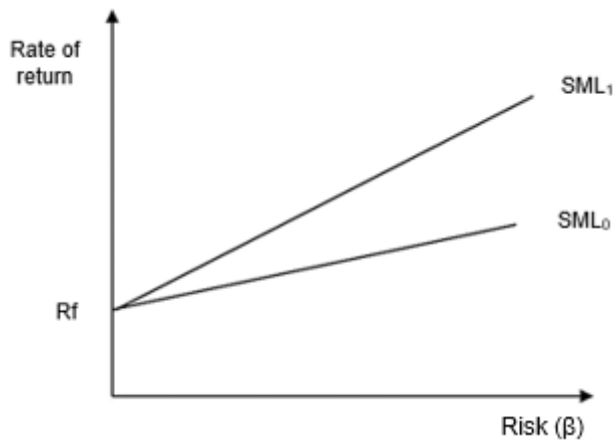
Figure 3.2: Changes in the SML slope

Source: Marx *et al.* (2013:36).

Changes in the SML slope, as depicted in Figure 3.2, may be due to a change in the required return per unit of risk. This change is caused if the risk premium of the market is unstable over time (Reilly & Brown, 2012:20). A change in the market risk premium will have an impact on the return required for each risky investment, even though there is no change in the risk profile of every investment (Marx *et al.,* 2013:36).
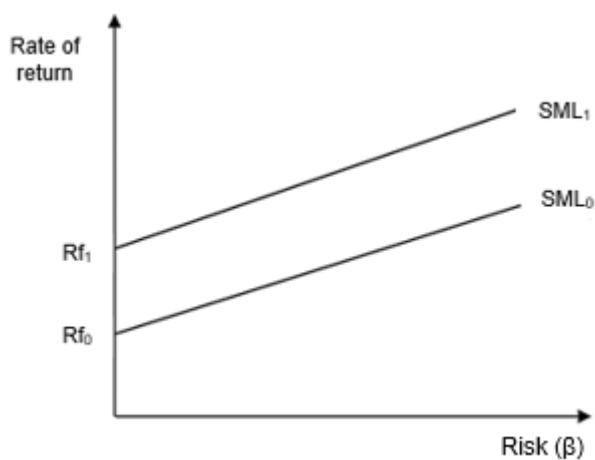
Figure 3.3: Parallel shift in the SML

Source: Marx *et al.* (2013:36).

Figure 3.3 exhibits a parallel shift in the SML and could occur resulting from a change in the conditions of the capital market, or the expected inflation rate. The change in the expected inflation rate affects the nominal risk-free rate that has an influence on all investments, notwithstanding their risk level (Marx *et al.,* 2013:36).

Therefore, it is significant for individuals to evaluate the trade-off between risk and return during the investment decision-making process. In terms of risk, people are exposed to financial risks and need to be taken into consideration during the investment decision-making process. These risks may jeopardize their income, which in turn will affect their investment choice. Section 3.3 discusses the different types of financial risks.

3.3   TYPES OF FINANCIAL RISKS

The risks that are present in transactions of financial assets, as well as those that may be due to changeable financial claims, are known as financial risks (Valsamakis *et al.*, 2010:45). Financial risk reveals the possible monetary loss resulting from the initial purchase of an investment product and its succeeding maintenance (Martins *et al.*, 2014:5). Alao and Adebawojo (2012:53) indicated that financial risk is inherent in investment decision-making. There are numerous financial risks that influence the investment choice of investors. However, a focus will only be provided to interest rate risk, investment risk, liquidity risk, currency risk and speculative risk as a way of illustrating the impact financial risks have on an individual's income, and consequently their investment choice. Each of these risks are discussed in the subsequent subsections.

3.3.1 Interest rate risk

Reilly and Brown (2012:1038) define interest rate risk as the returns' uncertainty on an investment as a result of unfavourable movements in interest rates over time. Interest rates are the main input factor for investor's expected returns in the context of different uses of their capital (Vaz *et al.* 2008:224). It is evident that interest rate risk greatly influences investment decision-making because interest rate affects investment income (Khurshid, 2015:82). Furthermore, the rise in interest rates causes an increase in the cost of investment, which in turn results in a decrease in the investment demand. In contrast, if interest rates fall, investment costs decline and cause an increase in the demand for investment (Khurshid, 2015:81).

3.3.2 Investment risk

Investment theory is founded on the principle that high returns are generally related to greater risk and that diversifying a portfolio diminishes risk. Managing investment risk through diversification is the foundation of modern portfolio theory (MPT) (Forbes, 2009:1561). MPT is an investment structure for the election and establishment of investment portfolios grounded on the maximisation of the portfolio's expected return and the simultaneous minimisation of investment risk (Mangram, 2013:60). In the view of Markowitz's theory, investment risk is the variability of

expected returns on the investment due to risks to which the investment is exposed (Mangram, 2013:62). Furthermore, investment risk can be referred to as the probability of cash flows as well as the outcome of the expected rate of returns not realising.

When an investor decides to accumulate savings, there are several options that investors are faced with that may be intimidating and confusing (Goldstein *et al.*, 2008:441). Sethi-Iyengar *et al.* (2004:5) reveal that restrictions exist as to the number of options investors will assess before the final decision when evaluating investment options. Good information enables investors to have better investment intentions. Furthermore, it assists with an understanding of the risks of investments, as well as processing the information (Pottinger & Tanton, 2014:215). In order to make the best decision possible, an investor must decide on the kind of information required (Virlics, 2013:174). Financial risk is increased when assigning additional savings to risky investments (i.e. stocks) and a smaller amount to less risky fixed-income vehicles. However, in the long run, there is an increase in retirement savings due to riskier types of assets as they afford more growth in the long term in portfolio value (Montford & Goldsmith, 2016:101).

The findings of Sachse *et al.* (2012:445) indicated that the characteristics used by individual investors are the same as those used by professionals to make judgements on risks inherent in potential investments. Conversely, dissimilarities may exist among experts and lay investors in their perceived level of risk aspects. Diacon (2004:187) contests that lay investors consider the uncertainty inherent in expected returns lower when compared to experts. There is a strong association among uncertainty as well as perceived risk, which may result in underestimating investment risk and leading to excessive risky investment choices (Sachse *et al.*, 2012:445).

3.3.3 Liquidity risk

Liquidity risk occurs under circumstances where an asset cannot be quickly traded to prevent or mitigate a loss (Guijarro *et al.*, 2019:7050). Liquidity risk contributes significantly to asset valuation because investors consider whether there is a market for the assets. Empirical evidence indicates that liquidity is significant in decision-making (Moeinadin *et al.*, 2013:301). The expected return, openness to investors, and a company's stability are not the only important factors that influence the decision about investment attractiveness of stock, but also liquidity. If other conditions are equal, liquid assets, such as common stocks and government bonds are of preference to investors and with regard to illiquid assets (for example real estate or private equity), investors require to be compensated, hence making liquidity a risk factor (Norvaišien & Stankevi, 2014:543).

3.3.4 Currency risk

Currency risk, also known as exchange rate risk, represents the degree to which the exchange rate movements have an impact on investments (Fiador & Asare, 2013:138). When considering foreign currency products together with the ease to buy and sell via the exchange offices, foreign currency is a good investment product specifically for individuals with no financial knowledge as well as time, when deciding on a suitable investment (Aren & Aydemir, 2015:130). Currency fluctuations have serious effects on foreign investments' profitability through the interplay of fluctuations between the foreign currency and the domestic country currency of the investor. Fluctuating exchange rate is the most common risk inherent in international investments (Addae-Dapaah & Hwee, 2009:59).

3.3.5 Speculative risk

Speculation entails committing money in the hope of realising extraordinary profit based on assumptions about the risks and possible returns related to a certain transaction (Lampenius & Zickar, 2005:131; Marx *et al.*, 2013:4). A person's gambling behaviour and the enticing option that the expected return will increase when one accepts a higher level of risk is expressed by speculative risk. Measures of speculative risk assume individuals who possess a higher propensity to speculate are more risk-tolerant with regard to their finances compared to others (Bongaerts *et al.*, 2011:216; Grable & Lytton, 1999:173). The speculative intention of holding money is important to the investment decision concept because individual investors speculate the business as well as the economic environment before making any feasible investment decision (Farayibi, 2015:53).

Figure 3.4: Risk-taking matrix

Source: Lampenius & Zickar (2005:131).

Figure 3.4 consists of two concepts, namely speculative risk and risk control. Risk control may be described as the counterforce of speculative risk that shows an individual's tendency towards the risk averse side. Speculative risk reveals both a person's gambling behaviour and the temptation to accept a higher risk that is influenced by an increase in expected returns (Arthur *et al.*, 2016:582; Kunhibava, 2011:2). On the other hand, risk control serves as a reminder to the investor that there will be an increase in future losses' probability when accepting a higher level of risk. The individual's risk level illustrated in Figure 3.4 determines the categorisation, which permits them to be classified as conservative investor, risk managing investor, speculator, or non-investor (Lampenius & Zickar, 2005:132). An individual with previously moderate speculative risk and high-risk control will, as they are positively reinforced, raise the level of their speculative risk and reduce their risk control (Lampenius & Zickar, 2005:131).

It is evident that financial risks have an influence on individuals' income and subsequently investment choice. The amount of risk that an individual can accept depends on their risk tolerance. Investors' level of risk tolerance, risk appetite and risk capacity affect their investment decisions when selecting different investment products (Ainia & Lutfi, 2019:403). The next section distinguishes between risk tolerance, risk appetite and risk capacity.

3.4   RISK TOLERANCE

A significant facet of the investment decision-making process is to gain an understanding of a client's risk tolerance level as well as risk perception. Risk perception integrates numerous subjective and objective factors that affect the manner in which people make judgements about financial products and investment services (Baker & Ricciardi, 2015:25). Financial risk tolerance is referred to as the amount of uncertainty that an individual is prepared to take when making a financial decision (Grable, 2000:625). Risk tolerance is a single factor that may determine the suitable asset mixture in a portfolio, which is the optimum regarding risk and return when compared to the requirements of an investor (Hallahan *et al.*, 2004:57). The level of risk tolerance is a vital portion of distinct choices with regard to accumulating wealth, retiring, insurance, investing in human capital, and portfolio allocation, together with policy decisions that are reliant on this behaviour (Hanna *et al.,* 2001:53).

Several techniques have been used to measure financial risk tolerance. The techniques can be divided into measures based on detecting risky behaviour and measures through surveys to probe questions that estimate one's willingness to accept risk in particular circumstances (Hanna & Lindamood, 2004:27). According to Grable and Lytton (1999:197), financial services providers are stimulated to utilise the risk assessment instrument as a means for rapidly and precise assessment of financial risk tolerances of clients and other respondents. Grable and Lytton (1999:179) further state that examinations of the instrument will lead to enhanced validity and reliability of the instrument, and to the ultimate development of a financial risk tolerance assessment instrument to be used in the private and public entities.

An inverse association exists among financial risk tolerance and the economists' concept of risk aversion (Hanna *et al.*, 2008:100; Yao *et al.*, 2005:53). That is, people with high-risk aversion are likely to have low-risk tolerance for financial risk and vice versa (Faff *et al.*, 2008:2). On average, individuals who accept higher risks within their portfolios are likely to gain greater wealth over time compared to more risk-averse individuals (Grable & Roszkowski, 2007:795).+

3.4.1 Risk appetite

The International Organization for Standardization (ISO) Guide 73 defines risk appetite as the type and amount of risk that an entity is prepared to maintain (Purdy, 2011:5). Both risk appetite and risk tolerance set limitations on the amount of risk an organisation is prepared to take. Therefore, risk tolerance and risk appetite are closely linked, however, the most significant difference between risk tolerance and risk appetite is that risk tolerance levels are narrower and

set the acceptable degree of variation surrounding investment objectives. On the contrary, risk appetite is a higher degree statement that reflects the different risks' levels (Allan *et al.*, 2013:11). Kumar and Persaud (2002:404) further stated that when the risk appetite of investors diminishes, investors instantly decrease their exposure to risky assets, which will result in a decline in value. If the risk appetite of investors increases and economic risks are unaffected, investors are likely to feel overcompensated for those risks. An increase in the current level of risk will result in an upsurge in the emotion of overcompensation (Baek *et al.*, 2005:537).

According to Misina (2008:489), risk appetite is the inverse of investors' risk aversion. The level of an investor's risk aversion reveals underlying preferences and it is anticipated to change occasionally over time. Contrarily, risk appetite tends to change often as investors adjust to changing degrees of uncertainty in the macroeconomic environment (González-Hermosillo, 2008:6). Therefore, risk appetite is dependent on the subjective level to which investors are prepared to tolerate uncertainty and on the aggregate degree of uncertainty with regard to the fundamental factors that influence asset prices (González-Hermosillo, 2008:6).

The level of risk aversion differs from one investor to the next and in time subjected to the unwillingness of investors to tolerate risk (uncertainty) and the situations of macroeconomic changes (Hui *et al.*, 2013:2801). That particular uncertainty is referred to as the aggregate level of uncertainty about the fundamental factors that drive asset prices (such as different macroeconomic factors) (Hui *et al.*, 2013:2801). If a risk is uncertain when taking into consideration loss, damage, or cost, it can be concluded that risk appetite will be high. If an individual possesses a high-risk appetite, he/she provides priority to events that encompass high risk and a probability of realising large returns (Aven, 2013:467).

3.4.2 Risk capacity

Risk capacity is the maximum level of risk needed by an entity to reach its goals (Rittenberg & Martens, 2012:4; Rudolph, 2016:5). This is a significant concept due to risk appetite requiring to be set at a level within the capacity limit. The definition of risk capacity also applies to individual investors when taking on risk in exchange for a reward. The approach required to evaluate the risk capacity of an investor begins with determining their phase within the life cycle (Cordell, 2001:37). Parashar (2010:34) categorised investors based on the type of investment they undertake and their relative risk-taking capacity. Such a categorisation is valuable for financial advisers to gain an understanding of the risk-bearing capacity of their clients and then

recommending suitable classes of securities that are appropriate for their investing personality, age, preferences and goals (Parashar, 2010:34).

3.5 DEMOGRAPHIC FACTORS INFLUENCING RISK TOLERANCE

Studies connecting to financial risk tolerance, environmental and biopsychosocial factors provide distinctive insights into the behaviours and risk-taking attitudes of individuals. For instance, Kannadhasan (2015:175) established that, in general, certain demographic and socio-economic environmental features can predict individuals' risk tolerance.

The prediction and evaluation of individual's attitude towards financial risk tolerance within the sphere of financial counselling and planning, therefore, mainly includes the use of demographic and socio-economic factors, such as age, gender, income, marital status, and ethnicity (Agarwal *et al.*, 2015:4). The utilisation of these variable types may be associated with the absence of established application models of the main variables that affect financial risk tolerance attitudes and behaviours (Grable & Joo, 2004:82). For example, age and gender were significant factors that revealed to influence investment behaviour, especially an investor's degree of risk aversion (Junkus & Berry, 2010:475). Nga and Ken Yien (2013:235) found women to be more risk averse and the least overconfident. Furthermore, young investors were more likely to acquire riskier portfolios compared to older investors. However, Ahmad *et al.* (2011:415) determined that education and the monthly income of an investor are directly related to the core of risk tolerance while age, gender and marital status are insignificantly correlated with risk tolerance.

Figure 3.5 illustrates biopsychosocial and environmental factors to classify aspects that may impact the willingness of an individual to participate in risky financial behaviour. Environmental factors comprise personal and family financial features that are measurable. Whereas biopsychosocial factors comprise categories of a person's life that reflect a subjective personal difference. These biopsychosocial factors are inherent characteristics over which a person has minimal or no control (Grable & Joo, 2004:82).

Biopsychosocial Factors	Environmental Factors
Age	Income
Gender	Net worth
Racial background	Financial knowledge
Birth order	Home ownership
Self-esteem	Education
Type A personality	Marital status
Sensation seeking	
Financial Satisfaction	

Financial Risk Tolerance
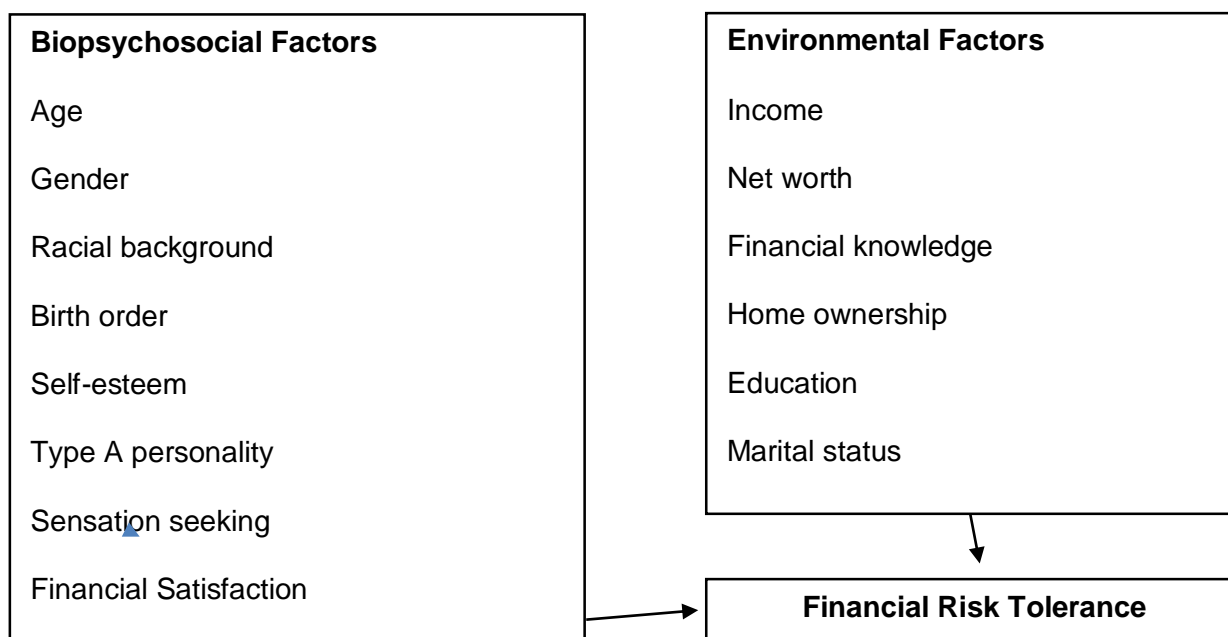
Figure 3.5: Determinants of Financial Risk Tolerance
Source: Grable and Joo (2004:82).

For the purpose of this study, the researcher will only focus on the main demographic factors explained in Section 3.5.1

3.5.1 Age and risk tolerance

The willingness to take financial risk may follow the U-shape age curve from the life cycle hypothesis and escalate with age or may be a result of investment time horizon and group preferences (Finke & Huston, 2003:237).

Ahmad *et al.* (2011:415) indicate an inverse relationship exists among age and risk tolerance. That is, as investors become older, they can bear less financial risk. In terms of the investment time horizon, as the years increase, the time horizon is shortened to recover from market losses (Yao *et al.,* 2011:85).

The results of Finke and Huston (2003:253) are consistent with Ahmad *et al.* (2011:415). Individuals belonging to the youngest age groups were prepared to undertake risk to a greater degree compared to those at or approaching retirement age. Though Wang and Hanna (1997:27) found that relative risk aversion diminishes as the age of people increases (such as the portion

of net wealth invested in risky assets increases as people get older) when everything else is held constant.

3.5.2 Gender and risk tolerance

The main findings from previous studies that examined the association among gender and risk tolerance revealed that women are more financially risk averse than men (Cooper *et al.*, 2014:274; Gilliam *et al.*, 2008:4). The results provided by Charness and Gneezy (2012:57) show that men make bigger investments in risky assets compared to women, as a result, women are more likely to be risk averse. Taking into consideration the lower risk-taking behaviour of the female investor, the danger that these women face is that the investments they make will have lower rates of return (Wang, 2009:211).

Faff *et al.* (2011:112) found compelling confirmation that women vary from men in their financial risk tolerance. If the investing attitudes of women vary to that of men, a shift in the control of personal wealth to women could be expected to affect both the investment management sector and investors' welfare (Faff *et al.*, 2011:101).

Eckel and Grossman (2002:282) explored differences in attitudes towards financial risk among men and women and proposed that women are commonly more risk averse compared to men. Furthermore, the findings of Eckel and Grossman (2002:282) demonstrated that this high-risk aversion influences the choices of retirement investments that women make. As a result, women can be exposed to receive lower retirement benefits than men (Watson & McNaughton, 2007:60).

The findings of Grable and Roszkowski (2007:800) revealed that gender differences in financial risk-taking conduct may partially be attributable to the manner in which women and men identify themselves. That is, men tend to make a mistake by considering themselves as being more risk-tolerant than they truly are, whereas women are more cautious and tend to make the mistake of thinking that they are less tolerant than they truly are (Grable & Roszkowski, 2007:800).

3.5.3 Education and risk tolerance

One of the theoretical frameworks utilised in the economic analysis of education is the production function method. Education is perceived as similar to a firm changing inputs into outputs through a production process (Worthington, 2001:245). Generally, there is an assumption that individuals with professional education have an improved capability to evaluate the risk and return of an

investment compared to others. Kannadhasan (2015:178) asserts that higher education inspires a person to take on a higher level of financial risk.

The findings also propose that risk tolerance is positively correlated with attaining high school education and the attendance of a college. Awais *et al.* (2016:74) found that professionals and graduates who are between the age of 50 and 60, have high financial literacy. Financial literacy can be defined as the ability of people to take financial decisions by focusing on their short- and long-term interests. Individuals with high financial literacy have enough resources (for example money) and use these resources to acquire financial information for improved outcomes from investment decisions (Awais *et al.*, 2016:75).

There is a positive relationship among education level and individual saving (Jonubi & Abad, 2013:47). The levels of higher education suggest that individuals understand their financial matters better, thus they will be capable to make informed financial decisions and properly plan for their future. In terms of risk attitude, education was found to be negatively significant in categorising retail investors into financial risk behaviour categories (Kannadhasan, 2015:183). This may be the result of retail investors possessing a "non-investment" type of education instead of investment type education (Grable, 2000:627). As a result, investors avoid taking the risk. High educational achievement is correlated with more financial knowledge and those with high financial knowledge are significantly less expected to seek advice from their social environment with regard to financial matters.

3.5.4 Income and risk tolerance

A great number of studies reveal that individuals who fall under the classification of high income and wealth possess high financial risk tolerance (Croy *et al.*, 2010:867; Faff *et al.*, 2008:16). The tendency of an individual to accept the financial risk may be motivated by a greater capacity to take additional risk because of a higher level of disposable income. Additionally, it may also be that the financial risk tolerance level of an individual influences their earning potential. Less risk-tolerant people may pursue employment opportunities that are safer, resulting in lower earnings (Van de Venter *et al.*, 2012:795).

It is believed that investors who fall under the high-income category can meet their obligations and as a result would take a higher level of risk compared to those that are under the low-income category (Chattopadhyay & Dasgupta, 2015:618; Mishra & Mishra, 2016:488). Contrarily, it was found that income was insignificant in categorising retail investors into classifications of financial risk tolerance (Kannadhasan, 2015:182). Although the disposable income of retail investors is

more, the high degree of their responsibilities and the presence of their dependants results in investors having lower financial risk tolerance levels (Kannadhasan, 2015:182).

The notion of women earning less than men is well-documented (Hartmann *et al.*, 2006:1), however, there is still a debate around the causes of the wage gap. The inconsistency has been because of the differences in the type of jobs, education levels, college majors, and experience gained from work. Moreover, the findings of Roszkowski and Grable (2010:270) reveal that compared to men, women are usually more risk averse and commonly have lower incomes. In a sample that consisted of financial planners, men displayed higher financial risk tolerance and possessed more personal income. Wang (2009:207) also stated that the top knowledged group received relatively high incomes and it may be due to receiving financial education that was not available to those in lower-income positions.

With reference to the preceding discussion on the association among demographics and risk tolerance of people, it will also be meaningful to represent some findings on demographic factors and the influence it has on risk tolerance by means of Table 3.1.

Table 3.1: Risk tolerance research findings

Source	Purpose of each study	Findings
Grable (2002)	Investigated risk-taking in everyday money.	Results revealed that age, gender, education, income, economic expectations and financial knowledge were correlated with risk tolerance.
Gibson *et al.* (2013)	Investigated various attitudes as well as demographic factors associated with financial risk tolerance.	Financial risk tolerance significantly correlated with income, while financial risk tolerance is lower for older people along with females. Results reveal that there was an insignificant relationship between financial risk tolerance and marital status, education, and wealth.
Faff *et al.* (2009)	Investigated the non-linear linkage among financial risk tolerance and demographic characteristics.	The results reported that the score of risk tolerance is diminishing at a declining rate as the number of dependents rises and declining at an increasing rate as the age increases.
Fisher & Yao (2017)	Investigated gender differences in financial risk tolerance employing a large, nationally representative dataset, the Survey of Consumer Finances.	The results reported that gender differences in risk tolerance are caused by differences in gender in the individual variables of risk tolerance, thus this disparity does not result from gender in and of itself.
Sulaiman (2012)	The study investigated the connection between the risk tolerance of investors and their demographic factors.	Generally, it is assumed that the financial risk tolerance of individual investors diminishes with their age. However, the current study does not support this view. Furthermore, the study reveals that marital status is significantly correlated with financial risk tolerance. Also, higher levels of formal education rise the ability of an investor to assess risk and consequently provides a higher financial risk tolerance.
Lemaster & Strough (2014)	To gain insight into gender dissimilarities in risk tolerance, this study explored the relative effects of multiple psychological dimensions of gender, such as gender identification, gender typicality, as well as gender-stereotyped personality traits and social roles.	Women who showed that they implemented social roles that have stereotypically been related to men also revealed greater risk tolerance. Moreover, within women, those who personified the stereotypically masculine roles of a playboy and winner showed greater financial risk tolerance.

Source: Author compilation.

It is evident that risk tolerance affects investors' investment decisions. While investors with different risk tolerance levels behave differently when making investment decisions concerning different investment possibilities (Samsuri *et al.*, 2019:43), behavioural biases are also considered when investment decisions are made. The following section details different behavioural biases that investors possess when making investment decisions.

3.6 BEHAVIOURAL BIASES IN INVESTMENT DECISION-MAKING

Investors are affected by different behavioural and psychological factors. Ricciardi and Simon (2000:6) stated that individuals who invest in stocks should implement safeguards to manage mental errors and produce effective investment strategies. Behavioural finance explains the manner in which investors are influenced by cognitive errors and emotions and the investment decision-making process (Muhammad, 2009:1) Muradoglu and Harvey (2012:75) argue that investors will become conscious of how possible biases may affect their investment intentions and consequently their investment decisions. Therefore, they have the ability to avoid such errors when they gained the knowledge of behavioural finance. The subsections to follow discuss the different biases that are present in behavioural finance.

3.6.1 Overconfidence

Rehan and Umer (2017:19) found that overconfidence has a positive and statistically significant influence on investor decisions. Overconfidence is a well-established bias that enables individuals to be overconfident about their knowledge and skills and does not take into consideration the risk correlated with investment (Kumar & Goyal, 2015:90). Overconfident investors tend to underreact to public information and react excessively to private signals and trade too much. Although overconfident investors are susceptible to manipulation by those participating in other markets who may push them out of the market, certain analytical models exhibit that overconfidence may persevere (Dittrich *et al.*, 2005:472). There is a possibility that the overconfidence of executive member's changes basic assumptions with regard to incentive mechanisms. Malmendier and Tate (2005:655) further state that if chief executive members are too optimistic about the value that can be produced, then options and stocks are unhelpful to improve corporate decision-making.

3.6.2 Loss aversion

Loss aversion is a behavioural bias whereby the loss impact results in more pain compared to the pleasure resulting from the realisation of gain. This bias means that individuals are comfortable

with taking on more risks in order to avoid losses, rather than concentrating on gains (Ainia & Lutfi, 2019:402). In other words, investors tend to seek risk when facing prospective losses. Nonetheless, when investors face the possibility of realising gains, they tend to be risk averse (Kumar & Babu, 2018:71). Khilar and Singh (2020:3458) stated that loss aversion bias is one of the behavioural biases that have an influence on investment decisions.

