Personality and risk-taking: exploring gender-based differences

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BCom Hons. Risk Management

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“The harder you work, the luckier you get.”

Gary Player

SOLEMN DECLARATION

I, Jessica Lawrenson, student number 23667907, herewith declare that the dissertation entitled: Personality and risk-taking: exploring gender-based differences, is my own original work and has been submitted in fulfilment for the degree Magister Commercii in Risk Management at the Vaal Triangle Campus of the North-West University. This dissertation has not been submitted at any other university for a similar or any other degree.

20/11/2017

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To whom it may concern,

This is to confirm that I, the undersigned, have language edited the **dissertation** of

Jessica Lawrenson

for the degree

Masters in Risk Management
entitled:

Personality and risk-taking: exploring gender-based differences

The responsibility of implementing the recommended language changes rests with the author of the dissertation.

Yours truly,

Linda Scott

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ABSTRACT

A key component to the financial market is understanding how people act and react in different situations, with regard to investment decisions. Uncertainty, along with risk, is also a key concept in economic decision making. To predict and understand economic behaviour, one needs to understand an individual's attitude toward perceived risk. In order for an individual to be able to make sound investment decisions, the individual will need to possess some knowledge of their level of risk appetite.

Along with risk appetite, individuals tend to expect a certain amount of risk to encompass various risk-taking behaviours. Furthermore, the risk appetite of the individual depends on the individual's attitude toward the perceived risk. When measuring the risk appetite of individuals, it is generally expected that there are two main categories of risk appetite, namely risk-averse and risk seeking individuals. The attitude an individual hold toward the taking or avoiding of a risk has mostly evolved in three main contexts namely decision processes, social psychology and personality models.

With regard to an individual's risk appetite, there is a general stereotype in literature that suggest female risk-takers are more risk averse than their male counterparts. Although risk behaviour has been widely studied, few studies have been conducted on the difference between gendered risk-taking of individuals. Little to no evidence exists on the notion or reasoning of the individual's risk-taking behaviour beyond the quantitative measurement thereof. Few studies provide a precise answer as to the reasons for this level of risk aversion in the female context.

The purpose of this study was to determine whether there is a difference in gendered risk-taking behaviour in the South African context, and if so, the causes in differences of gender-based risk-taking behaviour.

This study followed a mixed methods research design. For the quantitative portion of this study, the target population comprised full-time students registered at the South African Higher Educational Institutions, who are enrolled for commerce degrees. From the sampling frame, a non-probability judgement sample of one traditional university in Gauteng was selected. A non-probability convenience sample of 462 registered full-time students was drawn. A self-administered questionnaire was distributed to the sample. The questionnaire took, on average, 20 minutes to complete. Upon completion of the questionnaire, students could indicate whether

they wanted to participate in the qualitative portion of this study. Volunteers attended a semi-structured interview, pertaining to the data collection method for the qualitative phase. The interviews took on average 40 minutes to complete.

The findings of this study indicate that individuals are willing to participate in risk-taking behaviour across the five domains of life. Participants also indicated that the male sample are more risk-seeking than their female counterparts. The male sample indicated to be less risk-seeking than their female counterparts, only in the social domain of life. Reasons pertaining to female risk aversion included females being more thorough in terms of research before engaging in risk-taking behaviour, their risk-taking behaviour was related to the outcome of the risk and they needed advice from their elders and/or peers before engaging in a risk-taking activity. Also, the level of financial knowledge an individual has affected their risk-taking behaviour, for both the male and female samples.

Insights gained from this study would enable the development of interventions that could enhance female investment participation. This would enhance their level of economic empowerment and participation. The results obtained in this study can also aid in the development of investment vehicles designed specifically for students, given their risk-taking personality.

Keywords: *Risk, risk-taking, risk behaviour, gender, personality, domains, mixed methods.*

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LIST OF ACRONYMS

DOSPERT	:	Domain-Specific Risk-Taking Scale
EV	:	Expected Value
HEI	:	Higher Educational Institution
HEXACO	:	Honesty-humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, Openness to Experience
HEXACO-PI-R	:	Honesty-humility, Emotionality, Extraversion, Agreeableness Conscientiousness, Openness to Experience Personality Inventory Revised
KMO	:	Kaiser-Meyer-Olkin
SCF	:	Survey of Consumer Finances
SPSS	:	Statistical Package for Social Sciences

CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT

1.1 INTRODUCTION

A key component to the financial market is understanding how people act and react in different situations, with regard to investment decisions (Pereira da Silva, 2012). Dohmen *et al.* (2005) argues that uncertainty, along with risk, is also a key concept in economic decision making. In order for an individual to be able to make sound investment decisions, the individual will need to possess some knowledge of their level of risk appetite. In its very basic form, risk appetite can be stated as the level of risk that an individual or organisation is willing to take in return for a certain level of return (KPMG., 2008). An individual's risk appetite is likely to change more frequently as an investor reacts to changing levels of uncertainty in a macroeconomic environment (Gonzalez-Hermosillo, 2008:6). To predict and understand economic behaviour, one needs to understand an individual's attitude toward perceived risk (Dohmen *et al.*, 2005).

Along with risk appetite, individuals tend to expect a certain amount of risk to encompass various risk-taking behaviours. Furthermore, the risk appetite of the individual depends on the individual's attitude toward the perceived risk (Gai & Vause, 2005:4). Gonzalez-Hermosillo (2008) argues that the individual investor's degree of risk appetite reflects vital preferences and therefore, it will probably not change over the duration of time.

When measuring the risk appetite of individuals, it is generally expected that there are two main categories of risk appetite, namely: risk-averse and risk seeking individuals. According to Gonzalez-Hermosillo (2008) the risk appetite of an individual is likely to change over time and under the different circumstances the individual faces. Furthermore, it is argued that an individual's risk appetite is dependent on the degree to which they are willing to accept and/or bear uncertainty (Gonzalez-Hermosillo, 2008:6).

Rohrmann (2005) argues that the attitude an individual hold toward the taking or avoiding of a risk has mostly evolved in three main contexts, namely: decision processes, social psychology and personality models. Furthermore, it is argued that mind-sets such as that of risk-seeking is a main factor in models of choice and decision-making. Various factors influence an individual's decision making process and thus ultimately an individual's risk appetite (Dohmen *et al.*, 2005). Weller and Tikir (2010a) suggest that it will be of value to understand whether a certain type of personality generally influences certain types of decision-making processes.

Individuals have often been found to show an inconsistent response to risk across different domains and different situations (Schoemaker, 1990; Weller & Tikir, 2010a). Of all the domains, gender is often one of the most prevalent factors in determining an individual's level of risk appetite (Powell & Ansic, 1997). Chen (2009:6) suggest that the difference between risk-taking levels of gender should be measured either by means of character traits or by means of environmental factors.

1.2 PROBLEM STATEMENT

The consideration of risk appetite as a personality trait has undergone a similar development to that of personality traits in general (Blais & Weber, 2006). With regard to an individual's risk appetite, there is a general stereotype in literature that suggest female risk-takers tend to take fewer risks than their male counterparts (Jianakoplos & Bernasek, 1998:620; Dwyer *et al.*, 2002:151; Vlaev *et al.*, 2010:1376; Charness & Gneezy, 2011:50; Hardies *et al.*, 2013:442).

Skaperdas and Gan (1995) suggest that individual's risk-taking in a contest context will differ based on their gender, and as such it is widely argued that males have a higher risk appetite and are willing to take greater risks for greater return, whereas their female counterparts are less inclined to take great risks (Watson & McNaughton, 2007:52). Byrnes *et al.* (1999), after analysing 150 studies from 1967 to 1997, concluded that the female participants are more risk averse than their male counterparts. This phenomenon of female risk aversion is also prevalent in financial markets (Schubert *et al.*, 1999:383).

Although risk behaviour has been widely studied, few studies have been conducted on the difference between gendered risk-taking of individuals (Rohrmann, 2005). Little to no evidence exists on the notion or reasoning of the individual's risk-taking behaviour beyond the quantitative measurement thereof (Bajtelsmit & Bernasek, 1996:8). Few studies provide a precise answer as to the reasons for this level of risk aversion in the female context (Harris *et al.*, 2006), and none in the South African context. As such, the main purpose of this study is to determine the causes of differences in risk-taking behaviour across genders in the South African context, along with an explanation as to whether the South African context conforms to the literature stereotype.

1.3 OBJECTIVES OF THE STUDY

The following objectives were formulated for the study:

1.3.1 Primary objective

The primary objective of this study is to determine whether there is a difference in gendered risk-taking behaviour in the South African context, and if so, the causes in differences of gender-based risk-taking behaviour.

1.3.2 Theoretical objectives

To achieve the primary objective of this study, the following theoretical objectives are identified for the study:

- Construct a theoretical framework for risk-taking, risk appetite and risk perception;
- Theory of personality types relating to risk-taking behaviour; and
- Review relevant studies relating to gendered outcomes of risk-taking behaviour.

1.3.3 Empirical objectives

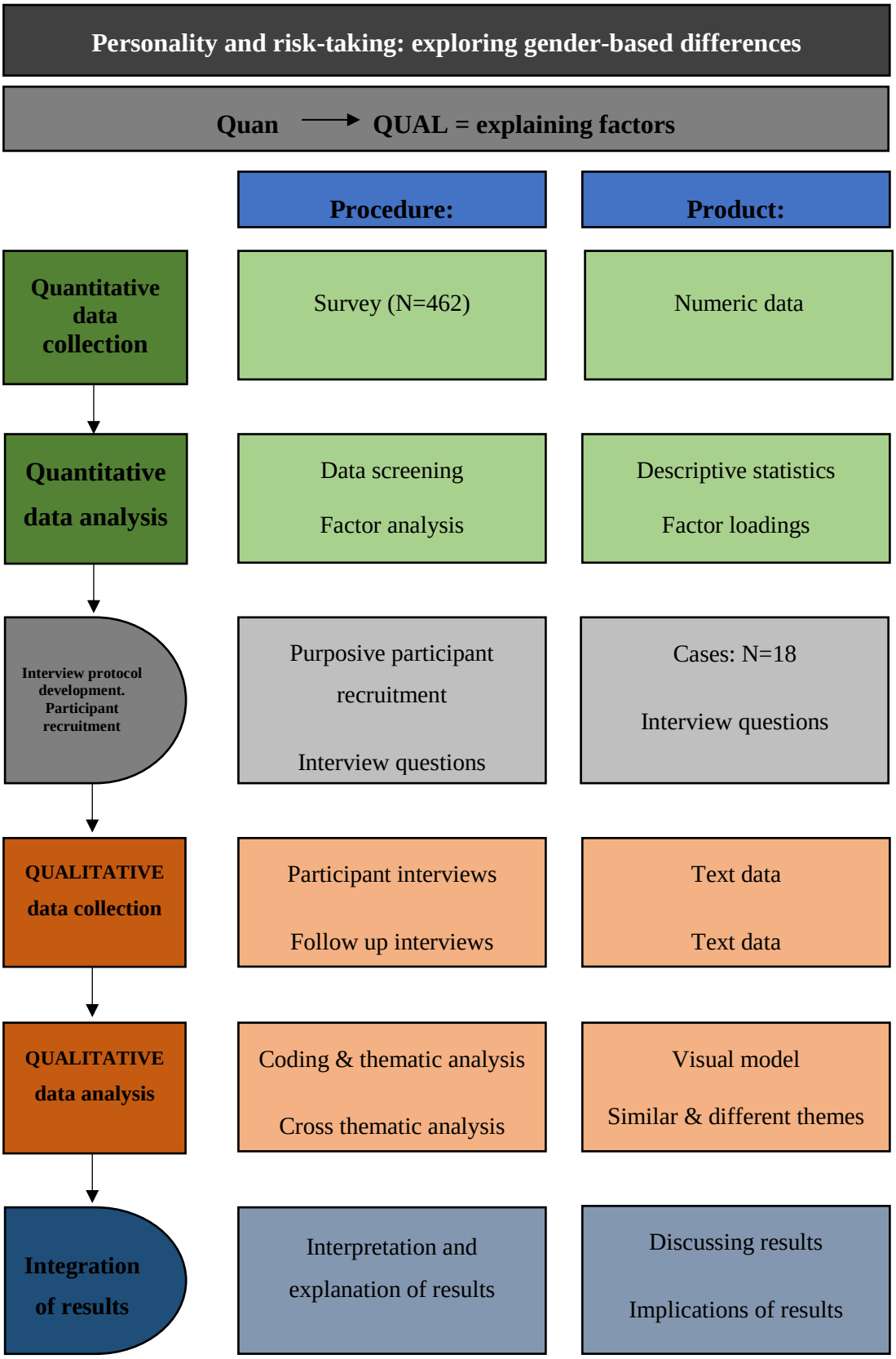
In order to achieve the primary objective of the study, the following empirical objectives are formulated:

- Establishing the domain specific risk-taking personality traits of the target population;
- Measure the risk-taking levels of the target population based on the domain-specific results;
- Comparing the different domain personalities' risk-taking levels amongst genders; and
- Determining the causes, if any, of female risk-taking behaviour.

1.4 RESEARCH DESIGN AND METHODOLOGY

This study followed an emergent explanatory sequential mixed methods approach. An explanatory design is one in which the study begins with a quantitative phase and follows up with a second qualitative phase in order to explain the initial results. The two phases do not occur at the same time but rather one after the other, or sequentially (Creswell & Plano Clark, 2010). The quantitative study constituted a survey to determine the levels of risk-taking amongst genders. In the event of a noticeable difference in risk-taking across genders, with females being more risk averse than males, a qualitative study was conducted in order to determine the causes of that non-risk-taking behaviour with regards to gender. The procedural diagram for the study is illustrated in Figure 1.

Figure 1.1: Procedural diagram for study



Source: Author's own construction

Creswell and Plano Clark (2010) advocate the use of multiple paradigms for mixed methods research. Therefore, this study constituted two paradigms. The quantitative portion of this study followed a positivist paradigm. The positivist paradigm constitutes observations that are quantifiable and that could lead to statistical analysis (Dudovskiy, 2016).

The qualitative portion of the study followed the constructivist paradigm. The constructivist paradigm suggests that individual constructions can be produced and distinguished only by means of an interface between the interviewer and the participant (Guba & Lincoln, 1994:110). Furthermore, the constructivist paradigm advocates the viewpoint of the participant to a greater extent rather than that of the interviewer (Guba & Lincoln, 1994:110).

The research design and methodology section comprises two subsections, namely: literature review and empirical study, which contains several methodological subsections.

1.4.1 Literature review

The literature portion of this study comprised secondary data which included relevant textbooks, journal articles, newspaper articles and the Internet. The literature review section supports the empirical study section.

1.4.2 Empirical study

The empirical portion of this study constitutes several methodological subsections:

1.4.2.1 Target population

The target population for this study included full-time undergraduate students enrolled at South African Higher Education Institutions (HEIs).

1.4.2.2 Sampling frame

The sampling frame consisted of 26 registered South African public HEIs (DHET, 2017). From the identified sampling frame, a judgement sample of one HEI were identified. For the purpose of this study, one traditional university in Gauteng was sampled. Both the quantitative and qualitative portions of this study constituted the same target population.

A convenience sample of students enrolled for commerce degrees was drawn from the sampling frame. Commerce students were chosen as they possessed some knowledge of the

field of risk management and finance, and would thus be able to report more easily on the various domains tested. Also, the researcher intends to account for the possible lack of financial knowledge as suggested by Grable and Joo (1999).

1.4.2.3 Sample method

Both phases of this study (quantitative and qualitative sections) made use of a non-probability sampling technique. A non-probability sampling technique constitutes a sample selection based on the researcher's subjective judgment (Battaglia, 2011:523).

The quantitative portion of the study made use of the non-probability convenience sampling technique. The qualitative portion of this study employed a purposive sampling technique which constitutes the selection of participants by means of predetermined criteria (Mack *et al.*, 2005:5). The predetermined criteria constitute female participants only. The participants forming part of the qualitative study were recruited from the participants who participated in the quantitative study.

1.4.2.4 Sample size

The sample size for the quantitative study was 462 participants. This sample size is an above-average size that is in line with other studies that have utilised the same research instruments (Weber *et al.*, 2002; Hanoch *et al.*, 2006; Harris *et al.*, 2006; Weller & Tikir, 2010a).

- A Domain-specific Risk-attitude Scale: Measuring Risk Perceptions and Risk Behaviours (Weber *et al.*, 2002). Weber *et al.* (2002) surveyed undergraduate students at Ohio State University in the United States. The sample size for this study constituted 560 participants.
- Domain Specificity in Experimental Measures and Participant Recruitment (Hanoch *et al.*, 2006). Hanoch *et al.* (2006) surveyed 146 participants from the various domains tested.
- Gender differences in Risk Assessment: Why do Women Take Fewer Risks than Men? (Harris *et al.*, 2006). Harris *et al.* (2006) surveyed undergraduate students from the University of California. The sample size comprised 657 participants.
- Predicting Domain-Specific Risk Taking with the HEXACO Personality Structure (Weller & Tikir, 2010a). Weller and Tikir (2010a) surveyed undergraduate students at a Midwestern university in the United States. The sample size for this study comprised 231 participants.

In determining the sample size for the qualitative portion of this study, the aim was to find a representative sample from the quantitative sample of this study. The qualitative section was aimed at identifying factors and/or sub factors influencing the individual's risk-taking behaviour. Therefore, the sample size for this section will not necessarily be a statistical representative but rather a representation of the particular domains tested from the quantitative study (Nell, 2005:78). The sample size was thus comprised of a limited representative sample until data saturation was achieved.

1.4.2.4.1 Sample recruitment process

For the qualitative section of the study, participants were recruited from the quantitative study. If participants wished to take part in the second phase of the study, they indicated their contact details on a separate form (recruitment form) included in the questionnaire. Participants were instructed to submit the recruitment forms separately from the completed questionnaire. All information gathered from the participants indicating interest in participating in the second phase of the study was treated as confidential.

1.4.2.5 Measuring instrument and data collection method

Qualitative data was collected by means of semi-structured interviews which served to record the reasons as to why females are risk averse in nature. Quantitative data was collected by means of structured questionnaires which comprised two scales as measuring instruments, namely: The DOSPERT Scale and The HEXACO-PI-R. The questionnaire in question constituted several sections, namely: demographic information, The DOSPERT Scale and The HEXACO-PI-R. The two scales will be discussed in the following section:

1.4.2.5.1 The DOSPERT Scale

The Domain-Specific Risk-Taking Scale (DOSPERT) is a psychometric scale that assesses the perceived risk attitudes of participants amongst six commonly found domains of personality (Blais & Weber, 2009:2). According to Blais and Weber (2009) the risk attitude of an individual can be theorised in a risk-return outline of risky choices used in finance. However, in this outline, an individual's preferences for a risky option is expected to imitate a trade-off among an option's expected benefit, usually associated to the expected value (EV), and its riskiness.

Blais and Weber (2009) state that in finance the riskiness of an option is associated with its variance, but psychological risk-return models treat perceived riskiness as a variable that can differ between individuals and as a function of content and context. This is represented by the following equation:

$$\text{Preference (X)} = a(\text{Expected Benefit(X)}) + b(\text{Perceived Risk(X)}) + c \quad (1)$$

The DOPSERT scale constitute six domains of life, namely (Blais & Weber, 2006):

- Ethical;
- Financial;
- Health/Safety;
- Recreational; and
- Social.

Several studies have found that women tend to take greater risk in the social domain than men do (Weber *et al.*, 2002:272; Harris *et al.*, 2006:51). This phenomenon has been found in many literature, however, based on these findings, the DOSPERT scale was amended with the Health/Safety domain being removed from the study. The removal of this domain did not affect the participant's involvement in the remaining domains. The Health/Safety domain's contribution to the study is of little importance as the focus was on the remaining domains (Ethical, Financial, Recreational and Social).

1.4.2.5.2 The HEXACO PI-R

The HEXACO Personality Inventory – Revised (HEXACO PI-R) is a six dimensional scale of individual personality created by (Lee & Ashton, 2009). This model was developed by means of several independent lexical studies. The use of HEXACO-PI-R allows for measuring all the major dimensions of personality in a brief period, thus questionnaires is a suitable manner for data collection. The HEXACO-PI-R constitute six main domains (Ashton & Lee, 2004; Lee & Ashton, 2009). These will be discussed in the sections that follow.

- **Honesty-Humility**

High scoring individuals will steer away from manipulating others for their own benefit, they also have very little temptation for breaking rules and do not have a need for entitlement. These individuals do not associate with wealth and luxury (Lee & Ashton, 2009:1). Conversely, low

scoring individuals tend to display opposite behaviour, they will misuse flattery for personal gain. Social status, wealth and luxury will make them superior to others, these individuals tend not to adhere to rules and regulations of tradition, which inclines the individual to violate traditional rules, regulations and laws (Weller & Tikir, 2010a).

- **Emotionality**

Lee and Ashton (2009) indicates that high scoring individuals tend to display behaviour of fear to physical danger, tend to experience anxiety in stressful situations and is inclined to need emotional support from others. On the contrary, low scoring individuals do not fear physical harm and/or danger, is inclined to feel anxious in stressful situations and are normally emotionally detached from others (Lee & Ashton, 2009).

- **Extraversion**

Ashton and Lee (2004) states that high scoring individuals are inclined to feel positive and confident when speaking to groups of people. These high scoring individuals are also inclined to experience enthusiasm and energy. Conversely, low scoring individuals are inclined to feel unpopular, tend to feel awkward when being the centre of attention and generally feel less optimistic than others (Ashton & Lee, 2004).

- **Agreeableness**

Lee and Ashton (2009) argue that individuals with a high score in this domain will tend to forgive those who have wronged them, these individuals are merciful in judging others, and are also inclined to compromise and work with others. Also, these individuals have no problem in controlling their temper. On the other hand, low scoring individuals are inclined to holding grudges to those who have wronged them, tend to be critical of other people's inadequacies and will tend to feel anger more easily when mistreated (Lee & Ashton, 2009).

- **Conscientiousness**

Ashton and Lee (2004) state that high scoring individuals tend to be organized in time and physical surroundings, are inclined to work in a disciplined manner towards reaching their goals, also tend to be accurate and perfecting their tasks, they also tend to be careful decision makers. Conversely, low scoring individuals tend to be disorderly in time and physical surroundings, are inclined to evade problematic tasks and even challenging goals, these

individuals are generally content with work containing errors and will make decisions on instinct rather than careful consideration (Ashton & Lee, 2004).

- **Openness to experience**

Lee and Ashton (2009) suggest that high scoring individuals tend to get lost in the beauty of art and nature, tend to be curious about various fields of knowledge, are inclined to use their imagination freely and in everyday life situations, and will also take interest in the unusual. On the other hand, low scoring individuals tend to be unenthusiastic with most art, tend to feel little intellectual curiosity, will tend to avoid following creative routes and will also feel little desirability to the unusual (Lee & Ashton, 2009).

The combination of the Domain-Specific Risk-Taking Scale (DOSPERT) along with the HEXACO Personality Inventory-Revised, has been identified for this study as it has been previously validated (Weber *et al.*, 2002; Pereira da Silva, 2012; Barbarovic & Sverko, 2013; Ashton *et al.*, 2014). A study comprising both scales have also been previously validated (Weller & Tikir, 2010a).

1.4.2.6 Empirical analysis

Quantitative data was analysed using the IBM Statistical Package for Social Sciences (SPSS) Version 23. Descriptive statistics for the sample were calculated. Confirmatory factor analysis was conducted in order to determine whether the same factors were identified for the study sample. Relationships between the DOSPERT Scale and HEXACO PI-R for each gender group was compared.

Qualitative data (interviews) was coded and analysed using Atlas.ti Version 7. The data was analysed thematically in order to facilitate the integration, comparison and presentation of findings (Nell, 2005).

1.5 ETHICAL CONSIDERATIONS

The study was conducted according to the ethical guidelines and principles as prescribed by the North-West University (NWU, 2016:15). The necessary permission to perform the study was obtained from all participating lecturers and institutions involved.

During both phases of the study the anonymity of the participants was guaranteed, and their responses remained confidential. The participant was instructed to not include any identifying markers or details on the questionnaire they returned to the researcher. Should participants wish to take part in the second phase of the study, they were instructed to provide their contact information. The information provided by the participant was treated as highly confidential and only the researchers had access to this information. During the second phase of the research anonymity of the participants was ensured by keeping the consent letter and interview transcripts separate with no identifying markers on any document that could link the participant to their responses. Transcripts of the interviews contained no personal information or details that could be used to identify the participant

Full informed and signed consent was obtained from each participant, and issues pertaining to confidentiality of their responses, the right to immediate withdrawal without penalty and other ethical matters was clearly outlined prior to all surveys and interviews. The first phase of the study has been approved by the Social and Technological Sciences Research Ethics Committee of the Faculty of Economic Sciences and IT at North-West University (Vaal Triangle Campus), and received the following ethical clearance number: ECONIT-2016-073. The second phase of the study has been approved by the Social and Technological Sciences Research Ethics Committee of the Faculty of Economic Sciences and IT at North-West University (Vaal Triangle Campus), and received the following ethical clearance number: ECONIT-2017-019.