3.6.3 Anchoring bias

Anchoring has a positive and significant impact on the decisions of investors (Rehan & Umer, 2017:19). Anchoring arises when a person allows a certain portion of information to gain control of his/her cognitive decision-making process (Costa *et al.*, 2017:1780; Furnham & Boo, 2011:35). Individuals often utilise the first source of information that is revealed to them (i.e. stock's initial purchase price) to base their decision. As a result, they experience difficulties to adjust to the new information (Baker, 2014:8). Similarly, investors are more likely to take time to change due to the new information. Investors expect the earnings trend to continue with the historical trend, which may lead to disappointments because of the trend changes (Kannadhasan, 2006:4).

3.6.4 Availability bias

The availability bias occurs when a person takes action based on easily obtained new information (Shah *et al.*, 2018:95). Individuals are more likely to focus on a certain detail rather than the entire situation because this detail is easily retrievable in their mind or more present (Jain *et al.*, 2015:12). This biasness causes investors to overreact to the results of the market, whether the results are positive or negative. Bakar and Yi (2016:326) showed that the behaviour of availability bias positively correlates with the decision-making of investors.

3.6.5 Regret aversion

The results of Rehan and Umer (2017:19) revealed that regret aversion has a positive and statistically significant influence on investor decisions. Regret aversion holds investors out of a market that has recently experienced losses when investment bargains may be readily available. Individuals' instincts tell them that it is not a sensible decision to continue investing because of the losses incurred from the stock market (Beach & Rose, 2005:57). Investors are convinced that if they continue to hold onto the position of the initially purchased stock, it is not a loss until the stock is sold because theoretically there can always be a rise in the stock (Seiler *et al.*, 2008:462). Hence, the investor holds onto a failing stock, which assists with avoiding the regret embedded in experiencing a loss, even though there is a possibility of experiencing a greater loss in the

future (Etzioni, 2014:612). Regret is intense when negative consequences are due to an investor's actions and that the expectation of regret is provided for in decision-making under uncertainty. Moreover, the appearance of the unchosen options' outcome influences regret anticipation (Michenaud & Solnik, 2008:679).

3.6.6 Representativeness

Individuals' willingness to base their judgements on stereotypes or similarity is known as the representativeness bias (Jordan & Kaas, 2002:132). Investors are more likely to implement others' judgements in occurrences of social pressure or when influence is exerted from experts (Shah *et al.*, 2018:93). Availability bias is used as a means of evaluating the likelihood of an event based on how rapidly correlations come to mind (Ceren & Akkaya, 2013:125). Representativeness is found to have a positive and statistically significant impact on the decisions of investors (Rehan & Umer, 2017:19).

3.6.7 Mental accounting

Mental accounting has a positive and statistically insignificant influence on investor decisions (Rehan & Umer, 2017:19). Mental accounting exists when the willingness of an investor to sell differs when considering the asset in isolation as opposed to the willingness to sell as part of the portfolio in totality (Seiler *et al.*, 2012:18). Furthermore, it refers to when the value of money is inconsistently viewed because of the origin of the money (Seiler *et al.*, 2012:19). Investors use mental accounting to build portfolios as individual accounts. Mental accounting provides a foundation for how reference points are set by decision makers for accounts that provide gains and losses determination (Ceren & Akkaya, 2013:125). Beach and Rose (2005:57) state that the difficulty experienced by investors when addressing the collaboration of diverse investments leads to a construction of portfolios in a layered pyramid format. The independence of other investment goals and certain investment goals are addressed in each layer of the portfolio (Beach & Rose, 2005:57).

3.6.8 Self-control bias

Self-control bias is a behavioural bias that individuals are subjected to and influences individuals to spend today rather than saving for tomorrow (Trehan & Sinha, 2020:5370). This bias can also be explained as a dispute among the overarching desires of individuals and their incapability, resulting from lacking self-discipline, to act firm in order to reach their desires (Bobde *et al.*, 2017:645). Self-control consists of internal conflict among the rational and emotional facets that

are inherent in the personality of an individual (Sadiq *et al.*, 2018:14). An individual that lacks self-control may be prone to make decisions that counteract the individual's interests, in the long run, i.e. under-saving, procrastinating, overspending, and addictive behaviour (Lucks, 2016:3).

3.6.9 Gambler's fallacy

Gambler's fallacy is a bias in which an individual believes that there has been a change in the outcome's probability when in actuality it has remained the same (Huber *et al.*, 2010:446). Fallacy assumes that the outcome's current occurrence diminishes the likelihood of reoccurrence in an equal, statistically independent event (Coleman, 2007:14; Jayaraj, 2013:24).

Gambler's fallacy has been found to influence investors' decisions (Rakesh, 2013:6). This bias is revealed when an investor inappropriately makes a prediction and the anticipation may be good or poor (Jain *et al.*, 2015:13). Investors anticipate possible realisation with the gambler's fallacy to be characterised in accordance with the overall likelihoods (Stöckl *et al.*, 2015:327). The gambler's fallacy displays comparable features as the disposition effect, which suggests that investors hold onto losers for too long and sell winners early (Huber *et al.*, 2010:446).

Section 3.6 discussed the various behavioural biases that investors possess when making investment decisions. Other researchers have identified more biases such as herding, home bias, disposition effect, and hindsight bias (Hussain *et al.*, 2013:77; Kumar & Goyal, 2015:90). For the purpose of this study, the researcher will only focus on the main biases explained in Section 3.6.1 to Section 3.6.9. Besides various behavioural biases, other factors may also influence the investment intentions and decisions of investors, for instance, personality traits (Durand *et al.*, 2008:204). Section 3.7 introduces different personality traits and how these traits may affect individuals' investment intentions and ultimately their investment decisions.

3.7 PERSONALITY TRAITS AND INVESTMENT INTENTIONS AND DECISIONS

Personality can be defined as how a person interrelates, responds and how he/she conduct himself/herself around others and is frequently displayed through measurable traits (Pak & Mahmood, 2015:373). It influences the risk-taking attitudes in diverse areas of a person's life (i.e. investment decisions, social and gambling) (Crysel *et al.*, 2013:35). Personality traits measure the marked changes in typical response to the setting that differentiates one person from another. The stable and sustaining characteristic reaction of the person in dissimilar situations is known as personality traits (Roberts *et al.*, 2006:1). These characteristics are regarded as personality traits if they seem to sustain in different situations. Thus, personality traits are stable as well as

tremendously imperative compositions in the life of people. There has been a wide recognition and acceptance of the personality traits' five factors of classification. They have been applied widely to sociology, management, pedagogy, and psychology (Chen, 2008:579). These five personality traits are classified and discussed in Section 3.7.1–3.7.5.

3.7.1 Neuroticism

Neuroticism was first used by Eysenck (1947) to define this personality trait; Eysenck created the term from the frequently used clinical term at that time: neurosis — the early diagnostic and statistical manual category comprising individuals who have depression, anxiety, and interrelated disorders. Nonetheless, people who are diagnosed with neurosis had the pathological extreme of neuroticism's personality trait (Barlow *et al.*, 2014:345).

Neuroticism is a personality trait that is characterised by a long-term tendency to be in a negative or emotional state (Wright *et al.*, 2006:1809). Neuroticism is defined by items referring to anxiety, self-consciousness, irritability, worry, sadness, hostility, vulnerability, and anger, which have been established to be considerably connected in factor analyses (Lahey, 2009:241). Likewise, neuroticism, or negative affect, well-defined as the trait that tends to show dissatisfaction, discomfort, and distress over time, has confirmed the steadiest correlations with the outcomes of marriage over time (Karney & Bradbury 1997:1077). Without exclusion, there has been a correlation between higher levels of neuroticism and poorer marital satisfaction, as well as higher rates of divorce.

Neuroticism also forecasts treatment-seeking and reaction to treatment for both mental disorders as well as overall health anxieties (Barlow *et al.*, 2014:482). The roots of neuroticism may arise from a mixture of genetic factors, which incline the individual to greater reactivity to threat or stress. Furthermore, early experiences in the environment of parenting styles, trauma, or chronic stress that enlarge a sense of control and direct the resilience's development may also cause neuroticism. (Barlow *et al.*, 2014:488).

Neuroticism is one of the main factors that explains the positive emotional state of an investor. An investor that is high in neuroticism may be encouraged to make biased decisions. Likewise, investors with low neuroticism tend to take error-free decisions (Charles & Kasilingam, 2014:52). In a financial context, Oehler *et al.* (2018:33) found that investors who are high on neuroticism invest less in foreign equities and debt securities. Additionally, investors who are more neurotic want to circumvent uncertainty, which is correlated with foreign investments. Individuals who are high on neuroticism are likely to overestimate the risk when the market crashes while

underestimating the profit under a favourable market (Pak & Mahood, 2015:374). Furthermore, neuroticism was found to have a significant influence on both short-term and long-term investment intentions (Lathif, 2019:1085).

3.7.2 Extraversion

According to instrumental theories, personality indirectly influences certain lifestyle adoptions that are made by people. For example, extraverts are comfortable with spending more time with friends than introverts, and these social activities could lead to an increase in pleasant effect. On the other hand, extraverts and introverts may spend the same amount of time socialising, but extraverts may find more pleasure in socialising compared to introverts, causing greater happiness (Lucas & Baird, 2004:473). Extraverts frequently react more positively to social situations than introverts, and extraverts are happier than introverts even when they are on their own.

Magnus *et al.* (1993:1046) found that people who scored high in extraversion revealed life events that are more favourable. Extraversion displayed the strongest correlation to positive events. The correlation between life events and personality appears to be an asymmetrical personality. There may be more correlation among extraversion and good events due to the social nature of extraversion, extraverts may interact positively with others. Otherwise, extraverts may search for positive events to a greater degree due to them having an active system. In any case, extraverts do not appear to have more or less negative events. Among the Big Five personality traits, extraversion has steadily been found to be the most significant personality trait that predicts the usage of Social Networking Sites (Ong *et al.*, 2011:180). Extraversion is also related to the transmission of disease. Higher levels of disease occurrence are expected to be correlated with extraversion's lower levels (Schaller & Murray, 2008:214).

Studies of Crysel *et al.* (2013:39) as well as Pak and Mahmood (2015:373) stated that personality traits, such as extraversion, may impact investment decisions of individuals. Extraverted persons concentrate more on external events, has a great sense of humour, more outgoing, and lack deep analysis. From a financial context, extraverted investors tend to underestimate the loss (risk) and overestimate the gain due to the investor's optimistic character. As a result, the investor misses out on profitable investment opportunities. Furthermore, the results of Lathif (2019:1086) reported that extraversion has a significant influence on short-term investment intentions, however, this trait had no significant influence on long-term investment intentions.

3.7.3 Openness to experience

Openness to experience refers to the degree to which people are sensitive to aesthetics, think independently, curious, imaginative, open to new experiences and ideas, as well as unconventional perspectives (Kaufman, 2013:233; Mohan & Mulla, 2013:18). The trait differentiates among those who are open to variety, novelty, and experiences depth and those who have a preference for the conventional, routine, and accustomed (Simmons, 2011:12). Individuals with high openness to experience possess greater entrance to a range of perspectives, feelings, ideas, and thoughts (Schwaba *et al.*, 2018:119). These individuals are more adaptable to varying circumstances that change as a result of the experiences that they encounter. Additionally, people with an openness to experience are more likely to be prepared and able to bring up as well as think about new ideas that have the capability of challenging the status quo (Woods *et al.*, 2018:33).

Even though openness to experience is when an individual becomes more inclined to be creative (Kaufman *et al.*, 2016:248), at times people face strong situations within an organisation that shape their behaviour. For employees with high openness to experience to display creative behaviour in a work environment, the work environment should allow for and inspire the manifestation of their predisposition to be creative.

People with high openness to experience are very sensitive and in touch with their emotions. They search for a broader scope and depth of internal and external experiences and experience them more fully and intensely. Provided their amplified sensitivity, people with high openness to experience may be particularly responsive to feedback valence (i.e. the degree to which they receive positive or negative feedback) in a work environment (George & Zhou, 2001:514). Individuals with higher openness to experience are inclined to take higher risk and have a positive impact on long-term investment intentions (Sadiq & Khan, 2019:4), as well as on short-term investment intentions (Lathif, 2019:1086). Furthermore, these investors have a strong preference for new things, sensations and complexity. The investor easily accepts new market information and frequently adjust investment portfolios due to market situations (Pak & Mahmood, 2015:374).

3.7.4 Conscientiousness

One characteristic that is particularly relevant with regard to acting on an intention promptly is a person's degree of conscientiousness (Ajzen *et al.*, 2009:1359). Furthermore, conscientiousness refers to individuals' differences in the tendency to pursue socially pre-arranged standards for impulse control, to direct tasks and goals, to plan and delay pleasure, and to follow set norms and

rules (Bogg & Roberts, 2004:887). Traits that relate to conscientiousness have been revealed to correlate to additional social environmental factors that contribute to healthy outcomes, for example, marital stability, greater religiosity, and high socio-economic status (Bogg & Roberts, 2004:888).

Conscientiousness is made up of two domains: dependability and achievement. Dependability reflects a component that is more interpersonal and is evident in dutifulness and responsibility traits. However, achievement characterises the capability to work hard and withstand challenges. On the other hand, the aspects of conscientiousness may be categorised into proactive and inhibitive groupings. In this taxonomy, achievement and dutifulness can be grouped under proactive, whereas self-control and orderliness, would be grouped under inhibitive (Roberts *et al.*, 2005:105).

People with high conscientiousness tend to express their intentions compared to those with low conscientiousness. Ajzen *et al.* (2009:1369) found that conscientiousness may undertake a vital role to explain the gap between behavioural intention and actual behaviour. Compliance was found to be considerably greater for partakers who possess high conscientiousness as opposed to those with low conscientiousness. Therefore, the effect of commitment for participants who had high conscientiousness was particularly strong.

In previous research, the most stable trait and common predictor of job performance have been conscientiousness. Employees with high conscientiousness tend to be purposeful, disciplined, organised, methodical, exacting, diligent, and dependable. As a result, these people are likely to perform work tasks thoroughly and correctly, stay devoted to working performance, comply with the policies, take initiative to solve problems, and stay focused on tasks provided at work (Witt *et al.*, 2002:164).

High conscientiousness is one of the traits that affect the investment decision of an individual. Conscientious people possess a certain confidence level and are self-disciplined, analytical, careful and methodological and are likely to have clear investment goals (Pak & Mahmood, 2015:373). These people are highly structured, have a thorough analysis, and also portray intentions to invest in long-term investment portfolios (Husnain *et al.*, 2019:18).

3.7.5 Agreeableness

Agreeableness concentrates on reasons for sustaining positive relationships with others. Agreeableness can allow people to lessen the negative impact associated with conflicts and

discuss outcomes that will be beneficial for group living. An individual high on agreeableness can cope with an aggressive adversary during a family conflict and negotiate a solution strategy for the conflict (Jensen-Campbell & Graziano, 2001:327). Specifically, trait words related to agreeableness comprises forgiving, helpful, and generous. Individuals who possess this trait are more likely to have a close connection with communion and the desire to contribute to something bigger than oneself (Graziano *et al.*, 2007:584).

Individuals with high agreeableness are more co-operative, polite, sympathetic, and trustworthy. Conversely, high scores on agreeableness may also be dysfunctional. Individuals high on agreeableness may be too dependent. A secure orientation towards agreement and aspiration for social approval in situations that necessitate firmness and individuality for successful resolution would be likely to raise the need to avoid social conflict and possibly have a contribution towards rating elevation. Therefore, individuals high in agreeableness are inclined to yield additional elevated ratings (Bernardin *et al.*, 2000:233).

It has been found that a relationship exists between agreeableness and investment. Agreeable individuals are normally modest, co-operative, reliable, and respect the advice and opinions of others. A highly agreeable investor tends to rely on an opinion of an analyst and has difficulties with making an investment decision (Pak & Mahmood, 2015:374) Agreeableness also has a significant influence on both the short-term and long-term investment intentions of investors (Lathif, 2019:1086). It has been identified that factors that can influence investment intentions, can influence one another.

3.8 SYNOPSIS

This chapter aimed to systematically, and mostly chronologically work through the mainstream research concerning the relationship between risk and return, risk tolerance, behavioural biases and personality traits. This chapter commenced with a fundamental principle of investment, i.e. risk and return. Investors need to understand the relationship between risk and return in order to evaluate the expected risk-return trade-off during the investment decision-making process. Individuals are exposed to various types of risk, including financial risks and must be considered during the investment decision-making process. These risks may jeopardize their income, which in turn will affect their investment choice. Furthermore, the amount of risk that investors can accept depends on their risk tolerance. Risk tolerance is the ability of an individual to bear uncertainty, where there is a possibility of a loss. Risk tolerance is not constant; it changes with time as the demographic factors of an individual change.

A part of this chapter discussed the influence that demographic factors have on individuals' risk tolerance. These demographic factors included age, gender, education and income. Nonetheless, it was proven that research evidence exists that contradicted these relationships. Age was found to have a U-shape with risk tolerance, meaning that as people age they tend to be more risk-tolerant. On the contrary, it also revealed that risk tolerance decreases with age. In addition, in terms of gender, men make larger investments compared to more risk-averse women. Grable and Roszkowski (2007:800) stated that this may be the result of women and men making a mistake when evaluating how risk-tolerant they are. Risk tolerance needs to be assessed during the investment decision-making process as it affects the individual's investment intention and ultimately the choice of investment.

The chapter further revealed how behavioural biases and personality traits may influence the investment intentions and/or investment decisions of investors. For instance, Rehan and Umer (2017:19) suggest that behavioural biases including regret aversion, representativeness, mental accounting, regret aversion, availability bias, anchoring, and overconfidence influence investment decisions. With regard to personality traits, agreeableness, openness to experience, and neuroticism were found to have a significant influence on both short-term and long-term investment intentions. Then again, extraverted individuals have the intention to invest in short-term investments, while conscientiousness individuals have the intention to invest in long-term investment portfolios.

Based on previous findings it is evident that investors need to have a thorough understanding of their risk tolerance, behavioural biases and personality as these factors may influence the investment intention and decision of their portfolio allocation. Furthermore, this is also beneficial for financial institutions to consider investors' risk tolerance, behavioural biases and personality traits to profile their risk and objectives more accurately and to offer investment products that will be most suitable for the investor.

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

Chapter 4 discusses the concepts concerning the research design and methodology of this study. The choice of research design and method used addressed the primary objective of this study. The primary objective of this study is to analyse the factors that influence investment intentions in South Africa. Section 4.2 describes the concept of a research design and the different worldviews of reality or paradigms, which include positivism, post-positivism, interpretivism and pragmatism, followed by the different research approaches (Section 4.2.2). Research approaches can be categorised as quantitative, qualitative, or mixed methods. Lastly, the chosen paradigm and research approach for this study are discussed in Section 4.2.2.4.

The chapter continues with the sampling procedure, where the target population, the sampling frame, the sampling method, and the sample size are discussed in Section 4.3. There are two types of sampling methods, known as the probability and non-probability sampling methods. The probability sampling methods include simple random, systematic, stratified random, and cluster sampling. The sampling techniques for non-probability sampling are convenience, judgement, quota, and snowball sampling. Section 4.4 discusses the data collection methods, which comprise the questionnaire design, format and layout. Section 4.5 provides attention to the pretesting of the questionnaire, followed by the questionnaire administration (Section 4.6), and the preparation of data (Section 4.7), which included data editing and data coding.

The chapter continues to discuss the research method used in this study (Section 4.8). The study follows a secondary data analysis utilising the raw data obtained from a South African investment company. This section also briefly discusses the advantages and disadvantages applicable to secondary data analysis. Lastly, Section 4.9 discusses statistical analyses. The subsections of this section include reliability, validity, descriptive and inferential statistics. The approaches involved in reliability are test-retest reliability, alternative forms reliability, and internal consistency reliability. Furthermore, the approaches to validity include face validity, content, criterion, and construct validity. In terms of inferential statistics, the techniques discussed in this chapter comprised linear regression and multiple linear regression analysis, correlation coefficient, t-tests, and the ANOVA test.

4.2 RESEARCH DESIGN

A research design provides the foundation of the study to be conducted. Moreover, the design ensures that the study is conducted efficiently and effectively (Malhotra, 2010:102). A research design is a structure and a plan selected by the researcher in order to follow throughout their study to answer the research question as realistically, economically, unbiasedly, and correctly as possible (Kumar, 2014:122). It is a plan that thoroughly states what and how diverse are methods and procedures to be used throughout the research process. Welman *et al.* (2005:52) further state that research design is the plan in which research subjects are obtained and a way of collecting information from them.

The first step in choosing a research design and methodology approach involves the adoption of a research paradigm. An overview of the different research paradigms (worldviews) is provided in the next section.

4.2.1 Research paradigm

A research paradigm, also known as the worldview, is a belief about the existence of certain problems as well as a consensus regarding the method on how those problems could be investigated (Kamal, 2018:1388). Moreover, Kirkwood and Campbell-Hunt (2007:221) describe a research paradigm as a concept that stipulates an overall set of philosophical assumptions. The assumptions include axiology (what is considered correct, i.e. a set of morals), epistemology (one's thoughts about reality), methodology (ways in which an individual will utilise their thinking to know more about their reality), and ontology (an assumption of what exists or the reality) (Wilson, 2001:175). The different types of paradigms adopted in research are positivism, post-positivism, interpretivism, and pragmatism. These paradigms are discussed in the subsection to follow.

4.2.1.1 Positivism

Positivism uses scientific methods for testing as well as proposing theories using highly structured and measurable data whereby the values of the research do not influence the researcher (Ryan, 2018:44). This normally comprises statistical hypothesis testing and large quantitative data samples, whereby the theory gets revised if the findings (that result from the data analysis) do not confirm the theory (Saunders & Tosey, 2013:58).

4.2.1.2 Post-positivism

Post-positivism reforms positivism by assuming limitations exists when acquiring knowledge, as a result of the imperfect intellectual mechanisms of humans as well as the intractable nature of phenomena (Mittwede, 2012:25). This philosophy does not propose that there is no relevance in positivism, instead, it reveals that there is more that exists beyond positivism, which requires consideration. Furthermore, the paradigm takes into consideration the inadequacy of dualistic thinking and also that complication and variety are the reality of human encounters (Henderson, 2011:342).

4.2.1.3 Interpretivism

Interpretivism relates to the social phenomena study in their natural setting. The focus of this paradigm is to conduct research on individuals rather than on objects. It embraces an empathetic standpoint in order to gain an understanding of their social world and the meaning provided to it according to their perspective (Kivunja & Kuyini, 2017:33). Interpretivists believe that objective knowledge does not exist, which is separate from reasoning and thinking of people. As a result, knowledge and meaning form part of acts of interpretation (Shah & Al-Bargi, 2013:257). The analysis and collection of data tend to include qualitative data due to in-depth investigations comprising small samples (Dammak, 2015:6).

4.2.1.4 Pragmatism

Pragmatism adopts a belief that researchers should utilise the methodological and philosophical approach that is best suited for a certain research problem being investigated and this paradigm is often associated with mixed methods (Kaushik & Walsh, 2019:256). The significance of research for researchers who follow pragmatism is in the practical results of findings (Kaushik & Walsh, 2019:258). These researchers believe that the whole picture cannot be provided by a single point of view and that various realities may exist. This does not imply that the researcher would always utilise different analysis procedures and data collection techniques, instead, the research design should allow reliable, credible as well as the appropriate collection of data that provides support for successive action (Saunders & Tosey, 2013:58).

4.2.2 Research approach

Categories of research approaches are known as quantitative, qualitative, and mixed methods. There are differences in the collection of data that exists in qualitative and

quantitative research. Table 4.1 describes the difference between qualitative and quantitative research.

Table 4.1: Quantitative versus qualitative research

Criteria	Quantitative research	Qualitative research
Purpose	Hypotheses testing, consider cause and effect, and predictions.	For social interactions to be understood and interpreted.
Group studied	A large group that is randomly selected.	Smaller group and not chosen randomly.
Variables	Variables studied are specific.	The entire study, not only variables.
Forms of the collected data	Statistics and numbers.	Objects, pictures, or words.
Form of data collected	Measurements utilising validated and structured instruments for collecting data.	Interviews, observations of participants, or open-ended answers.
Type of data analysis	Identify if a statistical relation exists.	Indicate patterns, themes, and patterns.
Objectivity and subjectivity	Objectivity is significant.	Subjectivity is vital.
Role of the researcher	Biases of researchers are unknown to participants, and characteristics of participants are intentionally hidden from the researcher.	Researcher's biases may be revealed to the partakers available in the study, also the facets of participants can be revealed to the researcher.
Results	Results can be generalised to other populations.	Certain or specialised results are not generalised.
Scientific method	Confirmatory: the data are used to test the hypothesis and theory.	Exploratory: the researcher generates a new hypothesis and from the collected data.
View of human behaviour	Predictable and regular.	Social, situational, personal, and dynamic.
Most common research objectives	Forecasting, explaining, and describing.	Constructing, discovering, and exploring.
Focus	Observation from a narrow-angle, specific hypotheses testing.	Observes from a wider angle; has an in-depth examination of the phenomena.
Nature of observation	Behaviour is investigated under controlled conditions; causal effects are isolated.	Behaviour is studied in a natural environment.
Nature of reality	Objective, single realism.	Subjective, numerous realisms.

Criteria	Quantitative research	Qualitative research
Final report	Statistical report that includes the statistical significance of findings, correlations, and meaningful comparisons.	Direct quotations and narrative reports with descriptive context.

Source: Apuke (2017:42).

Table 4.1 shows that the purpose of quantitative research is to deal with hypothesis testing, making predictions, as well as observing the cause and effect (Eyisi, 2016:94). Conversely, qualitative research aims at understanding and interpreting social interactions (Jackson *et al.*, 2007:21). The different research approaches are described below.

4.2.2.1 Quantitative research approach

Quantitative research is detailed, well-structured, has been tested to check if it is reliable and valid, and can be clearly defined and recognised (Kumar, 2014:132). Quantitative techniques depend on gathering data that are based on numbers and uses analytical methods such as statistical correlations, frequently used along with hypothesis testing (Atieno, 2009:13). Walliman (2016:32) lists three characteristics for quantitative research approaches in the three worldviews, namely: ontology, epistemology, and methodology. Table 4.2 presents an overview of quantitative research paradigms. A researcher needs to consider which are involved in quantitative research.

Table 4.2: An overview of quantitative research paradigms

Concept	Definition	Characteristics
Ontology	Refers to how researchers perceive their reality or believe that the investigated phenomenon makes sense (Kivunja & Kuyini, 2017:27)	Reality is objectively provided and can be quantified by properties that are independent of the researcher (Sayyed & Abdullah, 2013:254)
Epistemology	Refers to the subdivision of philosophy that examines the nature of knowledge and the process used to acquire and validate knowledge (Rehman & Alharthi, 2016:52)	It is based on a positivist approach that is available in the natural sciences (Dammak, 2015:2)
Methodology	Refers to how researchers systematically find out what they believe can be known.	An emphasis is made on measuring variables and hypothesis testing that are linked to the overall causal explanations (Antwi & Hamza, 2015:220)

Source: Author's compilation.

This study used questionnaires as a means of collecting and capturing numerical data. As a result, a quantitative research approach was suitable for this study.

4.2.2.2 Qualitative research approach

Qualitative research is concerned with the manner in which social reality is learned (Mohajan, 2018:24). A qualitative research approach may be utilised across the disciplines that study a wide range of topics. Moreover, qualitative research is an umbrella term comprising a rich range of research practices and products (Leavy, 2014:2). It primarily depends on language and interpreting its meaning, closely involving humans as a method of collecting data (Irwin, 2013:296). Furthermore, qualitative data includes a creative process of developing theory other than testing (Walliman, 2016:33). There are three characteristics of a qualitative research approach available in research paradigms (Walliman, 2016:32). An overview of the research paradigm is outlined in Table 4.3.

Table 4.3: An overview of qualitative research paradigms

Concept	Characteristics	Source
Ontology	Constructionist — in that social realism is observed as a continuously fluctuating product of perception.	Kivunja and Kuyini (2017:27)
Epistemology	Interpretivist — discards positivism by depending on individual interpretation of social reality.	Kamal (2018:1391)
Methodology	Researchers learn about a culture by observing its people and how they interact, often interviewing people with the required knowledge, constructing case studies, as well as analysing existing documents.	Antwi and Hamza (2015:220)

Source: Author's compilation.