1.6 CHAPTER OUTLINE

The study comprised the following chapters:

Chapter 1: Introduction and problem statement

Chapter one serves to introduce the research topic, along with relevant background information relating to the research topic. This chapter constituted the problem statement along with the objectives of the study.

Chapter 2: Personality and risk-taking

Chapter two serves to review all relevant theory based on the research topic. It constituted theory of risk-taking and risk appetite, along with risk perception. Theory of personality types relating to risk-taking behaviour and a revision of relevant studies relating to gendered outcomes of risk-taking behaviour was also included in this chapter.

Chapter 3: Research methodology

Chapter three described the methodological underpinnings of the study. The target population, sampling frame, sampling method and size, data collection method and the data collection instrument (questionnaire), along with the empirical analysis that was undertaken, were described.

Chapter 4: Analysis and interpretation of quantitative and qualitative findings

Chapter four presented the analysis techniques used in the study for both the quantitative and qualitative sections and discussed the findings of the empirical analysis.

Chapter 5: Conclusion, recommendations and limitations of the study

Chapter five served to provide a summary and a conclusion for the study which was based on the results and findings of the study. Thereafter, recommendations were be made according to the study results.

CHAPTER 2: PERSONALITY AND RISK-TAKING

2.1 INTRODUCTION

Research on how individuals participate in risk-taking behaviour are becoming increasingly important in ever-changing economic conditions. Individuals constantly need to make decisions involving some level of risk, which they are either comfortable or uncomfortable with making. When risk-taking behaviour is considered, individuals differ in the risk they are willing to accept (Figner & Weber, 2011:211). The risk-taking behaviour of an individual is influenced by numerous factors including, but not limited to, the individual's personality, the situation's characteristics, and the individual engaging in the activity (Figner & Weber, 2011). Financial decision-making processes is dependent on the individual's ability to take risks, their appetite towards risk, and their personality relating to risk-taking behaviour.

This research study primarily focuses on the personality and risk-taking behaviour of individuals. The sections to follow discusses relevant theory pertaining to personality and risk-taking behaviour of individuals. Following this, are sections discussing the data collection instruments, along with a section highlighting the results of previous studies, similar to this research study.

2.2 RISK

Although risk has been studied for many years, researchers agree that there is no single agreed upon definition for risk (Aven & Renn, 2009; Šotic & Rajic, 2015). For the purpose of this study, risk is defined as a situation that occurs, where the outcome of that situation is uncertain. The reasoning for adopting a definition of risk relating to uncertainty is explained later in Section 2.2.

Blume (1971:1) states that there exists a disagreement as to what risk comprises and how it should be measured. Aven and Renn (2009) argues that there is no one single accepted definition for risk as a whole. Thus, in literature, several definitions of risk exist, varying as to what exactly risk entails.

An extensive literature review was undertaken in order to identify the different definitions of risk and how they are applied. Table 2.1 lists the different definitions of risk obtained from accredited academic journals and relevant textbooks.

Table 2.1: Risk definitions

Publisher/ Publication	Year	Accreditation	Authors	Definition
The Journal of Risk and Insurance	1967	Accredited	Head	Risk is a situation where the outcome of that situation is uncertain.
American Journal of Agricultural Economics	1980	Accredited	Gabriel & Baker	In financial terms, risk is the additional fluctuations from net cash flows of the owners' equity, resulting from a secure financial responsibility that is associated with debt funding.
Harvard University Press	1995	Book	Graham & Weiner	Risk is the likelihood of a detrimental result from participation in an event.
Mathematical Finance	1999	Accredited	Artzner, Delbean, Eber & Heath	Risk is the fluctuation in the value of an item between two different dates.
ETHNOS	2003	Accredited	Boholm	In mathematical terms, risk is the statistical possibility of a situation, combined with the sternness as well as the effect of the risk, which could be predicted in terms of a monetary value.

Financial Analysts Journal	2004	Accredited	Holton	Risk is the acknowledgement of a proposal of which an individual is uncertain, in relation to an event.
Risk Analysis	2007	Accredited	Willis	Risk is equivalent to anticipated loss.
Journal of Risk Research	2009	Accredited	Aven & Renn	Risk can be defined according to two main categories, namely: that risk can be defined in terms of possibility and expected value, and risk can be defined by means of events or uncertainties. Risk is a questionable consequence of a situation or activity with regards to an item holding value to someone.
Frontiers in Psychology	2012	Accredited	Paulsen, Platt, Huettel & Brannon	Risk is the hesitation of an individual to take part in an activity, when the likely result and the possibility of the event occurring is recognised.
Online Journal of Applied Knowledge Management	2015	Not-accredited	Šotic & Rajic	Risk is expressed in terms of an event in the future, and its implications. It is also a concept influenced by various biases.

Source: Author's own construction

For the purpose of this paper, risk takes on the definition of Head (1967), where risk is defined as a situation occurring, where the outcome of that situation is uncertain. This definition for risk is adopted for this study, based on uncertainty relating to an event. This uncertainty refers

to the outcome of the event an individual is taking part in. Many researchers agree that risk relates to uncertainty (Head, 1967; Holton, 2004; Figner & Weber, 2011; Šotic & Rajic, 2015). In financial terms, one of the biggest decisions an individual need to make is how much risk they wish to accept, which is known as the individual's risk appetite (Kauffman *et al.*, 2013:323).

2.2.1 Risk appetite

The individual's decision of how much risk to take can be described in terms of risk appetite. Risk appetite refers to the amount of risk that an individual or organisation is willing to accept with regards to an uncertain outcome (Gai & Vause, 2005:5; Hillson & Murray-Webster, 2011:30). Risk appetite further refers to the amount of uncertainty an individual is willing to bear in order for them to receive a return for the uncertainty they undertook (KPMG., 2008). Hillson and Murray-Webster (2011:30) state that terms such as risk appetite, risk attitude, risk capacity, risk propensity and risk tolerance are used interchangeably with one another. This is also supported by Gai and Vause (2005:5). However, although some authors use these terms interchangeably, there are subtle differences in their meaning.

Risk appetite refers to an individual's perspective towards a risk. Risk appetite can also be defined as the degree of uncertainty an individual is willing to bear (Grable, 2000; Hallahan *et al.*, 2003:484). Furthermore, risk appetite can relate to the willingness of an individual to engage in an activity where the outcome is uncertain (Grable, 2016). Risk appetite and risk tolerance are used interchangeable, but slightly differ in meaning (Gai & Vause, 2005).

2.2.1.1 Individual risk appetite

Gonzalez-Hermosillo (2008:4) states that an individual's risk appetite is mainly influenced by the degree of uncertainty they are willing to take on. Changes in an individual's risk appetite can be related to changes in the global financial markets (Gonzalez-Hermosillo, 2008:4). Sung and Hanna (1996:11) and Hallahan *et al.* (2003:485) indicates that factors such as gender, marital status, educational level and ethnicity influences an individual's degree to which the accept uncertainty, thus risk appetite. Harris *et al.* (2006:50) states that risk-appetite depends on the individual's decision-making process between risky choices and the trade-off between hope and fear. For an individual to be able to measure their degree to which they are willing to bear uncertainty, they need to be aware of their risk appetite.

Fung *et al.* (2009) states that an individual's extent of risk appetite needs to be measured by means of appropriate market and personality measures. Gonzalez-Hermosillo (2008) states that an individual's level of risk appetite is an indication of their personal preference towards risk. It is expected that an individual's risk appetite will change over time, as their preferences and uncertainty relating to different situations change.

In financial terms, individual risk appetite can refer to the individual's capability of holding a risky asset (Gai & Vause, 2005). For the purpose of this paper, risk appetite takes on the definition by Grable (2000), where risk appetite is defined as the degree of uncertainty an individual is willing to bear. Risk appetite constitutes two types of risk categories, namely: risk-aversion and risk-seeking. The following section distinguishes risk-aversion and risk-seeking behaviour.

2.2.1.2 Risk aversion versus risk-seeking

2.2.1.2.1 Risk aversion

Risk aversion can be defined as the likelihood of an individual to prefer definite risks over risky options (Paulsen *et al.*, 2012:1). For example, imagine that there are two options to choose from. The first option is certain to yield R50, and the second option allows a coin toss, where heads are R50 and tails is nothing. An individual who makes decisions rationally, would be uncaring to the two different options because they yield the same reward, or value of R50. Thus, risk aversion is known as the act of the individual choosing the sure R50 instead of tossing the coin and standing a chance to get R50 (Tversky & Kahneman, 1981).

Pratt and Zeckhauser (1987:144) states that risk aversion is a necessary characteristic for univariate utility function. Furthermore, Pratt and Zeckhauser (1987:144), argue that when an individual insures themselves against risk, it will make the individual more prepared to accept risk. Several factors influences the individual's risk averse behaviour, namely: the risk versus the reward, primary versus secondary rewards, and the individual's age when making the decision (Paulsen *et al.*, 2012). Several studies indicate that risk aversion progresses as an individual age (Levin *et al.*, 2007; Weller *et al.*, 2010; Paulsen *et al.*, 2012).

Scholer *et al.* (2010:215) argues that, in most cases, individuals are risk averse. The notion of risk averse individuals is supported by Blais and Weber (2006). Rabin (2000:1281) states that when it comes to risk-taking, individuals have a tendency to be neutral in terms of risk when

the stakes are low. However, a clear distinction can be drawn between risk averse and risk-seeking individuals.

2.2.1.2.2 Risk-seeking

Risk-seeking can be used interchangeably with risk loving. Risk-seeking is defined as an event where the certainty equivalent, which is the amount believed to be equivalent to the price of the risky activity, is higher than the expected value of the risk an individual take (Concina, 2014:8). A risk-seeking individual is someone who is said to have a preference for risk (Scholer *et al.*, 2010). Furthermore, an individual's enthusiasm to potential gains lead to risk-seeking behaviour (Scholer *et al.*, 2010:216). It is suggested that once individuals suffer a loss, they become risk-seeking in nature (Page *et al.*, 2012:15).

Several factors influence an individual's risk-seeking behaviour, as also seen with risk averse behaviour, these include: individuals tend be risk-seeking in nature once they have suffered a loss (Scholer *et al.*, 2010:215), an individual's risk-seeking nature decreases over longer time periods of decision making (Paulsen *et al.*, 2012), and the risk versus return trade-off for the individual (Concina, 2014). Kumar and Persaud (2002:404) states that individuals consistently find themselves in either a risk averse or risk-seeking state. Furthermore, when an individual's risk appetite decreases, they tend to avoid risky behaviour. When an individual's risk appetite increases, they tend to seek more exposure to risky behaviours. This behaviour can be linked to finance, where the individual with less risk appetite tend to invest in less risky assets, whereas the individual with a greater risk appetite tend to invest in more risky assets (Kumar & Persaud, 2002:404; Grable & Joo, 2004).

Risk perception relates to individual risk appetite and risk tolerance; therefore, it is an important concept to investigate in order to understand individual risk-taking behaviour. Risk perception is the personal valuation of the individual, to the probability of an event occurring, and the individual's concern and consequences of the event occurring (Sjöberg *et al.*, 2014).

2.2.2 Risk tolerance

Risk tolerance can be defined as the inclination of an individual to take part in a behaviour where that behaviour's outcome is uncertain, with a possible outcome that will be negative in nature (Grable, 2000; Grable *et al.*, 2004:142). Furthermore, risk tolerance constitutes the degree to which an individual is willing to accept uncertainty (Grable, 2016). Generally, it is

difficult to measure an individual's risk tolerance (Trone *et al.*, 1996; Grable & Joo, 2004:73). This could be due to several factors influencing an individual's risk tolerance, these factors include: age, gender, personality traits, ethnicity, and financial knowledge (Irwin, 1993; Grable & Joo, 2004). Furthermore, an individual's risk tolerance can also be influenced by their emotional disposition as well as economic factors (Ackert *et al.*, 2003; Grable *et al.*, 2004).

Hanna and Chen (1997) argues that individuals are normally not keen to take above average risks in order to receive above average returns, in terms of investments. Grable and Joo (1999), states that an individual's level of knowledge will influence their level of risk tolerance, and also that these individuals display increased levels of risk-taking behaviour. Grable and Lytton (2001) argues that an individual's risk tolerance is assumed to be one of the main determinants in the individual's asset allocation strategy. The various factors influencing an individual's degree to which they are risk tolerant, will be described briefly in the following section.

Table 2.2: Factors influencing individual risk tolerance

Factor	Description
Age	Age influences an individual's risk tolerance by means of the individual's progression in life. As the individual ages, he/she becomes more risk tolerant (Grable & Joo, 2004).
Gender	Generally, females are more emotional in their decision-making processes. Therefore, females do not perceive risks the same as males, and are thus less risk tolerant (Harris *et al.*, 2006).
Personality	Individuals differ in terms of their personalities. Personality traits are the driving factor for individual risk-taking behaviour, as well as their degree to which they are risk tolerant (Cooper, 2003).

Ethnicity	An individual's ethnicity impacts their risk tolerant capabilities as different ethnicities come from different backgrounds and educations (Yao *et al.*, 2005).
Financial knowledge	An individual's level of financial knowledge will influence their risk accepting capabilities (Hallahan *et al.*, 2003). Individuals who are better financially educated, are more prepared to take risks (Hallahan *et al.*, 2003).

Source: Author's own construction

2.2.3 Risk-taking behaviour and gender

Risk-taking is the action of engaging in behaviours where the outcome is associated with either a positive or negative result (Boyer, 2006:291). Risk-taking behaviour constitutes chances of positive or negative outcomes at the same time (Reniers *et al.*, 2016:1). Risk-taking behaviour is defined as the voluntary engagement in an activity constituting a certain level of risk (Saxena & Puri, 2013:1). Generally, it is found that younger individuals tend to engage in higher levels of risk-taking behaviour (Coggan *et al.*, 1997:459).

Many researchers state that adolescents tend to take more risk than adults (Galambos & Tilton-Weaver, 1998; Booth & Nolen, 2012; Cárdenas *et al.*, 2012). Galambos and Tilton-Weaver (1998:9) argues that circumstances influences an individual's decision-making process in risk-taking behaviour. Cárdenas *et al.* (2012:22) argues that culture along with the individual's social environment will influence the risk-taking behaviour of said individual. Furthermore, it is also argued that gender influences an individual's risk-taking behaviour (Galambos & Tilton-Weaver, 1998). Mishra and Lalumière (2011:869) argue that personality traits influences an individual's risk-taking behaviour. Also, Mishra and Lalumière (2011:870) states that the influential personality traits, can guide individuals to be more risk averse or more risk-seeking.

Many researchers suggest that gender influences an individual's capability of taking a risk (Gustafson, 1998:805; Charness & Gneezy, 2011:50; Booth & Nolen, 2012:56; Cárdenas *et al.*, 2012:11). Gender is defined as all the characteristics an individual possess in order to classify themselves as male or female (Money, 1973). Literature argues that an individual's

gender influences their risk-taking behaviour based on the interaction they have with others, and the gender of others (Maccoby, 1998; Booth & Nolen, 2012:57).

In literature, it is commonly found that females are more risk averse than their male counterparts (Cutter *et al.*, 1992; Bajtelsmit & Bernasek, 1996; Gustafson, 1998; Jianakoplos & Bernasek, 1998; Schubert *et al.*, 1999; Hallahan *et al.*, 2003; Eckel & Grosmann, 2008; Booth & Nolen, 2012). One of the main arguments in research in support of this statement is that men and women do not perceive risk-taking behaviour the same. Furthermore, men and women do not perceive risks, in general, as the same (Gustafson, 1998). Harris *et al.* (2006:49) states that one of the possible reasons for a female's risk aversion could be due to their tendency to make decisions based on emotion. Another reason could be that females tend to assume that they would be more emotionally upset by a negative outcome (Harris *et al.*, 2006:49).

2.2.3.1 Factors influencing risk-taking behaviour

Tversky and Kahneman (1992) identify five parameters for individuals to engage in risk-taking behaviour, namely: the individual's risk appetite, the individual's attitude toward uncertainty, the individual's sensitivity to both losses and/or gains, the individual's level of impulsivity, and cultural differences. The various factors identified, along with a short description of each factor is discussed in the following section.

Table 2.3: Definitions of factors influencing individual risk-taking behaviour

Factor	Description
Risk appetite	Risk appetite refers to the amount of risk that an individual or organisation is willing to accept with regards to an uncertain outcome (Gai & Vause, 2005:5; Hillson & Murray-Webster, 2011:30). Risk appetite also refers to an individual's perspective towards a risk, and the degree of uncertainty an individual is willing to bear (Grable, 2000; Hallahan *et al.*, 2003:484).
Attitude toward uncertainty	Kahn and Sarin (1988) argues that the most significant decision an individual make, involves a

	level of uncertainty. Uncertainty relates to the individual not having sufficient information in order to be comfortable in engaging in a risky activity (Gajdos *et al.*, 2008). Lauriola and Levin (2001) states that an individual should be able to assign a numerical value to their attitude toward uncertainty.
Loss versus gain sensitivity	An individual's loss versus gain sensitivity can be explained by means of Prospect Theory (Pachur & Kellen, 2012). Where, it is assumed that the disutility of a negative result is higher than that of a positive result (Pachur & Kellen, 2012).
Level of impulsivity	Impulsivity refers to an individual's engagement in activities, which are ill conceived (Madden & Bickel, 2012). Impulsivity also relates to risky behaviours of an individual which are unplanned (Bakhshani, 2014). Furthermore, an individual's level of impulsivity refers to their tendency to act without prudence (Cirilli *et al.*, 2011).
Cultural differences	Culture refers to the classification of shared values and beliefs distinguishing members from one group from other groups of people (Kreiser *et al.*, 2001:3; Grable, 2016:26; Heo *et al.*, 2016:43).

Source: Author's own construction

2.2.4 Financial literacy and risk versus return trade-off

An individual's risk-taking behaviour is influenced by their ability to make financial based decisions and financial literacy (Lusardi, 2008). Zeka *et al.* (2016:77) states that South Africans specifically, have low levels of financial literacy. Financial literacy can be defined as a mixture between consciousness, information, ability, attitude as well as behaviour in order to make financial decisions, and to also achieve financial soundness (Borden *et al.*, 2008; Robb & Woodyard, 2011). Furthermore, financial literacy is information that is stored in an individual's

memory about financial experiences (Wang, 2009). An individual's financial literacy is affected by economic factors and policy, however, the individual still makes the financial decision (Robb & Woodyard, 2011). Borden *et al.* (2008) argues that individuals constituting higher financial literacy are able to make more sound decisions relating to finance, than those individuals with lower financial literacy.

Furthermore, Borden *et al.* (2008) states that there is a positive relationship between financial literacy and financial risk-taking behaviour. Individuals with higher financial literacy expect to earn greater returns for greater risk in their decisions (Wang, 2009). Furthermore, individuals with lower financial literacy expect lower returns for the less risk they take in their financial decisions (Wang, 2009). The return individuals expect for the risk they take is known as the risk versus return trade-off (Borden *et al.*, 2008).

2.3 RISK AND PERSONALITY

In literature it is evident that an individual's risk perception is influenced by a variety of factors, these include: situational factors, attitudinal factors, and behavioural biasing factors (Cooper, 2003:40; Deck *et al.*, 2008). Many literatures exist on the link between risk-taking behaviour and personality traits (Bajtelsmit & Bernasek, 1996; Jianakoplos & Bernasek, 1998; Cooper, 2003; Blais & Weber, 2006; Gupta *et al.*, 2006; Deck *et al.*, 2008; Weller & Tikir, 2010b; Mishra & Lalumière, 2011).

Personality refers to the constant emotional characteristics allowing for a prediction as to what an individual will do under certain circumstances (Cooper, 2003). Also, personality refers to a continuing nature of an individual to act constantly across different situations. Personality is described as an individual's set of psychological characteristics inherent to the individual, which influences the individual's interactions with others and in different situations (Vazifehdoost *et al.*, 2012:246). Personality traits are the driving factors that lead individuals to certain behaviour, varying from one person to the next (Allport, 1937). Personality traits are influenced by parental roles, educational levels, and policy interference (Cobb-Clark & Schurer, 2012:11). In recent years, the study of personality traits, to help understand economic behaviour, has received much attention (Weber *et al.*, 2002; Weller & Tikir, 2010b; Cobb-Clark & Schurer, 2012:11).

Gosling *et al.* (2003:504) suggests that if the researcher wishes to learn about someone's personality, they should directly query the personality trait. It is suggested that an individual's

personality traits will directly influence their risk-taking behaviour (Matthews *et al.*, 2004:3). A personality trait can be defined as a widespread neuropsychic construction unique to every individual (Boyle *et al.*, 2008:2). Personality traits are classified according to five main domains (also known as the five-factor model), namely: conscientiousness, extraversion, agreeableness, openness to experience, and emotionality (neuroticism) (Cooper, 2003; Deck *et al.*, 2008; Vazifehdoost *et al.*, 2012). These domains will be discussed in the sections to follow.

2.3.1 Conscientiousness

According to Cooper (2003:41), conscientiousness refers to an individual being thorough and cautious, a hard worker and a responsible individual, as well as someone who is organised and ambitious. Furthermore, conscientiousness refers to an individual's ability to work towards a goal, it includes self-control and trustworthiness (Myers *et al.*, 2010:7; Roberts *et al.*, 2012:1). Finally, conscientiousness refers to an individual's strategic and organised behaviour, instead of spontaneous behaviour (Jackson *et al.*, 2010:503; Vazifehdoost *et al.*, 2012:246). D'souza and Saelee (2014:86) argues that in a professional manner, conscientious individuals will perform better in academic terms since they are more motivated in nature.

2.3.2 Extraversion

Extraverted individuals are individuals who are more gregarious and verbose, also it refers to individuals who are more ambitious and confident (Cooper, 2003:41). Myers *et al.* (2010:7) argues that extraversion individuals prefer to be in contact with others. Extraversion is also an individual's personality trait indicating the individual's leadership behaviour and their inclination to express their opinions (Myers *et al.*, 2010:7; Verduyn & Brans, 2012:665). Furthermore, Vazifehdoost *et al.* (2012:246) argues that extraversion refers to the individual's need to be talkative, assertive and have positive emotions. Finally, in a professional manner, extraverted individuals tend to seek for job opportunities where they are in social contact with others (D'souza & Saelee, 2014:86).

2.3.3 Agreeableness

According to Cooper (2003:41) agreeable individuals refers to an individual's inclination toward being considerate, naïve, forgiving and lenient. Furthermore, agreeable individuals tend to display behaviour of supportive and pleasant behaviour (Cooper, 2003:41). Myers *et al.* (2010:7) argues that agreeableness refers to an individual's enthusiasm toward empathy.

Agreeable individuals tend to be supportive and sympathetic, rather than being distrustful and antagonistic to others (Vazifehdoost *et al.*, 2012:246; Zaidi *et al.*, 2013:1346). Finally, agreeableness refers to an individual seeking for job opportunities constituting team work along with customer relations (D'souza & Saelee, 2014:86).

2.3.4 Openness to experience

Openness to experience refers to an individual's ability of being creative, refined, inquisitiveness and unique (Cooper, 2003:41; Kaufman, 2013:233). Myers *et al.* (2010:7) argue that openness to experience refers to an individual's ability to appreciate new experiences, along with the individual's inclination to accept change. Vazifehdoost *et al.* (2012:246) states that openness to experience refers to the individual's intellectual inquisitiveness, originality and their preference for diversity. Finally, in a professional manner, openness to experience refers to an individual's ability to solve problems. It also refers to an individual's degree of intelligence (D'souza & Saelee, 2014:86; McCrae & Greenberg, 2014:224).

2.3.5 Emotionality (neuroticism)

Emotionality refers to an individual's inclination to feel nervous, miserable, uncomfortable and self-doubting (Cooper, 2003:41). Myers *et al.* (2010:7) argues that the emotionality domain is sometimes also referred to as the anxiety factor. This domain constitutes the individual experiencing unfriendly emotions (Rothmann & Coetzer, 2003:69; Myers *et al.*, 2010:7). This domain also reflects the individual's level of emotional constancy and their ability to manage their impulse (Vazifehdoost *et al.*, 2012:246). Finally, the emotionality domain leads to career indecisiveness based on all the emotional disparities individuals experience in this domain (D'souza & Saelee, 2014:86).

2.3.6 Personality traits and field of study

Worthington and Higgs (2003:263) argues that students are inclined to follow a certain field of study, they deem suitable for their personality. It is commonly argued that a student's personality type influences their field of study, and that their field of study attracts certain personality types (Lawrence & Taylor, 2000; Worthington & Higgs, 2003:263). This research study examines personality traits from commerce fields of study relating to accounting management, economics, risk management, and entrepreneurship related studies. The

aforementioned fields of study are examined based on the target population. These fields of study's expected personalities and traits are discussed in the sections to follow.