The goal of a qualitative research approach is to gather the information that is deemed rich for data saturation. Researchers need to defend one's sampling strategies for the objective of their studies to be met (Lambert & Lambert, 2012:255). Collecting data for qualitative descriptive studies emphasise the determination of specific events' nature being studied. Hence, data collection comprises minimal to moderate, open-ended, structured, and separate or focus interviews. Moreover, observations, records examination, documents, photographs, and reports may also be included as part of data collection (Hancock *et al.*, 2001:16).

The data collection of this study does not consist of open-ended questions or observations. Moreover, no qualitative interviews were conducted to obtain the data, hence the qualitative research design is not suitable for this study.

4.2.2.3 Mixed-method research approach

Mixed-method research is when a researcher integrates components of quantitative and qualitative research methods (for example, the utilisation of the viewpoints of quantitative and qualitative research, collecting data, analysis and the use of inference methods) due to the extent and deepness of understanding and validation (Creswell & Plano Clark, 2018:3). With mixed-method research, a researcher combines the two designs for studying a research problem rather than utilising quantitative or qualitative research individually. All of the tools of collecting data are available to researchers other than being limited to those forms that are typically related to quantitative or qualitative research (Creswell & Plano Clark, 2018:13). Under mixed-method research, results from different approaches can be compared, which are called triangulation. Since qualitative research design is not applicable in this study, there was no need for a mixed methods research design to be applied in this study to achieve the set-out objectives.

4.2.2.4 Research paradigm and approach adopted for this study

In order to determine which factors influence investment intentions in South Africa, a positivistic paradigm was adopted. The positivistic approach focuses on objectivity, repeatability and relationships between variables. Secondary data that are collected from a quantitative approach was used.

4.3 SAMPLING PROCEDURE

A sample is a small set of people selected from the whole population who participate in a study to represent the population (2016:133). Sarantakos (2000:139) states that feasibility is the main reason for sampling. The ability to cover the entire population is rarely probable, and it is impossible to reach the members of a population of interest. Even if it was theoretically probable for the whole appropriate population to be identified, contacted, and studied, it becomes time-consuming as well as costly (Gravetter & Forzano, 2016:133; Yates, 2004:25). Therefore, the use of a sample will result in information that is more accurate than to study the entire population (de Vos *et al.*, 2011:224). Figure 4.1 demonstrates the association between a population and a sample.
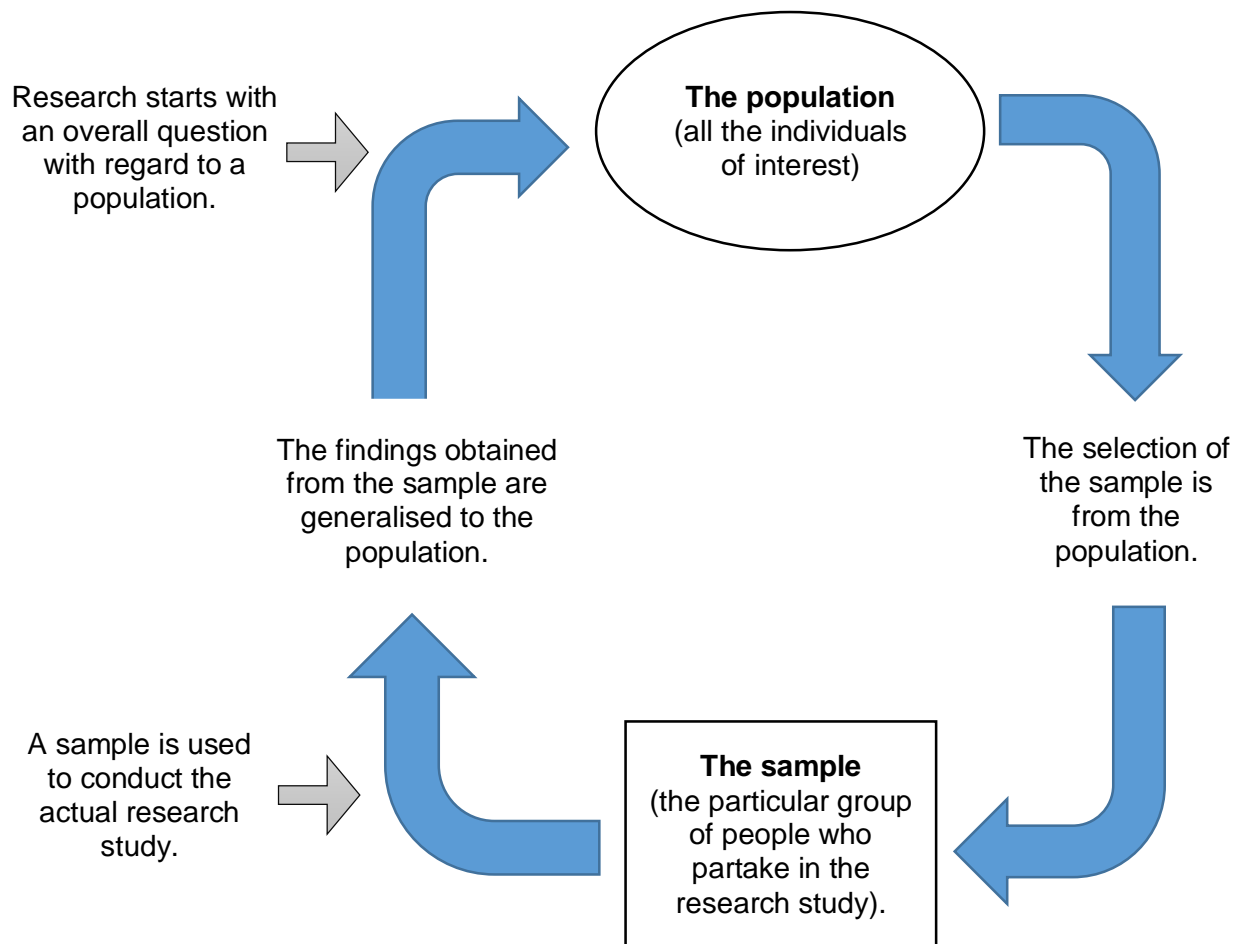
Figure 4.1: The association among a population and a sample
Source: Gravetter and Forzano (2016:134).

The sampling procedure consists of the target population, sampling frame, sampling methods and sample size, which are explained in the subsequent sections. In addition, the different methods that are applicable during the collection process of data are also discussed.

4.3.1 Target population

The target population can be defined as all the sets of individuals that the researcher is interested in (Welman *et al.*, 2005:52). Even though the whole population does not take part in a research study, the results emanating from the study are utilised to generalise the whole population (Gravetter & Forzano, 2016:134). A precise definition of the target population must be made. A target population that is imprecisely defined will result in ineffective research where the collected data does not correspond (Malhotra, 2010:372). The target population of this study comprised investors that belonged to an investment company in South Africa.

4.3.2 Sampling frame

A sampling frame is referred to as a listing of components that can be used to draw a sample from (Taherdoost, 2016:20). The sampling frame is also termed the functioning population for the reason that these components will ultimately supply units involved in an analysis (Zikmund *et al.*, 2013:388). The sample should be able to signify the sample frame, which preferably is similar to the population, but which frequently varies as a result of practical problems in connection with the accessibility of information (Welman *et al.*, 2005:57). South African investors from one investment company were selected based on non-probability, purposeful sampling method, which is explained below.

4.3.3 Sampling methods

The selection of samples from a population is known as the sampling method (Chawla & Sondhi, 2011:223; Emerson, 2015:164). Sampling methods can be divided into two basic classifications, known as probability and non-probability sampling (Acharya *et al.*, 2014:330). Probability sampling is done with randomisation, whereas non-probability sampling is done without randomisation (de Vos *et al.*, 2011:228).

4.3.3.1 Probability sampling methods

In the case of probability sampling, the likelihood of any component of the population to be encompassed in the sample can be established (Welman, 2005:56). The chances of choosing a certain individual are known and there is a possibility that they can be calculated under probability sampling (Vehovar *et al.*, 2016:327). There are three significant conditions involved in probability sampling (Gravetter & Forzano, 2016:138):

- The precise size of the population must be well-known and there must be a possibility for all individuals to be listed.
- Each individual within the population needs to have a specified likelihood of being selected.
- When a crowd of individuals is allocated similar chances, it is significant for the selection process to be unbiased so that all members within a group are afforded an equivalent probability of being chosen.

The different types of probability sampling are known as simple random sampling, systematic sampling, stratified random sampling, and cluster sampling.

- **Simple random sampling**

In the case of simple random sampling, each participant is awarded an equivalent probability of being considered in the sample and every sample of a certain size has an equal chance of being chosen (Gelo *et al.*, 2008:275). It requires a unique numeric to be assigned to each member of the population (Sharma, 2017:750). A sampling frame is mandatory in this method. A numerical ascending or descending order should be allocated to all the individuals in the study (Acharya *et al.*, 2013:331).

- **Systematic sampling**

Under systematic sampling, a random selection is applied only to the first case, with preference from a random table (Tyrer & Heyman, 2016:58). A certain interval, for example, every fifth or tenth case, is used to select the succeeding cases conditional to the percentage sample required (Acharya *et al.*, 2013:331).

- **Stratified sampling**

The stratified sampling is made up of the population being separated into mutually exclusive groups and homogenous participants are grouped into aspects such as age, language, gender and income level (de Vol *et al.*, 2011:230). The purpose of this type of sampling is to be able to anlyse the data in the sample separately for particular groups. The advantage of stratified sampling is that it guarantees that the required classifications in the population are represented (Acharya *et al.*, 2013:331). Welman *et al.* (2005:62) state there are two significant purposes that exist in the stratified random sampling. First, in a random sample from a population that is stratified with regard to gender, the likelihood that a sample will include only one gender is zero. Second, to verify that a representation of significant strata is available in the sample, a smaller sample is required for stratified random sampling compared to simple random sampling (Elfil & Negida, 2017:2).

- **Cluster sampling**

Cluster sampling is normally used when the population for random sampling is too large. This sampling method is used when, for example, a set list of participants is not obtainable, but only the geographical area is available (Taherdoost, 2016:21). The clusters or groups are chosen randomly. In the case of the population being extensively scattered, when it is unfeasible to sample, and choosing a sample that will represent all the elements, cluster sampling is used (Acharya *et al.*, 2013:331).

Table 4.4 provides the advantages and disadvantages of the different forms of probability sampling methods.

Table 4.4: Contrast of sampling methods of probability samples

Probability samples			
Description	**Cost and level of utilisation**	**Advantages**	**Disadvantages**
Simple random: A number is assigned to every participant of the sampling frame and then the random method is used to choose sample units.	Costly, moderately used in practice.	Only minimum advance knowledge of the population required and data are easily analysed.	Necessitates sampling frame to work from; population knowledge that may be possessed by the researcher is not used; greater errors for similar sampling size compared to stratified sampling; and participants may be widely dispersed, resulting in higher costs.
Systematic: The natural ordering of the sampling frame is utilised by the researcher. The researcher chooses a random beginning point, and then items are chosen at a preselected interval.	Moderate cost, moderately used in practice.	Easy sample drawing; simple to verify.	If the interval of sampling is correlated to population periodic ordering, it might result in amplified variability.
Stratified: The population is allocated groups and subsamples are randomly chosen from each group. Disparities comprise of proportional, disproportional, and optimum subsample sizes allocation.	High cost, moderately used in practice.	Guarantees that all the available categories are represented within the sample; each stratum features can be estimated and comparisons can be made. The variability of each stratum is reduced.	Necessitates information that is accurate on proportions of every stratum. Provided that the stratified records are not readily accessible, they can be pricey to prepare.

Description	Cost and level of utilisation	Advantages	Disadvantages
Cluster: The sampling components are selected randomly. Thereafter, all of the units are completely observed or a probability sample is extracted from the sample in the group.	Low cost, often used in practice.	This sampling method is used if there is a geographic definition of clusters, produces the lowest field cost; the recording including all the people within the clusters is required; can estimate the aspects of clusters; and the population.	Bigger error for similar size as compared to other probability samples; the members of the population should be allocated to a distinctive cluster, otherwise, replication will result in individuals being excluded.

Source: Zikmund *et al.* (2013:402).

4.4.3.2 Non-probability sampling methods

In non-probability, the probability cannot be specified (Welman, 2005:56). Non-probability sampling is a sampling method where the samples are collected in a process that does not provide equal chances of inclusion to the members in the population (Etikan *et al.*, 2016:1). In this method, participants are enrolled by their accessibility as well as availability by the researcher. As a result, this method is rapid, cost-effective, and convenient (Elfil & Negida, 2017:2). However, it is impossible to estimate sampling errors when using non-probability sampling, thus resulting in the degree to which valid inferences that can be made to a population to be restricted (Field, 2006:567).

- **Convenience sampling**

The researcher selects the sample based on convenience (Acharya *et al.*, 2013:332). Convenience sampling is a form of non-random sampling where the target population is easily accessible, with geographical immediacy, readily available, as well as willing to take part as participants to be included for the study's purpose (Meadows, 2003:522).

- **Judgement (Purposeful) sampling**

Judgement sampling states that participants with knowledge of the main concept being researched in the study are intentionally selected by the researcher (Creswell & Plano Clark, 2018:176). In other words, the researcher decides what needs to be known and selects experienced individuals who are able as well as prepared to give the required information (Coyne, 1997:624). Purposeful sampling is usually utilised in qualitative research to select and identify cases that are rich in information (Suri, 2011:3).

- **Quota sampling**

In quota sampling, the whole population is separated into appropriate strata, such as age and gender (Yang & Banamah, 2014:2). These strata are termed quota controls and are selected based on how relevant they are to the research topic. External data (i.e. census results) are used to estimate the different elements available in every stratum in the population (Yang & Banamah, 2014:2).

- **Snowball sampling**

This sampling method is utilised when it is difficult to locate the population in a certain place, hence, accessing this population is different. The researcher probes every participant to provide access to their co-workers available from the same population (Elfil & Negida, 2017:2). In the snowball sampling procedure, participants are selected to participate in the study using

probability or non-probability methods, and then, participants are asked to recommend additional participants to take part in the study (Noy, 2008:330). Table 4.5 provides a contrast of advantages and disadvantages among the techniques of non-probability sampling methods.

Table 4.5: Contrast among sampling methods of non-probability samples

Non-probability samples			
Description	**Cost and level of utilisation**	**Advantages**	**Disadvantages**
Convenience: The most convenient sample is utilised.	Very low cost, broadly utilised.	Population list is not required.	Unreliable samples expected; random sampling error cannot be estimated, and there is a slight risk in predicting data beyond the sample.
Judgement: An experienced sample is selected by the researcher to fulfil a purpose i.e. guaranteeing that all participants have similar aspects.	Reasonable cost, average usage.	Beneficial for particular forms of projections; guarantee the sample meeting set-out objectives.	Bias as a result of the beliefs of members making the sample unrepresentative; it is risky to project data beyond the sample.
Quota: The population is categorised by relevant properties, regulates the anticipated share to sample available in every class, as well as fixing quotas for every interviewer.	Moderate cost, widely used.	Presents certain population stratification; population list is not required.	Presents favouritism in the researcher's subjects' categorisation; error due to the inability to estimate the population —may be the result of non-random selection within classes; risk exists in predicting data beyond the sample.
Snowball: Probability samples are used to select initial participants; more participants are attained by recommendation from the first participants.	Minimal cost, utilised in particular circumstances.	Convenient to detect individuals of rare populations.	High favouritism due to sample components not being independent; risk exists of data predicted beyond the sample.

Source: Zikmund *et al.* (2013:401).

4.3.4 Sample size

When deciding on the sample size, factors such as the population's characteristics, time, costs involved, as well as the kind of information that is needed from the survey should be considered (Chawla & Sondhi, 2011:231). The other consideration is the population's homogeneity from which the sample is to be obtained (Bryman & Bell, 2011:177). When a sample differs, i.e. a sample of the entire country or city, the population tends to be greatly diverse. Whenever the population is homogenous, such as company members, there is fewer dissimilarity. Consequently, as the heterogeneity of the population becomes greater, the sample will need to be larger (Bryman & Bell, 2011:177). This comprised a sample size of 593 partakers from a particular investment company in South Africa. However, the sample size was determined by the investment company that distributed the questionnaires.

4.4 DATA COLLECTION METHOD

Data are the raw resources of research that is collected by the researcher to gain a better understanding of their study (Walliman, 2016:120). The basic idea of a measuring instrument and data collection method is to adequately collect data to answer questions present in the study (Creswell & Plano Clark, 2018:173). An efficient method for collecting data when research is explanatory or descriptive is through questionnaires (Sekaran & Bougie, 2013:147). Descriptive research entails trying to describe or quantify a certain phenomenon, commonly by trying to figure out the strength of the correlation among two variables being studied (Dane, 2011:85). Contrarily, explanatory research is aimed at testing if an independent variable affects a dependent variable (Dane, 2011:101). The researcher followed the explanatory research in order to test if the explanatory factors affect the dependent factors.

Tan (2018:81) mentions that quantitative studies are more likely to use simulation, standardised tests, physical measuring instruments, and questionnaires. Questionnaires are commonly intended to gather large numbers of quantitative data. There are different ways to administer questionnaires, such as mailing, electronic distribution, or being self-administered (Sekaran & Bougie, 2013:147). Questionnaires are usually inexpensive compared to observations and interviews. There is also a large chance of non-response being introduced (Sekaran & Bougie, 2013:147). This study used an existing questionnaire that was distributed electronically to the investors of the selected investment company. The following sections give detail on the construction of the questionnaire.

4.4.1 Questionnaire design

Tan (2018:86) states that a questionnaire is questions that are listed to gather information by directly asking participants and is frequently used along with an interview. Moreover, most questionnaires comprise factual questions that are highly structured with limited answers and ratings, and also seldom contain opinions along with the reason (de Vos *et al.*, 2011:186). Before the questionnaire is finalised, a pre-test should be done utilising a small sample of participants for feedback to be received with regard to the content, structure, sequencing, and length of the questionnaire (Tan, 2018:88). For this study, the questionnaire was written in a language that is straightforward so that it could be understood by participants whose first language is not English.

4.4.2 Questionnaire format

The difference among qualitative and quantitative data is that qualitative data is made up of questions that are open-ended whereby the researcher does not use scales for data collection (Chawla & Sondhi, 2011:179). Certainly, the questions do not limit the responding options of participants when providing information. Contrarily, quantitative data uses closed-ended questions acquired from predetermined response scales. In a quantitative questionnaire, the participants will answer the questions, for example, by rating them from strongly disagree to strongly agree (Creswell & Plano Clark, 2018:179). The questionnaire in this study consisted of closed-ended questions where participants rated their answers to questions that were provided by the researcher.

4.4.3 Questionnaire layout

The layout of a questionnaire should be adequately spaced and uncluttered to make answering easier (Babbie, 2016:254). An attractive appearance can be created by using different print styles consistently and should mainly enable the respondent to follow the layout of the questionnaire (Bryman & Bell, 2011:195). Table 4.6 provides the layout of the questionnaire that was dispersed to individual investors of a certain investment company. The same questionnaire was provided to all the participants, which included a similar layout as well as question numbers.

Table 4.6: Sections of the questionnaire

Section	Category	Objective
A	Demographic information	To collect the investor's background information, i.e. age, gender, marital status, province, annual income, highest education level and religion.
B	Survey of Consumer Finances (SCF)	Using a subjective, single-item risk tolerance question to report the investor's risk tolerance.
C	Behavioural biases	To assess behavioural bias that an investor is subjective towards.
D	The satisfaction with life scale (SWLS)	To assess the rate at which an investor is satisfied with his/her life as a whole.
E	Personality measures	Personality measures aim to assess the personality traits of an investor based on the Big Five traits, known as neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience.
	Short-term investment intentions	To determine whether investors are willing to invest over a shorter period.
	Long-term investment intentions	To determine whether investors intend to invest over a longer period.

Source: Author's compilation.

4.4.3.1 Section A: Demographic information

Section A comprises demographic questions that assist to obtain the necessary information of the participants. The demographic information included age, gender, race, marital status, province, annual income, religion, and education level. The information was used to determine if demographic factors influenced investors' risk tolerance level, personality traits, and life satisfaction when having intentions to invest.

4.4.3.2 Section B: Survey of Consumer Finances

The SCF is one of the most widely utilised measures of risk tolerance, which comprises the utilisation of a single risk-tolerance item (Chattopadhyay & Dasgupta, 2015:603). This measure is widely used due to being available in the public domain, easy to be answered by respondents, and easily administered (Gilliam *et al.*, 2010:41). The SCF comprises demographics, broader household finances, as well as comprehensive mortgage data (Grinstein-Weiss *et al.*, 2015:422; Huston *et al.*, 2012:1275). Moreover, the direct measures of households' attitudes towards financial risk and also data that enables the estimation of the riskiness of household income are included in the SCF (Coulibaly & Li, 2009:660). The SCF instrument makes inquiries concerning the accounts utilised for data storage and debt accrual,

and a comprehensive set of products (Grinstein-Weiss *et al.*, 2015:423). There is an expectation of SCF to deliver information that is reliable on qualities that are generally dispersed in the population, as well as on a comparatively small portion of the population that is highly concentrated (Bricker *et al.*, 2012:5).

The item has been generally given the recognition for a measure that provides a high level of validity. However, certain researchers have argued that the instrument may not be a good measure for the true risk aversion of individuals (Gilliam *et al.*, 2010:41). As a result, Grable and Lytton (2001:43) conducted a study to test the wide use and validity of the SCF. The test revealed that the spectrum of financial risk tolerance is not fully represented by SCF (Grable & Schumm, 2010:3). However, the test showed that the question is closely associated with attitudes of investment choices. Similarly, the study done by Chattopadhyay and Dasgupta (2015:603) revealed that SCF is a suitable measure to evaluate investment risk behaviour. Investors were asked to select the closest option to indicate the level of financial risk they are willing to take.

4.4.3.3   Section C: Behavioural biases

There are statements available on the questionnaire that determines which bias an investor is subjective towards. Investors had to select the rating that was closely related to their financial decisions on the statements that were provided on the questionnaire. The six-point scale ranged between strongly agree and strongly disagree. The behavioural biases that an investor may be subjected towards are: representativeness, overconfidence, anchoring, gambler's fallacy, availability bias, loss aversion, regret aversion, mental accounting, and self-control (Baker & Ricciardi, 2015:24; Sashikala & Chitramani, 2017:414).

4.4.3.4   Section D: The satisfaction with life scale

The SWLS was developed by Diener *et al.* (1985:71) based on the concept that an individual should ask participants to judge their overall life as a means of measuring the life satisfaction concept. The creators developed the SWLS by compiling 48 items that had the intention of reflecting SWL and well-being (Pavot & Diener, 2008:141). Furthermore, the scale is a single factor that reveals worthy internal reliability and consistency, as well as suitable content for an extensive scope of age groups (Pavot *et al.*, 1991:150). Five items consist of the SWLS and the participants need to indicate on the seven-point Likert scale the degree to which participants agree, ranging from strongly agree to strongly disagree (Glaesmer *et al.*, 2011:128). The present questionnaire had the middle choice on the scale removed, which

resulted in the scale being presented in a question format of a six-point Likert scale. Refer to Annexure A.

4.4.3.5 Section E: Personality measures

In order to measure personality, the Big Five personality traits (neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience) were used. Personality traits are significant determinants of personality and affect the results that impact an individual (Becker *et al.*, 2012:453). The personality measure contains items or questions that represent the Big Five and responses provided on the questionnaire range from strongly disagree to strongly agree (Bleidorn *et al.*, 2009:144; Valette-Florence *et al.*, 2011:26). Each of the Big Five traits comprises two extremities (i.e. extraversion and introversion), whereby several aspects (i.e. sociability) are summarised (Gosling *et al.*, 2003:506; Van den Akker *et al.*, 2013:1039).

4.4.3.6 Section E (Subsection): Short-term investment intentions

The questionnaire included a total of five items that were used to determine whether investors are willing to invest in products that can be converted into cash in the next 3 to 12 months (Sashikala & Chitramani, 2018:183). The participants had to indicate on the questionnaire the degree (strongly agree and strongly disagree) to which they are willing to invest in the short-term securities (Sadiq & Khan, 2019:8).

4.4.3.7 Section E (Subsection): Long-term investment intentions

A total of five items were included in the questionnaire and the participants need to indicate strongly agree or strongly disagree on the six-point Likert scale (Mayfield *et al.*, 2008:224; Sadiq & Khan, 2019:8). Investors indicate the degree to which they are willing to invest in investment products (i.e. stocks, bonds, and real estate) that are held for a longer period, which is more than 12 months (Rikhardsson & Holm, 2008:386).

4.5   PRETESTING THE QUESTIONNAIRE

Pretesting refers to the questionnaire being tested on a small sample of participants to detect as well as remove problems that may arise (Malhotra *et al.*, 2017:398). A test of all the aspects of a questionnaire should be done, i.e. question sequence, form, content, layout, wording, question instructions and difficulty (Malhotra *et al.*, 2017:399). There should be similarities between respondents included in the pre-test and those taking part in the actual survey with

regard to background aspects, topic familiarity, interest's behaviours and attitudes (Malhotra, 2010:354).

The original researcher and the investment company agreed that the database of the company should be accessed once when distributing the questionnaires. Consequently, this study is proceeded without a pilot test being done for the questionnaire.

4.6 QUESTIONNAIRE ADMINISTRATION

The study used an existing questionnaire where the questionnaire was sent by the original researcher to the investment company. A South African investment company conducted the main survey using a self-administered questionnaire. Permission was requested by the original researcher from the investment company to survey their database as this study used the data that was previously collected. After the company agreed, the original researcher provided the investment company with a copy of the questionnaire.

The investment company screened the respondents, as a result, the client base of the company is unknown to the researcher. Additionally, the anonymity of the clients was guaranteed by ensuring that the self-administrated questionnaires had no identifying marks on them. Henceforth, the information attained through the responses provided by participants will remain confidential. The questionnaire adhered to the ethical standards of an academic research study (NWU, 2016:23). The questionnaire was distributed to individual investors of the investment company and the completed questionnaires that were received were 593. Subsequently, the researcher electronically received unprocessed data from the investment company. The investment company specified that the publishing of the data is permitted as long as the company name is not revealed.

4.7 DATA PREPARATION

Data preparation is the process by which the quality of the collected data is checked for correctness before being transformed into an electronic format (Shiu *et al.*, 2009:494). The questionnaire used in this study is an existing questionnaire, however, the original researcher had to follow this process when collecting the data. As soon as the researcher receives the first batch of questionnaires from the field, data preparation should start while the fieldwork is continuing. A modification can be done on the fieldwork for a corrective action to be incorporated provided there are any problems detected (Malhotra, 2010:452). Two aspects are significant to the preparation process of data, which are data editing and coding (Zikmund & Babin, 2013:64).

4.7.1 Data editing

Editing is the evaluation of the questionnaires with the intention of precision and accuracy is increased (Malhotra *et al.*, 2010:453). Questionnaires are screened to identify responses that are unfinished, ambiguous, varying, or illegible when editing takes place (Malhotra *et al.*, 2017:532). The manner in which the content is checked for completeness is dependent on the manner of data collection. Additionally, the responses to the questionnaire should be checked to mitigate some of the problems that may arise (Kumar, 2014:296).

4.7.2 Data coding

Coding is known as the process of identifying and assigning a number to the answers provided by the participants (Richards, 2009:93). This is primarily done as a way of enabling the researcher to interpret and categorise answers. Subsequently, the data attained from the questionnaire are then recorded on a spreadsheet (Chawla & Sondhi, 2011:248). Coding assists the researcher with asking questions, making comparisons across data, sorting the data, and altering or dropping categories. Codes are associations among positions in the data and sets of concepts, and in that sense, they are experimental devices that allow the researcher to go further than the data (Basit, 2003:144). This study used a questionnaire that has five sections ranging from A to E. Section A consists of eight questions regarding demographic factors of investors. Section B comprises 14 questions aimed at gathering the risk tolerance level of investors. Section C has nine questions aimed to determine the behavioural biases that investors are subjected towards. Section D consists of five questions that are asked in order to determine the life satisfaction level of investors. Section E comprises 27 questions in order to determine the personality traits of investors. Furthermore, Section E has two subcategories, namely: short-term investment intentions and long-term investment intentions. The first subcategory under Section E has five questions with the aim to determine whether investors have intentions to invest in the short term. The last subcategory also has five questions with the purpose to determine whether investors have intentions to invest in the long term. Table 4.7 presents the variable codes as well as allocated values used in different sections of the questionnaire.