Generally it is expected that students in an accounting management field of study, are predictable in nature (Holland, 1997; Saadullah *et al.*, 2017). Personality traits are a known driver to influence the performance of students in accounting fields (Saadullah *et al.*, 2017). Personality traits of students in accounting fields of study include students to be preventive, arbitrating, and more rational than students in other fields of study (Andon *et al.*, 2010; Lakhal *et al.*, 2012; Saadullah *et al.*, 2017). Furthermore, Esa and Zahari (2015:180) argues that accounting students are more ethical in nature. Finally, accounting students tend to be more conservative and also in more control of their behaviour (Wolk & Nikolai, 1997:2; Noël *et al.*, 2003:153). Students in an economic field of study, generally possess a problem-solving personality trait as one of their main personality traits (Borghans *et al.*, 2008). Furthermore, Thiel and Thomsen (2009) argues that students in an economic field of study generally possess a measure of self-control, are self-disciplined, are agreeable, and have a good self-esteem.

Students in a risk management field of study generally possess the following personality traits: flexibility, leadership skills, effective communication, and the ability to accept change (Lopez & Slepitza, 2011:5). Furthermore, risk management students possess the personality traits of bravery, inspiration and perseverance (Lopez & Slepitza, 2011). Staniec (2011:144) argues that these students are generally intelligent, ambitious, honest, and charismatic. Furthermore, a key driving force in the success of risk management students, is their desire for stimulation and their stress confrontation capabilities (Lopez & Slepitza, 2011; Staniec, 2011:142).

Students enrolled for entrepreneurial studies generally possess the same type of personality traits, namely: their ability to recognise an opportunity, their ability to exploit an opportunity and their innovation and creativity (Leutner *et al.*, 2014:58). Caliendo and Kritikos (2011:2) argues that entrepreneurial students are sometimes regarded as students being highly risk tolerant. A key driving factor for entrepreneurial students is their desire for independence (Caliendo & Kritikos, 2011:3). Furthermore, Amiri and Marimaei (2012:150) argues that entrepreneurial students are competitive in nature, competent and innovative. These students are also extroverted in nature (Noël *et al.*, 2003:153). Leutner *et al.* (2014) argues that all personality types constitute a certain level of risk-taking despite the choice of study.

2.4 DOMAIN-SPECIFIC RISK-TAKING SCALE

Individuals tend to differ in the manner in which they engage in risky behaviours, which also involves uncertainty, and these behaviours are better known as an individual's risk appetite (Blais & Weber, 2006). A measuring instrument is needed to capture the differences in these individual risk-taking behaviours. The risk-taking scale intended to measure these differences, the Domain-Specific Risk-Taking Scale (DOSPERT) was developed by Weber *et al.* (2002).

The DOSPERT Scale allowed researchers to measure conventional risk attitudes and also perceived risk attitudes (Blais & Weber, 2006). A conventional risk attitude is defined as an individual's reported degree of risk-taking, whereas, perceived risk attitude is defined as an individual's willingness to participate in a risky behaviour (Blais & Weber, 2006). These risk attitudes are measured in five commonly found domains, namely: ethical, financial, health/safety, social, and recreational domains (Weber *et al.*, 2002). The DOSPERT scale does not only measure an individual's risk-taking, but it also measures an individual's expected benefits along with perceived risks of engaging in risky behaviours (Figner & Weber, 2011).

This measuring instrument assumes that there will be a compromise between the individual's expected benefit and the risk involved for the individual (Blais & Weber, 2009). The primary purpose of the DOSPERT scale is to assign a numerical value to an individual's risk-taking behaviour (Blais & Weber, 2009).

The DOPSERT Scale uses a 7 point likert scale ranging from 1 – extremely unlikely to 7 – extremely likely, to measure the individual's risk-taking behaviour (Blais & Weber, 2006). Each individual domain constitutes six questions from the DOSPERT scale, thus measuring the risk-taking of the individual in each domain (Blais & Weber, 2006). Sample items of the DOSPERT Scale is listed in table 2.4 below.

Table 2.4: Sample items of the DOSPERT Scale

Domain	Sample item
Ethical	"Having an affair with a married man/woman"
Financial	"Investing 10% of your annual income in a new business venture"

Health/Safety	"Engaging in unprotected sex"
Social	"Disagreeing with an authority figure on a major issue"
Recreational	"Taking a weekend sky-diving class"

Source: Adapted from Blais and Weber (2006)

The DOSPERT Scale is widely used, in many different countries and languages (Johnson *et al.*, 2004; Hanoch *et al.*, 2006; Figner & Weber, 2011; Butler *et al.*, 2012). The DOSPERT Scale has been translated into 13 different languages, and have also been validated in these languages (Blais & Weber, 2006). The authors of the DOSPERT Scale found internal consistency reliability to range from .70 to .84 for the entire scale (Weber *et al.*, 2002). Furthermore, moderate test-retest reliability estimates were found, along with strong evidence for factor validity of the entire scale (Weber *et al.*, 2002).

When the DOSPERT Scale is used completely, thus when measuring an individual's risk-taking responses, risk perception responses, and the individual's expected benefits, it is measured as follows (Weber *et al.*, 2002):

$$Preference\ (X) = a\big(Expected\ Benefit(X)\big) + b\big(Perceived\ Risk(X)\big) + c$$

When using the three variations of the DOSPERT scale, namely: expected benefits, risk-perception, and risk-taking, the coefficients are computed using a regression with these three variables (Weber *et al.*, 2002). This regression is calculated for every participant who took part in the research study. A positive coefficient indicates risk-seeking behaviour, whereas, a negative coefficient indicates risk averse behaviour (Weber *et al.*, 2002).

When only the risk-taking responses are measured, the mean for each domain is computed. Thereafter, the interpretation of the domains will vary in terms of the mean score of that domain for the individual (Weber *et al.*, 2002). For example, if the total score for an individual in the ethical domain is 42 (maximum score) it is an indication that the individual is not concerned about ethical behaviour, whereas, if the individual scores 6 (minimum score) it is an indication that the individual regards ethical behaviour as important (Weber *et al.*, 2002).

2.5 HEXACO PERSONALITY INVENTORY-REVISED

The HEXACO-PI-R is a personality inventory designed to measure individual personalities and personality differences between groups of individuals (Ashton *et al.*, 2014). HEXACO-PI-R is an acronym that is used to describe this personality measure based on the six different facets it constitutes (Ashton & Lee, 2004; Bourdage *et al.*, 2007; Ashton *et al.*, 2014). The facets are: honesty-humility (H), emotionality (E), extraversion (X), agreeableness (A), conscientiousness (C), and openness to experience (O) (Ashton & Lee, 2004; De Vries *et al.*, 2009). The PI-R is simply an indication of the Personality Inventory-Revised version of the HEXACO model (Ashton & Lee, 2004; Barbarovic & Sverko, 2013; Ashton *et al.*, 2014).

The HEXACO model was formed using the same type of lexical studies from which the five-factor model of personality was derived (De Vries *et al.*, 2009; Baiocco *et al.*, 2017). The HEXACO differs from the five-factor model of personality where it constitutes six domains instead of five like the five-factor model indicates (Bourdage *et al.*, 2007; De Vries *et al.*, 2009; Baiocco *et al.*, 2017). The HEXACO differs from the five factor model by adding a distinct sixth facet honesty-humility (Barbarovic & Sverko, 2013). Each of the six main facets constitute sub-facets, these will be discussed in the sections to follow.

2.5.1 Honesty-humility

Individuals obtaining high scores in this domain will not manipulate others for their personal benefit. These individuals steer away from breaking the rules and have little temptation for the feeling of entitlement (Lee & Ashton, 2009). On the other hand, individuals obtaining low scores in this domain will display opposite behaviour to that of the high scorers. These individuals will exploit flattering behaviour in order to gain something on a personal level, their social stance is of utmost importance and they are not individuals who follow rules and regulations (Weller & Tikir, 2010b).

The honesty-humility domain constitutes four sub-domains, these measure different aspects of personality and are discussed in Table 2.5.

Table 2.5: Honesty-humility and its sub-facets

Honesty-humility Domain	
Sincerity	Evaluates the propensity of an individual being genuine in personal relationships.
Fairness	Evaluates the propensity of an individual avoiding fraudulent and corrupt behaviour.
Greed Avoidance	Evaluates the propensity of an individual not being concerned about wealth and luxurious possessions.
Modesty	Evaluates the propensity of an individual being modest in nature and unassertive.

Source: Adapted from Ashton and Lee (2004) and Barbarovic and Sverko (2013)

2.5.2 Emotionality

Individuals obtaining high scores in this domain tend to fear physical danger, tend to be anxious in situations that are stressful, and are inclined to depend on the emotional support from those around them (Lee & Ashton, 2009). On the other hand, individuals obtaining low scores in this domain are not afraid of physical danger, they get anxious in a stressful environment and are not emotionally dependent on others (Lee & Ashton, 2009).

The emotionality domain constitutes four sub-domains, these measure different aspects of personality and are discussed in Table 2.6.

Table 2.6: Emotionality and its sub-facets

Emotionality Domain	
Fearfulness	Evaluates the propensity of an individual to experience the feeling of fear.
Anxiety	Evaluates the propensity of an individual to be concerned in various contexts.

Dependence	Evaluates the propensity of an individual to be dependent on the emotional support from those around them.
Sentimentality	Evaluates the propensity of an individual to express strong emotional ties with those around them.

Source: Adapted from Ashton and Lee (2004) and Barbarovic and Sverko (2013)

2.5.3 Extraversion

Individuals obtaining high scores in this domain tend to be confident, and feel positive when speaking to large groups of people (Ashton & Lee, 2004). They are normally enthusiastic and energetic in nature. On the other hand, individuals obtaining low scores in this domain tend to feel unpopular around others, are normally awkward when they are at the centre of attention and are not as optimistic as others (Ashton & Lee, 2004).

The extraversion domain constitutes four sub-domains, these measure different aspects of personality and are discussed in Table 2.7.

Table 2.7: Extraversion and its sub-facets

Extraversion Domain	
Expressiveness	Evaluates the propensity of an individual to be impulsive and sensational in their personal styling.
Social Boldness	Evaluates the propensity of an individual to be confident in different social conditions.
Sociability	Evaluates the propensity of an individual to appreciate conversations and interactions with others.
Liveliness	Evaluates the propensity of an individual to be enthusiastic and spirited.

Source: Adapted from Ashton and Lee (2004) and Barbarovic and Sverko (2013)

2.5.4 Agreeableness

Individuals obtaining high scores in this domain forgive others easily if they have wronged them, they are more lenient when judging others and are team players who are willing to compromise in order to work with others (Lee & Ashton, 2009). On the other hand, individuals obtaining low scores in this domain do not easily forgive others who have wronged them, and tend to hold grudges, they are critical of others and are easily angered when they feel mistreated (Lee & Ashton, 2009).

The agreeableness domain constitutes four sub-domains, these measure different aspects of personality and are discussed in Table 2.8.

Table 2.8: Agreeableness and its sub-facets

Agreeableness Domain	
Forgiveness	Evaluates the propensity of an individual to forgive those who have wronged them, and to trust those around them.
Gentleness	Evaluates the propensity of an individual to be lenient and mild when working with those around them.
Flexibility	Evaluates the propensity of an individual's inclination to co-operate with those around them.
Patience	Evaluates the propensity of an individual to stay calm in different situations.

Source: Adapted from Ashton and Lee (2004) and Barbarovic and Sverko (2013)

2.5.5 Conscientiousness

Individuals obtaining high scores in this domain are organised in nature when it comes to their physical surroundings, they are disciplined workers in order to achieve their goals, and they are perfectionistic in their work and tasks they take on (Ashton & Lee, 2004). On the other hand, individuals obtaining low scores in this domain, are unorganised, they avoid doing difficult tasks and they are generally content if their work contain small errors. These

individuals tend to make impulsive decisions, rather than to carefully think about the situation (Ashton & Lee, 2004).

The conscientiousness domain constitutes four sub-domains, these measure different aspects of personality and are discussed in Table 2.9.

Table 2.9: Conscientiousness and its sub-facets

Conscientiousness Domain	
Organisation	Evaluates the propensity of an individual to be organised in their immediate environment.
Diligence	Evaluates the propensity of an individual to be a hard worker.
Perfectionism	Evaluates the propensity of an individual paying attention to detail.
Prudence	Evaluates the propensity of an individual to constrain their impulses.

Source: Adapted from Ashton and Lee (2004) and Barbarovic and Sverko (2013)

2.5.6 Openness to experience

Individuals obtaining high scores in this domain tend to value the beauty of nature and art, are curious about diverse fields of information, and they use their imagination freely (Lee & Ashton, 2009). These individuals are attracted to the unusual (Lee & Ashton, 2009). On the other hand, individuals obtaining low scores in this domain, are not enthusiastic in nature, they rarely feel any intellectual curiosity and they will avoid taking the creative route to complete a task (Lee & Ashton, 2009).

The openness to experience domain constitutes four sub-domains, these measure different aspects of personality and are discussed in Table 2.10.

Table 2.10: Emotionality and its sub-facets

Openness to Experience Domain	
Aesthetic Appreciation	Evaluates the propensity of an individual to enjoy the beauty of nature and art.
Inquisitiveness	Evaluates the propensity of an individual to be informed about the human and natural worlds.
Creativity	Evaluates the propensity of an individual to be experimental and innovative.
Unconventionality	Evaluates the propensity of an individual to accept unusual happenings.

Source: Adapted from Ashton and Lee (2004) and Barbarovic and Sverko (2013)

2.6 STUDIES IMPLEMENTING THE SAME MEASURING INSTRUMENTS

The use of the DOSPERT scale and the HEXACO-PI-R have been used extensively in research worldwide (Weber *et al.*, 2002; Pereira da Silva, 2012; Barbarovic & Sverko, 2013). Studies comprising both these methods have also been carried out before, but not as extensively as using the scales separately (Weller & Tikir, 2010b). The following sections provides an overview of similar studies carried out, using these two scales, as well as studies using these scales independently. The findings of these studies will also be highlighted.

2.6.1 Review of gendered studies

Table 2.11: Studies focused on gender

Year	Author	Title	Results
2002	Weber, Blais & Betz	A domain-specific risk-attitude scale: measuring risk	The participants in their study's level of risk-taking varied across the different domains in the DOSPERT scale. They also

		perceptions and behaviours	found that women were less risk averse in the social domain, but were more risk averse in the remaining domains.
2014	Kim, Kim & Kim	Domain specific relationships of 2D:4D digit ratio in risk perception and risk behaviour	Their results indicate gender differences in risk-taking and personality. The gender difference was most prominent in the financial domain.
2015	Kapoor	Gender differences in risk-taking: evidence from a management institute	The results obtained indicated that the male participants were more likely to engage in risk-taking behaviour in the ethical and health/safety domains. The study also found no difference in gendered risk-taking for the remaining domains.
2015	Schouten	Defining risk in the Risk Homoestasis Theory	The results obtained indicated that the male participants were more risk-seeking than their female counterparts when presented with risk-taking activities.

Source: Author's own construction

2.6.2 Studies utilising the DOSPERT scale

This section identifies the results found from various studies using the DOSPERT scale. These studies are as follows:

- In their study titled "A domain-specific risk-attitude scale: measuring risk perceptions and behaviours", Weber *et al.* (2002) found that the participants in their study's level of risk-

taking varied across the different domains in the DOSPERT scale. They also found that women were less risk averse in the social domain, but were more risk averse in the remaining domains.

- Figner and Weber (2011) found in their study titled "Who takes risks when and why? Determinants of risk taking", that individual's risk-taking is influenced by their personal characteristics as well as the circumstances of the situation they are finding themselves in.
- In their study titled "Structure of the DOSPERT: is there evidence for a general risk factor?", Highhouse *et al.* (2017) found that although individuals tend to differ in their risk-taking across domains, there is little evidence indicating the possibility of a general risk-taking factor.
- In their study titled "Risk-taking tendencies in prisoners and nonprisoners: does gender matter?", Wichary *et al.* (2015) found in their sample that males tend to take more risks than females on average whether they are imprisoned or not. They also found greater differences in risk-taking across the different domains in women and not in men.

2.6.3 Studies utilising the HEXACO-PI-R

This section identifies the results found from various studies using the HEXACO-PI-R. These studies are as follows:

- In their study titled "The HEXACO personality domains in the creation sample", Barbarovic and Sverko (2013) found evidence for distinct gender differences in personality, as theory expects. They also confirm the gender difference across all six domains.
- Bourdage *et al.* (2007) found in their study titled "Big five and HEXACO model personality correlates of sexuality", that there is a correlation between the big five and HEXACO. They found differences relating to individual personality characteristics, to correlate between HEXACO and the big five.
- In their study titled "How HEXACO personality traits predict different selfie-posting behaviours among adolescents and young adults", Baiocco *et al.* (2017) found distinct evidence that different selfie-posting behaviours are influenced by various personality traits.

2.6.4 Studies implementing both the DOSPERT scale and HEXACO-PI-R

This section identifies the results found from various studies using both the DOSPERT scale and the HEXACO-PI-R. Table 2.12 lists the results found.

Table 2.12: Studies implementing both the DOSPERT scale and HEXACO-PI-R

Year	Author	Title	Results
2010	Weller & Tikir	Predicting domain-specific risk-taking with the HEXACO personality structure	Their results indicate that openness to experience has the highest correlation with risk-taking of the individual. They also found that lower honesty-humility scores were associated with higher health/safety and ethical risk-taking behaviour.
2017	Sween, Ceschi, Tommasi, Sartori & Weller	Who is a distracted driver? Associations between mobile phone use while driving, domain-specific risk-taking, and personality	Their results indicate that greater mobile phone use while driving is associated with greater risk-taking in health/safety and ethical domains. Higher scores in honesty-humility are associated with less mobile phone usage while driving.
2014	Kim, Kim & Kim	Domain specific relationships of 2D:4D digit ratio in risk perception and risk behaviour	Their results indicate gender differences in risk-taking and personality. The gender difference was most prominent in the financial domain.
2016	Küpper	Personality as determinant of domain	This study found that honesty-humility personalities are a

	specific risk attitude and behaviour	determinant of risk-taking behaviour and not of risk-taking attitude. The general gender difference of female risk aversion was also found.

Source: Author's own construction

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter is aimed at describing the research design and methodology followed during the course of this study. This was done by means of, firstly, discussing and describing the research design and study paradigm. Secondly, the sampling strategy and its sub-components were discussed in terms of the study. Thirdly, the data collection method was described and explained. Fourthly, the pre-testing of the research questionnaire, as well as the administration of the research questionnaire was described and explained. Finally, the data analysis, along with the statistical analysis, and its sub-components were discussed.

3.2 RESEARCH DESIGN

A research design is stated to be the complete research method, including identification of the research problem, the literature review, research methodology and conclusion (Conrad & Serlin, 2011:147). A research design is a theoretical platform in which research is conducted (Kothari, 2004:31). The research design also constitutes the collection, measurement and statistical analysis of data (Kothari, 2004).

The importance of a research design can be attributed to the fact that it identifies the main objectives of a research study, as well as adding value to the research study (Conrad & Serlin, 2011:147). Kothari (2004:32) state that the importance of a research design stems from its ability to ensure the effective flow of operations within a research study, as well as its ability to enable a researcher to be as effective as possible.

Conrad and Serlin (2011:147) argues that research methodologies can be classified in terms of three main research designs, namely: quantitative, qualitative, and mixed methods which comprises both quantitative and qualitative methods. The same research designs are advocated by Creswell and Plano Clark (2011).

3.2.1 The quantitative research design

Quantitative research can be defined as a research method where the aim is to test a theory or hypothesis, to gather descriptive information of the phenomenon under investigation or to study a relationship between variables (Golafshani, 2003; Creswell *et al.*, 2010:4). Quantitative research normally constitutes a specific way of conducting research (Onwuegbuzie & Leech,

2006). It encompasses the ability to measure the phenomenon under investigation by means of statistical analysis (Creswell, 2003:18; Golafshani, 2003; Creswell *et al.*, 2010:5). Quantitative research is also aimed at generalising findings from the same group in terms of the phenomenon under investigation (Williams, 2007; Creswell *et al.*, 2010).

Quantitative research normally forms part of one of three categories, namely: descriptive, comparative and relationship between two or more variables (Onwuegbuzie & Leech, 2006). The descriptive category can be explained as the researcher attempting to measure the responses of the variables under investigation (Onwuegbuzie & Leech, 2006). The comparative category can be explained as one where a comparison between two or more groups with regard to the same variable takes place (Onwuegbuzie & Leech, 2006). Finally, the relationship category can be defined as one where the focus is on the trend amongst two or more variables under investigation (Onwuegbuzie & Leech, 2006).

3.2.1.1 Different quantitative research designs

Perumal (2010) and Creswell (2003) state that the quantitative research approach constitutes four fundamental research designs, namely: descriptive, correlational, quasi-experimental, and experimental. These will be discussed in the sections to follow.

3.2.1.1.1 Descriptive quantitative research design

The descriptive research approach can be defined as one which constitutes the identification of features which are specific to the phenomenon under investigation (Williams, 2007:65; Perumal, 2010). It observes the phenomenon under investigation in its current state of existence (Williams, 2007:65). A descriptive research design employs a method of reflection, or investigation of the correlation between two or more variables under investigation being in its current condition (Williams, 2007:65; Perumal, 2010). This process constitutes the identification of characteristics of the phenomenon under investigation, grounded on an examinational basis (Williams, 2007:66; Perumal, 2010).

3.2.1.1.2 Correlational quantitative research design

The correlational research design can be defined as one where the correlation statistical test is conducted, and where a relationship is determined between two or more variables from the same sample (Creswell, 2012; Creswell, 2014; Waters, 2017). It can further be elaborated that

the correlational design describes the degree to which two or more variables under investigation associate (Perumal, 2010).

3.2.1.1.3 Quasi-experimental quantitative research design

The quasi-experimental research design can be defined as a design which constitutes the selection of participants on a non-random basis (Creswell, 2003; Williams, 2007). As such, the researcher has limited control over the results as one cannot perform a true experiment (Campbell & Stanley, 1963; Creswell, 2003). As the researcher cannot perform a true experiment, the validity of the study might be foregone (Creswell, 2003).

3.2.1.1.4 Experimental quantitative research design

The experimental research design can be defined as one where two groups of participants are assessed simultaneously, one with an outcome and one without. After the test has been conducted, the scores for both groups are compared in order to determine whether the applied outcome had an effect (Creswell, 2003; Creswell, 2014; Quinlan *et al.*, 2015). For example, the researcher will have a placebo group of participants and a test group of participants, where the two groups are then assessed simultaneously. The experimental research design incorporates true experiments, along with a randomised assignment of participants to the treatment condition or outcome (Creswell, 2014).

3.2.2 The qualitative research approach

Qualitative research can be defined as the act of explaining an actual world phenomenon without using statistical analysis or some sort of data quantification (Golafshani, 2003). Qualitative research is aimed at understanding the phenomenon under investigation through an individual's perspective, by providing understanding of the individual's experiences (Rowan & Huston, 1997). Patton and Cochran (2007) suggest that qualitative research can be classified by its objectives relating to the individual's perspective.

Qualitative research typically aims to answer the "what", "how" or "why" of the phenomenon under investigation (Rowan & Huston, 1997; Patton & Cochran, 2007). Onwuegbuzie and Leech (2006:482) state that qualitative research questions are of an open-ended nature, where the aim of the research is naturally to describe the phenomenon under investigation instead of performing a statistical comparison. In qualitative research, the researcher's main aim is to

develop different themes from the data collected (Creswell, 2003:18). The different themes the researcher develops from the data is aimed at answering the "what", "how" or "why" of the phenomenon under investigation.

3.2.2.1 Different qualitative research designs

Creswell *et al.* (2007:237) and Creswell (2003:14) state that the qualitative research approach constitutes five fundamental research designs, namely: ethnographic, narrative, phenomenology, grounded theory, and case study. These will be discussed in the following sub sections.

3.2.2.1.1 Ethnographic qualitative research design

Ethnographic research can be defined as the in-depth investigation of a specific culture (Quinlan *et al.*, 2015:146). Generally, researchers employing the ethnographic research design, tend to be immersed in the culture of the investigation in order to create a better understanding of that culture (Tracy, 2013:29; Quinlan *et al.*, 2015:146). This means that when an individual is immersed in a culture, they can better investigate and document that culture (Quinlan *et al.*, 2015:146). Eisenhart (1988:104) suggests that the researcher employing the ethnographic research design, attempts to create a holistic understanding of the culture under investigation. Observational data is primarily used for this type of study design (Creswell, 2003:14).

3.2.2.1.2 Narrative qualitative research design

Narrative research can be defined as the investigation of stories (Polkinghorne, 2007:471). These stories are told by the person who experienced the phenomenon to the researcher (Tracy, 2013:29; Quinlan *et al.*, 2015:147). The stories told to the researcher can be in various forms: interviews, blogs, autobiographies, fictional novels and fairy tales (Polkinghorne, 2007:471; Quinlan *et al.*, 2015:147). With the narrative research design, narrative analysis can be employed to analyse textual data, which could be either in written or visual text (Quinlan *et al.*, 2015:147). It can further be elaborated that, at the end of the research process, the narrative study design will combine the stories of the participant and the researcher's life in order to form a collaborative narrative (Creswell, 2003:14).

3.2.2.1.3 Phenomenology qualitative research design

The phenomenological research design is concerned with the investigation of experience from the individual's perspective (Lester, 1999:1). It can be stated that the main purpose of the phenomenological research design is to recognise a phenomenon through how it is perceived by the individual in the situation where the phenomenon is occurring (Lester, 1999:1; Quinlan *et al.*, 2015:338). Phenomenological research employs descriptive science rather than explanatory science (Osborne, 1990:79). Osborne (1990:80) suggests that the data obtained by means of the phenomenological research design should be interpreted by the researcher by removing one's presumptions. The phenomenological study design incorporates a small sample in order to develop designs and relations of meaning (Creswell, 2003:15).

3.2.2.1.4 Grounded theory qualitative research design

Grounded theory, in terms of a research design, can be defined as the development of a set of themes or concepts which provides a detailed description of a social phenomenon that is being investigated (Corbin & Strauss, 1990:5; Tracy, 2013:246). Grounded theory is aimed at contributing to existing theory in the field of study and not only to create new theory or explanations of social phenomena (McGhee *et al.*, 2007:335). Grounded theory incorporates a multifaceted data collection instrument, where data is collected over several stages (Creswell, 2003:14). The main characteristics of grounded theory as set out by Creswell (2003:14) are: a continuous evaluation of data with comparison to developing categories, and theoretic sampling of diverse groups in order to maximise resemblances obtained from each group.

3.2.2.1.5 Case study qualitative research design

A case study can be defined as the experimental investigation which examines a current phenomenon within a real-life situation and where it is reliant on numerous sources of evidence (Darke *et al.*, 1998:275). A case study provides an in-depth investigation of a single phenomenon or a series of phenomena (Darke *et al.*, 1998:275; Quinlan *et al.*, 2015:146). Creswell (2003:15) states that the researcher employing the case study design makes use of multiple data collection methods over a continued time period.

3.2.3 The mixed methods approach

A mixed methods research approach can be defined as one which incorporates the elements of both quantitative and qualitative research (Creswell, 2003; Onwuegbuzie & Leech, 2006:474; Leech & Onwuegbuzie, 2007; Creswell, 2008). These combined approaches are then incorporated into a single research study, or into a sequence of research studies (Onwuegbuzie & Leech, 2006:474; Leech & Onwuegbuzie, 2007).

The incorporation of both quantitative and qualitative research approaches is applied for investigating the same underlying phenomenon in a mixed methods research approach (Creswell, 2003; Onwuegbuzie & Leech, 2006; Leech & Onwuegbuzie, 2007; Creswell, 2008). The main purpose of the mixed methods research approach is that it provides an improved understanding of the research problem at hand (Creswell, 2008), where a single approach on its own is deemed insufficient in answering the research question (Creswell, 2003; Creswell, 2008). It can further be elaborated that the mixed methods research approach involves data collection, which could take place either simultaneously or sequentially (Creswell, 2003), and it also comprises both numeric data and text data (Creswell, 2003; Onwuegbuzie & Leech, 2006).

3.2.3.1 Types of mixed methods approaches

Creswell and Plano Clark (2011:160) advocate that there are two different types of mixed methods research approaches, namely: the fixed approach, and the emergent approach. These approaches are discussed in the following section.

3.2.3.1.1 The fixed approach

A fixed mixed method design can be described as one where the need for quantitative and qualitative approaches are prearranged. These approaches are then executed as it was arranged (Creswell & Plano Clark, 2011:162).

3.2.3.1.2 The emergent approach

An emergent mixed method design can be described as one where the need for both a quantitative and qualitative approach arose during the course of the study. In this instance, a mixed methods approach would be more able to address the nature of the study. This design

normally arises when a second phase is added during the course of the research process, based on the notion that one phase is insufficient (Creswell & Plano Clark, 2011:163).

3.2.3.2 Mixed methods study designs

Delport and Fouché (2011:440) and Creswell (2003:16) advocate that there are five main mixed methods research designs, namely: sequential, concurrent, exploratory mixed methods design, explanatory mixed methods design, and embedded mixed methods design. These will be discussed in the following sections.

3.2.3.2.1 Exploratory mixed methods design

The exploratory mixed methods research design can be defined as one in which the researcher explores the phenomenon under investigation before attempting to quantify or measure the phenomenon under investigation (Delport & Fouché, 2011:441). The exploratory mixed methods design, also termed the formulative design, is mainly aimed at the findings of ideas and understandings (Kothari, 2004:35). The main purpose of the exploratory mixed methods design can be extended towards the formulation of a research problem for more in-depth investigation (Kothari, 2004:35).

This design consists of two phases, namely: the quantitative phase, and the qualitative phase. The first phase is normally the quantitative portion of the research study, aimed at measuring or quantifying the phenomenon under investigation (Delport & Fouché, 2011:441). The second phase of the study is normally the qualitative portion of the research study, and is aimed at developing or informing the second phase of the study (Delport & Fouché, 2011:441). The results obtained can then be used to generalise the findings to a larger sample.

The exploratory mixed methods design is particularly valuable when: the researcher is aiming to develop an instrument, when research variables are unfamiliar, when there is no theoretic background for the phenomenon under investigation, and when the researcher wishes to examine a phenomenon in depth, and quantify its occurrence (Delport & Fouché, 2011:441).

3.2.3.2.2 Explanatory mixed methods design

The explanatory mixed methods research design can be defined as one where the researcher measures and quantifies the phenomenon under investigation, followed by an explanation, based on the initial results, by means of quantitative data collection and analysis of the same

research phenomenon under investigation (Ivankova *et al.*, 2007:264; Delport & Fouché, 2011:441). The main purpose of this research design is for the qualitative data analysis to aid the explanation of the results of the quantitative data analysis (Creswell, 2003). The explanatory mixed methods research design's main advantage could be stated as the ability to easily report on the findings of such a research study based on its two-phased nature (Creswell, 2003; Delport & Fouché, 2011:441).

Ivankova *et al.* (2007:264) and Delport and Fouché (2011:441) suggest that the explanatory mixed methods research design is a two-phased design, namely: the quantitative phase, and the qualitative phase. The quantitative phase is completed before the qualitative phase commences (Ivankova *et al.*, 2007:264). Delport and Fouché (2011:441) and Creswell (2003) suggest that the researcher should implement a two-phased report indicating the results of the two-phased research study separately.

3.2.3.2.3 Embedded mixed methods design

The embedded mixed methods design is one where one type of dataset supports another type of dataset (Delport & Fouché, 2011:443). This type of design can be explained as the idea of one dataset being insufficient on its own, requiring a secondary set of data explaining the same underlying research phenomenon (Delport & Fouché, 2011:443; Klassen *et al.*, 2012:379). The embedded mixed methods design is also termed the nested mixed methods design (Delport & Fouché, 2011:443).

The main purpose of the embedded mixed methods design is to either embed quantitative data into qualitative data, or to embed qualitative data into quantitative data (Delport & Fouché, 2011:443). For this type of research design, it does not matter which dataset is the primary set and which is the secondary set (Klassen *et al.*, 2012:379). Both sets of data are used in the explanation of the same underlying phenomenon, therefore both are deemed equally important (Delport & Fouché, 2011:443; Klassen *et al.*, 2012:379).

3.2.3.2.4 Concurrent mixed methods design

The concurrent mixed methods research design is one which employs the merging of quantitative data into that of qualitative data (Creswell, 2003:16). The convergence of the data sets helps explain the research phenomenon under investigation (Creswell, 2003:16). This type of research design is one where the researcher employs the collection of both types of data

(qualitative and quantitative), at the same time (Teddlie & Tashakkori, 2003:20; Klassen *et al.*, 2012:379). The researcher reports on the merged data which investigated the same underlying phenomenon (Creswell, 2003:16; Teddlie & Tashakkori, 2003:20).

Creswell (2008) suggest that the concurrent mixed methods design encompasses several methodological problems, namely: it employs different strategies to discover opposing results, it employs the selection of sub-sample techniques from the quantitative data for the qualitative data, and the design is sensitive to favouritism from the one data collection to the other data collection.

3.2.3.2.5 Sequential mixed methods design

The sequential mixed methods design is one where the researcher wishes to expand on one method by means of the other (Creswell, 2003:16). This method involves the exploration of the phenomenon under investigation by means of a qualitative method, followed by that of a quantitative method, and vice versa (Creswell, 2003:16; Teddlie & Tashakkori, 2003:21; Klassen *et al.*, 2012:379). The main purpose of this study design is for one method to help explain the findings of the other method (Creswell, 2003:16; Teddlie & Tashakkori, 2003:21; Klassen *et al.*, 2012:379).

The researcher concludes on both methods which investigated the same underlying phenomenon (Creswell, 2003:16; Teddlie & Tashakkori, 2003:21; Klassen *et al.*, 2012:379). The first phase of the study either quantifies the phenomenon under investigation or it explores the phenomenon. The second phase of the study contributes better understanding to the results of the initial phase (Creswell, 2003:16; Teddlie & Tashakkori, 2003:21; Klassen *et al.*, 2012:379).

3.2.4 Methods applied to this study

This research study followed an emergent explanatory sequential mixed methods approach. The emergent mixed methods design was used due to a second phase being added to the study due to the initial phase of the research study being insufficient in answering the research question. The explanatory mixed methods research design was followed for the main purpose of the qualitative data analysis aiding the explanation of the results obtained from the quantitative data analysis. The sequential mixed methods design was incorporated for the reason that the second phase of the research study expanded on the initial phase of the study.

The second phase of the research study aided in the explanation of the research findings from the first phase of the study.

3.3 RESEARCH PARADIGMS

3.3.1 Research paradigm defined

A research paradigm can be defined as a set of common beliefs, notions, morals and practices that entails a manner in which reality is viewed, or as a set of common understandings (Rossman & Rallis, 2003:36; McGregor & Murnane, 2010:1). A research paradigm can further be explained as a set of basic beliefs that is representative of that of a worldview (Guba & Lincoln, 1994:107). The various types of research paradigms and the paradigm followed by the study will be discussed in the sections to follow.

3.3.2 Different types of research paradigms

In general research, many research paradigms exist. However, four main paradigms have been identified. These are: the positivist paradigm, the constructivist paradigm, the participatory paradigm and the pragmatic paradigm (Guba & Lincoln, 1994; Seale, 1999; Rossman & Rallis, 2003; McGregor & Murnane, 2010; Frels & Onwuegbuzie, 2013; Patel, 2015).

3.3.2.1 The positivist paradigm

The positivist paradigm is also known as the scientific paradigm (Mack, 2010). This paradigm constitutes evidence of scientific procedures, statistical investigation and the ability to generalise results (Mack, 2010). The positivist paradigm constitutes the true value of the experimentation and observation, along with a solitary realism which is measurable and quantifiable (McGregor & Murnane, 2010; Patel, 2015). Many researchers advocate the use of the positivist paradigm for quantitative research studies (Guba & Lincoln, 1994; Rossman & Rallis, 2003; Mack, 2010; McGregor & Murnane, 2010; Patel, 2015).

3.3.2.2 The constructivist paradigm

The constructivist paradigm is based on the notion of no solitary realism or truth (Patel, 2015), and, therefore, needs greater interpretation than other paradigms in order to form multiple perspectives from the various realisms (Guba & Lincoln, 1994; Patel, 2015). This paradigm will most likely make use of qualitative methods, rather than quantitative methods (Patel,

2015). It can further be elaborated that the constructivist paradigm is based on the belief that knowledge is constructed rather than being discovered (Guba & Lincoln, 1994). Constructions are adaptable, and the realities under the constructivist paradigm are also adaptable (Guba & Lincoln, 1994). Many researchers advocate the use of the constructivist paradigm for qualitative research studies (Guba & Lincoln, 1994; Seale, 1999; Frels & Onwuegbuzie, 2013; Patel, 2015).

3.3.2.3 The participatory paradigm

The participatory paradigm stems off of the notion that a research analysis needs to be entwined with a political agenda and politics in general, or that the participatory paradigm is influenced by political agendas (Frels & Onwuegbuzie, 2013; Creswell, 2014). This paradigm incorporates the views of the participants forming part of the research study. Participants taking part in the research study, collaborate with the researcher in order to create meaning for the study (Frels & Onwuegbuzie, 2013; Creswell, 2014). Many researchers advocate the use of the participatory paradigm for mixed methods research studies (Guba & Lincoln, 1994; Seale, 1999; Frels & Onwuegbuzie, 2013; Creswell, 2014).

3.3.2.4 The pragmatic paradigm

The pragmatic paradigm advocates the use of multiple realisms instead of a single realism (Johnson & Onwuegbuzie, 2004). The pragmatic paradigm is one where the focus is on the consequences of research, such as different meanings of words and beliefs, and that it is the best method to implement in order to solve the research problem (Johnson & Onwuegbuzie, 2004; Patel, 2015). Several researchers advocate the use of the pragmatic paradigm for both quantitative and qualitative research studies, therefore it is often the paradigm advocated for mixed methods research studies (Johnson & Onwuegbuzie, 2004; Denscombe, 2008; Frels & Onwuegbuzie, 2013; Patel, 2015).

3.3.3 Study research paradigm

Although many researchers (Johnson & Onwuegbuzie, 2004; Denscombe, 2008; Frels & Onwuegbuzie, 2013; Patel, 2015), advocate the use of the pragmatic paradigm for mixed methods research, Creswell and Plano Clark (2010) suggest the use of multiple paradigms. Therefore, this study will incorporate two paradigms in order to facilitate a more logical flow for the research design. A suitable paradigm for the qualitative portion of this study will be

applied as well as for the quantitative portion of this study. The quantitative portion of this study will comprise the positivist paradigm whereas, the qualitative portion of this study will comprise the constructivist paradigm. The positivist paradigm was utilised based on the notion of generalising research results in the quantitative portion of this study. The constructivist paradigm was utilised because it incorporates the different interpretations from the different participants forming part of the research study.

3.4 SAMPLING STRATEGY

A sample can be defined as a segment of the whole population under investigation (Strydom, 2011:223). Mack *et al.* (2005:5) suggest that the research study's aims and characteristics will be of guidance in determining the sample for the research study.

Sampling relates to the methods, the criteria and the measures employed in order to select a subset of the population for the research study (Lunsford & Lunsford, 1995:106; Nieuwenhuis, 2007b:79). A sampling strategy refers to the use of a population, a sampling frame, sampling methods and a sample size (Marais, 2013:52). The sections to follow will discuss the sampling procedure implemented in this study.

3.4.1 Target population

The target population can be defined as the entire group of items which will be studied (Gujarati & Porter, 2010:407; Brooks, 2014:62). Furthermore, a population is a visibly recognised group of people whom share the same set of characteristics (Roets, 2013:72). A target population can thus be stated to be the entire group of items or individuals which the researcher is going to study (Marais, 2013:52).

The target population for this study constitutes full-time undergraduate and post-graduate students registered at HEIs in South Africa and who are enrolled for commerce degrees specifically. Students enrolled for commerce degrees was identified based on the assumption that these students possess some knowledge of the risk management and finance fields.

3.4.2 Sampling frame

A sampling frame can be defined as the main source from which the sample will be obtained (Harrison, 2006). The sample frame can be in the form of a list or in the form of a set of procedures (Harrison, 2006). The sampling frame for this study constituted 26 registered South

African public HEIs (DHET, 2017). The 26 registered HEIs constitute 21 universities and 5 universities of technology (DHET, 2017).

From the identified sampling frame, a judgement sample of one HEI was identified for the purpose of this study. One traditional university in Gauteng was sampled for the purpose of this study. Both the quantitative and qualitative phases of this study constituted the same sampling frame. A convenience sample of students enrolled for commerce degrees was drawn from the sampling frame. The above mentioned HEIs are listed below.

Table 3.1: Registered South African public HEIs

Name of University	Location
Cape Peninsula University of Technology	Western Cape
Central University of Technology	Free State
Durban University of Technology	KwaZulu-Natal
Nelson Mandela Metropolitan University	Eastern Cape and Western Cape
North-West University	North-West and Gauteng
Rhodes University	Eastern Cape
Sefako Makgatho Health Sciences University	Gauteng
Sol Plaatje University	Northern Cape
Tshwane University of Technology	Gauteng, Mpumalanga, Limpopo, and North-West
University of Cape Town	Western Cape
University of Fort Hare	Eastern Cape
University of the Free State	Free State
University of KwaZulu-Natal	KwaZulu-Natal

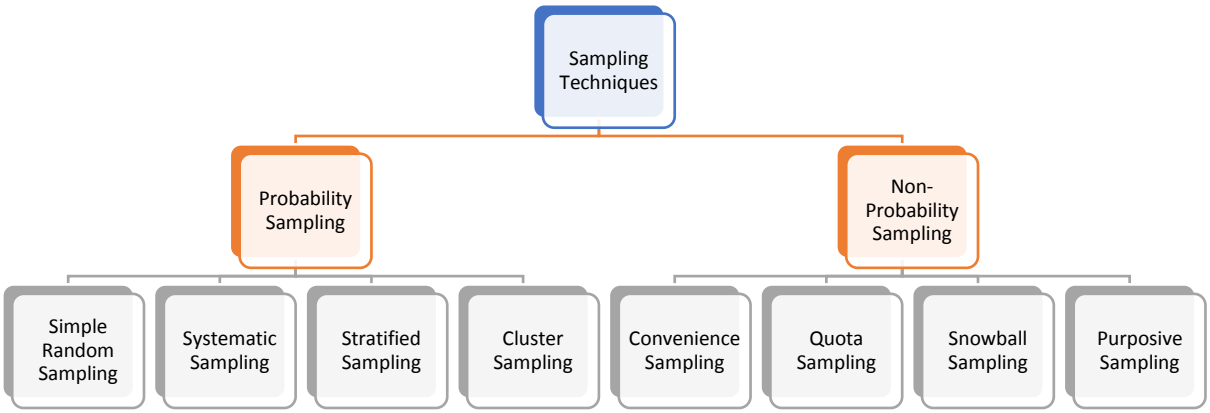
University of Johannesburg	Gauteng
University of Limpopo	Gauteng and Limpopo
University of Mpumalanga	Mpumalanga
University of Pretoria	Gauteng
University of South Africa	All provinces
Stellenbosch University	Western Cape
University of Venda	Limpopo
University of the Western Cape	Western Cape
University of the Witwatersrand	Gauteng
University of Zululand	KwaZulu-Natal
Vaal University of Technology	Gauteng, Northern Cape, North-West, and Mpumalanga
Walter Sisulu University	Eastern Cape
Mangosuthu University of Technology	KwaZulu-Natal

Source: Adapted from DHET (2017)

3.4.3 Sampling method

A sampling method can be defined as the process that is followed in order to identify a sample from the population (Maree & Pietersen, 2007b:172). Sampling methods are divided into two main categories, namely: probability sampling, and non-probability sampling (Maree & Pietersen, 2007b:172; Strydom, 2011:228). These two categories constitute several sub-categories of sampling.

Figure 3.1: Sampling techniques



Source: Adapted from Maree and Pietersen (2007b:172); Strydom (2011:228).

3.4.3.1 Probability sampling

Probability sampling is a sampling method based on the notion of randomisation (Strydom, 2011:228). In a probability sampling technique, all individuals forming part of the population have the same probability of being included in the research study (Maree & Pietersen, 2007b:172). Probability sampling does not include any human inference in the participant selection process (Maree & Pietersen, 2007b:172). Strydom (2011) suggests that probability sampling constitutes four sampling methods, namely: simple random sampling, systematic sampling, stratified sampling, and cluster sampling.

3.4.3.1.1 Simple random sampling

Strydom (2011:228) indicates that simple random sampling is the easiest method of sampling. Each individual or item should in theory, have a likely chance of inclusion in the sample for a research study. Further, it is stated that each individual or item forming part of the sample should be assigned a number (Strydom, 2011:228). When assigning each individual or participant a number, it is easier for the researcher to determine which participants to include in the sample (Zikmund *et al.*, 2013:396). The number serves to identify the individual or participant's value in the sample (Strydom, 2011; Zikmund *et al.*, 2013).

3.4.3.1.2 Systematic sampling

Systematic sampling comprises a random selection process for the selection of the first participant or item to be included in the research study (Struwig & Stead, 2001:114). Once the initial selection has been made, the researcher takes the n^{th} item or participant for inclusion in the study (Zikmund *et al.*, 2013:396). Participants or items are listed and the researcher will choose participants for inclusion in the research study from that list (Maree & Pietersen, 2007b:174). For example, the researcher can study a group of students and use a class list as reference to choose participants to include in the study. The first participant is selected randomly, for instance student number 7. Thereafter, the researcher will choose every 15^{th} student on the list (Strydom, 2011:230).

3.4.3.1.3 Stratified sampling

Stratified sampling can be explained as a sampling method where the entire sampling frame is separated into different subsections, also called strata, which are all mutually exclusive (Struwig & Stead, 2001:112; Onwuegbuzie & Collins, 2007:285). The strata or subsections contain participants who encompass the same characteristics, for example age and gender (Onwuegbuzie & Collins, 2007:285; Strydom, 2011:230). In this sampling method, the sample is designed in such a manner to include participants or items from each subsection (Struwig & Stead, 2001). This sample is thus constructed to represent a percentage of each strata in such a manner that it is a representation of the population (Strydom, 2011:230).

3.4.3.1.4 Cluster sampling

Cluster sampling can be defined as a sampling technique where the entire population is divided into different clusters (Kish, 1965:1; Fienberg, 2003:1). Once the clusters have been determined, every item or participant forming part of the cluster forms part of the research study (Kish, 1965; Saifuddin, 2009). All items or participants are surveyed for the research study employing this type of sampling strategy (Fienberg, 2003; Saifuddin, 2009). A cluster can also be referred to as a primary sampling unit (Kish, 1965; Fienberg, 2003; Saifuddin, 2009).

3.4.3.2 Non-probability sampling

Non-probability sampling is a sampling method where the sample is selected based on the researcher's judgement or based on the sample's convenience (Zikmund *et al.*, 2013:392). In this sampling method, the selection of the participant for inclusion in the sample is unknown (Strydom, 2011:231). In non-probability sampling techniques, individuals do not have an equal chance of selection for inclusion in the research study (Maree & Pietersen, 2007b:176; Strydom, 2011:231). Strydom (2011:176) suggests that non-probability sampling constitutes four sampling techniques, namely: convenience sampling, quota sampling, snowball sampling, and purposive sampling.

3.4.3.2.1 Convenience sampling

Convenience sampling can be defined as a sampling method where the sample is selected based on the convenience for the researcher, individuals who are willing to take part, or on the ease of access to the sample (Anderson, 2010:4; Petty *et al.*, 2012:380). In other words, the sample in this method is selected based on the most accessible group of items or individuals (Marshall, 1996:523). Researchers argue that this form of sampling creates researcher bias and that the sample is not a true representation of the population under investigation (Marshall, 1996:523; Anderson, 2010:4; Robinson, 2014:32).

3.4.3.2.2 Quota sampling

Quota sampling is a sampling technique where the researcher aims to obtain a quota to form a sample. This quota has a set of prerequisites in order for the individual or item to qualify to form part of the study (Smith, 1983:400). According to Moser and Stuart (1953:350), and Deville (1991:163) the human element in quota sampling is the main reason for researcher bias in this sampling method. The human element refers to the researcher's formed prerequisites for an individual to be included in a study (Moser & Stuart, 1953:350). Struwig and Stead (2001:111) suggest that the prerequisites can be any characteristic of the individual from the individual's age and income to their socio-economic status.

3.4.3.2.3 Snowball sampling

Snowball sampling can be defined as a sampling strategy where the researcher determines the initial individual for inclusion in the study (Goodman, 1961; Atkinson & Flint, 2001:2). Once

the initial individual is included in the study they will provide a new participant for inclusion in the study (Goodman, 1961; Atkinson & Flint, 2001:2). The same process is followed until data saturation is achieved or until the sample size has been reached (Atkinson & Flint, 2001). Dragan and Isaic-Maniu (2013:163) suggest that snowball sampling is best suited for research that aims to evaluate the characteristics of unknown populations. Snowball sampling is not used to generalise findings, rather to determine the hidden characteristics of a population under investigation.

3.4.3.2.4 Purposive sampling

Purposive sampling can be defined as a sampling technique where the participants forming part of the research study is grouped according to a predetermined research objective or a shared characteristic (Mack *et al.*, 2005:5). Purposive sampling techniques suggest that individuals forming part of the research study is selected with a purpose (Ritchie *et al.*, 2013:113). With purposive sampling, the sample size is not predetermined and individuals forming part of the sample is selected until data saturation is achieved (Mack *et al.*, 2005).