Table 4.7: Information used for data coding

Section A: Demographics			
Question	**Code**	**Measured concept**	**Value allocated**
Question 1	A1	Age	16-24 (1); 25-34 (2); 35-49 (3); 50+ (4)
Question 2	A2	Gender	Male (1); Female (2)
Question 3	A3	Race	African (1); White (2); Coloured (3); Asian (4); Other (5)
Question 4	A4	Marital status	Single-staying on my own (1); Single-staying with my parents (2); Not married but staying together (3); Married (4); No longer married (5)
Question 5	A5	Province	Gauteng (1); KwaZulu-Natal (2); Western Cape (3); Northern Cape (4); Eastern Cape (5); Free State (6); Mpumalanga (7); Limpopo (8); North West (9); Live outside RSA (10)
Question 6	A6	Annual income	R0-R 200 000 (1); R 200 001-R400 000 (2); R400 001-R 600 000 (3); R 600 001-R 800 000 (4); R 800 001 or more (5)
Question 7	A7	Religion	Christian (1); Muslim (2); Catholic (3); Buddhist (4); Atheist (5); Agnostic (6); Non-religious (7); Other (8)
Question 8	A8	Highest level of education	Some schooling (1); Matric (2); Diploma (3); Undergraduate degree (4); Postgraduate degree (5)
Section B: Financial well-being & SCF			
Question	**Code**	**Measured concept**	**Value allocated**
Question 1	B1	Which of the following statements comes closest to the amount of financial risk that you and your spouse/partner are willing to take when making an investment?	Take substantial financial risks expecting to earn substantial returns (1); Take above-average financial risks expecting to earn above-average returns (2); Take average financial risks expecting to earn average returns (3); Not willing to take any financial risks (4)
Question 2	B2	In general, how would your best friend describe you as a risktaker	A real gambler (1); Willing to take risks after completing adequate research (2); Cautious (3); A real risk avoider (4)

Question 3	B3	You are on a TV game show and can choose one of the following. Which would you take?	A cash prize of R1,000 (1); A 50% chance at winning R5,000 (2); A 25% chance at winning R10,000 (3); A 5% chance at winning R100,000 (4)
Question 4	B4	You have just finished saving for a "once-in-a-lifetime" vacation. Three weeks before you plan to leave, you lose your job. You would:	Cancel the vacation (1); Take a much more modest vacation (2); Go as scheduled, reasoning that you need the time to prepare for a job search (3); Extend your vacation, because this might be your last chance to go first class (4)
Question 5	B5	In terms of experience, how comfortable are you investing in shares?	Not at all comfortable (1); Somewhat comfortable (2); Very comfortable (3)
Question 6	B6	If you unexpectedly received R20,000 to invest, what would you do?	Deposit it in a bank account, money market account or an insured Certificate of Deposit (1); Invest it in safe, high-quality bonds or bond mutual funds (2); Invest it in shares (3)
Question 7	B7	When you think of the word "risk," which of the following words comes to mind first?	Loss (1); Uncertainty (2); Opportunity (3); Thrill (4)
Question 8	B8	Some experts are predicting the value of assets such as gold, jewels, collectables and real estate (hard assets) will rise, while bond prices may fall. However, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high-interest government bonds. What would you do?	Hold the bonds (1); Sell the bonds, put half the proceeds into money market accounts, and the other half into hard assets (2); Sell the bonds and put the total proceeds into hard assets (3); Sell the bonds, put all the money into hard assets, and borrow additional money to buy more (4)
Question 9	B9	Given the best and worst case returns of the four investment choices below, which would you prefer?	An R200 gain best case; R0 gain/loss worst case. (1); A R800 gain best case; R200 loss worst case (2); A R2,600 gain best case; R800 loss worst case (3); A R4,800 gain best case; R2,400 loss worst case (4)
Question 10	B10	In addition to whatever you own, you have been given R1,000. You are now asked to choose between:	A sure gain of R500 (1); A 50% chance to gain R1,000 and a 50% chance to gain nothing (2)
Question 11	B11	In addition to whatever you own, you have been given R2,000. You are now asked to choose between:	A sure loss of R500 (1); A 50% chance to lose R1,000 and a 50% chance to lose nothing (2)

Question 12	B12	A relative left you an inheritance of R100,000, stipulating in the will that you invest all the money in one of the following choices. Which one would you select?	A savings account or money market mutual fund (1); A mutual fund that owns shares and bonds (2); A portfolio of 15 common shares (3); Commodities like gold, silver, and oil (4)
Question 13	B13	If you had to invest R20,000, which of the following investment choices would you find most appealing?	Invest 60% in low-risk investments, 30% in medium-risk investments and 10% in high-risk investments (1); Invest 30% in low-risk investments, 40% in medium-risk investments and 30% in high-risk investments (2); Invest 10% in low-risk investments, 40% in medium-risk investments and 50% in high-risk investments (3)
Question 14	B14	Your trusted friend and neighbour, an experienced geologist, is putting together a group of investors to fund an exploratory gold mining venture. The venture could pay back 50 to 100 times the investment if successful. If the mine is a bust, the entire investment is worthless. Your friend estimates the chance of success is only 20%. If you had the money, how much would you invest?	Nothing (1); One month's salary (2); Three months' salary (3); Six months' salary (4)

Section C: Behavioural biases

Question	Code	Measured concept	Value allocated
Question 1	C1	I base my investment decision on the past performance of investments.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 2	C2	My superior investment knowledge drives my decisions.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 3	C3	I rely only on a single piece of information (past or current information) to make investment decisions.	Strongly disagree (1); Disagree (2); Somewhat dis Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)agree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 4	C4	My investment decisions are based on future market predictions.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Question 5	C5	My investment decisions are based on the most recent information.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 6	C6	I would rather take the risk to keep my money in current investments (with negative returns) to avoid taking the loss.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 7	C7	My previously incorrect investment decisions which led to a financial loss drives my investment decisions.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 8	C8	I receive a good return on my investment and will rather keep money in my current investment than to earn higher future returns elsewhere.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 9	C9	I exercise self-control when making investment decisions.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Section D: Life satisfaction			
Question	**Code**	**Measured concept**	**Value allocated**
Question 1	D1	In most ways, my life is close to ideal	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 2	D2	The conditions of my life are excellent	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 3	D3	I am satisfied with my life	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 4	D4	So far, I have gotten the important things I want in my life.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 5	D5	If I could live my life over, I would change almost nothing.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Section E: Personality measures			
Question	**Code**	**Measured concept**	**Value allocated**
Question 1	E1	I often feel inferior to others.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 2	E2	When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 3	E3	I often feel tense and jittery.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 4	E4	Sometimes I feel completely worthless.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 5	E5	Too often, when things go wrong, I get discouraged and feel like giving up.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 6	E6	I really enjoy talking to people.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 7	E7	I often feel as if I'm bursting with energy.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 8	E8	I am a cheerful, high-spirited person.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 9	E9	I am a very active person.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 10	E10	I am intrigued by the patterns I find in art and nature.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 11	E11	I often try new and foreign foods.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 12	E12	I have little interest in speculating on the nature of the universe or the human condition.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Question 13	E13	I have a lot of intellectual curiosity.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 14	E14	I often enjoy playing with theories or abstract ideas.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 15	E15	I often get into arguments with my family and co-workers.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 16	E16	Some people think I'm selfish and egotistical.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 17	E17	Some people think of me as cold and calculating.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 18	E18	I generally try to be thoughtful and considerate.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 19	E19	I keep my belongings neat and clean.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 20	E20	I'm pretty good about pacing myself so as to get things done on time.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 21	E21	I waste a lot of time before settling down to work.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 22	E22	Sometimes I'm not as dependable or reliable as I should be.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 23	E23	I never seem to be able to get organised.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 24	E24	I am not willing to take risks when choosing a stock or investment.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 25	E25	I prefer a low-risk/high return investment with a steady performance over an investment that offers higher risk/higher return.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Question 26	E26	I prefer to remain with an investment strategy that has known problems rather than to take the risk of trying a new investment strategy that has unknown problems, even if the new investment strategy has great returns.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 27	E27	I view risk in investment as a situation to be avoided at all costs.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Short-term investment intentions

Question	**Code**	**Measured concept**	**Value allocated**
Question 28	E28	I intend to invest in an Individual Retirement Account every year.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 29	E29	I intend to put at least half of my investment money into the stock market.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 30	E30	I intend to engage in portfolio management activities at least twice per week.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 31	E31	I intend to perform my investment research instead of using outside advice	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 32	E32	I intend to compare my portfolio performance to that of professional managers.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Long-term investment intentions

Question	**Code**	**Measured concept**	**Value allocated**
Question 33	E33	I intend to save at least 10% of my gross earnings for investing/saving/retirement purposes.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 34	E34	I intend to have a portfolio that focuses on multiple asset classes (i.e., shares, bonds, cash, real estate, etc.)	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Question 35	E35	I intend to take an investments course.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 36	E36	I intend to manage my portfolio for the maximum gross return rather than tax and cost efficiency.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)
Question 37	E37	I intend to invest some money in long-term assets where my money will be tied up and inaccessible for years.	Strongly disagree (1); Disagree (2); Somewhat disagree (3); Somewhat agree (4); Agree (5); Strongly agree (6)

Source: Author compilation

4.8   SECONDARY DATA ANALYSIS

Secondary data analysis (SDA) was applied in this study by using an existing questionnaire. Secondary data are data previously gathered and recorded for purposes other than the current study, which the researcher had no involvement (Sekaran & Bougie, 2013:116; Szabo & Strang, 1997:66). Furthermore, the researcher does not need to meet the participants (Zikmund *et al.*, 2013:160). Existing data can be analysed using two approaches, namely: the research question-driven approach and data-driven approach (Cheng & Phillips, 2014:373). In the research question-driven approach, researchers look for appropriate datasets that will address the question that they have in mind. Conversely, the research data-driven approach takes a glimpse of the variables in a certain dataset and decides with regard to the type of questions that the existing data can answer (Cheng & Phillips, 2014:373). The approach used to analyse the existing data in this study is the research question-driven approach.

Researchers who may have a limitation of resources and time are provided with a feasible option that comes with the usage of existing data. Secondary analysis is an empirical exercise whereby similar basic principles of research are applied in the same manner as studies that use primary data and some steps also need to be followed (Johnston, 2017:619). In order to successfully analyse secondary data, there is a requirement of a systematic process that recognises challenges that may arise as a result of using existing data and addresses secondary data's different characteristics (Johnston, 2017:625).

When an analysis of existing data is conducted, the researcher must first familiarise themselves with the data set's nature, how variables were operationally defined, and the context in which the collection of the original data was done (Rew *et al.*, 2000:225). There should be similarities between the respondents that the data were originally collected from and the population that will take in the new study (Rew *et al.*, 2000:226). The most important feature of secondary data analysis is that the actual quantitative outcomes resulting from issued research are taken seriously (Church, 2002:40).

4.8.1   Advantages and disadvantages of secondary data analysis

There are advantages and disadvantages associated with the implementation of SDA. A summary of the advantages and disadvantages related to SDA is provided in Table 4.8.

Table 4.8: Advantages and disadvantages associated with SDA

Advantages	Disadvantages
The collection of data is faster, saves time and money compared to acquiring primary data (Cheng & Phillips, 2014:374)	Research is at times data-driven and not question-driven. Hence, the availability of data tends to influence the direction of topics (Hofferth, 2005:896)
When there is the availability of good secondary data, researchers can use larger datasets of good quality, i.e. those that funded studies collect (Johnston, 2017:624)	As a result of the space available in paper journals, only a summary of the original data is included in the publication (Church, 2002:40)
There is a recognition of secondary data analysis for being an important learning and teaching tool for new researchers (Andrews *et al.*, 2012:13)	Secondary data analysis may have biases in the original research design, as well as the methods used to collect data (Whiteside *et al.*, 2012:506)
Data can be analysed and duplicated from varied perspectives and as a result, allow discovering associations that are not considered in primary data research (Smith, 2008:328)	History and time bind data. Internal validity can seriously be threatened by this binding if there is a lack of understanding with the interpretation of data resulting from the historical and timing aspects of data (Rew *et al.*, 2000:227)
May be utilised to provide triangulation, whereby primary data will be used as a way of aggregating the credibility of research findings (Harris, 2001:193)	It is not designed for the precise needs of a researcher to be met (Zikmund *et al.*, 2013:160)

Source: Author compilation.

The disadvantages were considered during the implementation of SDA for this study. The researcher ensured that biases were eliminated, investors remained anonymous, the data were understood accordingly, and the confidentiality of investors was not compromised.

4.9   STATISTICAL ANALYSIS

Statistical analysis refers to the process of using mathematical methods for systematically analysing and organising data with the aim of obtaining meaning or information (Stangor, 2007:326). The captured data was analysed utilising the SPSS, version 25. The following section discusses the statistical measures and descriptive statistical procedures applied within this study.

4.9.1 Reliability

Reliability refers to the degree at which consistent results are produced by a scale if a repetition of measurements is done (Sekaran & Bougie, 2013:228). Lower reliability is the result of inconsistency produced by random error. Reliability is evaluated through establishing

the portion of systematic variability on a scale (Welman *et al.*, 2005:145). This is done by taking the scores acquired from different administrations of the scale and establishing the correlation among those scores (Drost, 2011:108). Reliability can be assessed by using the following approaches: test-retest, alternative forms, and internal consistency methods (Malhotra, 2010:318).

4.9.1.1 Test-retest reliability

Test-retest is a method that is frequently utilised to establish the reliability of a research tool. Similar conditions are used to administer an instrument once (test), and then once more (retest) (Vaz *et al.*, 2013:1). The reliability of the instrument is indicated by the ratio or difference among the test and retest scores (Paiva *et al.*, 2014:9). The key advantage of the approach is that the test-retest technique allows for the comparison of the instrument with itself, as a result, the problems that could arise when another instrument is utilised can be avoided (Holmefur *et al.*, 2009:887). On the other hand, a disadvantage of the technique is that the responses may be remembered by the participant that was provided in the first round, hence the reliability of the instrument may, in turn, be affected.

4.9.1.2 Alternative forms reliability

In alternative forms, two instruments are constructed to measure an identical phenomenon (Benton, 2013:58). There is a measurement of the same population at two varied times, frequently two to four weeks apart, whereby a form of a different scale is administered at each time (Welman *et al.*, 2005:146). This technique's key advantage is that the recall problem found in the test-retest technique is present in the alternative forms technique (Yang & Green, 2011:382). However, two major disadvantages exist with this approach. Firstly, it takes too much time and is not cost-effective for a comparable form of the scale to be constructed. Lastly, it is not easy for two similar forms of a scale to be constructed. It is equally challenging for comparability to be achieved in the two population groups as well as in the two conditions that are significant for administering the tests (Bolarinwa, 2015:199).

4.9.1.3 Internal consistency reliability

This approach is utilised to evaluate the reliability of a summated scale. Whereby, for a total score to be formed, several items are added together (Tavakol & Dennick, 2011:53). With regard to the procedures of internal consistency, the items or questions quantifying a similar phenomenon should yield comparable results notwithstanding their number, that is, the number of questions available in an instrument (Sekaran & Bougie, 2013:229). The main focus

of this reliability measure is on the internal consistency of the scale that is formed by a set of items.

The split-half reliability procedure is the easiest measure of internal consistency. The procedure is designed to compare the association between two halves and is suitable for instruments that are created for quantifying attitudes of a phenomenon (Drost, 2011:110). High internal consistency is revealed by a high association among the halves. The items of the scale can be divided into halves based on odd, even, or random numbered items. The problem is that the outcomes are depended on how the items of the scale are divided. The coefficient alpha is the frequently used approach to solve this problem (Yang & Green, 2011:382).

The coefficient alpha, or Cronbach's alpha, is known as the average of all the coefficients that have been divided into half as a result of the varied ways of dividing the items of the scale (Bonett & Wright, 2015:3). The coefficient varies from 0 to 1, and the internal consistency reliability unsatisfactory is indicated by a value of 0.6 or less (Tavakol & Dennick, 2011:53). The significant part of coefficient alpha is that its value is likely to appreciate with an escalation in the number of items on a scale.

4.9.2 Validity

Validity is defined as the degree to which the researcher has quantified what he has intended to measure and the results support exactly what is happening in the situation (Welman *et al.*, 2005:142). Kumar (2014:213) further defines validity as the degree to which the considered concept's real meaning is sufficiently revealed by an empirical measure. There are three different kinds of validity in quantitative research that a researcher can use when testing for the validity of a scale. There are various types of validity, including face validity, content validity, criterion validity, and construct validity (de Vos *et al.*, 2011:173; Malhotra, 2010:320).

4.9.2.1 Face validity

Gravetter and Forzano (2003:87) propose that face validity is the easiest scientific definition of validity. It takes into consideration the measurement procedure at face value. This approach is a measuring instrument's desired feature. Accordingly, resistance may be encountered by participants without face validity, which may result in having an adverse effect on the acquired results (De Vos *et al.*, 2011:174).

4.9.2.2 Content validity

Content validity is referred to as the extent to which the items or questions denote the issue they intend on measuring, using the judgement of the researcher based on their expertise (Brod *et al.*, 2009:1263; Sekaran & Bougie, 2013:226). The advantage of content validity is that its application is simple. Under content validity, different facets of the issue are covered by various items that are available in research (Wilson *et al.*, 2012:197). The more the issues covered, the higher the validity. Moreover, there should be a balance on the issue's coverage, meaning that every facet should consist of sufficient as well as comparable representation in the items (Pandey & Chawla, 2016:341). In order to ascertain the content validity of this study, a questionnaire was used to measure the investment intentions of investors.

4.9.2.3 Criterion validity

Criterion validity reveals if a scale performs according to set expectations in comparison to other variables that are categorised as meaningful criteria (Malhotra, 2010:320). A comparison between one assessment of the instrument and the other can determine the validity of an instrument. If there is a similarity on both assessments, the instrument utilised for the assessment at the selection time is presumed to comprise a higher validity (Kumar, 2014:215). Under criterion validity, two types of validity can be established by this comparison, known as concurrent and predictive validity. Concurrent validity is concerned with how well a simultaneous contrast can be done between an instrument and the second assessment (Welman *et al.*, 2005:144). Contrarily, predictive validity is the extent to which a prediction of an outcome can be made by an instrument.

4.9.2.4 Construct validity

Construct validity is a quality indicator of a research instrument that measures the variable that it is intended to measure (Sekaran & Bougie, 2013:227). Establishing how each construct contributes to the overall variance tested in an event determines construct validity (Ellis & Levy, 2009:334). Once the data have been analysed, statistical procedures are utilised for the involvement of every construct to the overall variance to be established. The impact of the construct resulting in a great variance will lead to a higher instrument validity. The key point of construct validity is that the mandatory statistical procedure needs to be known by the researcher (Strauss & Smith, 2009:6).

4.9.3 Descriptive statistics

Descriptive statistics are the graphical and numerical methods utilised as a means of presenting, categorising, as well as examining data (Fisher & Marshall, 2009:95). A certain type of descriptive statistics that describes a variable within a sample depends on the degree of measurement that has been previously used. Precisely, these are the descriptive statistics that can define basic features and ensuring that data are summarised in a comprehensible as well as straightforward manner (Zikmund *et al.*, 2013:410). A comparison of samples resulting from two studies can be done by using descriptive statistics. Furthermore, researchers can discover sample characteristics that may have an impact on their conclusions (Thompson, 2009:57). Descriptive statistics that are frequently used consist of mean, mode, median, range, variance, standard deviation, skewness, and kurtosis (Malhotra, 2010:486). Table 4.9 provides descriptive statistics and a brief description.

Table 4.9: Descriptive statistics

Measures	Description of the measures
Measures of central tendency	Mean: the numerical value that shows the average score of the sample (Fisher & Marshall, 2009:95)
	Mode: the value that appears the most within the sample (Thompson, 2009:58)
	Median: the value in the middle of the sorted dataset. The median is the point in the centre where the data have been split into two, the one half is above the median and the other half is below it (Delaigle & Hall, 2010:1186)
Measures of variability	Range: is the subtraction of the lowest from the highest value within a dataset (Marshall & Jonker, 2010:e6)
	Variance: the average squared deviation of the total values' distribution from the mean (Hair *et al.*, 2009:486)
	Standard deviation: is referred to as the square root of the calculated variance on a variable (Churchill *et al.*, 2010:430). It provides the average variance of every score to the mean (Fisher & Marshall, 2009:95). It measures the degree to which data is spread out around the arithmetic mean (Marshall & Jonker, 2010:e3)
Measures of shape	Skewness: it indicates the asymmetry of data distribution (Ho & Yu, 2015:370)
	Kurtosis: is a measure of the relative peakedness or flatness of the frequency distribution's curve. A normal distribution's kurtosis is zero (Malhotra, 2010:488)

Source: Author compilation.

4.9.4 Inferential statistics

Inferential statistics are used to infer or make projections from a subset of a sample to an entire population (Vergura *et al.*, 2008:4456; Zikmund *et al.*, 2013:410). As a result, inferential statistics are dependent on suitable sampling methods to guarantee the utmost representation of the population of interest. The process of hypothesis testing and probability theory are the basis for inferential statistics (Allua & Thompson, 2009:168). The main aim of inferential statistics is not to provide complete certainty, but for robust tools to be provided to evaluate the probability or improbability of the generalisation that the researcher intends on making (Núñez, 2007:91).

4.9.4.1 Significance tests

Statistical significance tests are important to assist the researcher to achieve the goal of their study. An accurate test only reports significance when it exists (Smucker *et al.*, 2007:623). Significance tests are vital, beneficial, and also required to a certain extent to differentiate statistically significant results of the sample assessed (Ge, 2007:2259; Schneider, 2013:51). The significance statistic does not measure quantitatively the degree of confidence in the reality of the provided results (Ambaum, 2010:5928).

The significance test does not measure the likelihood of a hypothesis, it measures the observation's likelihood, provided the alternative hypothesis is true (Ambaum, 2010:5927). Usually, there is no risk associated with significance tests because there is a test of the null hypothesis, unlike when researchers use the alternative hypotheses (Schwab *et al.*, 2011:1108). The significance probability (or p-value) is the determined significance level at which the null hypothesis would be rejected; however, the significance level is somewhat arbitrary. Literature indicates that the most acceptable significance levels are 0.01, 0.05 and 0.1 (Figueiredo Filho *et al.*, 2013:37). Furthermore, the null hypothesis is rejected at a certain significance level if the p-value is lower than the significance level (Denœux *et al.*, 2005:4).

4.9.4.2 Linear regression

The linear regression analysis has the objective to determine how a dependent variable is linearly associated with a set of independent factors (Verardi & Croux, 2009:439). Mahmound *et al.* (2010:1250) indicated the linear regression formula as:

$$Y_{ij} = A + BX_{ij} + \varepsilon_{ij} \tag{4.1}$$

Where Y_{ij} denotes the dependent variable of the sample; A represents the intercept of the sample dependent variable while B is the scope coefficient of the sample. The independent variable is represented by X_{ij} and ε_{ij} represents the stochastic error term. The linear regression is the simplest model that can be used to explain one variable from a group of others. Nau (2014:1) denotes that linear regression has the following assumptions:

- The expected value of the dependent factor is the explanatory variables' linear function. Therefore, the value of the coefficient of the independent variable never changes, notwithstanding the values of the explanatory variables. The independent variables' total effect on the expected value of the dependent variable is the addition of their separate effects.
- The unexplained variations of the dependent variable are independent random variables.
- All of the explanatory variables have the same variance and have a normal distribution.

There are numerous outputs received from the statistics tool used when a regression analysis is conducted. The regular coefficient of determination (R-square) of the model is one of the most useful measures and measures the goodness of fit (Asteriou & Hall, 2016:72).

4.9.4.3 Multiple regression

The underlying principles of multiple regression are the same as those for linear regression. With multiple regression, there is more than one explanatory variable that is responsible for indicating which variables have an impact on the dependent variable (Kellerman, 2019:82). Usually, the dependent factor, *Y*, depends on a larger group of independent factors or regressors. Asteriou and Hall (2016:64) provide the general form for the multiple regression model as:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \cdots + \beta_k X_{kt} + u_t \qquad (4.2)$$

The dependent variable, represented by Y_t. β_0 , indicates the dependent variable's intercept, whereas β_k is the sample scope coefficient for the kth observation. The explanatory variable is represented by X_{kt} for the kth observation and u_t is the error term (Asteriou & Hall, 2016:64). The R-square, also known as the multiple coefficients of determination is used to measure the goodness of fit of the fitted regression line of the sample. It provides the proportion of the overall difference in the dependent factor described by multiple independent factors (Gujarati & Porter, 2010:102). This study used multiple regression to determine which of the variables including risk tolerance, behavioural biases, life satisfaction and personality traits; and which

of the demographics including age, annual income, and the highest level of education are predictive in nature. The previously mentioned variables and demographic factors were processed as independent factors and short-term investment intentions as well as long-term investment intentions as the dependent factors.

One of the significant challenges in multiple regression analysis is multicollinearity. It is normally considered as a problem resulting from the assumption that independent variables are linearly independent being violated. Generally, multicollinearity exists if there is an approximately linear association among the factors (Adeboye *et al.*, 2014:1). The variance inflation factor (VIF) is utilised as a multicollinearity indicator. In multiple regressions, lower levels of VIF are preferable to researchers, as higher VIF levels are known to have an adverse effect on the results related to multiple regression analyses (Adeboye *et al.*, 2014:4). There is a general acceptance that multicollinearity may exist when the VIF value is greater than 10 (Yoo *et al.*, 2014:10)

4.9.4.4 Correlation

A correlation coefficient shows how strong is the association among two related factors (Wetzels & Wagenmakers, 2012:1057). The coefficient *r* measures the association among two variables. If one variable increases, the other variable would decrease, indicating an inverse relationship between the two variables. Where $r = -1$ indicates a perfect negative linear relationship; $r = 1$ indicates a perfect positive relation; and $r = 0$ indicates that there is no linear relationship (Bewick *et al.*, 2003:451). The coefficient of correlation is defined as follows:

$$\rho = \frac{cov\ (X,Y)}{\sigma_x \sigma_y} \tag{4.3}$$

Where ρ (rho) represents the coefficient of correlation. It is evident from Equation 4.3 that the correlation among two random variables X and Y is simply the covariance's ratio among the two variables divided by their standard deviation. As a result, the correlation coefficient is referred to as a measure of linear association among factors, meaning, the strength of linearity between the two variables (Gujarati & Porter, 2010:445). Numerous measures exist for correlation, the widely used measures are known as Pearson's correlation coefficients and Spearman's rank correlation coefficients (Erdem *et al.*, 2014:274; Zhang, 2008:1007). Spearman's correlation coefficient is a non-parametric version of Pearson's correlation coefficient utilising data that is ranked (Takeuchi, 2010:1832). The correlation used in this study is the Spearman's rank correlation to establish the association among independent factors and investment intentions of investors, as well as the relationship between demographic factors and investment intentions of investors.

4.9.4.5 T-test

A t-test is a statistical test that is utilised when comparing the means of two categories. T-tests may be used when the conditions of independence, normality and variance that are equal are fulfilled by the samples (Kim, 2015:540). There are two types of t-tests. The first test is an independent t-test, which may be utilised when two compared categories are independent of one another. The last t-test is the paired t-test, which is used when there is a dependency between the two compared groups on each other. The formula used when performing the paired t-test is formulated as follows (Kim *et al.*, 2018:2347):

$$T = \frac{D - 0}{\frac{S_D}{\sqrt{n}}} \tag{4.4}$$

Where D is the sample mean and the S_D is the standard deviation of the sample; n is the size of the sample and μ_0 is the constant term illustrated in equation 4.5 and 4.6. The paired t-test was utilised by the researcher in order to reveal if any significant differences exist among how the distribution for female and male is split. Below is the formulated null hypothesis:

$$H_1 : \mu_x = \mu_y \tag{4.5}$$

Once there is a conclusion on the null hypothesis, it will reveal that both mean variances are equal. The alternative hypothesis is as follows:

$$H_1 : \mu_x \neq \mu_y \tag{4.6}$$

The mean variances of the distribution in gender are revealed once the alternative hypothesis is concluded.