3.4.3.3 Sampling methods applied to study

Both phases of this study (quantitative and qualitative sections) followed a non-probability sampling technique. A non-probability sampling technique was used based on the notion that it employs the researcher's subjective judgment as well as sampling convenience. The quantitative portion of the study followed a non-probability convenience sampling technique. The convenience sampling method was employed based on the ability of the researcher, making use of a judgment decision, to include the sample in the research study.

The qualitative portion of this study employed a purposive sampling technique which constituted the selection of participants by means of predetermined criteria. The predetermined criteria constituted female participants only. Participants forming part of the qualitative study was recruited from the participants who participated in the quantitative study.

3.4.4 Sample size

Malhotra (2010:374) suggests that a sample size can be defined as the number of sampling items which will be included in the research study. Struwig and Stead (2001:125) state that it is not possible to fully determine a sample size before a research study is conducted. When

using a sample size equal to that of previous research studies will allow the researcher to compare their findings or judgments to that of other researchers utilising the same instruments (Struwig & Stead, 2001:120).

The sample size for the quantitative portion of this study constituted 462 full-time undergraduate and post-graduate students. This sample size was deemed adequately large and surpassed other studies utilising the same instruments, such as Weller and Tikir (2010b) who used a sample size of 233 participants, Kim *et al.* (2014) who used a sample size of 120 participants and Thielmann *et al.* (2016) who used a sample size of 491 participants. The sample size for the qualitative portion of this study cannot be predetermined (Tracy, 2013). The sample size will thus comprise of a limited representative sample until data saturation is achieved. Based on the research of Sandelowski (1995); Burnard (2003); Van Der Merwe and Nell (2013), the average sample size for a qualitative research study constitutes 15 participants. The sample size for the qualitative portion of this study comprised 18 full-time undergraduate and post-graduate students.

3.5 DATA COLLECTION METHODS

Quinlan (2011:479) describe a data collection method as a process of gathering data for the aim of using the obtained data in a research study by means of either a questionnaire, an interview or focus groups. Fellegi (2003:37) define a data collection method as the process followed in obtaining all the information required for a research study. In simplest terms the data collection method is the manner in which the data will be gathered (Boyce, 2002:544).

In quantitative research two main methods of data collection exist, namely the survey method and the observation method (Leedy & Ormrod, 2001). In qualitative research four main methods of data collection exist, namely: the survey method, the observation method, the interview method, and action research (Struwig & Stead, 2001; Ebersöhn *et al.*, 2007; Quinlan, 2011). These methods are discussed in the following sections.

3.5.1 The survey method

Glasow (2005:1) states that the survey method is mainly used to measure certain features of a population under investigation. A survey can be defined as the instrument used to carry out the survey study (Glasow, 2005). Questionnaires are occasionally denoted to as survey interviews based on the resemblance of its question and answer presentation (Blackstone, 2012). Babbie

(2007) defines a questionnaire as a document which contains a list of questions and other relevant information, designed in such a manner to produce information from the respondent. Questionnaires typically contain questions and statements relevant to the research study (Delport & Roestenburg, 2011:186).

Delport and Roestenburg (2011) state that the main objective of a questionnaire is to acquire the respondent's views and thoughts about the research phenomenon under investigation. Questionnaires are not standardised and differ between research studies (Delport & Roestenburg, 2011). It frequently makes use of rating scales and checklists and is aimed at quantifying results obtained from participants (Leedy & Ormrod, 2001).

Several types of questionnaires exist, namely: mailed questionnaires, telephonic questionnaires, questionnaires delivered by hand, self-administered questionnaires, and group administered questionnaires. These types of questionnaires will be discussed in the section that follows.

Table 3.2: Types of questionnaires

Questionnaire type	Questionnaire description
Mailed questionnaires	Mailed questionnaires are also referred to as postal questionnaires (Quinlan, 2011:223). This type of questionnaire is normally sent to the participant (Delport & Roestenburg, 2011:186; Quinlan, 2011:223). The participant is obliged to fill out the questionnaire and then to send it back to the researcher (Delport & Roestenburg, 2011; Quinlan, 2011).
Telephonic questionnaires	A telephonic interview consists of the interviewer phoning the interviewee and conducting the interview over the phone, with the interviewer recording the interview (Maree & Pietersen, 2007a:157). Telephonic interviews are normally useful when the sampling population is widely spread in geographical terms (Mathers *et al.*, 2002).

Questionnaires delivered by hand	A questionnaire delivered by hand is one where the researcher delivers the questionnaire at an agreed upon venue (Allred & Ross-Davis, 2010:3; Delport & Roestenburg, 2011:188). The respondents will fill out the questionnaire at an appropriate time, and afterwards the researcher will then collect the questionnaires (Delport & Roestenburg, 2011:188).
Self-administered questionnaires	Self-administered questionnaires refer to the participant completing the questionnaire without any assistance from the researcher (Cant *et al.*, 2008:100). Delport and Roestenburg (2011:188) state that the researcher will be nearby when the participants are completing the questionnaires, should a participant experience a problem.
Group administered questionnaires	In its simplest form, a group administered questionnaire is defined as a questionnaire administered by the researcher to a group of participants from the research study (Quinlan, 2011:225). When administering a group questionnaire, each participant will complete the same questionnaire, and then a discussion on the questionnaire will follow (Delport & Roestenburg, 2011:189).

Source: Author's own construction

3.5.2 The observation method

Quinlan (2011:221) describes an observation as a data collection method where the researcher obtains data by means of observing a phenomenon. Observations are normally recorded for the purpose of generating data for a research study (Creswell, 2013:375). Creswell (2013:375) suggests that the researcher should start the observation process as broadly as possible followed by a concentration on the research questions. Struwig and Stead (2001:96) state that the main advantage of the observational data collection method is that there is no need for the researcher to depend on the willingness of the individual to participate in the research study. Further, the researcher does not need to worry about the ability of the individual to account precisely for the data (Struwig & Stead, 2001).

3.5.3 The interview method

An interview can be defined as a data collection method where the researcher obtains data by means of asking questions to individuals (Struwig & Stead, 2001). An interview can also be defined as a conversation between an interviewer and interviewee with a directed set of questions (Tracy, 2013:154). Four types of interviews exist, namely: the structured interview, the semi-structured interview, the unstructured interview, and focus groups (Struwig & Stead, 2001; DiCicco & Crabtree, 2006; Gill *et al.*, 2008). These types of interviews will be discussed in the following section.

Table 3.3: Types of interviews

Interview type	Interview description
Structured interviews	Structured interviews are comprised of a standard set of questions that the researcher makes use of. Those questions, grounded on relevant theory for the research study (Leedy & Ormrod, 2001; Struwig & Stead, 2001:98). Structured interviews do not allow for the researcher to make use of follow-up questions should they wish to do so (Leedy & Ormrod, 2001; Gill *et al.*, 2008). Structured interviews are generally fast and informal when administered (Gill *et al.*, 2008:291), and are only administered one respondent at a time (Delport & Roestenburg, 2011:186). These interviews may be of use when the researcher aims to obtain a specific phenomenon from the respondents (Gill *et al.*, 2008).
Semi-structured interviews	The semi-structured interviews contain numerous important questions which aids the exploration of the phenomenon under investigation (Gill *et al.*, 2008). This type of interview is a combination between the structured interview and the unstructured interview (Struwig & Stead, 2001; Mathers *et al.*, 2002). DiCicco and Crabtree (2006:315) argue that the semi-structured interview is normally the only data source for qualitative research studies.

Unstructured interviews	The unstructured interview does not constitute any predetermined questions for the participant to answer (Mathers *et al.*, 2002; Gill *et al.*, 2008). Unstructured interviews are generally of an elastic and organic manner (Tracy, 2013:139). Generally, unstructured interviews will start off by means of an initial question followed by the progression of the discussion (DiCicco & Crabtree, 2006; Gill *et al.*, 2008).
Focus groups	A focus group is the act of the researcher taking a group of individuals and grouping them together, in order to concentrate on a discussion relating to a particular topic (Quinlan, 2011:224). Focus groups aim at generating data from the individuals in the group (Struwig & Stead, 2001:98; Quinlan, 2011:224). Struwig and Stead (2001) and Quinlan (2011) state that the ideal amount of participants in a focus group is between four and eight participants, with the minimum being six and the maximum being 12 participants. The primary objective of focus group interviews is to generate data on a particular phenomenon by means of different viewpoints from the participants (McLafferty, 2004).

Source: Author's own construction

3.5.3.1 Types of interview questions

- **Open ended**

An open-ended question is defined as one which allows the individual answering the question to express a viewpoint without the influence of the researcher (Reja *et al.*, 2003). The main advantage of open-ended questions is the opportunity for the researcher to realize a response the individual gives impulsively (Reja *et al.*, 2003:161). Mack *et al.* (2005) state that an open-ended question cannot simply be answered with a yes or no response. It can further be elaborated to state that open-ended questions requires the respondent to critically formulate an answer to the question presented (Mack *et al.*, 2005).

- **Closed ended**

Reja *et al.* (2003:161) defines close-ended questions as a question limiting the individual answering the question to established alternatives offered. Mack *et al.* (2005) states that the

individual answering the close-ended question will be able to do so without applying any effort in formulating an answer. A close-ended question will need a specific set answer such as a yes, no, don't know and not applicable (Quinlan, 2011:223).

3.5.4 Action research

Action research can be defined as a data collection method concerned with the practical concerns of individuals and a contribution to the aims of social science by means of an alliance within a jointly tolerable framework (Myers, 1997). Action research primarily focuses on a single phenomenon to be investigated (Myers, 1997). In order for the researcher to successfully undertake an action research study, the researcher needs to possess a thorough understanding of the research problem along with a possible solution to the research problem (Ebersöhn *et al.,* 2007). The researcher will act as a mediator between the affected individuals and the research problem and will help alleviate the problem by aiding the individuals in finding a solution (Ebersöhn *et al.*, 2007). The individuals under investigation in action research takes part in the research study (Fouché & de Vos, 2011).

3.5.5 The data collection method applied to this study

In this study, structured questionnaires were implemented in the quantitative phase, to obtain data relating to the individual's risk-taking appetite. The qualitative portion of this study constituted semi-structured interviews as data collection method relating to the individual's risk-taking behaviour and reasoning of such behaviour.

3.6 PILOT TESTING OF QUESTIONNAIRE AND INTERVIEW SCHEDULE

Van Teijlingen and Hundley (2001) define a pilot study as a small version of the main research study. Pilot testing refers to a pre-test of the research instrument, including questionnaires and interview schedules, that will be used . Delport and Roestenburg (2011:195) suggest that pilot testing should rather be conducted instead of a small group of people reading through the research instrument looking for errors. The primary aim of pilot testing is to identify any faults in the research instrument (Burgess, 2001:15).

Collins (2003:231) states that the research instrument should be pre-tested to ensure that the researcher obtains valid data, because participants often answer research questions without understanding what the question is asking of them. Bernardini *et al.* (2001:439) state that a

pilot study should be conducted in order to assess the questionnaire's comprehensibility as well as to set up the interview schedule from the questionnaire. Once all the recommendations have been applied to the questionnaire, it should only then be used for the full sample (Delport & Roestenburg, 2011:195). Pilot testing can be conducted on both quantitative and qualitative research studies (Van Teijlingen & Hundley, 2001).

3.6.1 Pilot testing of the study questionnaire

After the questionnaire was designed for the research study, a pilot test was conducted. From the primary study sample, 13 full-time post-graduate students in the field of commerce were selected by means of convenience sampling. The participants forming part of the pilot study were excluded from the main sample. The participants were a representative sample of the target population (Nell, 2005).

The questionnaire took the participants 20 minutes to complete. The participants were also asked to suggest any changes to the questionnaire that would improve its understandability and readability. The changes as suggested by the participants, were applied to the questionnaire to ensure that participants can easily understand what is being asked of them. Thereafter, a second round of pilot testing was conducted. The layout of the questionnaire was amended to incorporate the suggestions of the participants. Due to the changes incorporated, the flow of the questionnaire improved and the completion time decreased by five minutes.

3.6.2 Pilot testing of the interview schedule

After the interview schedule was designed for the research study, a pilot test was conducted. The sample for the pilot test was recruited from the same sample as the primary study. The sample constituted 3 full-time post-graduate and undergraduate students in a commerce field of study, by means of convenience sampling. The participants were a representative sample of the target population (Parasuruman, 1991:397).

The qualitative phase of the study constituting the interview schedule underwent the same process as the quantitative study in terms of pilot testing. Participants forming part of the pilot study were also excluded from the main sample. After all adjustments have been made, the interview schedule was used for the main research study.

3.7 QUESTIONNAIRE AND INTERVIEW SCHEDULE ADMINISTRATION

3.7.1 Administration of the questionnaire

The official survey for this research study was conducted between the months of March 2017 and April 2017. It was distributed to a sample of 462 under graduate and post-graduate students. Permission to conduct the study was obtained at the university where the study took place. The academic personnel responsible for the full time under graduate and post-graduate students were contacted via email to gain permission for surveying the relevant students. Once the personnel granted permission to survey their students, the researcher scheduled a class time for the survey to take place, at a time that was convenient for the academic staff member and that did not infringe on the learning activities of the students present.

The questionnaire was self-administered by the researcher and was delivered to each class personally. All participants were informed that participation was completely voluntary and that all the information they provided were treated with confidentiality. Furthermore, all participants were instructed to not include any identifying markers on any of the questionnaires they returned to the researcher, as participation was anonymous. The questionnaire took 20 minutes to complete and the academic staff member was present the entire time. After the questionnaire was completed, the researcher personally collected it at the class. One class period was sufficient to complete the questionnaire. The data gathered from the study will be reported on in Chapter 4.

3.7.2 Administration of the interview schedule

The official interviews for the second phase of this study was conducted between the months June 2017 and July 2017, on a sample of 18 students comprising under graduate and post-graduate students. Permission was obtained from the university where the interviews took place. All participants indicated their willingness to participate and was contacted via email to arrange the interview at a time suitable to them. The interview was conducted by the researcher and took, on average, 30 minutes to complete. One interview was sufficient from each participant. The data gathered from this study will be reported on in Chapter 4.

3.8 DATA ANALYSIS

Data analysis refers to the utilisation of analysis techniques in order to understand the gathered data, as well as the application of statistical measurements to obtain information and understand the collected data (Swanepoel *et al.*, 2006:3; Zikmund *et al.*, 2013:68). The suitable diagnostic measurement for statistical data analysis is determined by the features stated in the research design, as well as the nature of the obtained data (Zikmund *et al.*, 2013:68).

Data for the quantitative phase of the study was analysed using the IBM Statistical Package for Social Sciences (SPSS) Version 24. SPSS is a computer software program used to analyse statistics in gathered data sets. Data for the qualitative phase was coded and analysed using Atlas.ti Version 7. Atlas.ti is a computer software program used to thematically analyse qualitative data sets in research.

The following statistical data analysis measures were applied on the data sets of both the quantitative and qualitative phases of this study, namely: reliability analysis, validity analysis, and coding analysis. The aforementioned statistical data analysis measures are discussed in detail below.

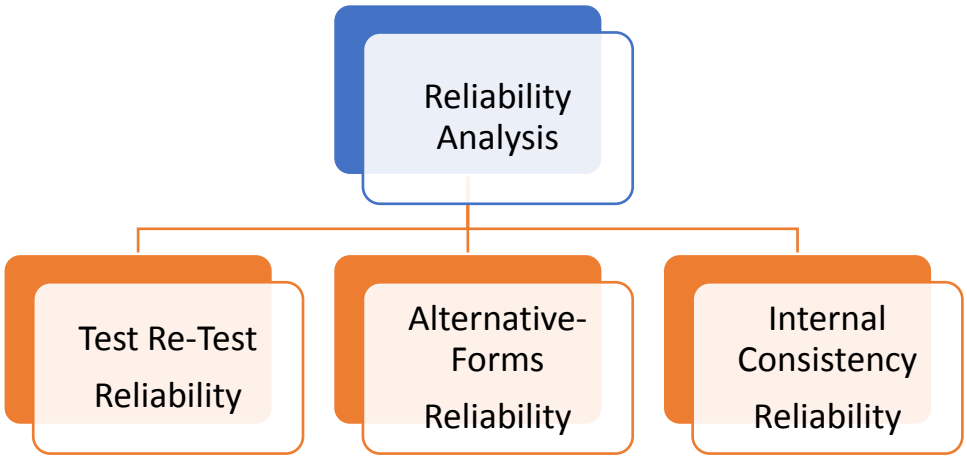
3.8.1 Reliability analysis

Reliability in quantitative research is related to the consistency of the research results over a period of time and the level of accuracy it represents from the population being studied (Golafshani, 2003:598; Pietersen & Maree, 2007:215). Additionally, should other researchers be able to reproduce similar results by means of similar methodologies, it can be stated that the research instrument is reliable (Malhotra & Birks, 1999:140; Golafshani, 2003:598). A high level of reliability is achieved when the measuring instrument indicates equal outcomes should the research be repeated on the exact same sample (Maree & Pietersen, 2007a:147).

Reliability in qualitative research is related to the soundness, consistency and reproducibility of a participant's answers (Brink, 1993:35). Qualitative reliability also refers to the consistency of the approach used across diverse researchers and research projects (Creswell, 2014:251). Golafshani (2003:601) states that reliability in qualitative research should be ensured by means of examining trustworthiness.

Reliability analysis consists of various measures (Malhotra, 2010:317), namely: the test re-test reliability, the alternative-forms reliability, and the internal consistency reliability. These approaches are indicated by figure 3.2 and are then discussed in detail in Table 3.4.

Figure 3.2: Reliability analysis approaches



Source: Source: Adapted from Malhotra (2010:317)

Table 3.4: Reliability analysis approaches

Approach	Definition
Test re-test reliability	The test re-test reliability measure refers to an approach where participants are administered an undistinguishable set of scale items on two different time periods under the most equal conditions possible (McDaniel & Gates, 2001:254; Pietersen & Maree, 2007:215; Malhotra, 2010:318).
Alternative-forms reliability	This measure refers to an approach used to assess the reliability of a scale, requiring that two equal methods of the scale should be created, which should then be used to measure the same group of participants at two different points in time (McDaniel & Gates, 2001:254; Malhotra, 2010:319).

Internal consistency reliability	This measure refers to an approach used to assess the internal consistency from the set scale's items, where some items are computed to form a total scale score (McDaniel & Gates, 2001:254; Pietersen & Maree, 2007:216; Malhotra, 2010:319).

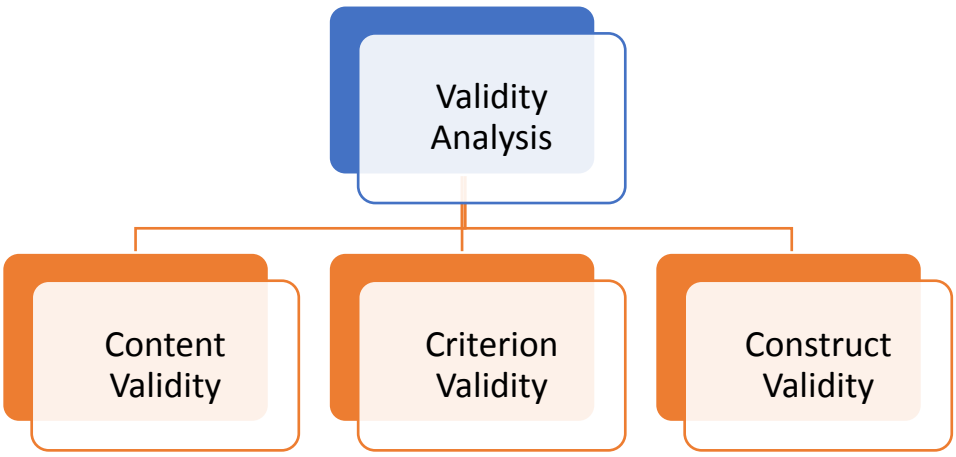
Source: Author's own construction

3.8.2 Validity analysis

Validity in quantitative research refers to the determination of whether the research study actually measures that which it intended to measure, and also the truthfulness of the results obtained (Struwig & Stead, 2001:136; Golafshani, 2003:599). Thus, a test is deemed valid if the measurements are consistent with the predictions of the researcher (Welman *et al.*, 2005:142).

Validity in qualitative research relates to the precision and truth of the research results (Brink, 1993:35). Creswell (2014:251) state that the researcher should look for the accuracy of the results by employing specific procedures such as that of precision and trustworthiness. Several types of validity analysis approaches exist, these include: content validity, criterion validity, and construct validity. These different approaches are indicated by Figure 3.3 and are discussed in detail in Table 3.5.

Figure 3.3: Validity analysis approaches



Source: Adapted from Malhotra (2010:317)

Table 3.5: Validity analysis approaches

Approach	Definition
Content validity	Content validity constitutes a systematic assessment of the representability of the scale's content for the measuring task to be completed (Iacobucci & Churchill, 2010:256; Malhotra, 2010:320).
Criterion validity	Criterion validity assesses whether the measuring scale is performing as anticipated with regards to other variables selected as purposeful criteria (Pietersen & Maree, 2007:217; Iacobucci & Churchill, 2010:256; Malhotra, 2010:320).
Construct validity	Construct validity refers to the question of what construct the measuring scale is intending to measure (McDaniel & Gates, 2001:260; Iacobucci & Churchill, 2010:256).

Source: Author's own construction

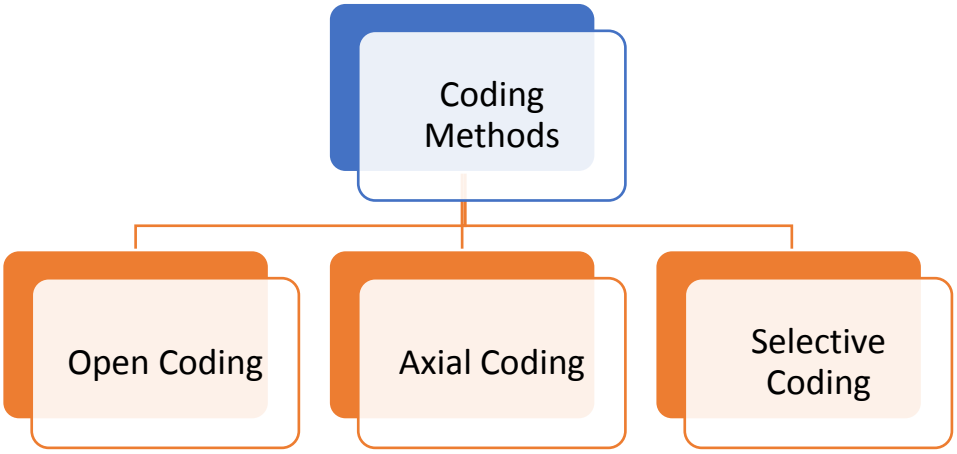
3.8.3 Coding analysis

Coding in quantitative data is usually referred to as data retrieved from questionnaires. The data retrieved from the questionnaires are coded into a coding book. A coding book refers to an electronic document containing all the relevant codes created from the data, indicating the purpose of each code (Randolph, 2009:7). Codes should denote the essence of the data (Zikmund *et al.*, 2013:465).These codes are usually numeric in nature but can also be represented by symbols (Zikmund *et al.*, 2013:465).

In qualitative research, Nieuwenhuis (2007a:105), states that coding is the action of reading each line of the transcribed interview and then separating it into different purposeful segments. Thus, coding is the action of marking the identified data segments with different symbols, expressive wording or exclusive classifying names (Nieuwenhuis, 2007a:105).

Coding also refers to the action of analysing the qualitative data in order to form segments which are specifically labelled in order to form different themes and sub-themes (Creswell, 2012:266). Creswell (2008) indicated that codes can either be created by researcher discretion or have a basis in theory. Several coding analysis methods exist, namely: open coding, axial coding, and selective coding. These types of coding are indicated by Figure 3.4 and are discussed in Table 3.6.

Figure 3.4: Coding analysis methods



Source: Adapted from Schurink *et al.* (2011:413)

Table 3.6: Coding analysis methods

Method	Definition
Open coding	Open coding is the process of analysis relating to the naming and categorisation of the observations found, by means of a close investigation from the gathered data (Struwig & Stead, 2001:167; Flick, 2006). Open coding constitutes breaking down the data, the examination of the data and forming the relative data categories (Flick, 2006).
Axial coding	Axial coding refers to a number of actions undertaken, whereby data are placed together again using different conducts, after open coding has been conducted, by means of establishing

	connections between the different categories (Strauss & Corbin, 1990:97). Thus, axial coding places the data in order by linking categories with its sub-categories (Strauss & Corbin, 1990:97).
Selective coding	Selective coding is the process of selecting the main category from the data set, by relating it to other categories of the same data set and authenticating the connection between the categories of data identified, and also the filtering of categories that need further development (Strauss & Corbin, 1990:58; Schurink *et al.*, 2011:413).

Source: Author's own construction

3.8.4 Combining quantitative and qualitative data analysis

The process of combining quantitative and qualitative analysis is known as mixed analysis (Onwuegbuzie & Combs, 2011:2). Mixed analysis constitutes the application of both quantitative and qualitative analysis techniques within a single context, thereby synthesising the outcomes of both methods into a coherent understanding of the problem under study (Onwuegbuzie & Combs, 2011:3). A mixed methods research methodology can be applied at two different levels, namely: the primary level and the synthesis level (Heyvaert *et al.*, 2013). At the primary level, the researcher collects primary data for both quantitative and qualitative sections and combines the data into one research study (Heyvaert *et al.*, 2013). The different data segments that are gathered constitutes observations, questionnaires and interviews (Heyvaert *et al.*, 2013). At the synthesis level, the research study is a systematic review, which constitutes the main principles of mixed methods research, this is known as mixed methods research synthesis (Heyvaert *et al.*, 2013). In this method, the data used is obtained from numerous articles constituting articles of qualitative, quantitative, and mixed methods research (Heyvaert *et al.*, 2013).

CHAPTER 4: ANALYSIS AND INTERPRETATION OF QUANTITATIVE AND QUALITATIVE FINDINGS

4.1 INTRODUCTION

This chapter analyses and reports on the empirical findings of the quantitative portion of this study. It provides an analysis and interpretation of the qualitative findings and synthesises the results of both the qualitative and quantitative portions of the study.

The layout of this chapter includes a summary of the findings from the pilot test, followed by the preliminary data analysis, which includes the descriptive statistics of the study. Thereafter, a discussion on the measuring instruments' reliability and validity is presented. Thereafter, a discussion on the integrated results from the two measuring instruments, followed by a discussion on the correlational analysis conducted on the quantitative portion of this study. SPSS version 24, was used to analyse the collected data for the quantitative portion of this study. After the presentation and discussion of the quantitative findings, the qualitative portion of this study's results will be presented and discussed.

The qualitative portion's layout includes a summary of the findings from the themes identified for the qualitative analysis, as well as discussions on the subthemes for this portion. Thereafter, a discussion will follow on the combination of the quantitative and qualitative sections' findings by means of synthesis. Atlas.ti version 7 for Windows was used to code and thematically analyse the data gathered from the qualitative portion of this study.

4.2 PILOT TEST RESULTS

A pilot test was conducted on the questionnaire in order to ensure content validity. The pilot test was conducted on a convenience sample constituting 13 full-time commerce post-graduate students. All changes, as indicated by the participants forming part of the pilot study, relating to the questionnaire's understandability and readability, were implemented. The convenience sample used for the pilot test was sampled at the same HEI as the main sampling frame. However, participants who took part in the pilot study were excluded from the main sample.

No statistical tests were conducted as face validity only was ensured on the pilot sample. Face validity refers to results indicating truth or validity on what was tested (Ze, 2001:1). Once face validity was conducted, it was dete4rmined that the results obtained were an indication of the

participant's truthful behaviour. The original scales used in the questionnaire constituted 30 items for the first scale and 60 items for the second. Through the process of pilot testing, the scales were left unchanged and were used as set out by Weber *et al.* (2002:286) and Ashton and Lee (2004) respectively.

4.3 PRELIMINARY DATA ANALYSIS

Before analysing a data set, it is recommended that the data set should first undergo a preliminary data analysis constituting coding and tabulation. The section below constitutes a discussion relating to coding and tabulation of the data.

4.3.1 Coding

Coding relates to the organisation of the data by means of segmenting pieces of the data and assigning an identifying number or phrase to that segment (Creswell, 2008:247). Furthermore, coding refers to identifying themes from the identified segments of data (Struwig & Stead, 2001:169). The questionnaire used in this study constituted three segments. The first segment, related to the participants' demographic information, constituted 10 questions. The second section constituted 30 items relating to the DOSPERT scale, aimed at obtaining the participant's willingness to participate in risky behaviours. The final section, comprising the HEXACO-PI-R, constituted 60 items, aimed at obtaining more information on the participant's personality relating to risk-taking behaviours.

Table 4.1: Coding information

Section A: Demographic information		
Code	**Question**	**Variable**
A1	Question 1	Degree
A2	Question 2	Year level
A3	Question 3	Age
A4	Question 4	Gender
A5	Question 5	Race
A6	Question 6	Marital status
A7	Question 7	Nationality
A8	Question 8	Home province

A9	Question 9	Home language
A10	Question 10	Payment method
Section B: The DOSPERT Scale		
D1	Question 1	Admitting that your tastes are different than those of a friend
D2	Question 2	Going camping in the wilderness
D3	Question 3	Betting a day's income at the horse races
D4	Question 4	Investing 10 % of your annual income in a moderate growth diversified fund
D5	Question 5	Drinking heavily at a social function
D6	Question 6	Taking some questionable deductions on your income tax return
D7	Question 7	Disagreeing with an authority figure on a major issue
D8	Question 8	Betting a day's income at a high-stake poker game
D9	Question 9	Having an affair with a married man/woman
D10	Question 10	Passing off somebody else's work as your own
D11	Question 11	Going down a ski run that is beyond your capability
D12	Question 12	Investing 5% of your annual income in a very speculative stock
D13	Question 13	Going white water rafting at high water in the spring
D14	Question 14	Betting a day's income on the outcome of a sporting event
D15	Question 15	Engaging in unprotected sex
D16	Question 16	Revealing a friend's secret to someone else
D17	Question 17	Driving a car without wearing a seatbelt
D18	Question 18	Investing 10% of your annual income in a new business venture
D19	Question 19	Taking a skydiving class
D20	Question 20	Riding a motorcycle without a helmet
D21	Question 21	Choosing a career that you truly enjoy over a more secure one
D22	Question 22	Speaking your mind about an unpopular issue in a meeting at work
D23	Question 23	Sunbathing without sunscreen
D24	Question 24	Bungee jumping off a tall bridge
D25	Question 25	Piloting a small plane
D26	Question 26	Walking home alone at night in an unsafe area of town

D27	Question 27	Moving to a city far away from your extended family
D28	Question 28	Starting a new career in your mid-thirties
D29	Question 29	Leaving your young children alone at home while running an errand
D30	Question 30	Not returning a wallet you found that contains R200

Source: Author's own construction

In order to improve flow and readability of the coding information, Section C of the questionnaire is presented in its own table. Table 4.2 constitutes the 60 items of the HEXACO PI-R scale.

Table 4.2: Coding information – Section C

Section C: The HEXACO PI-R		
H1	Question 1	I would be quite bored by a visit to an art gallery
H2	Question 2	I plan ahead and organise things, to avoid scrambling at the last minute
H3	Question 3	I rarely hold a grudge, even against people who have badly wronged me
H4	Question 4	I feel reasonably satisfied with myself overall
H5	Question 5	I would feel afraid if I had to travel in bad weather conditions
H6	Question 6	I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed
H7	Question 7	I'm interested in learning about the history and politics of other countries
H8	Question 8	I often push myself very hard when trying to achieve a goal
H9	Question 9	People sometimes tell me that I am too critical of others
H10	Question 10	I rarely express my opinions in group meetings
H11	Question 11	I sometimes can't help worrying about little things
H12	Question 12	If I knew that I could never get caught, I would be willing to steal a million dollars
H13	Question 13	I would enjoy creating a work of art, such as a novel, a song, or a painting
H14	Question 14	When working on something, I don't pay much attention to small details
H15	Question 15	People sometimes tell me that I'm too stubborn

H16	Question 16	I prefer jobs that involve active social interaction to those that involve working alone
H17	Question 17	When I suffer from a painful experience, I need someone to make me feel comfortable
H18	Question 18	Having a lot of money is not especially important to me
H19	Question 19	I think that paying attention to radical ideas is a waste of time
H20	Question 20	I make decisions based on the feeling of the moment rather than on careful thought
H21	Question 21	People think of me as someone who has a quick temper
H22	Question 22	On most days, I feel cheerful and optimistic
H23	Question 23	I feel like crying when I see other people crying
H24	Question 24	I think that I am entitled to more respect than the average person is
H25	Question 25	If I had the opportunity, I would like to attend a classical music concert
H26	Question 26	When working, I sometimes have difficulties due to being disorganized
H27	Question 27	My attitude toward people who have treated me badly is "forgive and forget"
H28	Question 28	I feel that I am an unpopular person
H29	Question 29	When it comes to physical danger, I am very fearful
H30	Question 30	If I want something from someone, I will laugh at that person's worst jokes
H31	Question 31	I've never really enjoyed looking through an encyclopedia
H32	Question 32	I do only the minimum amount of work needed to get by
H33	Question 33	I tend to be lenient in judging other people
H34	Question 34	In social situations, I'm usually the one who makes the first moves
H35	Question 35	I worry a lot less than most people do
H36	Question 36	I would never accept a bribe, even if it were very large
H37	Question 37	People have often told me that I have a good imagination
H38	Question 38	I always try to be accurate in my work, even at the expense of time
H39	Question 39	I am usually quite flexible in my opinions when people disagree with me

H40	Question 40	The first thing that I always do in a new place is to make friends
H41	Question 41	I can handle difficult situations without needing emotional support from anyone else
H42	Question 42	I would get a lot of pleasure from owning expensive luxury goods
H43	Question 43	I like people who have unconventional views
H44	Question 44	I make a lot of mistakes because I don't think before I act
H45	Question 45	Most people tend to get angry more quickly than I do
H46	Question 46	Most people are more upbeat and dynamic than I generally am
H47	Question 47	I feel strong emotions when someone close to me is going away for a long time
H48	Question 48	I want people to know that I am an important person of high status
H49	Question 49	I don't think of myself as the artistic or creative type
H50	Question 50	People often call me a perfectionist
H51	Question 51	Even when people make a lot of mistakes, I rarely say anything negative
H52	Question 52	I sometimes feel that I am a worthless person
H53	Question 53	Even in an emergency I wouldn't feel like panicking
H54	Question 54	I wouldn't pretend to like someone just to get that person to do favours for me
H55	Question 55	I find it boring to discuss philosophy
H56	Question 56	I prefer to do whatever comes to mind, rather than stick to a plan
H57	Question 57	When people tell me that I am wrong, my first reaction is to argue with them
H58	Question 58	When I'm in a group of people, I'm often the one who speaks on behalf of the group
H59	Question 59	I remain unemotional even in situations where most people get very sentimental
H60	Question 60	I'd be tempted to use counterfeit money, if I were sure I could get away with it

Source: Author's own construction

4.3.2 Tabulation

Once the coding process is completed, tabulation of the data should follow. Tabulation is the process of transforming the data into organised categories and then summarising the results in a manner helpful to the research study's objectives (Struwig & Stead, 2001:151). The tabulation table presents the frequencies gathered from the sample, for sections B and C of the questionnaire (D1-D30 and H1-H60).

Table 4.3: Frequency table for DOSPERT

Code	Extremely Unlikely	Moderately Unlikely	Somewhat Unlikely	Not Sure	Somewhat Likely	Moderately Likely	Extremely Likely
	1	2	3	4	5	6	7
D1	5	4	18	39	85	123	128
D2	133	18	42	72	73	70	54
D3	308	34	26	44	20	15	15
D4	36	12	24	61	99	113	117
D5	224	53	38	38	45	33	31
D6	125	45	44	135	60	33	20
D7	72	50	58	79	113	51	39
D8	324	36	26	29	21	14	12
D9	321	25	19	29	26	22	20
D10	277	67	35	34	28	6	15
D11	174	68	49	62	51	30	28
D12	87	47	49	82	86	61	50
D13	137	42	41	76	67	58	41
D14	236	50	48	44	50	14	20
D15	242	36	38	38	46	32	30
D16	284	64	37	21	34	12	10
D17	133	38	60	30	70	61	70
D18	53	23	21	64	92	98	111
D19	123	21	36	49	69	59	105
D20	239	40	22	41	46	36	38
D21	29	17	35	53	79	78	171
D22	47	26	41	68	93	98	89
D23	147	60	40	65	68	44	38

D24	154	39	14	36	47	57	115
D25	138	43	26	48	70	61	76
D26	200	48	36	18	59	47	54
D27	49	33	52	49	86	58	135
D28	82	29	50	91	75	69	66
D29	272	68	37	43	26	9	7
D30	198	51	36	55	31	28	63

Source: Author's own construction

In order to improve flow and readability of the tabulation information, Section C of the questionnaire is presented in its own table. Table 4.4 constitutes the 60 items of the HEXACO PI-R scale.

Table 4.4: Frequency table for HEXACO PI-R

Code	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
H1	96	99	137	50	80
H2	21	76	138	122	105
H3	44	64	129	121	104
H4	9	41	113	176	123
H5	58	74	108	130	92
H6	83	72	85	85	137
H7	133	86	104	78	61
H8	5	16	71	159	211
H9	58	110	126	98	70
H10	103	119	100	91	49
H11	16	26	66	194	159
H12	106	90	59	71	136
H13	68	53	78	113	149
H14	105	166	112	54	25
H15	42	72	86	127	135
H16	58	74	122	98	110
H17	72	89	106	99	96
H18	100	116	111	89	46

H19	83	168	163	35	13
H20	118	155	111	55	23
H21	129	109	90	88	46
H22	13	35	77	194	143
H23	75	81	91	112	103
H24	65	113	133	92	59
H25	99	90	78	79	116
H26	53	120	109	124	56
H27	47	70	122	128	95
H28	44	83	147	112	76
H29	43	72	96	120	131
H30	120	149	93	56	44
H31	67	113	149	80	53
H32	76	149	108	103	26
H33	37	59	139	163	64
H34	85	99	138	96	44
H35	80	128	106	82	66
H36	77	71	124	76	114
H37	4	46	111	184	117
H38	5	29	80	219	129
H39	10	49	131	195	77
H40	57	105	122	120	58
H41	29	82	101	136	114
H42	37	68	132	113	112
H43	16	38	189	142	77
H44	84	188	92	74	24
H45	30	67	99	166	100
H46	32	94	196	111	29
H47	20	51	84	176	131
H48	77	149	120	66	50
H49	98	127	106	74	57
H50	52	117	135	108	50
H51	40	77	130	165	50
H52	135	124	112	62	29
H53	118	116	96	101	31

H54	68	69	77	122	126
H55	91	88	129	68	86
H56	46	99	145	112	60
H57	64	129	131	91	47
H58	61	125	151	86	39
H59	72	114	149	90	37
H60	137	99	100	73	53

Source: Author's own construction

4.3.3 Data gathering process

As discussed in Chapter 3, the data needed for this research study were collected from full-time undergraduate and post-graduate students at one South African HEI. The final questionnaire consisted of 100 items which were divided into three subsections.

The first section (Section A) was aimed at obtaining the participants' demographic information and constituted 10 of the 100 items. The second section (Section B) was aimed at obtaining the participant's risk-taking behaviour and constituted 30 of the 100 items. Finally, the last section (Section C) was aimed at obtaining the participants' personality factors relating to risk-taking behaviour and constituted the remaining 60 items. The questionnaire used in this research study was a self-administered questionnaire. The questionnaire constituted 7 pages in total of which one page constituted the cover letter which explained the purpose of the research study.

The necessary permission was obtained from the South African HEI, whereafter the questionnaire was distributed to the participants. The researcher administered the questionnaire and the participants successfully completed 462 questionnaires. Of the questionnaires, 88 were not completed according to the guidelines as set out on the questionnaire and were deemed unusable. Participants either failed to indicate their gender or failed to fully complete the questions for the two scales used in the questionnaire. This gave the study a response rate of 84 percent.

The next section provides a discussion of the descriptive statistics that were calculated for this research study.

4.4 DESCRIPTIVE ANALYSIS - QUANTITATIVE PORTION OF THE STUDY

Descriptive statistics are employed in order to describe the characteristics of the sample (Pallant, 2016). The section to follow will provide an overview of the demographical information along with scale validations.

4.4.1 Demographic information

Demographic information relates to the characteristics of the sample population (Kolb, 2008). These characteristics include age, gender, race, source of income and marital status. The demographic information required for the use of the quantitative portion of this study was obtained from the questionnaire (Section A).

The following sections constitute a discussion on the demographic information of the participants from the quantitative phase of this research study. The discussion will include the following demographic characteristics: age, gender, and payment method.

Table 4.5: Frequencies for Age

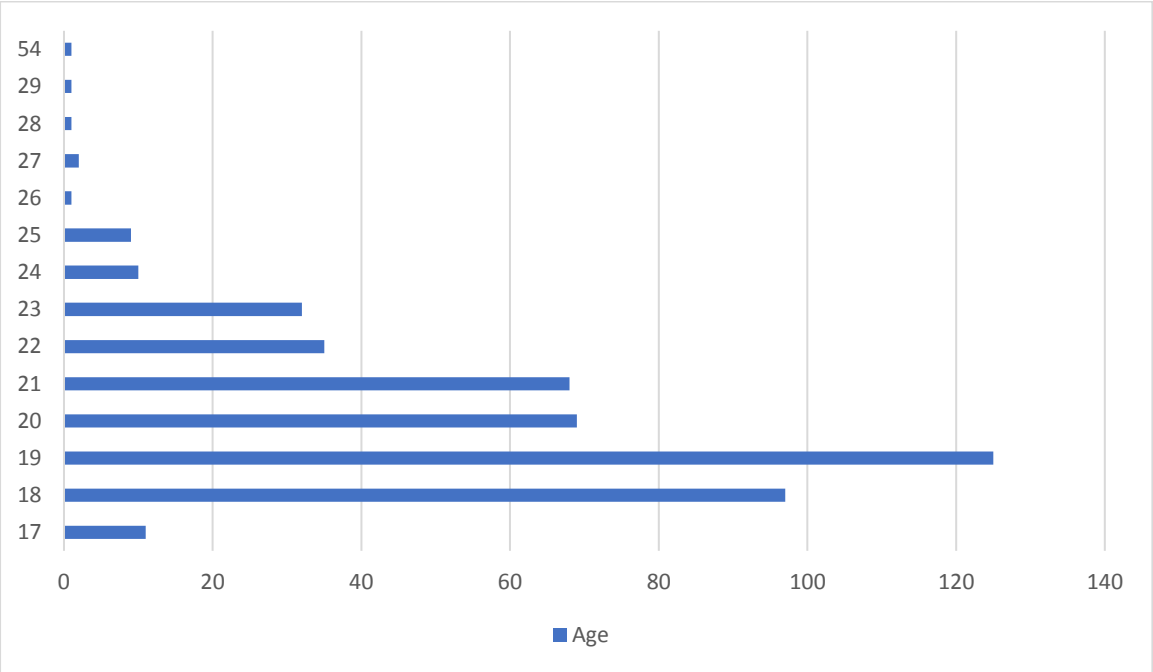
Age	Frequency	Percentage	Cumulative %
17	11	2.40	2.40
18	97	21	23.40
19	125	27.10	50.40
20	69	14.90	65.40
21	68	14.70	80.10
22	35	7.60	87.70
23	32	6.90	94.60
24	10	2.20	96.80
25	9	1.90	98.70
26	1	0.20	98.90
27	2	0.40	99.40

28	1	0.20	99.60
29	1	0.20	99.80
54	1	0.20	100.00

Source: Author's own construction

Table 4.5 above indicates the frequencies for age as a demographic factor for the entire sample (N=462).

Figure 4.1 Age



Source: Author's own construction

Figure 4.1 represents the participants' age classification. The participant's ages ranged from 17 years old to 54 years old. The age classification constitutes the ages of all the participants taking part in the quantitative phase of this study, this includes the undergraduate and post-graduate students. The largest portion of the sample is 19 years of age (27.1%), followed by 18 years of age (21.0%) and 20 years of age (14.9%). The mean age for the sample is 20.08 years. The remaining ages are 17 (2.4%), 21 (14.7%), 22 (7.6), 23 (6.9%), 24 (2.2%), 25 (1.9%), 26 (0.2%), 27 (0.4%), 28 (0.2%), 29 (0.2%) and 54 (0.2%).

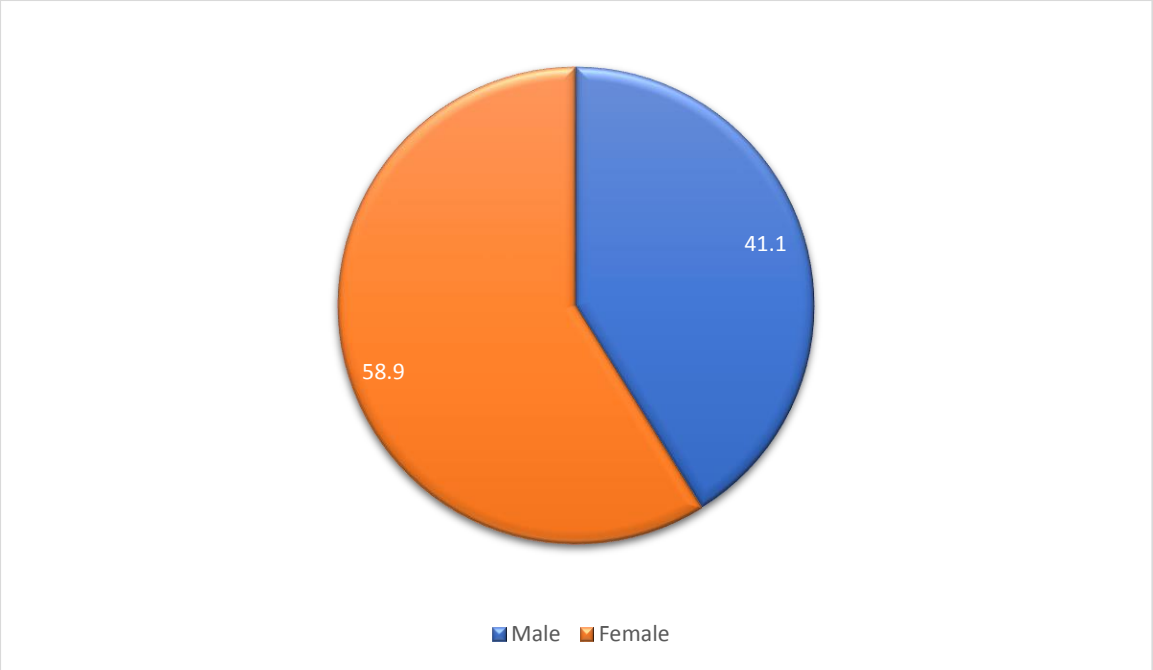
Table 4.6: Frequencies for gender

Gender	Frequency	Percentage	Cumulative %
Male	190	41.10	41.10
Female	272	58.90	100.00

Source: Author's own construction

Table 4.6 above indicates the frequencies for gender as a demographic factor for the entire sample (N=462).

Figure 4.2 Gender



Source: Author's own construction

Figure 4.2 represents the participants' gender classification. The gender classification constitutes the gender of all the participants taking part in the quantitative phase of this study; this includes the undergraduate and post-graduate students. The largest portion of the sample is female, constituting 58.9 percent of the population, the male portion constituted 41.1 percent of the total population.

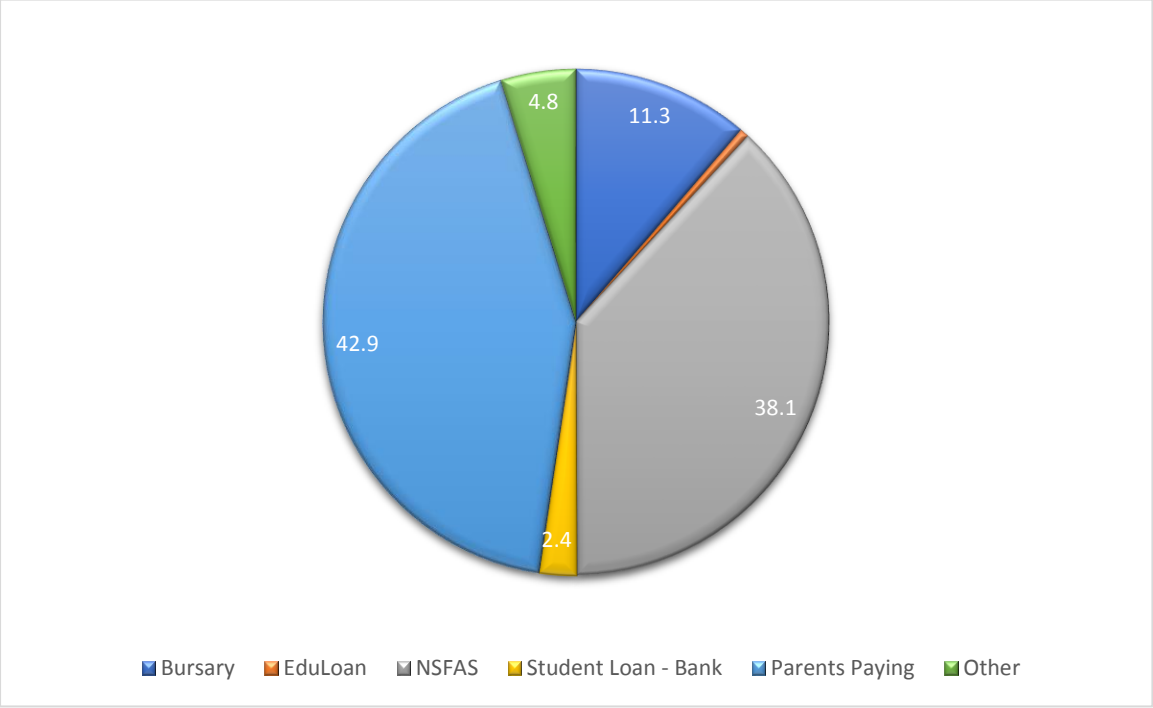
Table 4.7: Frequencies for payment method

Payment method	Frequency	Percentage	Cumulative %
Bursary	52	11.30	11.30
EduLoan	3	0.60	11.90
NSFAS	176	38.10	50.00
Student loan – bank	11	2.40	52.40
Parents paying	198	42.90	95.20
Other	22	4.80	100.00

Source: Author's own construction

Table 4.7 above indicates the frequencies for payment method as a demographic factor for the entire sample (N=462).