4.9.4.6 Analysis of variance

ANOVA is a statistical test that is used to discover differences in the means of the categories when one dependent factor and one or more explanatory factors exist (Sawyer, 2009:27e). The aim of performing the ANOVA test is for the significance of independent variables on the dependent variable to be evaluated (Nasir *et al.*, 2011:1128). The ANOVA test utilises F-statistic when testing if all the classifications have a similar mean. When the means of two categories are being compared, the t-statistic is the F-statistic's square root in the ANOVA test (Park, 2009:5). The ANOVA test can be conducted in two ways. One-way ANOVA comprises only one independent factor. Whereas the n-way ANOVA is used when two or more independent variables are involved (Malhotra, 2010:531). The researcher used a one-way

ANOVA to determine the influence of one of the independent factors on the dependent variables.

4.10 SYNOPSIS

Chapter 4 discussed the different research methodologies used for the empirical portion of this study. It is beneficial for the researcher to have a thorough understanding of the research methodology for an accurate study to be conducted. The chapter began with presenting the research design, which included the research paradigm and approach. The researcher evaluated the different paradigms, which included positivism, post-positivism, interpretivism and pragmatism. A positivistic paradigm was adopted whereby an explanatory quantitative research approach was followed in this study.

With regard to the sampling procedure, the target population of this study included individual investors from a South African investment company. In terms of the sampling methods, the different methods were discussed. The individual investors from this investment company were selected based on non-probability purposeful sampling, with a sample size of 593.

SDA was applied in this study, where the data were obtained from an existing questionnaire. This section discussed two approaches that are utilised when analysing existing data. The research question-driven approach was used to analyse data in this study. The advantages and disadvantages present in secondary data analysis were also discussed. The researcher ensured the elimination of biases, the anonymity of investors, as well as not compromising the confidentiality of investors.

Statistical analysis has a significant role in a quantitative research study. Secondary data were used, therefore, the transformation and cleaning of data were ensured for the validity of the study. This section further discussed the descriptive as well as inferential statistics applied in this study. The inferential statistics applicable for this study included a multiple regression analysis, correlation coefficient, t-test and ANOVA test, which were applied in the empirical portion of this study. The results and findings of this study are dealt with in Chapter 5.

CHAPTER 5: ANALYSIS AND INTERPRETATION OF RESULTS

5.1 INTRODUCTION

This chapter focuses on presenting the analysis and empirical findings of the study. The primary objective of this study was to analyse the factors that influence the investment intentions of investors in South Africa. The results in this chapter are provided in accordance with the empirical objectives as presented in Chapter 1:

- Determine the life satisfaction of the sample.
- Determine the personality traits of the sample.
- Determine the level of risk tolerance for the sample.
- Determine the behavioural biases of the sample.
- Determine how risk tolerance, personality traits, behavioural biases, and life satisfaction influence the short-term investment intentions of investors in South Africa.
- Determine how risk tolerance, personality traits, behavioural biases and life satisfaction influence the long-term investment intentions of investors in South Africa.

The sections that follow entail the results of the aforementioned empirical objectives. Section 5.2 commences with an overview of demographic information to establish the demographic composition of investors in South Africa. Section 5.3 presents the descriptive analysis as well as the interpretations of the sample. Section 5.4 presents the hypotheses formulated to address the empirical objectives of this study. Finally, Section 5.5 to Section 5.10 provide a presentation of the results for the empirical objectives of this study. An analysis of the captured data in Chapter 5 was performed using the SPSS, Version 25.

5.2 DEMOGRAPHIC INFORMATION

The demographic information of the sample included in this study is reported in Table 5.1. The questionnaire provided demographic information with different categories to identify the demographic composition of investors in South Africa. With reference to Annexure A, Section A, the demographic information for this study included age, gender, race, occupation, marital status, education, religion, province, and annual income. The results in Table 5.1 are interpreted in the sections that follow.

Table 5.1: Descriptive analysis of the demographic information

Demographic variable	Category	Frequency (*f*)	Percentage (%)
Age	16─24	15	2.5
	25─34	109	18.4
	35─49	238	40.1
	50+	231	39.0
Gender	Male	256	43.2
	Female	337	56.8
Race	African	107	18.0
	White	377	63.6
	Coloured	53	8.9
	Asian	56	9.4
Marital status	Single ─ staying on my own	114	19.2
	Single ─ living with parents	32	5.4
	Not married but staying together	65	11.0
	Married	318	53.6
	No longer married	64	10.8
Province	Gauteng	265	44.7
	Kwazulu-Natal	88	14.8
	Western Cape	140	23.6
	Northern Cape	6	1.0
	Eastern Cape	34	5.7
	Free State	16	2.7
	Mpumalanga	12	2.0
	Limpopo	12	2.0
	North West	13	2.2
	Live outside RSA	7	1.2
Annual Income	R0-R200 000	182	30.7
	R200 001─R400 000	198	33.4
	R400 001─R600 000	98	16.5
	R600 001─R800 000	56	9.4
	R800 001 or more	59	9.9

Religion	Christian	417	70.3
	Muslim	13	2.2
	Catholic	31	5.2
	Buddhist	4	0.7
	Atheist	11	1.9
	Agnostic	15	2.5
	Non-religious	50	8.4
	Other	52	8.8
Education	Some schooling	21	3.5
	Matric	139	23.4
	Diploma	198	33.4
	Undergraduate degree	91	15.3
	Postgraduate degree	144	24.3

5.2.1 Age

Table 5.1 presents the age categories of 593 participants for this study. The participants were required to indicate their age by selecting one of the four categories, which comprised 16─24 years, 25─34 years, 35─49 years as well as 50 years and above. It can be observed from Table 5.1 that 40.1 per cent of participants were between the age of 35 and 49, followed by 39 per cent of participants that fell under the category of 50 years and older. Participants that fell under the age category of 25 to 34 represented 18.4 per cent of the entire population while the age of the remaining participants was between 16 to 24 years (2.5%).

5.2.2 Gender

Participants were asked to indicate their gender as it was included in the composition of the sample. A choice could be made between female and male. According to Table 5.1, the largest portion of the sample was made up of female investors representing 56.8 per cent. The male investors represented the remaining 43.2 per cent of the sample.

5.2.3 Race

The questionnaire comprised four racial categories where participants could classify themselves into one of these categories under ethnicity. According to Table 5.1, the categories were White investors (63.6%) which comprised the majority of investors, followed by African investors (18%). Asian investors accounted for 9.4 per cent of the sample, while Coloured investors were the least investors (8.9%).

5.2.4 Marital status

Marital status was divided into five categories. Among these were single – staying on my own, single – living with parents, not married but staying together, married, and no longer married. As reported by Table 5.1, the largest portion of the sample was married (53.6%), followed by investors who are single and staying on their own (19.2%). Investors who were not married but staying with their partner made up 11.0 per cent of the entire sample and investors who were no longer married represented the smallest portion of the group (10.8%). Lastly, the smallest portion of the sample was single – living with parents (5.4%).

5.2.5 Province

Participants were asked to select the province they reside in, as well as an additional option for those who reside outside South Africa. As reported by Table 5.1, the sample consisted of several investors residing in Gauteng (44.7%), followed by Western Cape (23.6%) and then KwaZulu-Natal (14.8%). The investors that remained, resided in the Eastern Cape (5.7%), Free State (2.7%), North West (2.2%), Limpopo (2.0%), Mpumalanga (2.0%), and the Northern Cape (1.0%). Finally, the investors that live outside South Africa were only 1.2 per cent of the total sample and were not taken into consideration for the purpose of the study.

5.2.6 Annual income

Participants were asked to indicate their annual income according to the income brackets provided in the questionnaire. According to Table 5.1, the income bracket that had the most participants was R200 001 to R400 000 per annum, representing 33.4 per cent of the sample. The second income bracket ranging between R0 to R200 000 per annum represented 30.7 per cent of the sample, followed by earners falling into the income bracket of R400 001 to R600 000 per annum, which represented only 16.5 per cent of the entire sample. The remaining sample is represented by the income bracket of R600 001 to R800 000 per annum (9.4%) and investors with earnings of more than R800 000 (9.9%) per annum.

5.2.7 Religion

Investors were asked to indicate the religion they are affiliated with and could choose from a list of seven religions. For participants that did not affiliate with any of the religion that was available on the question, had the option of choosing other. Table 5.1 reported that the majority of the sample was Christians representing 70.3 per cent, followed by investors that categorised themselves as others (8.8%). A total of 8.4 per cent of the sample were non-

religious. The remaining sample classified themselves as Catholic (5.2%), Agnostic (2.5%), Muslim (2.2%), Atheist (1.9%), and Buddhist (0.7%).

5.2.8 Education

Table 5.1 indicated that investors had different levels of formal education. The levels of education are some schooling, matric, diploma, undergraduate degree, or a postgraduate degree. The largest portion of the sample (33.4%) revealed that their highest level of education is a diploma. Participants with a postgraduate degree and matric accounted for 24.3 per cent and 23.4 per cent of the sample, respectively. Investors that had an undergraduate degree contributed 15.3 per cent of the sample while 3.5 per cent of participants had some form of schooling.

5.3 DESCRIPTIVE ANALYSIS

Descriptive statistics for all the items that form part of the questionnaire are identified in this section. The purpose of descriptive statistics is to provide researchers with a summarising tool and a description of the basic aspects of large sets of data received from a sample (Hair *et al.*, 2009:471). As discussed in Chapter 4, descriptive statistics usually comprise measures of central tendency, dispersion, and shape.

5.3.1 Survey of Consumer Finances

This section provides descriptive statistics relating to the frequency distribution and percentages of the SCF questions, which forms part of Section B of the questionnaire. The SCF question aims to measure individual attitudes towards risk-taking. Table 5.2 shows the frequencies and percentages resulting from SCF.

Table 5.2: Frequencies and percentages of investor's risk tolerances using the SCF scale

Item	Frequency (*f*)	Percentage (%)
Not willing to take any risk	184	31.0
Take average risk to receive average return	242	40.8
Take above-average risk to receive above-average return	113	19.1
Substantial risk to receive substantial return	35	5.9
Not indicated	19	3.2

Table 5.2 consists of frequencies and percentages assigned to each statement that forms part of the SCF, which is made up of a single question. It can be viewed from Table 5.2 that 184 investors (31.0%) were not willing to take any risk. Conversely, the remaining 65.8 per cent investors (excluded not indicated), indicated that they are willing to take financial risks. The largest portion of the sample (40.8%) revealed that they are willing to take an average financial risk as a means of receiving average returns. The category that followed was investors (19.1%) who indicated that they are willing to take above-average financial risk, with an expectation of earning above-average returns. The remaining investors from the sample revealed that they are willing to take a substantial amount of risk (5.9%), provided that they receive substantial returns and the rest of the sample gave no indication (3.2%) to the amount of risk they are willing to take.

5.3.2 Descriptive statistic for demographic variables

This section explains the demographic factors of investors that belonged to an investment company in South Africa. The demographic variables are age, gender, ethnicity, marital status, province, annual income, religion, and the highest level of education. Table 5.3 reveals these demographic characteristics of investors.

Table 5.3: Descriptive statistics for demographics

Item	Valid (n)	Mean	Standard deviation	Skewness	Kurtosis
Age	593	47.12	13.98	0.48	0.03
Age categorised	593	3.16	0.81	-0.58	-0.46
Gender	593	1.57	0.50	-0.28	-1.93
Ethnicity	593	2.10	0.80	0.94	0.84
Marital status	593	3.31	1.30	-0.83	-0.67
Province	593	2.56	2.11	1.73	2.56
Annual income	593	2.35	1.28	0.76	-0.46
Religion	593	2.47	2.53	1.36	0.08
Highest level of education	593	4.30	1.26	-0.27	-0.25

In Table 5.3, the n values (593) indicate the total of participants (investors) that took part in completing this portion of the questionnaire. In terms of the mean related to demographics, age (47.12) had the highest mean value, indicating that the majority of investors that participated were between the age group of 35–49. The highest level of education (4.30)

indicated that most of the investors in this study had a diploma. Marital status (3.31) revealed that the majority of investors were married. The mean of the province (2.56) revealed that the majority of investors resided in Gauteng. Religion had a mean value of 2.47, indicating that most of the investors in this study were Christians. The mean annual income (2.35) indicated that the participants in this study had an annual income ranging between R200 001 and R400 000 per annum. Ethnicity (2.10) revealed that the majority of participants were White investors. Lastly, the mean value of gender (1.57) indicated that the majority of investors were females.

Statistical analysis was performed on demographics to obtain the skewness and kurtosis values and are reported in Table 5.3. Skewness refers to the degree of asymmetry or distortion in a normal distribution, in a set of data. The acceptable ranges for skewness fall between -2 and +2, which indicates a relatively normal distribution. According to Table 5.3, age categorised (-0.58), gender (-0.28), marital status (-0.83), and the highest level of education (-0.27) displayed negative values, meaning that these classifications are skewed to the left. The remaining categories (age, ethnicity, province, annual income, and religion) display positive values, indicating that these items are skewed to the right. Kurtosis, on the other hand, refers to how peaked the data is. The majority of items have a negative value for kurtosis, indicating a relatively flat distribution. However, age (0.03), ethnicity (0.84), province (2.56), and religion (0.08) display positive kurtosis, indicating that these items display a relatively peaked distribution. The value of standard deviation indicates how dispersed it is from the mean value. The standard deviation is lower than the mean for age (13.98), age categorised (0.81), gender (0.50), ethnicity (0.80), marital status (1.30), province (2.11), annual income (1.28), and the highest level of education (1.26), indicating a smaller dispersion from the value of the mean. However, the standard deviation of religion (2.53) is higher than the mean indicating a larger dispersion from the mean.

5.3.3 Descriptive statistics for the influencing factors

The descriptive statistics for the factors that influence investment intentions used in this study are reported in Table 5.4. The following section provides an overview of the influential factors, which are personality measures, life satisfaction, risk tolerance, and behavioural biases.

Table 5.4: Descriptive statistics of factors that influence investment intentions

Factors	Items	Valid (n)	Mean	Standard deviation	Skewness	Kurtosis
Personality measures	Neuroticism	593	15.00	5.64	0.28	-0.61
	Extraversion	593	16.53	3.67	-0.45	0.15
	Openness to experience	593	20.25	3.48	-0.24	1.34
	Agreeableness	593	13.03	3.01	0.82	1.01
	Conscientiousness	593	17.59	2.75	0.70	2.62
	Risk aversion	593	15.21	3.84	0.03	-0.33
Life satisfaction	SWL	593	18.20	5.68	-0.33	-0.46
Risk tolerance	SCF	593	2.09	1.01	0.91	0.53
Behavioural biases	Representativeness	593	4.30	1.04	-0.75	0.99
	Overconfidence	593	3.19	1.37	0.05	-0.93
	Anchoring	593	2.65	1.35	0.55	-0.57
	Gambler's fallacy	593	3.92	1.19	-0.55	0.16
	Availability bias	593	4.35	1.13	-0.82	0.70
	Loss aversion	593	3.49	1.31	-0.03	-0.71
	Regret aversion	593	3.56	1.43	-0.21	-0.87
	Mental accounting	593	4.24	1.14	-0.70	0.33
	Self-control	593	4.75	0.96	-1.06	2.11

- **Personality measures**

As reported by Table 5.4, the number of investors who participated in completing the section of personality measures of the questionnaire amounted to 593. The inter-item correlation was tested and none of the factors exhibited an inter-item correlation of higher than 0.8, meaning that different items are being tested and there is no duplication of item testing (Maindal *et al.*, 2012:32). The skewness of the personality traits was within the acceptable range of -2 to +2. Pertaining to the kurtosis values, neuroticism (-0.61) and risk aversion (-0.33) reflected values

below zero, indicating that the distribution of data is flattened. The remaining items reflected values above zero, indicating that the distribution of data is peaked.

When considering the mean associated with personality measures of investors, the mean value of openness to experience is the highest (20.25), indicating that investors enjoy trying new things, being curious and sophisticated. Conscientiousness holds the second highest mean value of 17.59, showing that investors tend to be careful, efficient, and organised. Moreover, the third-highest mean value is held by extraversion (16.53), indicating that investors with this trait are sociable, assertive, and have a high activity level. The mean values of neuroticism (15.00) and agreeableness (13.03) are the lowest, indicating that investors are more likely to be open to experience, conscientious, and extraverted than compared to being agreeable and anxious. In terms of risk aversion, investors are more concerned with being risk averse (15.21), than compared to being agreeable and anxious.

- **Life satisfaction**

The number of investors who completed the section of life satisfaction is indicated by the n value (593). A test for inter-item correlation was done and none of the questions under SWL exhibited inter-item correlation that is greater than 0.8, indicating that item testing is not replicated. As reported in Table 5.4, life satisfaction has a negative value for skewness (-0.33), indicating that the data are distributed to the left and the skewness is within the acceptable range. With reference to kurtosis (-0.46), the value is below zero indicating relatively flat distributions. The value of standard deviation indicates how dispersed it is from the value of the mean. The standard deviation is smaller than the mean, indicating there is a smaller dispersion from the mean value. The mean value of life satisfaction is 18.20, indicating investors are likely to be satisfied with their life.

- **Risk tolerance**

The value of (n) indicates that 593 investors participated in filling out the section of risk tolerance. It is evident from Table 5.4 that risk tolerance has a positive value for skewness (0.91), revealing that data are moderately skewed to the right. Regarding kurtosis, the value is above zero (0.53), indicating the distribution is peaked with a long thin tail. The mean value for risk tolerance is 2.09, indicating that investors are likely to be risk-tolerant. Chattopadhyay and Dasgupta (2015:603) defined the SCF as a single risk tolerance item that is used to measure the risk tolerance of investors. Results from Grable and Schumm (2010:3) showed that SCF is closely related to attitudes of investment choices.

- **Behavioural biases**

The number of investors that participated in completing the section of behavioural biases is indicated by the n value (593). The inter-item correlation was tested and none of the factors indicated an inter-item correlation of higher 0.8, meaning the factors are not testing one variable. Moreover, the standard deviation reported in Table 5.4 revealed that the distribution of data was normal and within an acceptable range. With regard to kurtosis, most of the items (representativeness (0.99), gambler's fallacy (0.16), availability bias (0.70), mental accounting (0.33), and self-control (2.11)) reflected values above zero, indicating the distribution is peaked with a long thin tail. However, the kurtosis of overconfidence (-0.93), anchoring (-0.57), loss aversion (-0.71), regret aversion (-0.87) were below zero, indicating that the distribution of the values is flattened. Table 5.4 revealed that the skewness of representativeness (-0.75), gambler's fallacy (-0.55), availability bias (-0.82), loss aversion (-0.03), regret aversion (-0.21), mental accounting (-0.70), and self-control (-1.06) were negative, indicating that data are skewed to the left and are within the acceptable range. However, the skewness of overconfidence (0.05) and anchoring (0.55) were positive, indicating that the data are skewed to the right and is within the acceptable range.

In terms of behavioural biases of investors, self-control biases hold the highest mean value (4.75), indicating the tendency of investors to be unable to pursue their long-term goals as a result of a lack of self-discipline. The behavioural bias with the second highest mean value is availability bias (4.35), indicating that investors base their decisions only on the most recently available information. Representativeness bias holds the third-highest mean (4.30), indicating that investors tend to implement judgements of others especially from experts. The fourth highest mean is held by mental accounting bias (4.24), meaning the tendency of investors to sell differs when considering the isolated asset compared to selling a portion of the portfolio. The fifth highest mean is held by gambler's fallacy (3.92), indicating that investors tend to believe that a huge change occurred in the outcome of a probability, when in fact it stayed the same. Regret aversion holds the sixth highest mean (3.56), meaning investors are held out of a market that experienced losses recently, missing available opportunities. Loss aversion (3.49), overconfidence (3.19), and anchoring (2.65) hold the three lowest mean values, meaning investors tend to rely on other behavioural biases compared to loss aversion, overconfidence, and anchoring when dealing with investments. The section to follow states the hypotheses that were formulated in order to reach the empirical objectives of this study.

5.4 HYPOTHESIS TESTING

The following hypotheses are stated as a means to address the empirical objectives of the study:

- Null hypothesis (H_{01}): There is no correlation between demographic factors and short-term intentions of investors.

- Alternative hypothesis (H_{a1}): There is a correlation between demographic factors and short-term intentions of investors.

- Null hypothesis (H_{02}): Risk tolerance level does not influence the short-term investment intentions of investors.

- Alternative hypothesis (H_{a2}): Risk tolerance level influences the short-term investment intentions of investors.

- Null hypothesis (H_{03}): Personality traits do not influence the short-term investment intentions of investors.

- Alternative hypothesis (H_{a3}): Personality traits influence the short-term investment intentions of investors.

- Null hypothesis (H_{04}): Behavioural biases do not influence the short-term investment intentions of investors.

- Alternative hypothesis (H_{a4}): Behavioural biases influence the short-term investment intentions of investors.

- Null hypothesis (H_{05}): The level of life satisfaction does not influence the short-term investment intentions of investors.

- Alternative hypothesis (H_{a5}): The level of life satisfaction influences the short-term investment intentions of investors.

- Null hypothesis (H_{06}): There is no correlation between demographic factors and long-term investment intentions of investors.

- Alternative hypothesis (H_{a6}): There is a correlation between demographic factors and long-term investment intentions of investors.

- Null hypothesis (H_{07}): Risk tolerance level does not influence the long-term investment intentions of investors.

- Alternative hypothesis (H_{a7}): Risk tolerance level influences the long-term investment intentions of investors.

- Null hypothesis (H_{08}): Personality traits do not influence the long-term investment intentions of investors.

- Alternative hypothesis (H_{a8}): Personality traits influence the long-term investment intentions of investors.

- Null hypothesis (H_{09}): Behavioural biases do not influence the long-term investment intentions of investors.

- Alternative hypothesis (H_{a9}): Behavioural biases influence the long-term investment intentions of investors.

- Null hypothesis (H_{010}): The level of life satisfaction does not influence the long-term investment intentions of investors.

- Alternative hypothesis (H_{a10}): The level of life satisfaction influences the long-term investment intentions of investors.

The sections to follow further describes the empirical objectives of this study and reveal how the preceding hypotheses were used to achieve the objectives.

5.5 INTERNAL RELIABILITY OF THE SCALE FACTORS

The scale's reliability normally refers to the consistency of the scale. The Cronbach's alpha, which is the most used statistic, was computed to determine how reliable the measures are used in this study. Malhotra (2010:319) denotes the Cronbach's alpha values range from 0 to 1, and a value of more than 0.6 indicates satisfactory internal consistency reliability when working with human behavioural responses. The reliability results are presented in Table 5.5 for the influencing factors.

Table 5.5: Reliability of influential factors

Items	Cronbach's alpha
Neuroticism	0.87
Extraversion	0.78
Openness to experience	0.65
Agreeableness	0.67
Conscientiousness	0.76
SWL	0.89
Behavioural biases	0.69

- **Personality traits**

It is evident from Table 5.5 that all the Cronbach's alpha coefficients for personality traits are above 0.6. As a result, a conclusion can be made stating that the scale utilised to determine the personality traits of investors indicates satisfactory internal consistency reliability.

- **Life satisfaction**

It is evident from Table 5.5 that the value for the Cronbach's alpha is 0.89, suggesting that a very good internal consistency reliability exists for the scale with the present sample. Cronbach's alpha values that are above 0.6 are regarded as acceptable, though, values greater than 0.8 are desirable.

- **Behavioural biases**

Table 5.5 indicated that behavioural biases' value for Cronbach's alpha is 0.69, which is greater than 0.6, showing that the reliability scale indicated satisfactory internal consistency reliability. However, the results would have been more favourable if they were more than 0.7.

5.6 NON-PARAMETRIC CORRELATION

These first four empirical objectives were to determine the life satisfaction, risk tolerance, personality traits, and behavioural biases of investors. The variables were measured employing an ordinal scale, as a result, a non-parametric Spearman correlation was utilised. Table 5.6 indicates the non-parametric correlation between the independent variables and demographic factors (age, annual income and highest level of education), these factors were found to have a correlation with the independent factors. A two-tailed significance level can be assumed at a 5 per cent significance level.

Table 5.6: Non-parametric correlation

Items	Spearman's correlation	Demographic factors		
		Age	Annual income	Highest level of education
Neuroticism	Correlation coefficient	-0.222[***]	-0.194[***]	-0.194[***]
	Sig. (2-tailed)	0.000	0.000	0.000
	N	593	593	593
Extraversion	Correlation coefficient	0.035	0.021	0.049
	Sig. (2-tailed)	0.392	0.618	0.238
	N	593	593	593
Openness to experience	Correlation coefficient	-0.119[**]	0.076	0.154[***]
	Sig. (2-tailed)	0.022	0.064	0.000
	N	593	593	593
Agreeableness	Correlation coefficient	-0.094[**]	-0.050	0.065
	Sig. (2-tailed)	0.022	0.229	0.114
	N	593	593	593
Conscientiousness	Correlation coefficient	-0.182[***]	-0.058	0.021
	Sig. (2-tailed)	0.000	0.162	0.603
	N	593	593	593
Risk aversion	Correlation coefficient	0.006	-0.168[***]	-0.223[***]
	Sig. (2-tailed)	0.888	0.000	0.000
	N	593	593	593

Items	Spearman's correlation	Demographic factors		
		Age	Annual income	Highest level of education
SWL	Correlation coefficient	0.202***	0.235***	0.212***
	Sig. (2-tailed)	0.000	0.000	0.000
	N	593	593	593
SCF	Correlation coefficient	-0.098**	0.216***	0.233***
	Sig. (2-tailed)	0.019	0.000	0.000
	N	593	593	593
Representativeness	Correlation coefficient	0.044	0.006	0.008
	Sig. (2-tailed)	0.280	0.880	0.839
	N	593	593	593
Overconfidence	Correlation coefficient	-0.013	-0.060	-0.023
	Sig. (2-tailed)	0.760	0.146	0.578
	N	593	593	593
Anchoring	Correlation coefficient	-0.009	-0.133***	-0.190***
	Sig. (2-tailed)	0.823	0.001	0.000
	N	593	593	593
Gambler's fallacy	Correlation coefficient	0.035	0.017	0.020
	Sig. (2-tailed)	0.401	0.679	0.625
	N	593	593	593
Availability bias	Correlation coefficient	0.063	-0.017	-0.003
	Sig. (2-tailed)	0.125	0.681	0.942
	N	593	593	593
Loss aversion	Correlation coefficient	-0.046	-0.074	-0.062
	Sig. (2-tailed)	0.263	0.071	0.133
	N	593	593	593
Regret aversion	Correlation coefficient	0.011	-0.106***	-0.086**
	Sig. (2-tailed)	0.796	0.010	0.037
	N	593	593	593
Mental accounting	Correlation coefficient	0.080	0.025	0.022
	Sig. (2-tailed)	0.051	0.548	0.585
	N	593	593	593
Self-control	Correlation coefficient	0.022	0.027	0.033
	Sig. (2-tailed)	0.599	0.511	0.417

	N	593	593	593

Note: ***Significant at 0.01 level **Significant at 0.05

- **Personality measures**

This study utilised a measurement model founded on the five-factor model of personality. This scale measures the personality constructs of investors in five categories and a subcategory. The five main domains are neuroticism, agreeableness, openness to experience, extraversion, and conscientiousness. The subcategory is risk aversion (Lawrenson, 2019:128). According to Table 5.6, the correlation coefficient between neuroticism and the age of investors indicates a weak negative linear correlation (-0.222) with a probability value (p-value) of 0.000 that is significant at a level of 1 per cent. The Spearman correlation further indicates a negative association between neuroticism and annual income. An observation of a weak negative coefficient (-0.194) was made, with a p-value of 0.000, which is significant at 1 per cent significance value (p-value<0.01). Neuroticism also has a weak negative correlation with the highest level of education (-0.194) and the relationship is significant at 1 per cent significance level with a p-value of 0.000. It is evident from this interpretation that age, the level of annual income, and the highest education level are statistically significant and have a negative relationship with the neuroticism of investors. Investors that are high in neuroticism are young, with a lower annual income and lower levels of education.