Figure 4.3 Study payment method



Source: Author's own construction

Figure 4.3 represents the participants' payment method classification. The payment method classification constitutes the payment methods of all the participants taking part in the quantitative phase of this study; this includes the undergraduate and post-graduate students. The largest portion of the sample indicated that their parents are paying for their studies (42.9%), followed by the National Student Financial Aid Scheme (38.1%) and bursaries was indicated as the third largest payment method (11.3%). The remaining payment methods are EduLoan (0.6%), student loans (2.4%) and participants who did not wish to indicate their payment method (4.8%).

4.4.2 Scale reliability and validity

Reliability measures are conducted in order to ensure that the scale used yields constant results (Malhotra, 2010:318). Validity indicates whether the scale measures what it is supposed to measure (Pallant, 2016:7). A Cronbach alpha value is used to indicate the scale's reliability. The Cronbach alpha value ranges from 0 to 1 where a value closer to 1 is preferred (Pallant, 2016). Malhotra (2010:319) argues that a Cronbach alpha value greater than .6 is acceptable. The DOSPERT scale's Cronbach alpha value is 0.677 which is acceptable. The HEXACO-PI-R's Cronbach alpha value is 0.112, this value does not fall within the accepted range. The Cronbach's alpha value was then computed for the sub-facets and yields the following results: honesty-humility, .431; emotionality, .563; extraversion, .639; agreeableness, .560; conscientiousness, .687;, and openness to experience, .459.

Once the reliability was computed, the validity of the scales were also computed. Briggs and Cheek (1986) suggest that the inter-item correlation range should be between .2 and .4 for an optimal range. The inter-item correlation value for the DOSPERT scale is .313 which is in the accepted range. The HEXACO-PI-R's inter-item correlation value is .07 which does not fall within the accepted range. However, four of the six correlational values for the subscales constituting the HEXACO-PI-R fall within the accepted range of .2 and .4. The HEXACO-PI-R was thus not removed as a measuring instrument since it is one of the most commonly used personality measures worldwide (Ashton & Lee, 2004; Weller & Tikir, 2010a; Ashton *et al.*, 2014). The following section relates to the descriptive statistics of the data.

4.4.3 Descriptive statistics

Pallant (2016:53) states that descriptive statistics include the following measures: the data mean and the standard deviation. The descriptive statistics are used to describe the characteristics of the sample.

Table 4.8: Descriptive statistics for the DOSPERT scale

Domain	Valid (N)	Mean	Standard deviation	Skewness	Kurtosis
Ethical	462	2.3950	1.0293	.735	-.061
Financial	462	3.3662	1.0715	.198	.447
Health/Safety	462	3.0202	1.2949	.419	-.581
Recreational	462	3.6598	1.5885	.115	-.904
Social	462	4.7666	0.9722	-.158	-.307

The N indicates the number of participants who successfully completed the questionnaire. This scale's data is normally distributed as indicated above, since the skewness values lies between the -2 or +2 range. From all the items in the scale, the social domain is the highest ranked domain for risk-taking behaviour (mean = 4.7666), followed by recreational (mean = 3.6598), financial (mean = 3.3662), health/safety (mean = 3.0202) and ethical (mean = 2.3950). The highest mean value indicates that participants are more willing to engage in risk-taking behaviour in the social domain. Whereas, the lowest mean value indicates that participants are less willing to engage in risk-taking behaviour in the ethical domain. The Kurtosis value indicated in Table 4.8 gives an indication of the data set's peakedness. From the Kurtosis values in Table 4.8 it is evident that the data distribution is relatively flat.

The standard deviation indicates the dispersion from the mean, the lowest standard deviation is the social domain (Std Dev. = 0.9722), followed by ethical (Std. Dev. = 1.0293), financial (Std. Dev. = 1.0715), health/safety (Std. Dev. = 1.2949) and recreational (Std. Dev. = 1.5885) having the highest standard deviation value. A lower standard deviation, which is an indication of lesser dispersion from risk-taking behaviour is indicated by the social domain. A higher

standard deviation, indicating more dispersion of risk-taking behaviour is indicated by the recreational and health/safety domain.

Table 4.9: Descriptive statistics for HEXACO-PI-R

Domain	Valid	Mean	Standard deviation	Skewness	Kurtosis
Honesty-humility	462	3.0951	.5958	-.001	.120
Emotionality	462	3.2909	.6172	-.218	.116
Extraversion	462	3.2420	.6012	-.276	.031
Agreeableness	462	3.2707	.5936	-.610	.571
Conscientiousness	462	3.4577	.5932	-.240	-.073
Openness to experience	462	16.0307	3.0523	-.126	-.214

This scale's data is normally distributed as indicated above, since the skewness values lies between the -2 or +2 range. From all the items in the scale, openness to experience is the highest ranked domain in terms of personality relating to risk-taking behaviour (mean = 16.0307), followed by conscientiousness (mean = 3.4577), emotionality (mean = 3.2909), agreeableness (mean = 3.2707), extraversion (mean = 3.2420) and honesty-humility (mean = 3.0951). The highest mean value indicates that participants' personality traits are indicating an inclination to participate in higher levels of risk-taking behaviour in the openness to experience subscale. Whereas, the lowest mean value indicates that participants' personality traits are indicating an inclination to participate in lower levels of risk-taking behaviour in the honesty-humility subscale. The Kurtosis value indicated in Table 4.9 gives an indication of the data set's peakedness. From the Kurtosis values in Table 4.9 it is evident that the data distribution is relatively flat.

The standard deviation indicates the dispersion from the mean, the lowest standard deviation is the conscientiousness (Std. Dev. = .5932), agreeableness (Std. Dev. = .5936), honesty-humility (Std. Dev. = .5958), extraversion (Std. Dev. = .6012), emotionality (Std. Dev. = .6172) and openness to experience has the highest standard deviation value (Std. Dev. = 3.0523). A lower standard deviation, which is an indication of lesser dispersion of personality traits is

indicated by the conscientiousness subscale. A higher standard deviation, indicating more dispersion of personality traits is indicated by the recreational and emotionality subscale.

4.5 DOSPERT SCALE RESULTS

In this study, the revised DOSPERT scale was used. The revised scale has only 30 items relating to risk-taking behaviour and not the original 48 questions. This study did not make use of the expected benefits nor the risk perception scales of the DOSPERT scale, as the main aim of this study was to determine risk-taking behaviour of individuals.

In order to analyse the DOSPERT scale's results fully, the following measures were computed, namely: the reliability of the scale, factor analysis, subscale correlations and gendered differences. These measures are in-line with those used in similar studies (Weber *et al.*, 2002; Highhouse *et al.*, 2017). These measures will be discussed in the sections to follow.

4.5.1 Reliability of the DOSPERT scale

The overall scale encompassing the five subscales has a Cronbach's alpha value of 0.677. The subscales have the following Cronbach alpha values respectively: ethical - .608, financial - .636, health/safety - .656, recreational - .810 and social - .492. All the subscales fall within the accepted range of a value greater than .6 (Malhotra, 2010), except for the social subscale falling below the accepted value. The reason therefore could possibly be because participants viewed risk-taking in this domain as less risky compared to the other domains. This subscale, however, will not influence the remaining subscales as the overall scale's Cronbach alpha is an accepted value and the scale is interpreted as a whole.

4.5.2 Factor analysis of the DOSPERT scale

Confirmatory factor analysis was computed in order to determine whether this study's sample yields the same factors as those of similar studies. This study found five distinct factors, which are in line with the DOSPERT scale, and have been found by similar studies (Figner & Weber, 2011; Highhouse *et al.*, 2017).

Table 4.10: Factor analysis of the DOSPERT scale

	Initial Eigenvalues

Component	Total	% of Variance	Cumulative %
1	2.254	45.080	45.080
2	1.082	21.637	66.718
3	0.670	13.400	80.117
4	0.606	12.114	92.231
5	0.388	7.769	100.00

In order to determine that the data set is suitable for factor analysis, the Kaiser-Meyer-Olkin measure of sampling adequacy or the KMO value should be greater than .6 (Pallant, 2016:192). Furthermore, the Bartlett's test of sphericity should be significant at the 5 percent confidence level. The KMO value for the DOSPERT scale is .663 and the Bartlett's test of sphericity has a significance value of .000 meaning that the data are suitable for factor analysis.

The Eigenvalue is used to determine how many factors to extract. The Eigenvalue should be greater than one (Pallant, 2016:192). The factor analysis indicated the presence of two factors, with Eigenvalues exceeding one, however all factors have a significant impact on explaining the variance in the total data set. The first factor explains 45.080 percent of the total variance, the second factor 21.637 percent, followed by 13.40 percent, 12.114 percent and 7.769 percent of the remaining factors respectively. The explanation of the five factors in the data are consistent with other studies utilising the DOSPERT scale, as well as the authors of the scale (Weber *et al.*, 2002). Weber *et al.* (2002:269) found the same underlying factors in their study titled "A Domain-specific Risk-attitude Scale: Measuring Risk Perceptions and Risk Behaviours". Weller and Tikir (2010b) identified the same five factors in their study titled "Predicting Domain-Specific Risk Taking with the HEXACO Personality Structure". Table 4.11 indicates the results obtained from the factor analysis.

Table 4.11: Pattern and structure matrix for the DOSPERT scale

Item	Pattern Coefficients		Structure Coefficients		Communalities
	Component 1	Component 2	Component 1	Component 2	

Recreational	.838	.123	.797	-.157	.649
Social	.723	-.082	.751	-.324	.570
Financial	.706	-.079	.732	-.314	.542
Ethical	-.040	-.910	.264	-.897	.805
Health/Safety	.062	-.855	.347	-.876	.770

4.5.3 Correlations between DOSPERT's subscales

The DOSPERT scale constitutes five subscales. This section will indicate the correlations between the five subscales. Table 4.12 indicates the correlations between the subscales.

Table 4.12: Correlations of the DOSPERT subscales

Domain	Ethical	Financial	Health/Safety	Recreational	Social
Ethical	1				
Financial	.286**	1			
Health/Safety	.582**	.230**	1		
Recreational	.146**	.367**	.235**	1	
Social	.223**	.358**	.315**	.383**	1

** $p < .001$ (2-tailed)

All valid cases were included in the correlation analysis of this scale (n=462), which is the same as the sample size. For all five factors, it is evident that the relationships are positive between the subscales. The correlation coefficient value indicated by "r" represents the strength between the two variables forming the relationship. The smallest relationship is between the ethical and recreational domains with a value of r = .146, this is an indication that individuals who scored high on the ethical domain, scored low on the recreational domain. The largest relationship is between the ethical domain and the health/safety domain with a value of r = .582. This indicates that individuals that score high on the ethical domain also score high on the health/safety domain. This relationship between the ethical and health/safety domain indicates a practically significant relationship. High scoring individuals indicate that they are

risk-seeking in nature, whereas, low scoring individuals indicate that they are risk averse in nature. The male sample's correlation coefficient value is slightly above r = .6, whereas the female sample's correlation coefficient value is slightly above r = .4. Pallant (2016:134) indicates that a value of r = .10 - .29 indicates a small strength between two variables, a value of r = .30 to .49 is an indication of a medium strength relationship, and a value of r = .50 – 1.0 indicates a large relationship between two variables. Furthermore, the remaining relationships are all of a positive nature and are medium in strength having an r – value of around .3. Thus, it is an indication that there exists a relationship between all the subscales of the DOSPERT scale.

4.5.4 Gender differences of the DOSPERT scale

An independent-sample t-test was conducted to compare the different domains in which individuals take risks, based on their gender. There was a statistically significant difference in the risk-taking behaviour between males and females in four of the five domains tested, namely: ethical, financial, health/safety and social. There was only one domain where there was no statistically significant difference in risk-taking behaviour between males and females, and it is in the recreational domain as indicated in Table 4.13. This difference is significant, as it does not violate the assumption of equal variances between males and females. Table 4.13 indicates the results obtained from the gendered independent-samples t-test for the DOSPERT scale's subscales.

Table 4.13: Gendered independent-samples t-test

Subscale	Levene's Test for Equality of Variances – F	Significance
Ethical	13.475	.000
Financial	8.844	.000
Health/safety	4.168	.000
Recreational	1.023	.477
Social	0.14	.000

To interpret the gender differences and to indicate an effect size of the gendered differences, a gendered correlation analysis was computed and the following results were obtained, as indicated in Table 4.14 (male) and Table 4.15 (female).

Table 4.14: Male correlations for DOSPERT's subscales

Domain	Ethical	Financial	Health/Safety	Recreational	Social
Ethical	1				
Financial	.273**	1			
Health/Safety	.632**	.221**	1		
Recreational	.115	.374**	.222**	1	
Social	.240**	.393**	.315**	.389**	1

** p < .001 (2-tailed), * p < .005 (2-tailed)

In the recreational domain for the male participants it is evident that the value of r = .115 is not statistically significant. However, for the remaining domains and relationships, there is a statistically significant relationship at the 5 percent confidence interval. The largest relationship, which is also practically significant, is between the ethical domain and the health/safety domain with a value of r = .632. In terms of effect size, this is an indication of a practically significant relationship. The effect size statistical value refers to the extent of the differences between the two groups being studied (Pallant, 2016:242). The guidelines in terms of interpreting effect size are: r = 0.1 is an indication of a small effect, r = 0.3 indicates a medium effect, and r = 0.5 indicates a large effect (Pallant, 2016:242).

Table 4.15: Female correlations for DOSPERT's subscales

Domain	Ethical	Financial	Health/Safety	Recreational	Social
Ethical	1				
Financial	.208**	1			
Health/Safety	.454**	.133**	1		
Recreational	.168**	.371**	.249**	1	

Social	.120*	.275**	.232**	.382**	1

** p < .001 (2-tailed), * p < .005 (2-tailed)

In the recreational domain for the female participants it is evident that the value of r = .168 is statistically significant at the 1 percent confidence interval. This relationship between the ethical domain and the recreational domain is the second weakest relationship amongst risk-taking behaviour for the female participants. However, for the remaining domains and relationships, there is a statistically significant relationship at the 5 percent confidence interval, except for the relationship between the ethical domain and the social domain being statistically significant at the 1 percent confidence interval. The largest relationship, which is practically significant, is between the ethical domain and the health/safety domain with a value of r = .454. The effect size statistical value refers to the extent of the differences between the two groups being studied (Pallant, 2016:242). The guidelines in terms of interpreting effect size are: r = 0.1 is an indication of a small effect, r = 0.3 indicates a medium effect, and r = 0.5 indicates a large effect (Pallant, 2016:242). In terms of effect size, this is an indication of a practically significant relationship. This relationship is also evident in the male sample.

4.6 ANALYSIS OF THE HEXACO-PI-R

In this study, HEXACO personality inventory-revised was used, including only the 60 report measure questions and not the original 100 report measure questions, relating to personality constructs. In order to fully analyse the HEXACO-PI-R's results the following measures were computed, namely: the reliability of the scale, factor analysis, subscale correlations and gendered differences. These measures are in line with those used in similar studies (Ashton & Lee, 2004). These measures will be discussed in the sections to follow.

4.6.1 Reliability of the HEXACO-PI-R

The overall scale encompassing the six subscales have a Cronbach's alpha value of 0.112. This value falls below the accepted value of .6 and above, however, the low Cronbach's alpha value might be due to the number of items in the scale (Pallant, 2016:97). The subscales have the following Cronbach alpha values respectively: honesty-humility -.431, emotionality -.563, extraversion -.639, agreeableness -.560, conscientiousness -.687 and openness to experience -.459. Four of the subscales fall within the accepted range of an accepted alpha value of .6 and above, except for the honesty-humility and openness to experience subscales falling below the

accepted value. These Cronbach alpha values, however, will not influence the use and interpretation of this scale, as the subscales will be used independently.

The two subscales with the lower alpha values can still be used based on the notion that these two scales encompass items which the participants were not comfortable with answering honestly and items the individuals have no experience with. Example items from these two subscales are presented in Table 4.13 below. These example items can be attributed to the fact that the sample forms part of the Generation Y population group and that the sample is in a South African context instead of a European context.

Table 4.16 Example items of honesty-humility and openness to experience subscales

Subscale	Example items
Honesty-humility	I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed
	If I knew that I could never get caught, I would be willing to steal a million dollars
	I want people to know that I am an important person of high status
Openness to experience	I would be quite bored by a visit to an art gallery
	I've never really enjoyed looking through an encyclopedia
	I like people who have unconventional views

Source: Author's own construction

4.6.2 Factor analysis of the HEXACO-PI-R

Confirmatory factor analysis was computed in order to determine whether this study's sample yields the same factors as those of similar studies. This study found six distinct factors which are in line with similar studies that have utilised the HEXACO-PI-R. (Ashton & Lee, 2004; De Vries *et al.*, 2009).

Table 4.17: Factor analysis of the HEXACO-PI-R

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	1.540	25.660	25.660
2	1.294	21.572	47.232
3	0.928	15.466	62.698
4	0.870	14.508	77.206
5	0.784	13.059	90.266
6	0.584	9.734	100.00

In order to determine that the data set is suitable for factor analysis, the KMO value should be greater than .6 (Pallant, 2016:192). Furthermore, the Bartlett's test of sphericity should be significant at the 5 percent confidence level. Malhotra and Birks (1999:574) argues that the KMO value should be between .50 and 1.0. The KMO value for the HEXACO-PI-R is .532, which is still an acceptable value, although it is not above .6. The Bartlett's Test of Sphericity has a significance value of .000 meaning that the data is suitable for factor analysis.

The first two components have Eigenvalues exceeding one and account for 47.232 percent of the total variance explained in the data. However, the remaining four components accounting for 52.768 percent of the variance in the data cannot be discarded as this accounts for half of the total variance in the data.

The factor analysis indicated the presence of two factors, however, all factors have a significant impact on explaining the variance in the total data set. The first factor explains 25.660 percent of the total variance, the second factor 21.572 percent, followed by 15.466 percent, 14.508 percent, 13.059 percent, and 9.734 percent of the remaining factors respectively. The explanation of the six factors in the data are consistent with other studies utilising the HEXACO-PI-R, as well as the authors of the scale (Ashton & Lee, 2004). Ashton and Lee (2010) in their study titled "Trait and source factors in HEXACO-PI-R self- and observer reports" found the same underlying factors. Weller and Tikir (2010b) identified the same six

factors in their study titled “Predicting Domain-Specific Risk Taking with the HEXACO Personality Structure”.

Table 4.18 indicates the results obtained from the factor analysis.

Table 4.18: Pattern and structure matrix for the HEXACO-PI-R

Item	Pattern Coefficients		Structure Coefficients		Communalities
	Component 1	Component 2	Component 1	Component 2	
Conscientiousness	.727	-.158	.735	-.195	.566
Honesty-humility	.706	.348	.688	.312	.594
Agreeableness	.537	-.058	.540	-.085	.295
Openness to experience	.063	-.649	.096	-.652	.430
Emotionality	.216	.636	.184	.625	.438
Extraversion	.361	-.600	.392	-.618	.512

4.6.3 HEXACO-PI-R subscale correlations

The HEXACO-PI-R constitutes six subscales. This section will indicate the correlations between the six subscales. Table 4.19 indicates the correlations between the subscales. The abbreviations in Table 4.19 represents: H = honesty-humility, E = emotionality, X = extraversion, C = conscientiousness, O = openness to experience.

Table 4.19: Correlations of the HEXACO-PI-R

Subscale	H	E	X	A	C	O
H	1					
E	.095*	1				
X	.005	-.140**	1			
A	.195**	-.003	.104*	1		

C	.269**	.055	.274**	.128**	1	
O	-.079	-.133**	.149**	.077	.114*	1

* p < .005 (2-tailed), ** p < .001 (2-tailed),

All valid cases were included in the correlation analysis of this scale (n=462), which is the same as the sample size. For all six factors constituting the HEXACO-PI-R, it is evident that there are positive relationships between the subscales. Except for the relationship between emotionality and extraversion, emotionality and agreeableness, emotionality and openness to experience and honesty-humility and openness to experience. A positive relationship indicates that an individual will take part in risk-taking behaviours in both subscales, whereas, a negative relationship indicates that individuals will take part in risk-taking behaviour in one subscale and not in the other. The smallest relationship is between the honesty-humility and emotionality domains with a value of r = .095. The largest relationship is between the extraversion domain and the conscientiousness domain with a value of r = .274. There is an indication of relationships amongst all of the subscales. There is no statistically significant relationship for honesty-humility with extraversion, honesty-humility with openness to experience, emotionality with agreeableness, emotionality with conscientiousness and agreeableness with openness to experience. In terms of effect size, the HEXACO-PI-R's subscales have no practically significant relationships with one another. This is an indication that individual behaviour in one subscale does not affect the individual's behaviour in another subscale.

4.6.4 Gender differences of the HEXACO-PI-R

An independent-sample t-test was conducted to compare the different subscales in which individuals make decisions in terms of their personality, based on their gender. There was a statistically significant difference in the personality constructs between the males and females in two of the six subscales tested, namely honesty-humility and emotionality. The other subscales indicate significant differences in individual personality behaviours between males and females, as indicated in Table 4.20. This difference is statistically significant, as it does not violate the assumption of equal variances between the male and female variances. Thus, it indicates that both the male and female participants engage in risk-taking behaviour in the same subscales. Table 4.20 indicates the results obtained from the gendered independent-samples t-test for the HEXACO-PI-R's subscales.

Table 4.20: Gendered independent-samples t-test

Subscale	Levene's Test for Equality of Variances – F	Significance
Honesty-humility	.846	.000
Emotionality	.000	.000
Extraversion	.131	.013
Agreeableness	.000	.590
Conscientiousness	.214	.326
Openness to experience	1.415	.140

To interpret the gender differences and to indicate an effect size of the gendered differences, a gendered correlation analysis was computed and the following results were obtained, as indicated in Table 4.21 (male) and Table 4.22 (female). The abbreviations in Table 4.21 represents: H = honesty-humility, E = emotionality, X = extraversion, C = conscientiousness, O = openness to experience.

Table 4.21: Male correlations for HEXACO-PI-R's subscales

Subscale	H	E	X	A	C	O
H	1					
E	.051	1				
X	.101	-.189**	1			
A	.178*	.135	.080	1		
C	.307**	.108	.300**	.218**	1	
O	-.026	-.122	.200**	.118	.146*	1

** $p < .001$ (2-tailed), * $p < .005$ (2-tailed)

For the male participants, there are only seven relationships which are statistically significant, these include honesty-humility with agreeableness and conscientiousness, emotionality with

extraversion, extraversion with conscientiousness and openness to experience, agreeableness with conscientiousness, and conscientiousness with openness to experience. These relationships are either significant at the 1 percent confidence interval or the 5 percent confidence interval (Table 4.21).

In terms of effect size, there is a practically visible relationship between honesty-humility and conscientiousness, and extraversion and conscientiousness. The remaining relationships have a relationship but are practically not significant.

Table 4.22: Female correlations for HEXACO-PI-R's subscales

Subscale	H	E	X	A	C	O
H	1					
E	-.028	1				
X	-.022	-.032	1			
A	.205**	-.121*	.128*	1		
C	.238**	-.012	.268**	.063	1	
O	-.091	-.110	.103	.054	.099	1

** $p < .001$ (2-tailed), * $p < .005$ (2-tailed)

For the female participants, only seven are significant, these include honesty-humility with agreeableness and conscientiousness, emotionality with agreeableness, and extraversion with agreeableness and conscientiousness. These relationships are either significant at the 1 percent confidence interval or the 5 percent confidence interval and are indicated in Table 4.22.

In terms of effect size, there are no practically significant relationships, however, all the relationships are practically visible. The male and female groups have the same practically visible relationships between honesty-humility with agreeableness and conscientiousness. Furthermore, with regard to the rest of the relationships, the male and female groups differ.

4.7 CORRELATION BETWEEN THE DOSPERT SCALE AND HEXACO-PI-R

In order to determine whether personality influences an individual's risk-taking behaviour a correlational analysis should be conducted to determine the possible relationship. Table 4.23 indicates the results obtained from the correlational analysis between the DOSPERT scale and the HEXACO-PI-R.