The level of investors' extraversion has a weak positive correlation with all the demographic factors as indicated in Table 5.6, with p-values that are insignificant at the 1 per cent and 5 per cent significance level. Extraversion has weak positive linear relationships with the demographic factors as follows age (0.035), annual income (0.021), and the highest level of education (0.049). This concludes that there is insufficient evidence to infer that there is a relationship between an investor that is an extravert, older age, higher annual income and higher level of education.

Openness to experience and age indicates a weak negative linear relationship (-0.119) with a p-value of 0.022, which is significant at 5 per cent. However, openness to experience has a weak positive correlation with an annual income (0.076) but insignificant at 1 per cent and 5 per cent significant level. Moreover, a weak positive linear association exists between openness to experience and the highest level of education (0.154) with a p-value (0.000) significant at 1 per cent. The results suggest that there is a negative relationship between an investor that is high in openness to experience and younger age. However, there is a positive association between investors with high openness to experience and a higher level of education. There is insufficient evidence to conclude that there is a relationship between an investor that is open to experience and a higher annual income.

The correlation coefficient between agreeableness and age indicates a weak negative linear relationship (-0.094), and a p-value of 0.022 was significant at the 5 per cent significance level. The Spearman correlation further indicated a weak negative linear relationship of -0.050 exists between agreeableness to experience and annual income, with a p-value of 0.229 that is insignificant at 1 per cent and 5 per cent significance level. Conversely, a weak positive linear relationship among agreeableness and the highest level of education (0.065) is evident, where the p-value (0.114) is insignificant at 1 per cent and 5 per cent significance level. Higher agreeable investors are younger. However, the evidence is not sufficient to conclude that there is a relationship between investors that are agreeable and lower annual income and higher levels of education.

Conscientiousness had a weak negative linear relationship with age (-0.182) with a p-value of 0.000 being significant at 1 per cent significance level. Additionally, a weak negative linear association also exists between conscientiousness and annual income (-0.058) with a p-value (0.162) that is insignificant at 1 per cent and 5 per cent significance level. Nevertheless, a weak positive linear relationship existed between conscientiousness and the highest level of education (0.021). The results were followed by a p-value (0.603) that is insignificant at 1 per cent and 5 per cent significance level. Higher conscientious investors were younger. However, there is insufficient evidence to conclude that there is a relationship between investors that are conscientious and lower annual income and higher levels of education.

Risk aversion and age indicate a weak positive correlation (0.006) with a p-value (0.888) insignificant at 1 per cent and 5 per cent significance level. However, a weak negative correlation exists among risk aversion and annual income (-0.168) with a significant p-value of 0.000 at 1 per cent significance level. Moreover, risk aversion has a weak negative relationship with the highest level of education (-0.223), where the p-value (0.000) is significant at 1 per cent significance level. Risk-averse investors have a lower annual income and lower levels of education. Conversely, the evidence is insufficient to infer that there is a correlation between investors that are risk-averse and age.

- **Life satisfaction**

Table 5.6 indicated that life satisfaction and age had a correlation coefficient of 0.202, implying that they have a weak positive linear relationship, with a p-value (0.000) significant at 1 per cent significance level. Additionally, a weak positive linear relationship existed between life satisfaction and annual income, represented by a correlation coefficient of 0.235. The relationship had a p-value of 0.000, which is significant at the 1 per cent significance level. It is also evident that SWL had a weak positive linear correlation with the highest level of

education (0.212), with a p-value (0.000) that was significant at 1 per cent significance level. From the above interpretation, it can be concluded that investors that are highly satisfied with their lives were older, with higher annual income and higher levels of education.

- **Risk tolerance**

According to Table 5.6, the correlation coefficient between the SCF and age had a weak negative linear relationship (-0.098), where the p-value (0.019) is insignificant at 1 per cent, but significant at 5 per cent significance level. However, SCF had a weak positive correlation with an annual income (0.216), with a p-value (0.000) that is significant at the 1 per cent significance level. SCF also had a weak positive linear association with the highest level of education (0.233) and the p-value (0.000) is significant at the 1 per cent significance level. A conclusion can be made that investors that are risk aggressive were younger, with a high annual income and higher levels of education.

- **Behavioural biases**

According to Table 5.6, the correlation coefficient among representativeness bias and age indicated a weak positive relationship (0.044), where the p-value (0.280) was insignificant at 1 per cent and 5 per cent significance level. The coefficients further indicated that a weak positive relationship exists among representativeness bias and annual income (0.006), with a p-value (0.880) that is insignificant at 1 per cent and 5 per cent significance level. Representativeness bias and the highest level of education had a weak positive association (0.008), with a p-value 0.839 that was insignificant at 1 per cent and 5 per cent significance level. There is insufficient evidence to infer that investors that are subjected to representativeness bias were older, with higher annual income and higher levels of education.

Overconfidence bias had a weak negative linear relationship with age (-0.013), which had a p-value (0.760) that was insignificant at a significance value of 1 per cent and 5 per cent significance value. The correlation coefficient between overconfidence bias and annual income (-0.060) indicated a weak negative linear relationship, which had a p-value (0.146) that was also insignificant at 1 per cent and 5 per cent significance level. Furthermore, a weak negative linear association existed among overconfidence bias and the highest level of education (-0.023), where its p-value (0.578) was also insignificant at 1 per cent and 5 per cent significance level. The results reveal that there is insufficient evidence to conclude that there is a relationship between investors with overconfidence bias and younger age, lower annual income, and lower levels of education.

The relationship between anchoring bias and age indicated a weak linear correlation (-0.009), where the p-value (0.823) was found to be insignificant at 1 per cent and 5 per cent significance. The correlation coefficient further indicated that a weak negative association existed between anchoring bias and annual income (-0.133). The p-value (0.001) was observed, which was significant at 1 per cent significance value. Moreover, anchoring bias had a weak negative linear association with the highest level of education (-0.190), where results (0.000) were found to be significant at 1 per cent significance value. Investors with anchoring bias had lower annual income and lower levels of education. However, the evidence is insufficient to conclude that there is a relationship between investors with anchoring bias and younger age.

Gambler's fallacy bias had a weak positive linear association with age (0.035), which had a p-value (0.401) that is insignificant at 1 per cent and 5 per cent significance level. Furthermore, the correlation coefficient between gambler's fallacy bias and annual income indicated a weak positive linear relationship (0.017), where the p-value (0.679) was found insignificant at 1 per cent and 5 per cent significance level. The correlation further indicated a weak positive relationship between gambler's fallacy bias and the highest level of education (0.020), where a p-value (0.625) was found insignificant at 1 per cent and 5 per cent significance level. The results revealed that there is insufficient evidence to conclude that there is an association between investors that are subject to gambler's fallacy with older age, higher annual income, and higher levels of education.

The correlation coefficient of availability bias and age had a weak positive linear relationship (0.063), which had a p-value (0.125) that was insignificant at 1 per cent and 5 per cent significance level. However, the Spearman correlation revealed a weak negative association between availability bias and annual income (-0.017), where the p-value (0.681) was found insignificant at 1 per cent and 5 per cent significance level. It was further indicated that a weak negative relationship existed between availability bias and the highest level of education (-0.003), which had a p-value (0.942) that was insignificant at 1 per cent and 5 per cent significance level. The results revealed that the evidence is insufficient to conclude that investors that are subject to availability bias were older, with lower annual income and lower levels of education.

Loss aversion bias had a correlation with age that indicated a weak negative linear relationship (-0.046), which was insignificant (0.263) at 1 per cent and 5 per cent significance level. The correlation coefficient between loss aversion bias and annual income further indicated a weak negative linear association (-0.074), which had a p-value of 0.074 that was insignificant at 1 per cent and 5 per cent significance level. Moreover, a correlation existed between loss

aversion and the highest level of income where a weak negative linear relationship was revealed (-0.062), where a p-value (0.133) was found insignificant at 1 per cent and 5 per cent significance level. There is insufficient evidence to conclude that there is a relationship between investors' loss aversion bias and being older, lower annual income, and lower levels of education.

The correlation coefficient among regret aversion bias and age revealed a weak positive relationship (0.011), where the p-value (0.796) were found insignificant at 1 per cent and 5 per cent significance level. However, regret aversion bias had a weak negative correlation with an annual income (-0.106), which had a p-value (0.010) that was significant at the 1 per cent significance level. The Spearman correlation further indicated a weak negative linear relationship between regret aversion bias and the highest level of education (-0.086). The p-value (0.037) was found insignificant at 1 per cent significance level, but significant at the 5 per cent significance level. Investors that are subject to regret aversion had lower annual income and lower education. However, there is insufficient evidence to conclude that there is a relationship between investors' regret aversion and older age.

Mental accounting bias and age had a weak positive relationship (0.080), which was insignificant (0.051) at 1 per cent and 5 per cent significance level. The correlation coefficient further indicated a weak positive association among mental accounting bias and annual income (0.025), where a p-value of 0.548 was found insignificant at 1 per cent and 5 per cent significance level. A weak positive correlation existed between mental accounting bias and the highest level of education (0.022), where the p-value (0.585) was insignificant at 1 per cent and 5 per cent significance level. There is a positive relationship between investors that are subject to mental accounting and older age. However, the evidence is insufficient to infer that there is a relationship between the mental accounting bias of investors and higher annual income and higher levels of education.

Self-control bias had a weak positive relationship with age (0.022), where the p-value (0.599) was insignificant at 1 per cent and 5 per cent significance level. The correlation coefficient between self-control bias and annual income had a weak positive relationship (0.027) revealing insignificant results (0.511) at 1 per cent and 5 per cent significance level. Moreover, a correlation existed between self-control bias and the highest level of education indicating a weak positive linear association (0.033), where the p-value (0.417) was found insignificant at 1 per cent and 5 per cent significance level. These results reveal that the evidence is insufficient to infer that there is a relationship between investors with self-control bias and older age, higher annual income, and higher levels of education.

5.7 DETERMINING THE RELATIONSHIP BETWEEN THE INDEPENDENT VARIABLES AND SHORT-TERM INVESTMENT INTENTIONS OF INVESTORS

The fifth empirical objective was to determine how the level of risk tolerance, personality measures, behavioural biases, the level of life satisfaction, and demographic factors influence the investment intentions in the short-term for investors in South Africa. The first step was to determine the relationship between the factors and short-term intentions. Secondly, the analysis of variance analysis (ANOVA) test was done, which comprised the analysis of variance for age and investment intentions.

5.7.1 Non-parametric correlation of short-term investment intentions and demographic factors

A non-parametric Spearman correlation was used because the variable was measured utilising an ordinal scale. Table 5.7 indicates the association between short-term investment intentions and demographic factors, whereas Table 5.8 reveals the correlation between short-term investment intentions and the independent variables.

Table 5.7: Non-parametric correlation between short-term investment intentions and demographics

Items	Spearman's correlation	Demographic factors		
		Age	Annual income	Highest level of education
Short-term investment intentions	Correlation Coefficient	-0.045	0.055	0.074
	Sig. (2-tailed)	0.270	0.184	0.072
	N	593	593	593

Note: ***Significant at 0.01 level **Significant at 0.05

As reported by Table 5.7, the correlation coefficient between short-term investment intentions and age indicates a weak negative linear association (-0.045) with a p-value (0.270) that is insignificant at 1 per cent and 5 per cent significance level. Nevertheless, short-term intentions have a weak positive linear relationship with an annual income (0.055), where the p-value (0.184) is insignificant at 1 per cent and 5 per cent significance level. Additionally, short-term intentions have a weak positive relationship with the highest level of education (0.074) with a p-value (0.072) that is also insignificant at 1 per cent and 5 per cent significance level. It can be concluded that there is insufficient evidence to infer that investors that are younger, with a higher annual income and a higher level of education, tend to have short-term investment

intentions. Therefore, the null hypothesis (H_{01}) stating that there is no correlation between demographic factors and short-term intentions of investors should be accepted, whereas the alternative hypothesis (H_{a1}) stating that there is a correlation between demographic factors and short-term intentions of investors should be rejected.

Table 5.8: The correlation between the short-term investment intentions and independent factors

Influencing factors	Spearman correlation	Short-term investment intentions
Neuroticism	Correlation coefficient	-0.019
	Sig. (2-tailed)	0.637
	N	593
Extraversion	Correlation coefficient	0.216***
	Sig. (2-tailed)	0.000
	N	593
Openness to experience	Correlation coefficient	0.290***
	Sig. (2-tailed)	0.000
	N	593
Agreeableness	Correlation coefficient	0.163***
	Sig. (2-tailed)	0.000
	N	593
Conscientiousness	Correlation coefficient	0.173***
	Sig. (2-tailed)	0.000
	N	593
Risk aversion	Correlation coefficient	-0.156***
	Sig. (2-tailed)	0.000
	N	593
SWL	Correlation coefficient	0.050
	Sig. (2-tailed)	0.225
	N	593
SCF	Correlation coefficient	0.261***
	Sig. (2-tailed)	0.000
	N	574
Representativeness	Correlation coefficient	0.115***
	Sig. (2-tailed)	0.005
	N	593
Overconfidence	Correlation coefficient	0.421***

	Sig. (2-tailed)	0.000
	N	593
Anchoring	Correlation coefficient	0.074
	Sig. (2-tailed)	0.071
	N	593
Gambler's fallacy	Correlation coefficient	0.253***
	Sig. (2-tailed)	0.000
	N	593
Availability bias	Correlation coefficient	0.182***
	Sig. (2-tailed)	0.000
	N	593
Loss aversion	Correlation coefficient	0.022
	Sig. (2-tailed)	0.586
	N	593
Regret aversion	Correlation coefficient	0.081**
	Sig. (2-tailed)	0.047
	N	593
Mental accounting	Correlation coefficient	-0.001
	Sig. (2-tailed)	0.987
	N	593
Self-control	Correlation coefficient	0.098**
	Sig. (2-tailed)	0.017
	N	593

Note: ***Significant at 0.01 level **Significant at 0.05

- **Personality measures**

As reported by Table 5.8, the correlation coefficient between short-term investment intentions and neuroticism indicated a weak negative linear relationship (-0.019), where non-significant results ($p > 0.01$) were found at the 1 per cent and 5 per cent significance level. There is insufficient evidence to conclude that low neurotic investors tend to have intentions to invest in the short term. The Spearman correlation further indicates a weak negative linear association between short-term investment intentions and risk aversion. A weak negative coefficient (-0.156), is evident which indicates a strong significance effect ($p < 0.01$) at a 1 per cent significance level, meaning that risk-aggressive investors are likely to have intentions to invest in the short term. However, short-term investment intentions had a weak positive relationship (0.216) with extraversion that was significant ($p < 0.01$), indicating that extraverted investors are likely to have intentions to invest in the short-term. Openness to experience had

the highest positive correlation with short-term investment intention (0.290) which was significant ($p < 0.01$) at a 1 per cent significance level, revealing that investors that have intentions to invest in the short term are high on openness to experience. Agreeableness and conscientiousness had a weak positive relationship with short-term investment intentions with coefficients of 0.163 and 0.173, respectively, with significant results ($p < 0.01$) found at the 1 per cent significance level. As a result, investors that are highly agreeable and conscientious tend to have intentions to invest in the short term. Therefore, the null hypothesis (H_{03}) stating that personality traits do not influence the short-term investment intentions of investors can be rejected, except for neuroticism, and the alternative hypothesis (H_{a3}) stating that personality traits influence the short-term investment intentions of investors can be accepted. The results from Mayfield *et al.* (2008:231) revealed that only extraversion and conscientiousness were positively correlated with the intentions to invest in the short term.

- **Life satisfaction**

According to Table 5.8, the Spearman correlation coefficient between life satisfaction and short-term investment intentions indicated a weak positive linear relationship (0.050), where results (0.225) were found insignificant at 1 per cent and 5 per cent significance level. These results reveal that the evidence is insufficient to infer that investors that are satisfied with their lives are likely to have intentions to invest in the short term. As a result, the null hypothesis (H_{05}) stating that the level of life satisfaction does not influence the short-term investment intentions of investors should be accepted, whereas the alternative hypothesis (H_{a5}) stating that the level of life satisfaction influenced the short-term investment intentions of investors should be rejected.

- **Risk tolerance**

Table 5.8 reported that the correlation coefficient between risk tolerance and short-term investment intentions indicated a weak positive linear association (0.261), where the p-value (0.000) was significant at the 1 per cent significance level. It can be concluded that risk-aggressive investors are likely to have intentions to invest in the short term. Consequently, the null hypothesis (H_{02}) stating that the level of risk tolerance does not influence the short-term investment intentions of investors should be rejected, whereas the alternative hypothesis (H_{a2}) stating that the level of risk tolerance influenced the short-term investment intentions of investors should be accepted.

- **Behavioural biases**

The findings of Table 5.8 indicated that the correlation coefficient among representativeness and short-term investment intentions indicated a weak positive linear relationship (0.115),

where results (0.005) were found significant at the 1 per cent significance level. This indicates that investors that are subject to representativeness bias tend to have intentions to invest in the short term. Overconfidence and short-term investment intentions had a medium positive relationship (0.421), which was significant ($p < 0.01$) at a 1 per cent significance level. Investors with overconfidence bias are more likely to have short-term investment intentions. Anchoring and short-term investment intentions had a weak positive linear association (0.074), but the p-value (0.071) was insignificant at 1 per cent and 5 per cent significance level. There is insufficient evidence to conclude that investors that are subject to anchoring bias tend to have short-term investment intentions. Gambler's fallacy had a weak positive linear correlation of 0.253 with short-term investment intentions, which was significant (0.000) at a 1 per cent significance level. This reveals that investors that are subject to gambler's fallacy bias tend to have intentions to invest in the short term. A weak positive correlation of 0.182 existed between availability bias and short-term investment intentions, where the p-value (0.000) was significant at the 1 per cent significance level. This means that investors with availability bias are more likely to have intentions to invest in the short term. Loss aversion has a weak positive linear relationship (0.022) with short-term investment intentions, however, this bias has a p-value of 0.586 that was insignificant at 1 per cent and 5 per cent significance level. As a result, the evidence is insufficient to infer that investors that are subject to loss aversion bias tend to have intentions to invest in the short term. Regret aversion and short-term investment intentions had obtained a weak positive linear association (0.081) and results were significant at the 5 per cent significance level. Investors with regret aversion bias tend to have short-term investment intentions. The correlation coefficient between mental accounting and short-term investment intentions had a weak negative linear association (-0.001) with a p-value (0.987) that is insignificant at 1 per cent and 5 per cent significance level. There is insufficient evidence to conclude that investors that are subject to mental accounting are less likely to have intentions to invest in the short term. Self-control had a weak positive correlation with short-term investment intentions (0.098) and had a p-value (0.017) significant at 5 per cent significance level. Investors with self-control bias are more likely to have intentions to invest in the short term. Representativeness, overconfidence, gambler's fallacy, availability bias, regret aversion, and self-control were found significant. Therefore, the null hypothesis (H_{04}) stating that behavioural biases do not influence the short-term investment intentions of investors should be rejected. However, anchoring, loss aversion, and mental accounting were found to be insignificant. As a result, the alternative hypothesis (H_{a4}) stating that behavioural biases influenced the short-term investment intentions of investors should be accepted.

5.8 THE INFLUENCE OF DEMOGRAPHICS ON SHORT-TERM INVESTMENT INTENTIONS

One-way was used in this section among an ANOVA to determine the impact of age on short-term investment intentions. The calculation and interpretation of the effect sizes were done by means of utilising guidelines of Cohen (1988:284):

- 0.20 = small effect
- 0.50 = medium effect
- 0.80 = large effect

5.8.1 Age categories

Investors that participated in completing the questionnaire were divided into four age categories, where these categories represented:

- 16 to 24 years
- 25 to 34 years
- 35 to 49 years
- Over 50 years of age

Table 5.9: Analysis of variance for age and short-term investment intentions of investors

		Sum of squares	df	Mean square	F	Sig.
Short-term investment intentions	**Between groups**	4.254	3	1.418	1.521	0.208
	Within groups	549.230	589	0.932		
	Total	553.484	592			

As reported by Table 5.9, the age categories revealed no statistically significant difference in short-term intentions to invest. Table 5.10 indicates that the age category 25 to 35 years had the highest mean value, suggesting that the age of these investors tends to influence their short-term investment intentions compared to age 16 to 24.

Table 5.10: Mean value of how likely age may influence short-term intentions

	Age category	Mean	Std. deviation
Short-term investment intentions	16–24	2.77	0.77
	25–34	3.23	1.06
	35–49	3.19	1.00
	50+	3.08	0.89

Table 5.10 indicated that the mean value of age category 16 to 24 years was the lowest (M = 2.77, SD = 0.77) compared to the age category 25 to 34 years (M = 3.23, SD = 1.06). The calculation of the effect size was done and was found to be relatively medium (0.44). Investors that belonged to the age group 35 to 49 had the second-highest mean value (M = 3.19, SD = 1.00), suggesting that the age of these investor influences their investment intentions when compared to the age group of over 50 (M = 3.08, SD = 0.89). The effect size was also calculated and found to contain a small effect (0.10).

5.8.2 Independent t-test for gender – short-term investment intentions

In order to determine how the underlying factors, impact short-term investment intentions, an independent sample t-test was calculated. The assumption of the Levene's test states that variance is homogeneous (equality in variances) (Levene, 1960:292). The independent t-test, as well as the Levene's test results for gender, are presented in Table 5.11. An independent samples t-test is utilised when a researcher requires to compare the score of the mean, on a continuous variable, for two categories of participants that are different. Hence, the independent t-test has an assumption that states that the mean values for the two groups are similar. A high mean value indicates that investors tend to have short-term investment intentions. A computation of effect sizes was also performed to decide as to whether gender influence short-term intentions on investments. Guidelines are provided by Cohen (1988:284) for calculating and interpreting effect sizes:

- 0.20 = small effect
- 0.50 = medium effect
- 0.80 = large effect

The short-term investment intentions indicated an effect size of r = 0.32, which revealed a medium effect. As a result, gender has a medium effect on short-term investment intentions. Table 5.11 indicated that the significance value (p = 0.356) for Levene's test is larger than 0.05, suggesting that the variables for the group gender are the same (Levene, 1960:292).

Therefore, the assumption of equal variance is not violated. Furthermore, the independent t-test showed a significance value of p = 0.000, which is significant at the 1 per cent significance level. This indicates that gender significantly influences short-term intentions.

The male and female portion of the sample had a mean value that confirmed the variance in short-term investment intentions based on gender (Male = 3.32, Female = 3.01). The male portion of the sample had the highest mean value, meaning that male investors are more likely to have short-term investment intentions towards investment products. These results are consistent with the findings of Mayfield *et al.* (2008:230).

Table 5.11: Independent t-test of gender

		Levene's test for equality of variances		T-test for equality of means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Mean	Std. error difference
Short-term investment intention	Equal variances assumed	0.853	0.356	3.927	591	0.000	0.31100	3.32	0.07921
	Equal variances not assumed			3.910	540.21	0.000	0.31100	3.01	0.07954

5.9 DETERMINING THE RELATIONSHIP BETWEEN THE INDEPENDENT VARIABLES AND LONG-TERM INVESTMENT INTENTIONS OF INVESTORS

The sixth empirical objective was to determine how the level of risk tolerance, personality traits, behavioural biases, the level of life satisfaction, as well as demographic factors influence the investment intentions in the long term for investors in South Africa. The first step was to determine the relationship between the factors and long-term investment intentions. Secondly, the ANOVA test was done, which comprised the analysis of variance for age and investment intentions.

5.9.1 Non-parametric correlation of long-term investment intentions and demographic factors

A non-parametric Spearman correlation was used because the variable was measured utilising an ordinal scale. Table 5.12 and Table 5.13 reveal the correlation between long-term investment intentions and all the influential factors.

Table 5.12: Non-parametric correlation between long-term investment intentions and demographics

Items	Spearman's correlation	Demographic factors		
		Age	Annual income	Highest level of education
Long-term investment intentions	Correlation coefficient	-0.129***	0.070	0.089**
	Sig. (2-tailed)	0.002	0.088	0.031
	N	593	593	593

Note: ***Significant at 0.01 level **Significant at 0.05

Table 5.12 indicated that long-term investment intentions and age had a weak negative linear relationship (-0.129) with a p-value (0.002) that was significant at 1 per cent significance level. Conversely, long-term investment intentions have a weak positive association with an annual income (0.070), with a value (0.088) that is insignificant at 1 per cent and 5 per cent significance level. The correlation coefficient between long-term investment intentions and the highest level of annual income has a weak positive linear relationship (0.089) with a significance value of 0.031 that is insignificant at 1 per cent, but significant at 5 per cent significance level. The results reveal that investors that are younger, with higher annual income and higher levels of education, are more likely to have intentions to invest in the long term. Therefore, the null hypothesis (H_{06}) that states that there is no correlation between

demographic factors and long-term investment intentions of investors should be rejected, except for annual income. As a result, the alternative hypothesis (H_{a6}) that states there is a correlation between demographic factors and long-term investment intentions of investors should be accepted for age and the highest level of education. This means that the willingness of investors to invest in the long-term may be influenced by age and the highest level of education.

Table 5.13: The correlation between long-term investment intentions and the influential factors

Influencing factors	Spearman correlation	Long-term investment intentions
Neuroticism	Correlation coefficient	-0.068
	Sig. (2-tailed)	0.098
	N	593
Extraversion	Correlation coefficient	0.284***
	Sig. (2-tailed)	0.000
	N	593
Openness to experience	Correlation coefficient	0.301***
	Sig. (2-tailed)	0.000
	N	593
Agreeableness	Correlation coefficient	0.094**
	Sig. (2-tailed)	0.021
	N	593
Conscientiousness	Correlation coefficient	0.108***
	Sig. (2-tailed)	0.008
	N	593
Risk aversion	Correlation coefficient	-0.161***
	Sig. (2-tailed)	0.000
	N	593
SWL	Correlation coefficient	0.092**
	Sig. (2-tailed)	0.025
	N	593
SCF	Correlation coefficient	0.283***
	Sig. (2-tailed)	0.000
	N	574
Representativeness	Correlation coefficient	0.177***
	Sig. (2-tailed)	0.000
	N	593

Overconfidence	Correlation coefficient	0.345***
	Sig. (2-tailed)	0.000
	N	593
Anchoring	Correlation coefficient	0.034
	Sig. (2-tailed)	0.409
	N	593
Gambler's fallacy	Correlation coefficient	0.249***
	Sig. (2-tailed)	0.000
	N	593
Availability	Correlation coefficient	0.151***
	Sig. (2-tailed)	0.000
	N	593
Loss aversion	Correlation coefficient	0.042
	Sig. (2-tailed)	0.305
	N	593
Regret aversion	Correlation coefficient	0.072
	Sig. (2-tailed)	0.081
	N	593
Mental accounting	Correlation coefficient	0.071
	Sig. (2-tailed)	0.084
	N	593
Self-control	Correlation coefficient	0.185***
	Sig. (2-tailed)	0.000
	N	593

Note: ***Significant at 0.01 level **Significant at 0.05

- **Personality measures**

As reported by Table 5.13, the correlation coefficient between long-term investment intentions and neuroticism indicated a weak negative linear relationship (-0.068), where non-significant results ($p > 0.01$) were found at the 1 per cent and 5 per cent significance level. The results reveal that the evidence is insufficient to infer that highly neurotic investors are less likely to have intentions to invest in the long-term. The Spearman correlation further indicated a weak negative linear association between long-term investment intentions and risk aversion. A negative coefficient (-0.161) was evident, which revealed probability results ($p < 0.01$) significant at a 1 per cent significance level. As a result, risk-averse investors are less likely to have intentions to invest in the long term. Conversely, long-term investment intentions had a

weak positive relationship (0.284) with extraversion, which was significant ($p < 0.01$). Extraverted investors are more likely to have intentions to invest in the long term. Openness to experience had the highest positive correlation with long-term investment intention (0.301), which was significant ($p < 0.01$) at a 1 per cent significance level. Agreeableness had a weak positive association with long-term investment intentions with coefficients of 0.094, with significant results ($p < 0.05$) found at the 5 per cent significance level. The correlation coefficient among conscientiousness and long-term investment intentions revealed a weak positive linear association (0.108), which was significant at the 1 per cent significance level. The results also revealed that investors with high conscientiousness, openness to experience, and agreeableness are more likely to have intentions to invest in the long term. Therefore, the null hypothesis (H_{08}) stating that personality traits do not influence the long-term investment intentions of investors can be rejected, except for neuroticism, and the alternative hypothesis (H_{a8}) stating that personality traits influence the long-term investment intentions of investors can be accepted. The results of this study slightly contradict the findings of Mayfield *et al.* (2008:231). The findings revealed that only extraversion, openness to experience, and conscientiousness were statistically significant and positively correlated with the intentions to invest in the long term.

- **Life satisfaction**

According to Table 5.13, the Spearman correlation coefficient between life satisfaction and long-term investment intention indicated a weak positive linear relationship (0.092), where results (0.025) were found significant at the 5 per cent significance level. The results indicated that investors that are highly satisfied with their lives are more likely to have intentions to invest in the long term. As a result, the null hypothesis (H_{010}) stating that the level of life satisfaction does not influence the long term investment intentions of investors should be rejected and the alternative hypothesis (H_{a10}) stating that the level of life satisfaction influenced the long term investment intentions of investors should be accepted.

- **Risk tolerance**

As reported in Table 5.13, the correlation coefficient between risk tolerance and long-term investment intentions indicated a weak positive linear association (0.283), where the probability results (0.000) were significant at 1 per cent significance level. Risk-aggressive investors tend to have intentions to invest in the long term. As a result, the null hypothesis (H_{07}) stating that the level of risk tolerance does not influence the long-term investment intentions of investors should be rejected and the alternative hypothesis (H_{a7}) stating that the level of risk tolerance influenced the long-term investment intentions of investors should be accepted.

- **Behavioural biases**

According to Table 5.13, the correlation coefficient among representativeness and long-term investment intentions indicated a weak positive linear relationship (0.177), where the p-value (0.000) was found significant at the 1 per cent significance level. Overconfidence and long-term investment intentions had a positive relationship (0.345), which was significant ($p < 0.01$) at a 1 per cent significance level. Anchoring and long-term investment intentions also had a weak positive linear association (0.034), but the p-value (0.409) was insignificant at 1 per cent and 5 per cent significance level. Gambler's fallacy had a weak positive linear correlation of 0.249 with long-term investment intentions, which was significant (0.000) at a 1 per cent significance level. A weak positive correlation of 0.151 existed between availability bias and long-term investment intentions, where the p-value (0.000) was significant at the 1 per cent significance level. Loss aversion has a weak positive linear relationship (0.042) with long-term investment intentions, however, this bias had a p-value (0.305) that was insignificant at 1 per cent and 5 per cent significance level. Regret aversion and long-term investment intentions had obtained a weak positive linear association (0.072) and the p-value (0.081) was insignificant at 1 per cent and 5 per cent significance level. The correlation coefficient between mental accounting and long-term investment intentions had a weak positive linear association (0.071) with a p-value (0.084) that was insignificant at 1 per cent and 5 per cent significance level. Self-control had a weak positive correlation with long-term investment intentions (0.185) and had a p-value (0.000) significant at 1 per cent significance level. It can be concluded that investors that are subject to representativeness, overconfidence, gambler's fallacy, availability, and self-control bias are more likely to have intentions to invest in the long term. However, there is insufficient evidence to conclude that investors who are subject to anchoring, loss aversion, regret aversion, and mental accounting biases tend to have intentions to invest in the long term. Therefore, the null hypothesis (H_{09}) stating that behavioural biases do not influence the long-term investment intentions of investors should be rejected. However, anchoring, loss aversion, regret aversion, and mental accounting were found to be insignificant. As a result, the alternative hypothesis (H_{a9}) stating that behavioural biases influenced the long-term investment intentions of investors should be accepted.

5.10 THE INFLUENCE OF DEMOGRAPHICS ON LONG-TERM INVESTMENT INTENTIONS

This section utilised a one-way among an ANOVA to determine the impact of age on long-term investment intentions. The guidelines provided by Cohen (1988:284) for the calculation and interpretation of the effect sizes were followed:

- 0.20 = small effect
- 0.50 = medium effect
- 0.80 = large effect

5.10.1 Age categories

Investors that took part in completing the questionnaire were allocated into four age classifications, where these categories represented:

- 16 to 24 years
- 25 to 34 years
- 35 to 49 years
- Over 50 years of age

Table 5.14: Analysis of variance for age and long-term investment intentions

		Sum of squares	df	Mean square	F	Sig.
Long-term investment intentions	**Between groups**	8.697	3	2.899	2.836	0.038
	Within groups	602.194	589	1.022		
	Total	610.891	592			

The age categories indicated that a statistically significant difference existed for long-term investment intentions to invest ($f = 2.836$, p = 0.038). Table 5.15 indicates that the age category 25 to 35 years had the highest mean value, suggesting that the age of these investors are likely to influence their long-term investment intentions compared to age 16 to 24.

Table 5.15: Mean value of how likely age may influence long-term investment intentions

	Age category	Mean	Std. deviation
Long-term investment intentions	16–24	3.51	1.18
	25–34	4.02	1.14
	35–49	3.84	1.04
	50+	3.71	0.90

Table 5.15 indicated that the mean value of age category 16 to 24 years was the lowest (M = 3.51, SD = 1.18) compared to the age category 25 to 34 years (M = 4.02, SD = 1.18). The calculation of the effect size was done and was found to be relatively medium (0.44). The age group 25 to 34 and 35 to 49 had a small effect size (0.16). Investors that belonged to the age group 35 to 49 had the second-highest mean value (M = 3.84, SD = 1.04), suggesting that the age of these investors influences their investment intentions when compared to the age group of over 50 (M = 3.71, SD = 0.90). The effect size was also calculated and found to contain a small effect (0.12).

5.10.2 Independent t-test for gender - long-term investment intentions

Table 5.16 presents the independent t-test results for gender. An independent samples t-test is utilised when a researcher requires to compare the score of the mean, on a continuous variable, for two categories of participants that are different. A high mean value indicates that investors tend to have long-term investment intentions. A computation of effect sizes was performed to decide as to whether gender influences long-term investment intentions on investments. Cohen (1988:284) provided guidelines for calculating and interpreting effect sizes:

- 0.20 indicates a small effect
- 0.50 indicates medium effect
- 0.80 indicates a large effect

Table 5.16: Independent t-test of gender

		Levene's test for equality of variances		T-test for equality of means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Mean	Std. error difference
Long-term investment intention	Equal variances assumed	2.454	0.118	3.178	591	0.002***	0.26558	3.96	0.08358
	Equal variances not assumed			3.211	568.389	0.001***	0.26558	3.70	0.08271

The long-term investment intentions indicated an effect size of $r = 0.26$, which revealed a medium effect. As a result, gender has a medium effect on long-term investment intentions to invest. According to Table 5.16, the significance value ($p = 0.118$) for Levene's test is greater than 0.05, suggesting that the variables for the group gender are the same (Levene, 1960:292). Hence, the assumption of equal variance is not violated. The independent t-test indicated a significance value of $p = 0.002$, which is significant at the 1 per cent significance level. This implies that gender has a significant impact on long-term investment intentions.

The male and female category of the sample indicated a mean value that confirmed the variance in long-term investment intentions based on gender (Male = 3.96, Female = 3.70). The male category indicated the highest mean value, meaning that male investors are more likely to have long-term investment intentions towards investment products. The results found by Mayfield *et al.* (2008:230) also revealed that males report more intentions to invest in the long-term compared to females.

5.11 LINEAR REGRESSION ANALYSIS ON INVESTMENT INTENTIONS

Linear regression is responsible to indicate which variables have an impact on the dependent variable. In order to determine if the independent variables influence investors' short-term intentions to invest, a regression analysis was performed. The R-square explains the variation in the dependent variable due to the change in the independent variable (Hardy & Bryman, 2004:209). The value of the R-square is 0.316, this means that the model explains 31.6 per cent of the variance in short-term investment intentions.

Table 5.17: Analysis of variance for the independent variable

	Sum of squares	df	Mean square	F	Sig.
Regression	164.713	15	10.981	17.158	0.000***
Residual	357.114	558	0.640		
Total	521.827	573			

Table 5.17 indicates that the model as a whole is statistically significant (0.000) at the significance level of 1 per cent. The table shows that the independent variables statistically significantly predict the short-term intentions, $F_{(15, 558)} = 17.158$, $p < 0.005$.

Table 5.18: Model summary of independent variables on short-term intentions

Factors	Items	Mean	T	p-value	Standardised beta	VIF
Personality traits	Neuroticism	15.00	-0.203	0.839	-0.009	1.578
	Extraversion	16.53	2.118	0.035**	0.084	1.273
	Openness to experience	20.25	4.446	0.000***	0.172	1.214
	Agreeableness	13.03	1.998	0.046**	0.079	1.263
	Conscientiousness	17.59	4.306	0.000***	0.169	1.256
	Risk aversion	15.21	-1.328	0.185	-0.054	1.333
SWL	Life satisfaction	18.20	0.410	0.682	0.016	1.289
Risk tolerance	SCF	2.09	3.810	0.000***	0.151	1.288
Behavioural biases	Representativeness	4.30	-1.472	0.142	-0.059	1.320
	Overconfidence	3.19	7.254	0.000***	0.308	1.468
	Anchoring	2.65	-0.596	0.551	-0.023	1.225
	Gambler's fallacy	3.92	0.767	0.443	0.032	1.394
	Availability bias	4.35	0.948	0.343	0.037	1.246
	Regret aversion	3.56	0.171	0.865	0.006	1.125
	Self-control	4.75	0.096	0.924	0.004	1.260

Note: ***Significant at 0.01 level **Significant at 0.05

- **Personality measures**

Table 5.18 reveals how well each of the personality measures predicts the dependent variable, the intention of investors to invest in the short term. The mean value of neuroticism (15.00), extraversion (16.53), openness to experience (20.25), agreeableness (13.03), and conscientiousness (17.59) revealed that the variables are likely to impact short-term investment intentions. The t-ratio for all models assumes that all the personality measures, except for neuroticism and risk aversion, predict short-term intentions on investments. There is insufficient evidence to infer that neuroticism and risk aversion have an influence on the short-term investment intentions of investors. It is evident from Table 5.18 that some personality traits have a significant influence on short-term investment intentions. As a result, the null hypothesis (H_{03}) that states that there is no correlation between personality traits and short-term intentions of investors should be rejected and the alternative hypothesis (H_{a3}) that states that there is a correlation between personality traits and short-term intentions of investors should be accepted, except for neuroticism and risk aversion. The largest beta coefficient is 0.172, indicating that openness to experience makes the strongest contribution to explain investors' intend to invest in the short term. Taking VIF into account, values more than 10 for VIF indicate multicollinearity. The independent variables in Table 5.18 show that the values for VIF are below 10, meaning that there is no multicollinearity. However, the results from Sadiq and Khan (2019:14) revealed that only extraversion, agreeableness, and conscientiousness have a positive impact on the short-term investment intention of investors. The results of this study slightly contradict the findings of Lathif (2019:1086). These findings revealed that neuroticism, extraversion, openness to experience, and agreeableness influence the intentions of investors to invest in the short term.

- **Life satisfaction**

According to Table 5.18, life satisfaction had a mean value of 18.20, which implies that the variable is likely to influence the short-term intentions of investors. The t-ratio is insignificant at 1 per cent and 5 per cent significance level, suggesting that life satisfaction may not significantly influence short-term intentions to invest. The evidence is insufficient to conclude that life satisfaction influences the short-term investment intentions of investors. The null hypothesis (H_{05}) that states that there is no correlation between life satisfaction and the intention of investors to invest in the short-term intentions should be accepted and the alternative hypothesis (H_{a5}) that states that there is a correlation between life satisfaction and short-term investment intentions of investors should be rejected. The low beta coefficient of 0.016 indicates that a unit change in life satisfaction will lead to a 0.016 change in the scale variable of short-term intentions. When considering the VIF value for life satisfaction, multicollinearity exists when VIF values are greater than 10. Table 5.18 indicates that the value for VIF is below 10, meaning multicollinearity does not exist.

- **Risk tolerance**

Table 5.8 indicated how well the SCF forecasts the dependent variable, i.e. short-term investment intentions. Risk tolerance had a mean value of 2.09, indicating that risk tolerance is likely to influence the intentions of investors to invest in the short term. The t-ratio for all models indicates that risk tolerance predicts short-term intentions on investments. Table 5.18 reveals that risk tolerance has a significant influence on investors' intentions to invest in the short term. As a result, the null hypothesis (H_{02}) that states that there is no correlation between risk tolerance and short-term investment intentions of investors should be rejected and the alternative hypothesis (H_{a2}) that states that there is a correlation between risk tolerance and short-term investment intentions of investors should be accepted. Risk tolerance has a beta coefficient of 0.151, meaning that risk tolerance contributed 0.151 to explain the intentions of investors to invest in the short term. With reference to VIF, it is acceptable if its value is lower than 10, however, if the value is higher than 10, multicollinearity exists. The VIF value for risk tolerance is below 10, revealing that there is no multicollinearity.

- **Behavioural biases**

Table 5.18 reveals how well each of the behavioural biases predicts the dependent variable, i.e. short-term intentions. Representativeness had a mean value of 4.30, which indicates that this bias will likely influence the short-term intentions of investors to invest. However, the t-ratio is insignificant (0.142) at 1 per cent and 5 per cent significance level, suggesting that representativeness bias does not significantly influence the investor's short-term intentions of investing. There is insufficient evidence to infer that representativeness bias influences the short-term investment intentions of investors. The null hypothesis (H_{04}) that states that there is no relationship between representativeness and short-term investment intentions should be accepted and the alternative hypothesis (H_{a4}) that states that there is a correlation between representativeness and short-term investment intentions of investors should be rejected. The VIF value for representativeness is less than 10, indicating that there is no multicollinearity.

Overconfidence had a mean value of 3.19, which indicates that this bias may likely influence short-term investment intentions. The significant t-ratio ($p < 0.01$) for overconfidence bias suggests that this bias is likely to influence the short-term intentions of investors to invest. The null hypothesis (H_{04}) that states that there is no relationship between overconfidence and short-term investment intentions should be rejected and the alternative hypothesis (H_{a4}) that states that there is a correlation between overconfidence and short-term investment intentions of investors should be accepted. The highest standardised beta coefficient of 0.308 indicates that a unit change in overconfidence bias will result in a change of short-term investment intentions. The VIF value for this bias is 1.468, this value is lower than 10, as a result, there is no multicollinearity.

According to Table 5.18, anchoring bias has a mean value of 2.65, which reveals that this bias will likely influence the short-term intentions for investing. Though, the insignificant t-ratio ($p > 0.01$ and $p > 0.05$) for anchoring bias suggests that this bias does not significantly predict the short-term intentions for investing. There is insufficient evidence to conclude that anchoring bias influences the intentions of investors to invest in the short term. The null hypothesis (H_{04}) that states that there is no relationship between anchoring and short-term investment intentions should be accepted and the alternative hypothesis (H_{a4}) that states that there is a correlation between anchoring and short-term investment intentions of investors should be rejected. The VIF value for anchoring is of the acceptable value (1.225), meaning that it is lower than 10. As a result, multicollinearity does not exist. Gambler's fallacy has a mean value of 3.92, which indicates that this bias may have an influence on the short-term intentions for investing. Instead, the insignificant t-ratio ($p > 0.01$) for gambler's fallacy suggests that this bias does not significantly predict short-term investment intentions. The evidence is insufficient to infer that gambler's fallacy influences the short-term investment intentions of investors. The null hypothesis (H_{04}) that states that there is no relationship between gambler's fallacy and short-term investment intentions should be accepted and the alternative hypothesis (H_{a4}) that states that there is a correlation between gambler's fallacy and short-term investment intentions of investors should be rejected. The VIF value for gambler's fallacy is 1.394 and is lower than 10, this indicates that this value is acceptable and multicollinearity does not exist.

Results in Table 5.18 reported that availability bias has a mean value of 4.35, indicating that this bias may have an influence on short-term intentions for investing. Comparatively, the insignificant t-ratio ($p > 0.01$ and $p > 0.05$) for availability bias suggests that this bias does not significantly influence short-term investment intentions. The evidence is insufficient to conclude that availability bias influences the short-term investment intentions of investors. The null hypothesis (H_{04}) that states that there is no relationship between availability bias and short-term investment intentions should be accepted and the alternative hypothesis (H_{a4}) that states that there is a correlation between availability bias and short-term investment intentions of investors should be rejected. Availability bias has a VIF value of 1.246 and is lower than 10, indicating that this value is acceptable and that there is no multicollinearity.

As reported in Table 5.18, regret aversion has a mean value of 3.56, suggesting that this bias will likely influence the short-term intentions to invest. Contrarily, the t-ratio is insignificant at 1 per cent and 5 per cent significance level, meaning that regret aversion does not influence short-term investment intentions significantly. There is insufficient evidence to conclude that regret aversion influences short-term investment intentions. The null hypothesis (H_{04}) that states that there is no relationship between regret aversion and short-term investment intentions should be accepted and

the alternative hypothesis (H_{a4}) that states that there is a correlation between regret aversion and short-term investment intentions of investors should be rejected. Regret aversion had an acceptable VIF value of 1.125, which is below the value of 10, which indicates that there is no multicollinearity.

Table 5.18 reveals that self-control bias has a mean value of 4.75, implying that self-control may influence short-term investment intentions. However, the t-ratio (0.924) is insignificant at 1 per cent and 5 per cent significance value. As a result, there is insufficient evidence to infer that self-control influences short-term investment intentions. The null hypothesis (H_{04}) that states that there is no relationship between self-control and short-term investment intentions should be accepted and the alternative hypothesis (H_{a4}) that states that there is a correlation between self-control and short-term investment intentions of investors should be rejected. Lastly, the VIF value of self-control bias is lower than 10, indicating that multicollinearity does not exist. It is evident from Table 5.18 that the sixth and eighth behavioural biases (loss aversion and mental accounting) are not featured, the reason behind that is that these biases had no relationship with short-term investment intentions. The linear regression of long-term investment intentions is discussed in the following section.

Table 5.19: Analysis of variance for independent variables

	Sum of squares	df	Mean square	F	Sig.
Regression	150.498	17	8.853	11.967	0.000***
Residual	411.308	556	0.740		
Total	561.806	573			

Table 5.19 indicates that the model as a whole is statistically significant (0.000) at the significance level of 1 per cent. The table shows that the independent variables statistically significantly predict the long-term investment intentions, $F_{(17, 556)} = 11.967$, $p < 0.0005$. The value of the R-square is 0.268, this means that the model explains 26.8 per cent of the variance in long-term investment intentions.

Table 5.20: Model summary of independent variables on long-term investment intentions

Factors	Items	Mean	T	p-value	Standardised beta	VIF
Personality traits	Neuroticism	15.00	-0.286	0.775	-0.013	1.623
	Extraversion	16.53	2.917	0.004***	0.119	1.273
	Openness to experience	20.25	3.543	0.000***	0.142	1.227
	Agreeableness	13.03	0.500	0.618	0.020	1.272
	Conscientiousness	17.59	1.423	0.155	0.058	1.267
	Risk aversion	15.21	-1.778	0.076	-0.074	1.304

Factors	Items	Mean	T	p-value	Standardised beta	VIF
SWL	Life satisfaction	18.20	1.194	0.233	0.051	1.378
Risk tolerance	SCF	2.09	4.037	0.000***	0.169	1.330
Behavioural biases	Representativeness	4.30	0.902	0.368	0.038	1.325
	Overconfidence	3.19	4.489	0.000***	0.193	1.407
	Gambler's fallacy	3.92	1.863	0.063	0.080	1.396
	Availability bias	4.35	-0.077	0.939	-0.003	1.251
	Regret aversion	3.56	0.118	0.906	0.005	1.120
	Self-control	4.75	1.367	0.172	0.056	1.256
Demographics	Age	47.12	-2.165	0.031**	-0.086	1.188
	Annual income	2.35	1.185	0.237	0.048	1.269
	Highest level of education	4.29	-0.473	0.636	-0.020	1.289

Note: ***Significant at 0.01 level **Significant at 0.05

- **Personality measures**

Table 5.20 indicated how well each of the Big Five personality traits and risk aversion predicts the dependent variable, i.e. long-term investment intentions. The t-ratio for the entire model presumes that extraversion and openness to experience, except for conscientiousness, agreeableness, neuroticism as well as risk aversion, predict long-term investment intentions of investors. There is insufficient evidence to conclude that conscientiousness, agreeableness, neuroticism, and risk aversion predict investors' long-term investment intentions. The null hypothesis (H_{08}) that states that there is no relationship between personality traits and long-term investment intentions should be rejected and the alternative hypothesis (H_{a8}) that states that there is a correlation between personality traits and long-term investment intentions of investors should be accepted, except for conscientiousness, agreeableness, neuroticism, and risk aversion. Table 5.20 indicates that of the Big Five factors, only extraversion and openness to experience have a significant influence on the long-term intentions of investors to invest. The largest beta coefficient is 0.142, meaning that openness to experience also makes the strongest contribution to explain the investors' long-term intention to invest. Regarding VIF, multicollinearity exists provided the VIF values are greater than 10. As a result, the independent variables for personality traits in this table show that the values for VIF are all below 10, indicating that there is no multicollinearity. The results of this study contradicted the findings of Lathif (2019:1087). The findings of Lathif (2019:1087) indicated that neuroticism, openness to experience, and agreeableness influenced long-term investment intentions of investors, whereas, conscientiousness and extraversion failed to influence the intentions of investors to invest in the long-term.

- **Life satisfaction**

Table 5.20 revealed how well life satisfaction predicts the dependent variable, long-term investment intentions. The t-ratio for the model assumes that life satisfaction does not predict long-term investment intentions. As a result, there is no sufficient evidence to infer that life satisfaction predicts long-term investment intentions. The null hypothesis (H_{10}) that states that there is no relationship between life satisfaction and long-term investment intentions that should be accepted. The alternative hypothesis (H_{a10}) that states that there is a correlation between life satisfaction and long-term investment intentions of investors should be rejected. The standardised beta coefficient is 0.051, meaning that a unit change in the level of life satisfaction will lead to a 0.051 change in the variable of investors' intention to invest in the long-term. Table 5.20 indicates that the VIF of life satisfaction is 1.378, which is lower than 10. As a result, there is no multicollinearity, since multicollinearity exists when the value is larger than 10.

- **Risk tolerance**

Table 5.20 indicated how risk tolerance predicts the dependent variable, i.e. long-term intentions. The t-ratio for the model assumes that long-term intentions to invest are predicted by risk tolerance. The results indicated that risk tolerance significantly influences long-term investment intentions. The null hypothesis (H_{07}) that states that there is no relationship between risk tolerance and long-term investment intentions should be rejected and the alternative hypothesis (H_{a7}) that states that there is a correlation between risk tolerance and long-term investment intentions of investors should be accepted. The standardised beta coefficient for risk tolerance is 0.169, meaning that the coefficient of risk tolerance makes a contribution to explain the investors' intention to invest in the long term. With reference to VIF, multicollinearity does not exist as the value for risk tolerance is lower than 10.

- **Behavioural biases**

Table 5.20 indicates all the biases that fall under behavioural biases may have a relationship with the long-term intentions of investors to invest. The t-ratio for the model assumes that overconfidence bias predicts the intentions of investors to invest in the long term, meaning that overconfidence influences long-term investment intentions significantly. Whereas representativeness (0.368), gambler's fallacy (0.063), availability bias (0.939), regret aversion (0.906), and self-control (0.172) had t-ratios that are insignificant ($p > 0.01$ and $p > 0.05$), indicating that these biases do not influence long-term investment intentions of investors. These results reveal that there is insufficient evidence to conclude that these biases influence the intentions of investors to invest in the long term. The null hypothesis (H_{09}) that states that there is no relationship between behavioural biases and long-term investment intentions should be rejected only for overconfidence. The alternative hypothesis (H_{a9}) that states that there is a relationship between behavioural biases and long-term investment

intentions of investors that should be accepted only for overconfidence. Moreover, overconfidence had the highest beta coefficient of 0.193 assuming that a unit change in overconfidence will result in a 0.193 change in long-term investment intentions.

The values for VIF, representativeness (1.325), overconfidence (1.407), gambler's fallacy (1.396), availability bias (1.251), regret aversion (1.120), self-control (1.256) are below 10, meaning that there is no multicollinearity. It is evident that other behavioural biases (anchoring bias, loss aversion bias, and mental accounting bias) are not presented in Table 5.20, the reason behind this is that these biases had no relationship with long-term investment intentions.

- **Demographics**

Table 5.20 indicated how well the demographics predict the long-term investment intentions of investors. Age is the only demographic that has a significant t-ratio ($p < 0.05$), indicating that age influences investors' intentions to invest in the long term. Whereas annual income (0.237) and the highest level of education (0.636) had t-ratios that are insignificant ($p > 0.01$ and $p > 0.05$), indicating that these demographics do not influence investors' intentions to invest in the long term. There is insufficient evidence to conclude that annual income and the highest level of education influence long-term investment intentions. The null hypothesis (H_{06}) that states that there is no relationship between demographics and long-term investment intentions should be rejected only for age. In terms alternative hypothesis (H_{a6}) that states that there is an association between demographics and long-term investment intentions of investors should be accepted. Age had a beta coefficient of 0.086, indicating that for every one-unit increase in age, the investors' intentions to invest in the long-term will decrease by 0.086. With reference to VIF, age, annual income, and the highest level of education had a VIF of 1.188, 1.269, and 1.289 respectively. As a result, there is no multicollinearity.

5.12 SYNOPSIS

The purpose of Chapter 5 is to report on the empirical findings of the study. The interpretation, as well as the analysis of the findings, were portrayed in a way that revealed how all the empirical objectives were achieved. The sample's demographic information and descriptive analysis were presented in this chapter. The internal consistency reliability was tested for SWL, behavioural biases, and personality, and these factors were found to be reliable. The t-test and non-parametric correlation coefficient was computed, which tested the correlation between independent variables (risk tolerance, personality traits, behavioural biases, and life satisfaction) and demographic factors (age, annual income, and the highest level of education). As a result, some of the demographic factors were found to significantly contribute towards personality traits and behavioural bias of investors. However, all the demographic factors were found to contribute towards life satisfaction

and the risk tolerance level of investors. Croy *et al.* (2010:867) revealed that individuals with a high annual income had high financial risk tolerance. Higher education was found to inspire an individual to take on a higher level of financial risk (Cong & Hanna, 2007:15). The findings of Ahmand *et al.* (2011:415) indicated that younger individuals were prepared to take higher levels of risk compared to individuals approaching or at retirement age. These findings are consistent with the results of this study. With regard to life satisfaction and demographics, Zhang and Leung (2002:89) found that older Chinese individuals were highly satisfied with their lives compared to their descendants. The finding of Frey and Stutzer (2000:150) indicated that a person with high education has a positive life satisfaction compared to individuals who are less educated. Individuals in high-income groups had higher life satisfaction compared to people in middle- or low-income groups (del Mar Salinas-Jiménez *et al.*, 2011:420). These results are also consistent with the findings of this study. Furthermore, the non-parametric correlation was computed to determine if the independent variables influence short-term and long-term investment intentions.

Firstly, in terms of short-term intentions, all personality traits were found to significantly contribute towards the short-term intentions of investors, except for neuroticism and risk aversion, which was found insignificant at a 5 per cent significance level. Secondly, some of the biases of behaviour were found not contributing significantly towards short-term investment intentions. The biases include anchoring, loss aversion, representativeness, gambler's fallacy, availability bias, regret aversion, and self-control. Thirdly, the risk tolerance level was found to significantly influence short-term investment intentions. Lastly, it was found that life satisfaction did not significantly contribute to short-term investment intentions. When taking long-term intentions into account, the personality traits that were found to influence long-term investment intentions were extraversion and openness to experience. However, neuroticism, agreeableness, conscientiousness, and risk aversion were found not contributing significantly towards long-term investment intentions. The risk tolerance level was likely to influence long-term investment intentions. However, some of the biases of behaviour and SWL were found not to have a significant influence on long-term investment intentions. These biases include representativeness, gambler's fallacy, availability bias, regret aversion, and self-control bias. With regard to demographic factors, age, gender and the highest level of education were found not to have an influence on short-term intentions, hence the demographic factors were not included. There are limited studies on behavioural biases and the influence it has on investment intentions. The findings of Waseem-Ul-Hameed *et al.* (2018:91) revealed that overconfidence has a significant relationship with the investment decision-making of investors. Furthermore, the findings from Nada (2013:108) revealed that overconfidence, loss aversion, representativeness, anchoring, gambler's fallacy, availability bias, mental accounting, regret aversion, and self- control influence investment decisions. With regard to demographics, age was likely to influence long-term investment intentions,

however, annual income and the highest level of education were found insignificant to influence long-term investment intentions.

Chapter 6 provides a synthesis of results as provided in this chapter. A breakdown of the achieved theoretical and empirical objectives as outlined in Chapter 1 is provided. The manner in which the study contributed to the investment intentions of investors is presented in Chapter 6. Chapter 6 also provides a discussion towards limitations and available recommendations for future studies.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 SUMMARY

Based on this study, it cannot be more emphasised how important the role of financial institutions has become to assist individuals with their financial planning. By applying risk assessments, financial institutions determine the risk tolerance and risk personalities within an individual profile. By incorporating these factors, financial planners can determine individuals' unique risk profile to facilitate their investment planning. Based on an individual's investment objectives, preferences, and risk tolerance levels, financial planners offer clients investment products that are most suitable based on their needs.

However, these risk assessments are not comprehensive enough to take into consideration what other factors may affect the investor's long- and short-term investment intentions. By not incorporating the factors that may influence investment intentions, the financial planner fails to provide an accurate profile of investors and may offer financial products that are not suitable for them.

A synopsis of this study is provided in Chapter 6, as well as an overview of the achievement of theoretical as well as empirical objectives. A discussion of the empirical objectives' main findings is provided in order to highlight the main contributions of the study. Furthermore, Chapter 6 provides recommendations derived from the findings of the research. The chapter also discusses the limitations of the study and offers recommendations for future research endeavours. Lastly, Chapter 6 ends with offering concluding remarks about the research study.

6.2 OVERVIEW OF THE STUDY

Chapter 1 provided an introduction to the study in which it is stated that investors are faced with different factors that may influence their investment intentions and consequently their investment decisions. During the investment decision-making process, most individuals require the assistance of financial planners to facilitate them with their financial and investment planning. Financial planners apply risk assessments to determine the risk tolerance and risk personalities within an individual risk profile. However, these assessments may be limited to incorporate factors such as personality traits, behavioural biases, and life satisfaction of investors in order to determine their investment intentions. As a result of these limitations, the problem statement was identified relating to the primary aim of this study. Taking into account the above-mentioned problem statement, the following research question was formulated: Are the intentions of investors to invest in the short and long term affected by their SWL, personality traits, level of risk tolerance, and behavioural biases? This study aimed to

analyse the factors that may influence investment intentions in South Africa to answer this question. The theoretical and empirical objectives were formulated to achieve the primary objective of the study and provided a brief discussion of the research design and methodology. The ethical considerations were also highlighted.

6.2.1 Theoretical objectives

In order for the primary objective to be achieved, the following theoretical objectives were formulated:

- Thoroughly analyse the theory of subjective well-being (SWB).
- Investigate literature on demographic factors that influence the life satisfaction of individuals.
- Review the fundamental principles of investment, such as risk versus return, the security market line (SML) and Markowitz portfolio theory.
- Provide a literature review on risk tolerance.
- Analyse the theory of behavioural biases.
- Review literature on different personality traits.

Chapter 2 aimed to achieve the first and second theoretical objectives as stated in Chapter 1. The concept of SWB was introduced. SWB comprises cognitive and affective components. The cognitive component is made up of life satisfaction and the affective component can be divided into positive and negative affect. The literature on life satisfaction revealed that demographic factors can influence the level of life satisfaction of an individual, as well as their risk attitude. In terms of demographic factors and life satisfaction, previous studies revealed that an individual with higher education levels tends to have higher life satisfaction. In terms of age, older individuals were found to have higher life satisfaction compared to younger individuals. It was also found that females are more likely to have higher levels of life satisfaction. With regard to income, individuals belonging to high-income groups revealed higher levels of life satisfaction compared to individuals belonging to the middle or low-income groups. When considering the relationship between demographics and risk attitudes of individuals, gender was found to have an influence on the risk attitude of individuals. Findings revealed that women are more risk averse compared to men and they end up taking less risky investment products. Individuals that are religiously affiliated were found to be more risk averse than people that are not religious. Furthermore, previous studies indicated that married couples are likely to be more risk averse than single people.

The chapter also highlighted the purpose of this study, by analysing the factors, such as demographics and life satisfaction that can impact the attitude towards risk of investors and subsequently their investment intentions. This chapter revealed that with each demographic there is a different level of life satisfaction that an individual experiences and the risk attitudes associated

with each demographic. As a result, the different levels of life satisfaction experienced by investors may have an influence on the investment intentions and investment decisions of investors.

Chapter 3 focused on achieving the last four theoretical objectives of this study. This chapter commenced with the relationship between risk and return as fundamental principles of investment. Individuals are exposed to different types of risk, including financial risks, and must be taken into consideration during the investment decision-making process. Moreover, the level of risk that an investor can accept is dependent on their risk tolerance. Risk tolerance is not constant, it changes as individuals move through the different phases of life. This chapter discussed the impact of demographic factors on the risk tolerance of investors. These factors include age, gender, education, and income. The general consensus among previous research was that age was found to have a U-shape with risk tolerance, meaning that as people age, they tend to be more risk-tolerant. On the other hand, risk tolerance was found to decrease with age, indicating that as an individual become older, they tend to become less risk-tolerant. In terms of gender, men tend to make larger investments in comparison to women who are more risk averse. Previous studies along with this study revealed that people that fall under the high-income category possessed high levels of risk tolerance. With regard to education, higher education has been found to inspire an individual to accept higher levels of risk.

Chapter 3 further revealed how behavioural biases and personality traits may influence investment intentions and decisions of investors. Although there is limited research on the relationship between behavioural bias and investment intentions, it was found that behavioural biases such as representativeness, regret aversion, anchoring, mental accounting, overconfidence and availability bias influence investment decisions. With regard to personality traits, a general consensus was found among previous researchers that neuroticism, openness to experience, and agreeableness have a significant impact on investors' intentions to invest in both the short and long term. However, individuals that were found to be extreme extraverts were found to have intentions to invest in short-term investments, while conscientious individuals have intentions to invest in long-term investment portfolios. Therefore, a theoretical link could be established among the independent factors and the impact on investment intentions and investment decisions.

Chapter 4 revolved around the research design and methodology used to analyse the data for the empirical part of this study. The chapter commenced with the concept of a research design and the different paradigms as well as research approaches applicable to the research design. A quantitative research approach was followed by adopting the positivistic research paradigm. Positivistic research relies primarily on quantitative research approaches where data include analysis as well as numbers and are conducted by means of statistical methods. The study consisted of a sample of 593 participants both female and male investors from all nine provinces from one of the major investment

companies in South Africa. Secondary data analysis was used and the sample was provided by a South African investment company by using an existent online questionnaire that was distributed to individual investors.

Chapter 5 answered the research question as well as the empirical objectives formulated in Chapter 1. The chapter began with a descriptive analysis of the results, followed by the demographic information of the sample. The hypotheses were also formulated to establish the achievement of empirical objectives. The following section is mapped out according to the empirical objectives that were stated in Chapter 1.

6.3   FINDINGS OF THE STUDY

The primary objective of this study was to analyse the factors that influence investment intentions in South Africa. The following empirical objectives were formulated in order to achieve the primary objective.

- Determine the life satisfaction of the sample.
- Determine the personality traits of investors in the sample.
- Determine the risk tolerance level for the sample.
- Determine the behavioural biases of the sample.
- Determine how risk tolerance, personality traits, behavioural biases, and life satisfaction influence the short-term investment intentions of investors in South Africa.
- Determine how risk tolerance, personality traits, behavioural biases, and life satisfaction influence the long-term investment intentions of investors in South Africa.

6.3.1   Determine the life satisfaction of investors

The objective to determine the life satisfaction of investors was achieved in Section 5.6. The internal consistency was performed for life satisfaction. The SWLS obtained a Cronbach's alpha value of 0.89. A relationship between the level of SWL of investors and demographic factors was performed by means of a non-parametric Spearman correlation. The demographic factors included age, annual income, and the highest level of education. There was a significant and positive correlation between life satisfaction and the demographic factors, which indicates that older investors with higher income and higher levels of education are likely to be satisfied with their lives.

6.3.2   Determine the personality traits of investors

The objective to determine the personality traits of investors was also achieved in Section 5.6. The internal consistency was performed for personality traits to test the reliability of the traits. The

domains of personality traits were found to be reliable measures of personality as all of them were higher than 0.6. A non-parametric Spearman correlation was used to test the association between personality traits of investors and demographic factors. A significant and negative relationship was found between neuroticism and the demographic factors, which revealed that highly neurotic investors are likely to be younger, with lower annual income, and lower levels of education. For agreeableness and conscientiousness, a significant and negative relationship existed with age only. These results revealed that investors that are high on agreeableness and conscientiousness are likely to be young. Lastly, a combination of positive and negative correlations existed between openness to experience and demographics (i.e. age as well as the highest level of education), indicating that investors that are high on openness to experience tend to be younger with higher levels of education.

6.3.3 Determine the risk tolerance level of investors

The objective to determine the risk tolerance level of investors was achieved in Section 5.6. Determining the risk tolerance of investors will assist portfolio managers to provide investors with financial products that comprise the risk that they are able to handle. A relationship between the risk tolerance level of investors and demographic factors was performed by means of a non-parametric Spearman correlation. A combination of positive and negative relationships was found between risk tolerance and demographic factors. The results indicated that risk-aggressive investors are more likely to be younger, with higher annual income and higher levels of education. The findings from previous studies are consistent with the results of this study. As a result, portfolio managers should take into consideration these demographic factors when assessing the risk tolerance of investors.

6.3.4 Determine the behavioural biases of investors

The objective to determine the behavioural biases of investors was also achieved in Section 5.6. The internal consistency was performed for behavioural biases. The behavioural bias scale, containing the nine behavioural biases obtained a Cronbach's alpha value of 0.69, which was deemed acceptable for human responses. A non-parametric Spearman correlation was used to test the relationship between behavioural biases of investors and demographic factors. Anchoring and regret aversion were the only behavioural biases that were significant and had a negative relationship with annual income and level of education. The results for anchoring and regret aversion indicated that investors that were subject to these biases were likely to have lower annual incomes and lower levels of education.

6.3.5 Determine how risk tolerance, personality traits, behavioural biases, and life satisfaction influences the short-term investment intentions of investors

This objective was achieved in Section 5.7, Section 5.8, and Section 5.11. The relationship between demographics and short-term investment intentions was assessed in Section 5.7. The results indicated that demographic factors have an insignificant relationship with the intentions of investors to invest in the short term. An association between independent variables and investors' intentions to invest in the short term was performed using a non-parametric Spearman correlation in Section 5.7. In terms of personality traits, extraversion, openness to experience, agreeableness, and conscientiousness had a significant and positive linear relationship with short-term investment intentions. These results indicated that investors that are highly agreeable, open to experience, extraverted, and conscientious are likely to have intentions to invest in the short term. Risk aversion had a significant and negative linear relationship with short-term investment intentions, indicating that highly risk-averse investors are less likely to have intentions to invest in the short term. Life satisfaction had an insignificant relationship with short-term investment intentions, as a result, there was insufficient evidence to conclude that investors that are highly satisfied with their lives tend to have intentions to invest in the short term. With regard to risk tolerance, the variable was found to have a significant and positive linear relationship with short-term investment intentions, revealing that investors who are risk aggressive tend to have intentions to invest in the short term. Lastly, a significant and positive relationship was found between short-term investment intentions and the behavioural biases, except for mental accounting loss aversion, and anchoring. These results revealed that investors that are subject to self-control, regret aversion, availability bias, gambler's fallacy, overconfidence, and representativeness are more likely to have intentions to invest in the short term.

The ANOVA test was done in Section 5.8 to test if a significant difference exists between age categories and short-term investment intentions. There was no statistically significant difference with short-term investment intentions. In terms of gender, Levene's test was conducted based on whether gender impacts short-term investment intentions or not. Males were found to be more likely to have intentions to invest in the short term. In Section 5.11, a multiple regression analysis was conducted to determine if the independent variables have an influence on the intentions of investors to invest in the short term. The analysis found that extraversion, openness to experience, agreeableness, and conscientiousness were the only personality traits that had an influence on the intentions of investors to invest in the short term. Furthermore, risk tolerance had an influence on short-term investment intentions. However, SWL was found to have no influence on the intentions of investors to invest in the short term. Lastly, overconfidence was the only behavioural bias that was found to have an influence on the intentions of investors to invest in the short term. As a result, it will be advantageous

for portfolio managers to consider personality traits including extraversion, openness to experience, agreeableness and conscientiousness, as well as overconfidence bias, and the risk tolerance level of investors when investors plan to invest in short-term investment products.

6.3.6 Determine how risk tolerance, personality traits, behavioural biases, and life satisfaction influences the long-term investment intentions of investors

This objective was achieved in Section 5.9 Section 5.10, and Section 5.11. A non-parametric correlation was done between demographic factors and the long-term investment intentions of investors. A mixture of positive and negative associations existed. Investors that had intentions to invest in the long term were found to be younger with higher levels of education. The relationship between independent variables and investors' intentions to invest in the long term was tested in Section 5.9. Long-term investment intentions were significant and positively associated with extraversion, openness to experience, agreeableness, and conscientiousness. This indicated that investors that are highly extraverted, open to experience, agreeable, and conscientious are more likely to have intentions to invest in the long term. However, neuroticism had an insignificant and negative correlation with long-term investment intentions, indicating that there is insufficient evidence to conclude that neuroticism has a relationship with long-term investment intentions. Risk aversion had a significant and negative linear relationship with long-term investment intentions, indicating that risk-averse investors are less likely to have intentions to invest in the long term. There was a significant and positive linear relationship between life satisfaction and long-term investment intentions, as well as risk tolerance and the intentions of investors to invest in the long term. The relationship indicated that investors that are highly risk averse and satisfied with their life are more likely to have intentions to invest in the long term. With regard to behavioural biases, the behavioural biases, except for anchoring, loss aversion, regret aversion, and mental accounting, were positively correlated with long-term investment intentions. These results indicated that investors who are subject to representativeness, overconfidence, gambler's fallacy, availability, and self-control biases are more likely to have intentions to invest in the long term.

In Section 5.10, the ANOVA test was conducted in order to test if a significant difference exists between age categories and long-term investment intentions. Age was significant with the intentions of investors to invest in the long term, indicating that the age category 25 to 35 years was most likely to influence the intentions of investors to invest in the long term. For gender, the independent t-test was performed based on whether gender influences the intentions of investors to invest in the long term or not. Male investors were found to be more likely to have intentions to invest in the long-term. In Section 5.11, a multiple regression analysis was run and it was determined that only a few independent factors were the predictive variables. As a result, extraversion and openness to

experience are the only personality traits that have an influence on the intentions of investors to invest in the long term. SWL was found to have no influence on the intentions of the investors to invest in the long term. In terms of risk tolerance, it was found to have an influence on the long-term investment intentions of investors. Lastly, with regard to behavioural biases, overconfidence was the only bias that has an influence on long-term investment intentions. When considering the influence of demographics on long-term investment intentions, age was the only factor that influences the intentions of investors to invest in the long-term. It will beneficial for portfolio managers to consider the extraversion, openness to experience, risk tolerance level, and overconfidence bias of investors when investors have intentions to invest in the long term to provide them with suitable investment products.

6.4   CONTRIBUTION OF THE STUDY

Previous studies used one or two independent variables such as the influence of personality traits and/or the influence of risk tolerance on investment intentions. However, this study was not only reliant on researching personality traits and investment decisions, but additionally researched and analysed the manner in which life satisfaction, risk tolerance and behavioural bias influenced investors' intentions within the South African context.

6.5   CONCLUSION

The main purpose of this study was to analyse the factors that influence investment intentions in South Africa. During the research endeavour, the researcher made use of theoretical analysis and statistical analysis. Different statistical analyses such as the reliability and validity test, multiple linear regression, and correlation coefficient were utilised in order to determine whether the independent factors influence the investment intentions of investors in South Africa. The analysis found that risk tolerance, personality traits and behavioural biases influence the investment intentions of South African investors. Risk tolerance influenced both short-term and long-term investment intentions. In terms of personality traits, extraversion, openness to experience, agreeableness, and conscientiousness influenced short-term investment intentions. However, long-term investment intentions were influenced by extraversion and openness to experience. In terms of behavioural biases, overconfidence is the only behavioural bias that was found to influence both short- and long-term investment intentions. It will be beneficial for financial institutions to be able to identify the factors that influence the investment intentions of investors in order to have a more accurate risk profile of investors and provide them with financial products suitable for them.

6.6 RECOMMENDATIONS

Taking into consideration theoretical as well as empirical findings of this study, a few recommendations can be offered. The empirical analysis indicated that some of the independent variables can influence the intentions of investors to invest in both the short term and long term. Hence, the following recommendations can be made for financial institutions:

- In addition to assessing investors' demographic data, investment objectives and risk tolerance levels, financial institutions may also consider investor's personality traits, SWL, and behavioural biases when offering them investment options, as these factors have been found to influence the long- and short-term investment intentions of investors.

This research study had limitations of its own like any other research endeavour. The study was limited to one financial institution in South Africa. A more holistic view can be obtained from investors across the country provided data can be obtained from other financial institutions. Further research could also include more demographics (i.e. the number of dependents) to determine the influence of demographics on investment intentions.

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SECTION A (Demographics)		

Age	16 – 24	1
	25 – 34	2
	35 – 49	3
	50+	4

Gender	Male	1
	Female	2

Race	African	1
	White	2
	Coloured	3
	Asian	4
	Other	5

Marital status	Single – staying on my own	1
	Single – staying with my parents	2
	Not married but staying together	3
	Married	4
	No longer married	5

Province	Gauteng	1
	Kwazulu-Natal	2
	Western Cape	3
	Northern Cape	4
	Eastern Cape	5
	Free State	6
	Mpumalanga	7
	Limpopo	8
	North West	9
	Live outside RSA	10

What is your annual income?	R0-R 200 000	1
	R 200 001-400 000	2
	R 400 001-600 000	3
	R 600 001-800 000	4
	R 800 001 or more	5

Which religion do you associate yourself with?	Christian	1	Non-religious	7
	Muslim	2	Other	8
	Catholic	3		
	Buddhist	4		
	Atheist	5		
	Agnostic	6		

Highest level of education	Some schooling	1
	Matric	2
	Diploma	3
	Undergraduate degree	4
	Postgraduate degree	5

SECTION B (Financial well-being & SCF)

Which of the following statements comes closest to the amount of financial risk that you and your spouse/partner are willing to take when making an investment?	1	Take substantial financial risks expecting to earn substantial returns
	2	Take above-average financial risks expecting to earn above-average returns
	3	Take average financial risks expecting to earn average returns
	4	Not willing to take any financial risks

1. In general, how would your best friend describe you as a risk taker?	1	A real gambler
	2	Willing to take risks after completing adequate research
	3	Cautious
	4	A real risk avoider

2. You are on a TV game show and can choose one of the following. Which would you take?	1	A cash prize of R1,000
	2	A 50% chance at winning R5,000
	3	A 25% chance at winning R10,000
	4	A 5% chance at winning R100,000

3. You have just finished saving for a "once-in-a-lifetime" vacation. Three weeks before you plan to leave, you lose your job. You would:	1	Cancel the vacation
	2	Take a much more modest vacation
	3	Go as scheduled, reasoning that you need the time to prepare for a job search
	4	Extend your vacation, because this might be your last chance to go first class

4. In terms of experience, how comfortable are you investing in shares?	1	Not at all comfortable
	2	Somewhat comfortable
	3	Very comfortable

5.	**If you unexpectedly received R20,000 to invest, what would you do?**	1	Deposit it in a bank account, money market account or an insured Certificate of Deposit
		2	Invest it in safe, high-quality bonds or bond mutual funds
		3	Invest it in shares
6.	**When you think of the word "risk," which of the following words comes to mind first?**	1	Loss
		2	Uncertainty
		3	Opportunity
		4	Thrill
7.	**Some experts are predicting the value of assets such as gold, jewels, collectables and real estate (hard assets) will rise, while bond prices may fall. However, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high-interest government bonds. What would you do?**	1	Hold the bonds
		2	Sell the bonds, put half the proceeds into money market accounts, and the other half into hard assets
		3	Sell the bonds and put the total proceeds into hard assets
		4	Sell the bonds, put all the money into hard assets, and borrow additional money to buy more
8.	**Given the best and worst case returns of the four investment choices below, which would you prefer?**	1	A R200 gain best case; R0 gain/loss worst case.
		2	A R800 gain best case; R200 loss worst case
		3	A R2,600 gain best case; R800 loss worst case
		4	A R4,800 gain best case; R2,400 loss worst case
9.	**In addition to whatever you own, you have been given R1,000. You are now asked to choose between:**	1	A sure gain of R500
		2	A 50% chance to gain R1,000 and a 50% chance to gain nothing
10.	**In addition to whatever you own, you have been given R2,000. You are now asked to choose between:**	1	A sure loss of R500
		2	A 50% chance to lose R1,000 and a 50% chance to lose nothing
11.	**A relative left you an inheritance of R100,000, stipulating in the will that you invest all the money in one of the following choices. Which one would you select?**	1	A savings account or money market mutual fund
		2	A mutual fund that owns shares and bonds
		3	A portfolio of 15 common shares
		4	Commodities like gold, silver and oil
12.	**If you had to invest R20,000, which of the**	1	Invest 60% in low-risk investments, 30% in medium-risk investments and 10% in high-risk investments

	following investment choices would you find most appealing?	2	Invest 30% in low-risk investments, 40% in medium-risk investments and 30% in high-risk investments
		3	Invest 10% in low-risk investments, 40% in medium-risk investments and 50% in high-risk investments
13.	Your trusted friend and neighbour, an experienced geologist, is putting together a group of investors to fund an exploratory gold mining venture. The venture could pay back 50 to 100 times the investment if successful. If the mine is a bust, the entire investment is worthless. Your friend estimates the chance of success is only 20%. If you had the money, how much would you invest?	1	Nothing
		2	One month's salary
		3	Three months' salary
		4	Six months' salary

SECTION C (Behavioural biases)

Indicate to what extent (agree or disagree) the following statements drive your financial decisions:

Behavioural biases	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
I base my investment decision on the past performance of investments	1	2	3	4	5	6
My superior investment knowledge drives my decisions	1	2	3	4	5	6
I rely only on a single piece of information (past or current information) to make investment decisions	1	2	3	4	5	6
My investment decisions are based on future market predictions	1	2	3	4	5	6
My investment decisions are based on the most recent information	1	2	3	4	5	6
I would rather take the risk to keep my money in current investments (with negative returns) to avoid taking the loss	1	2	3	4	5	6

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
My previously incorrect investment decisions which led to a financial loss drives my investment decisions	1	2	3	4	5	6
I receive a good return on my investment and will rather keep money in my current investment as to earn higher future returns elsewhere	1	2	3	4	5	6
I exercise self-control when making investment decisions	1	2	3	4	5	6

SECTION D (Life satisfaction)

For each statement, please indicate the degree to which you agree or disagree.

		Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1	In most ways, my life is close to ideal	1	2	3	4	5	6
2	The conditions of my life are excellent	1	2	3	4	5	6
3	I am satisfied with my life	1	2	3	4	5	6
4	So far I have gotten the important things I want in my life	1	2	3	4	5	6
5	If I could live my life over I would change almost nothing	1	2	3	4	5	6

SECTION E (Personality measures)

Please indicate the degree to which you agree or disagree with each statement.

		Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1	I often feel inferior to others	1	2	3	4	5	6
2	When I'm under a great deal of stress, sometimes I feel like I'm going to pieces	1	2	3	4	5	6
3	I often feel tense and jittery	1	2	3	4	5	6
4	Sometimes I feel completely worthless	1	2	3	4	5	6

5	Too often, when things go wrong, I get discouraged and feel like giving up	1	2	3	4	5	6
6	I really enjoy talking to people	1	2	3	4	5	6
7	I often feel as if I'm bursting with energy	1	2	3	4	5	6
8	I am a cheerful, high-spirited person	1	2	3	4	5	6
9	I am a very active person	1	2	3	4	5	6
10	I am intrigued by the patterns I find in art and nature	1	2	3	4	5	6
11	I often try new and foreign foods	1	2	3	4	5	6
12	I have little interest in speculating on the nature if the universe or the human condition	1	2	3	4	5	6
13	I have a lot of intellectual curiosity	1	2	3	4	5	6
14	I often enjoy playing with theories or abstract ideas	1	2	3	4	5	6
15	I often get into arguments with my family and co-workers	1	2	3	4	5	6
16	Some people think I'm selfish and egotistical	1	2	3	4	5	6
17	Some people think of me as cold and calculating	1	2	3	4	5	6
18	I generally try to be thoughtful and considerate	1	2	3	4	5	6
19	I keep my belongings neat and clean	1	2	3	4	5	6
20	I'm pretty good about pacing myself so as to get things done on time	1	2	3	4	5	6
21	I waste a lot of time before settling down to work	1	2	3	4	5	6
22	Sometimes I'm not as dependable or reliable as I should be	1	2	3	4	5	6
23	I never seem to be able to get organised	1	2	3	4	5	6
24	I am not willing to take risk when choosing a stock or investment	1	2	3	4	5	6
25	I prefer a low-risk/high return investment with a steady performance over an investment that offers higher risk/higher return	1	2	3	4	5	6

26	I prefer to remain with an investment strategy that has known problems rather than take the risk trying a new investment strategy that has unknown problems, even if the new investment strategy has great returns	1	2	3	4	5	6
27	I view risk in investment as a situation to be avoided at all cost	1	2	3	4	5	6
	Short-term investment intentions						
1	I intend to invest in an Individual Retirement Account every year	1	2	3	4	5	6
2	I intend to put at least half of my investment money into the stock market	1	2	3	4	5	6
3	I intend to engage in portfolio management activities at least twice per week	1	2	3	4	5	6
4	I intend to perform my own investment research instead of using outside advice	1	2	3	4	5	6
5	I intend to compare my portfolio performance to that of professional managers	1	2	3	4	5	6
	Long-term investment intentions						
1	I intend to save at least 10% of my gross earnings for investing/saving/ retirement purposes	1	2	3	4	5	6
2	I intend to have a portfolio that focuses on multiple asset classes (i.e., shares, bonds, cash, real estate, etc.)	1	2	3	4	5	6
3	I intend to take an investments course	1	2	3	4	5	6
4	I intend to manage my portfolio for maximum gross return rather than tax and cost efficiency	1	2	3	4	5	6
5	I intend to invest some money in long-term assets where my money will be	1	2	3	4	5	6

	tied up and inaccessible for years						

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Dr Z Dickason, Dr S Ferreira and Mrs W van Heerden *Per e-mail*

Dear Dr Dickason, Dr Ferreira and Mrs van Heerden

FEEDBACK – ETHICS APPLICATION 31052019 – T E Manukuroane (22485546)(NWU-00729-19-A4)MCom in Risk Management – Dr Z Dickason, Dr S Ferreira and Mrs W van Heerden

Your ethics application on, *The influence of risk tolerance and personality traits on investor life satisfaction,* that served on the EMS-REC meeting of 31 May 2019 refers.

Outcome:

The study is approved as minimal risk and registered with the following ethics clearance number: NWU-00729-19-A4. Please note that this registration is valid for three years.

Kind regards,

X _____

Prof Mark Rathbone
Deputy Chairperson: Economic and Management Sciences Research Ethics Committee (EMS-REC) Potchefstroom