Table 4.23: Correlations between the DOSPERT scale and HEXACO-PI-R

Scale	H	E	X	A	C	O
Ethical	-.500**	-.202**	.020	-.087	-.313**	.055
Financial	-.225**	-.162**	.094*	.078	.027	.259**
Health/safety	-.383**	-.299**	.006	-.139**	-.271**	-.010
Recreational	-.028	-.165**	.131**	.083	.025	.186**
Social	-.121**	-.310**	.200**	-.036	.086	.275**

** $p < .001$ (2-tailed), * $p < .005$ (2-tailed)

The following sections will discuss the results obtained from the correlational analysis between the DOSPERT scale and the HEXACO-PI-R. Each domain of the DOSPERT scale will be interpreted with the different subscales of the HEXACO-PI-R.

4.7.1 Correlation between DOSPERT ethical domain and HEXACO's subscales

Three of the six subscales which constitute the HEXACO-PI-R are significant at the 1 percent confidence interval (honesty-humility, emotionality and conscientiousness). Whereas, the remaining three subscales are not statistically significant at all (extraversion, agreeableness and openness to experience). A negative correlation coefficient value indicates the direction of the relationship between two variables, and that the relationships are negative. The three significant relationships are all of a negative nature indicating that individuals who obtained low scores for DOSPERT's ethical domain, also obtained low scores for HEXACO's three subscales, namely honesty-humility, emotionality and conscientiousness. This indicates that these individuals' personality traits are in line with their risk-taking behaviour in the ethical domain.

4.7.2 Correlation between DOSPERT financial domain and HEXACO's subscales

Three of the six subscales constituting the HEXACO-PI-R is statistically significant at the 1 percent confidence interval (honesty-humility, emotionality and openness to experience). One of the subscales is statistically significant at the 5 percent confidence interval (extraversion). Whereas, two of the subscales are not statistically significant at all (agreeableness and conscientiousness).

Honesty-humility and emotionality have negative relationships with the financial domain. This indicates that individuals taking less risk in the financial domain will have higher scores on the honesty-humility and emotionality subscales. The higher scores are an indication of the individual's inclination to participate in risk-seeking behaviour in these subscales. Lower scores are an indication of the individual steering away from participating in risk-seeking behaviour. There is a positive relationship between the financial domain and the extraversion and openness to experience subscales.

4.7.3 Correlation between DOSPERT health/safety domain and HEXACO's subscales

Four of the six subscales which constitute the HEXACO-PI-R are significant at the 1 percent confidence interval (honesty-humility, emotionality, agreeableness and conscientiousness). The remaining two subscales are not statistically significant (extraversion and openness to experience). The four statistically significant relationships have negative coefficients, indicating that individuals, who obtained high scores for DOSPERT's health/safety domain, obtained low scores for HEXACO's four subscales, namely: honesty-humility, emotionality, agreeableness and conscientiousness.

Low scoring individuals in the honesty-humility subscale indicates that they are less sincere, they will be less genuine in their relationships with others, and they will be influenced by the power of greed. Their social status is more important than being genuine. Individuals scoring low on the emotionality domain rarely feel fear for physical danger, they hardly stress in tough situations, and normally they feel little emotion when greeting a loved one for a prolonged period of time. Low scores on the agreeable subscale indicate that individuals will hold a grudge against others, they will be quick to judge others, and are generally stubborn in nature. Finally, low scores on the conscientiousness subscale indicates that these individuals are normally untidy, have little self-discipline, and will submit work containing errors they are happy with. However, by obtaining high scores on the health/safety domain, it is an indication

of the individual participating in risk-seeking behaviour. This indicates that these individuals' personality traits are in line with their risk-taking behaviour in the health/safety domain.

4.7.4 Correlation between DOSPERT recreational domain and HEXACO's subscales

Three of the six subscales constituting the HEXACO-PI-R are statistically significant at the 1 percent confidence interval (emotionality, extraversion and openness to experience). Whereas, three of the subscales are not statistically significant (honesty-humility, agreeableness and conscientiousness). The recreational domain has a negative relationship with the emotionality domain indicating that individuals engaging in more risky activities in the recreational domain will feel less emotional in the emotionality subscale. The extraversion and openness to experience subscales have a positive relationship with the recreational domain, being an indication of the individual's personality supporting their risk-taking behaviour. High scoring individuals on the extraversion subscale are talkative, they perform well in group settings, and are optimistic in nature. Individuals scoring high on the openness to experience subscale will seek for solutions to problems, they are interested in nature and art. Whereas, obtaining high scores in the recreational domain, their risk-taking behaviour is consistent with their personality traits.

4.7.5 Correlation between DOSPERT social domain and HEXACO's subscales

Four of the six subscales constituting the HEXACO-PI-R is statistically significant at the 1 percent confidence interval (honesty-humility, emotionality, extraversion and openness to experience); whereas, two of the subscales are not statistically significant at all (agreeableness and conscientiousness). The social domain has a negative relationship with the honesty-humility and emotionality subscales indicating that individuals engaging in more risky activities in the social domain will feel less emotional in the emotionality and honesty-humility subscales. The extraversion and openness to experience subscales have a positive relationship with the social domain, being an indication of the individual's personality supporting their risk-taking behaviour.

When individuals obtain low scores in the honesty-humility domain, they tend to be less sincere, they will be less sincere in their relationships with others, and they will be influenced by the power of greed. Their social status is more important than being sincere. When individuals score low in the emotionality subscale they rarely feel fear for physical danger, they hardly stress in tough situations, and normally they feel little emotion when greeting a loved

one for a prolonged period of time. These same individuals obtaining high scores in the social domain indicate that they are willing to take part in risk-seeking behaviour relating to career changes, moving to a city far away from their hometown, and disagreeing with their peers. These behaviours are in line with the relationship between the social domain and they honesty-humility and emotionality subscales. Furthermore, these behaviours correlate with the personality traits and risk-taking behaviour of the individual.

4.8 GENDER DIFFERENCES BETWEEN THE DOSPERT SCALE AND THE HEXACO-PI-R

The following tables indicate the gendered correlational analysis between the DOSPERT scale and the HEXACO-PI-R. Table 4.24 and 4.25 indicates the correlation between the two scales for males and females.

Table 4.24: Male correlations between the DOSPERT scale and HEXACO-PI-R

Scale	H	E	X	A	C	O
Ethical	-.524**	-.133	-.036	-.157	-.383**	.058
Financial	-.251**	-.147*	.137	.049	.024	.275**
Health/safety	-.396**	-.288**	-.003	-.269**	-.288**	-.007
Recreational	-.012	-.245**	.186*	.092	.019	.230**
Social	-.123	-.323**	.199**	-.068	.013	.313**

** $p < .001$ (2-tailed), * $p < .005$ (2-tailed)

Table 4.25: Female correlations between the DOSPERT scale and HEXACO-PI-R

Scale	H	E	X	A	C	O
Ethical	-.436**	-.046	.008	-.021	-.253**	.021
Financial	-.145*	-.016	.013	.118	.050	.236**
Health/safety	-.306**	-.098	-.080	-.037	-.258**	-.054
Recreational	-.029	-.117	.088	.079	.031	.157**

Social	-.057	-.196**	.168**	-.005	.161**	.237**

** p < .001 (2-tailed), * p < .005 (2-tailed)

4.8.1 Relationships with DOSPERT's ethical domain

From Table 4.24 (male), it is evident that there are two HEXACO-PI-R subscales that have a negative relationship with DOSPERT's ethical domain. Both these relationships, honesty-humility and conscientiousness, are statistically significant at the 1 percent confidence interval. From Table 4.25 (female) there are also two statistically significant subscale correlations from the HEXACO-PI-R with DOSPERT's ethical scale, namely: honesty-humility and conscientiousness. These relationships are both negative in nature and are statistically significant at the 1 percent confidence interval. These relationships exist for both the male and female samples. The relationship of honesty-humility with the ethical domain of DOSPERT is a practically significant relationship, whereas, the relationship between conscientiousness and the ethical domain is only a visible relationship.

For both the male and females, the relationships with the ethical domain are negative in nature. Low scores on the honesty-humility subscale indicates behaviour of flattery for personal gain, entitlement towards others, and a need for wealth and luxury. Also, low scores on the conscientiousness subscale indicates that individuals are untidy, they do not have self-discipline, and they are impulsive in nature. However, these individuals obtained high scores on the ethical domain, which is in indication of these individuals valuing ethical behaviour. Interestingly, one would expect these individuals to score low on the ethical domain but on the contrary, they obtained high scores indicating ethical behaviour. As suggested by literature, flexibility, communication and the ability to accept change. Furthermore, the individuals display personality traits relating to bravery, inspiration and perseverance.

4.8.2 Relationships with DOSPERT's financial domain

For the financial domain, the male sample indicate two significant relationships, namely: honesty-humility (negative) and openness to experience (positive). Both these relationships are statistically significant at the 1 percent confidence interval. The female sample indicates the same relationships between the financial domain and honesty-humility (negative) and openness to experience (positive) subscales respectively. However, the relationship between the financial domain and the honesty-humility subscale is significant at the 5 percent confidence interval,

whereas, the relationship between the financial domain and openness to experience is significant at the 1 percent confidence interval.

In terms of the negative relationship between the financial domain and the honesty-humility subscale for both the male and female samples, the negative relationship indicates that the individuals who scored low in the financial domain scored high in the honesty-humility subscale. A low score on the financial domain indicates a dispersion from risk-taking behaviour, in terms of financial decision making. Individuals will take less risks when investing their money, and they will also steer away from gambling with their money. High scores on the honesty-humility subscale indicate that individuals will steer away from manipulating others, they will not take advantage of those around them for their personal gain, they are not driven by wealth, and they think of themselves as being normal and ordinary.

In terms of the positive relationship between the financial domain and the openness to experience subscale for both the male and female samples, the positive relationship indicates that the individuals who score high in the financial domain, will also score high on the openness to experience subscale. A high score on the financial domain indicates risk-taking behaviour in terms of financial decision making. These individuals will take greater risks with their money when investing, and they will also participate in gambling activities with their money. When scoring high on the openness to experience subscale, individuals tend to be interested in nature, arts and travelling. They also seek solutions for solving problems, and are open to new ideas which might appear eccentric to others.

The relationship between the financial domain and the honesty-humility subscale for both samples is an indication of individuals taking less risks in the financial domain and being more honest in the honesty-humility subscale. As for the relationship between the financial domain and the openness to experience subscale, individuals who take less risk in the financial domain are less open to different and new experiences.

4.8.3 Relationships with DOSPERT's health/safety domain

There is a distinct difference between the relationships that exist between DOSPERT's health/safety domain and HEXACO's subscales for the male and female samples. There is an indication of four significant relationships between the health/safety domain and the different HEXACO subscales for the male sample. All four relationships are negative in nature and are statistically significant at the 1 percent confidence interval.

The first relationship is between the health/safety domain and the honesty-humility subscale. Individuals obtaining high scores on the health/safety domain tend to engage in riskier sexual behaviour, and they also participate in more reckless behaviour such as riding a motorbike without a helmet. The same individuals obtain low scores on the honesty-humility subscale. The behaviour linked to low scores include: flattery for personal gain, cheating and/or stealing for personal gain, enjoys wealth and privilege, and encompasses a sense of entitlement. Thus, this is an indication of individuals who take more risk in the health/safety domain are less inclined to be honest in the honesty-humility domain.

The second relationship is with the emotionality subscale. Individuals taking more risk in the health/safety domain are less inclined to be emotional in their decision-making processes. Individuals obtaining high scores on the health/safety domain tend to engage in riskier sexual behaviour, and they also participate in more reckless behaviour such as driving a car without a seatbelt. Low scorers on the emotionality subscale typically feel little fear for physical harm, tend to be relaxed in stressful situations, and feel emotionally disconnected when greeting loved ones for an extended period of time.

The third relationship is with the agreeableness subscale. This relationship indicates that individuals taking more risk in the health/safety domain are less inclined to be agreeable in nature. Low scorers on the agreeableness subscale tend to display behaviour of holding a grudge against others, judging others easily, and are stubborn in nature. The final relationship is with conscientiousness, where low scorers on the conscientiousness subscale display behaviour of untidiness, little self-control, and impulsive behaviour. Thus, for the male sample, their high risk-taking behaviour in the health/safety domain is an indication of them being less inclined to be honest, emotional, agreeable, and thorough.

For the female sample, there is only two significant relationships between the health/safety domain and HEXACO's subscales. Both these relationships are negative and statistically significant at the 1% confidence interval. The first relationship is with honesty-humility and is an indication of individuals taking less risk in the health/safety domain being more honest. Thus, the low scores on the health/safety domain indicate that the female sample are less inclined to participate in reckless sexual behaviours, and they are less inclined to participate in reckless driving behaviours for example. These female participants obtained high scores on the honesty-humility subscale and participated in the behaviour of avoiding the manipulation of

others, avoiding taking advantage of others for their personal gain, and think of themselves as ordinary and normal.

The second and final relationship is with the conscientiousness subscale, and is also in line with that of the male sample. The relationship between the health/safety domain and the conscientiousness subscale is an indication of individuals being more thorough when they take less risk in the health/safety domain. The individuals obtaining high scores on the conscientiousness subscale are neat and tidy, they have a strong work ethic, and pay attention to detail.

The male and female samples differ significantly for this domain (health/safety) in terms of their risk-taking behaviour related to different subscales of the HEXACO-PI-R. Thus, an individual's personality traits are related to their risk-taking behaviour in the different domains of life. It can thus be concluded that for the health/safety domain, females are less inclined to participate in risk-taking behaviour than their male counterparts.

4.8.4 Relationships with DOSPERT's recreational domain

For the male sample, three distinct relationships exist between the recreational domain and the subscales of the HEXACO-PI-R. However, for the female sample there is only one significant relationship between the recreational domain and HEXACO's subscales.

The first relationship, for the male sample, is with the extraversion subscale. This relationship is statistically significant at the 1 percent confidence interval and is negative in nature. This indicates that individuals taking less risk in the recreational domain are more extraverted in nature. Less risk-taking behaviour in the recreational domain is accompanied by less interest in participating in activities relating to outdoors, camping, and activities such as piloting a small plane. However, the same individuals score high on the extraversion subscale. Behaviour relating to this subscale include individuals who are outgoing, extraverted, talkative, and optimistic in nature.

The second relationship is with the agreeableness subscale. This relationship is positive in nature and statistically significant at the 5 percent confidence interval. This is an indication that individuals taking more risk in the recreational domain will be more agreeable in nature. Higher scores on the recreational domain is an indication of participating in activities relating to wildlife, nature and the outdoors. These individuals who also score high on the agreeableness

subscale easily forgive others who have wronged them, they steer away from judging others, and they rarely express their anger. The final relationship, for the male sample, is with the openness to experience domain. This relationship is also positive in nature and is statistically significant at the 1 percent confidence interval. This relationship indicates that individuals who take more risk in the recreational domain are more open to different experiences in life. As with the relationship with the agreeableness subscale, individuals forming part of this relationship enjoy the nature, the outdoors and wildlife activities. The high scoring individuals in the openness to experience subscale typically enjoy nature, and art, they are very interested in travelling and are keen on solving problems.

For the female sample, the relationship in only between the recreational domain and the openness to experience subscale. This relationship is statistically significant at the 1 percent confidence interval and is of positive nature. The relationship indicates that individuals who are more willing to take risks in the recreational domain, are more open to life's different experiences. Females obtaining high scores in the recreational domain enjoy nature and the outdoors, alike with the male sample. However, they tend to be more problem solvers, more artistic and more open to new ideas with regards to the openness to experience subscale.

This domain (recreational) is an indication of the gendered differences in individual risk-taking behaviour. Thus, it can be concluded that the female sample is more risk averse than their male counterparts in the recreational domain.

4.8.5 Relationships with DOSPERT's social domain

For the male sample, three significant relationships exist between the social domain and the different subscales of the HEXACO-PI-R. The three identified relationships are with emotionality (negative), extraversion (positive) and openness to experience (positive). All three relationships are statistically significant at the 1 percent confidence interval.

The relationship with emotionality indicates that individuals who take less risk in the social domain are inclined to be more emotional in nature. This relationship, in terms of effect size, is visibly significant. High scoring in the social domain is accompanied by low scoring in the emotionality domain. For the social part of the relationship, individuals are more outgoing, they will disagree with peers, and they will easily change career paths. The emotionality behaviour is linked to little fear for harm, little stress in difficult situations, and also, they feel that they do not need the help of others.

The second relationship, with the extraversion subscale, is of a positive nature. This relationship indicates that individuals taking less risk in the social domain are less inclined to be extraverted. However, it is important to note that this relationship has a small effect and is not practically significant. Low scoring on the extraversion domain indicates that individuals are shy, they aren't optimistic and energetic, and prefer to be on their own. The final relationship is with the openness to experience subscale, which is also a positive relationship. This relationship is an indication that an individual's risk-taking behaviour will increase in the social domain as their different experiences in life increases. The relationship between the social domain and the openness to experience subscale is a practically visible relationship in terms of effect size. High scoring on the openness to experience subscale is associated with individuals being open to new experiences, they are keen on reading, and are keen on various forms of art.

For the female sample, four statistically significant relationships exist between the social domain and the subscales of the HEXACO-PI-R. All four relationships are statistically significant at the 1 percent confidence interval. The first relationship is with the emotionality subscale and is negative in nature. This relationship is practically insignificant in terms of effect size. This relationship indicates that individuals taking less risk in the social domain are more emotional in nature as suggested by literature (Harris *et al.*, 2006). Low scores on the social domain indicate that females find it difficult to make career changes, they rarely disagree with their peers, and will not voice their opinion on an unpopular topic. These females are also more emotional in nature. They will avoid the danger of bodily harm, they are worried by small issues, and are emotionally attached to those around them.

The second relationship is with extraversion and is positive in nature. This indicates that individuals taking less risk in the social domain, will be less extraverted. High scoring in the extraverted domain indicate that they are not afraid of voicing their opinions, they are optimistic and energetic in nature. The third relationship is with the conscientiousness subscale and is positive. This relationship indicates that individuals taking more risk in the social domain are more thorough in nature. The increased risk-taking in the social domain correlates with the conscientiousness subscale in terms of high work ethics, paying special attention to detail and being self-disciplined.

The final relationship is with the openness to experience subscale and is also positive. This relationship indicates the same type of behaviour as for the male sample. Individuals taking

more risk in the social domain will be more open to life's different experiences. In terms of effect size, this relationship is practically visible. Thus, from the social domain, the female sample is less risk averse than their male counterparts.

As from the discussion above, it is evident that overall, females are more risk averse than their male counterparts are, as suggested by theory (Gustafson, 1998; Jianakoplos & Bernasek, 1998; Charness & Gneezy, 2011; Booth & Nolen, 2012). Thus, it is evident that this sample conforms to the literature stereotype of individual risk-taking behaviour. In financial terms, both the male and female samples indicated the same subscales where they are comfortable taking risks, however, from the effect size it is evident that the males take more risks in these domains than their female counterparts. Thus, the stereotype of female risk aversion in financial terms also holds (Charness & Gneezy, 2011; Booth & Nolen, 2012; Cárdenas *et al.*, 2012).

4.9 DESCRIPTIVE STATISTICS FOR THE QUALITATIVE SAMPLE

The qualitative portion of the study constituted 18 participants, seven male and 11 female (both undergraduate and post-graduate students). The sample is adequate for qualitative studies (Creswell, 2003; Nell, 2005). The participants' age range is between 18 and 30 years. Furthermore, all participants were recruited from the quantitative portion of this study. All participants were asked to indicate the level of risk-taking they are comfortable with by means of the Survey of Consumer Finances (SCF).

The following table indicates the results obtained from the students participating in the qualitative phase of this study, relating to the SCF. From the 18 respondents, half of them (nine) indicated option three from the SCF - take average financial risk expecting to earn average returns. These results indicate risk neutral behaviour, instead of risk averse or risk-seeking behaviour. Furthermore, eight participants indicated option two from the SCF – take above average financial risks expecting to earn above average returns. These results indicate that eight of the 18 respondents are risk-seeking in nature. However, only one of the respondents indicated option one from the SCF indicating that they are not willing to take any financial risks. This result indicates that this respondent is risk averse in nature.

Table 4.26: Survey of Consumer Finances (SCF) results

Participant Number	Gender	SCF Result
Participant 2	Male	3
Participant 3	Female	2
Participant 4	Male	2
Participant 5	Female	2
Participant 7	Male	2
Participant 8	Female	2
Participant 9	Female	3
Participant 10	Male	3
Participant 11	Female	3
Participant 12	Male	2
Participant 13	Female	3
Participant 14	Male	2
Participant 15	Male	2
Participant 16	Female	3
Participant 17	Female	1
Participant 18	Female	3
Participant 19	Female	3
Participant 20	Female	3

Source: Author's own construction

The participant's gender is also indicated in Table 4.26 as this study focuses on the differences between gendered risk-taking behaviour.

4.10 THE MAIN IDENTIFIED THEMES

Several main themes were identified from the interview schedules and will serve as the basis for the discussion of this section. The main themes identified from the interviews are all accompanied by subthemes relating to them. All discussions relating to the main and subthemes will be accompanied by verbatim quotations from the interview schedules in order to signify their relevance to the study. Participants 1 and 6 formed part of the pilot study for the interview schedule and will not be reported on in this chapter. The following table indicates the main themes and subthemes for this study identified from the interview schedules.

Table 4.27: Identified themes

Theme	Subthemes
Theme 1: Risk-taking behaviour	Outcome based risk-taking behaviour
	Risk versus return risk-taking behaviour
	Uncertainty based risk-taking behaviour
Theme 2: Individual risk appetite	Individual risk appetite
	Financial knowledge
Theme 3: Individual personality	Accomplishment
	Self-esteem
Theme 4: Cultural differences	Elders/peers
	Environmental factors

Source: Author's own construction

4.10.1 Theme 1: risk-taking behaviour

This theme constitutes the risk-taking behaviour tendencies of individuals. This theme is the most prominent as it constitutes the most subthemes. In addition, the responses obtained in this theme outweigh the responses obtained in the remaining three themes, also contributing to its significance. The outcome based risk-taking behaviour was indicated by 11 of the 18 respondents and was indicated 32 times throughout the interview schedules. Three subthemes were identified for this theme, namely: outcome based risk-taking behaviour, risk versus return

risk-taking behaviour and uncertainty based risk-taking behaviour. The subthemes identified directly correlate with the main theme, and support the risk-taking behaviour of individuals. The main theme along with its subthemes, are all equally important to understand the concept of individual risk-taking behaviour. Table 4.28 indicates the subthemes identified for theme one.

Table 4.28: Theme one and its subthemes

Theme	Subthemes
Theme 1: Risk-taking behaviour	Outcome based risk-taking behaviour
	Risk versus return risk-taking behaviour
	Uncertainty based risk-taking behaviour

Source: Author's own construction

Risk-taking is the action of engaging in behaviours where the outcome is associated with either a positive or negative result (Boyer, 2006:291). Risk-taking behaviour constitutes chances of positive or negative outcomes at the same time (Reniers *et al.*, 2016:1). Risk-taking behaviour is defined as the voluntary engagement in an activity constituting a certain level of risk (Saxena & Puri, 2013:1). Generally, it is found that younger individuals tend to engage in higher levels of risk-taking behaviour (Coggan *et al.*, 1997:459). Along with risk-taking, the risk appetite of the individual should be considered in order to determine their risk-taking behaviour. The individual's risk appetite can be explained in terms of their risk tolerance as indicated in Table 4.29. Gonzalez-Hermosillo (2008:4) states that an individual's risk appetite is mainly influenced by the degree of uncertainty they are willing to take on.

Risk perception is closely linked with risk-taking behaviour. Risk perception is defined as the personal valuation of the individual, to the probability of an event occurring and the individual's concern relating to the consequences of the event occurring (Sjöberg *et al.*, 2014). The majority of the participants indicated that their risk-taking behaviour is dependent on the outcome of the risk they are going to take, along with the situation they are currently in and the consequences of taking that risk. Table 4.29 indicates some of the responses for theme one.

Table 4.29: Example quotations from the interview schedules for theme one

Verbatim quotations from theme one
"Well I think of the outcomes, and the benefits that are gonna come with the, with taking the risk; That's uh, in, in the situation that I'm in, at that, at the moment." (Participant 2)
"I'd say taking a risk is when you put everything you have or everything you can give out there, and expect something good to happen, and not think about the negative conse-, consequences it will have." (Participant 3)
"Oh, basically, I'd define taking a risk as doing something I know that the outcome could either impact me in a negative or in a positive way." (Participant 4)
"Sometimes it's based on the situation" (Participant 7)
"Uhm, if the risk is high then you just have to analyse your options, but if more, in more, cases in more situations the more the risk then the higher the return." (Participant 12)
"You will look at the circumstances, the current situation you're in and then also you will look at all the advantages and disadvantages of the current situation." (Participant 19)

Source: Author's own construction

Participant 2 indicated that he/she is willing to take average financial risks in order to gain average financial returns, suggesting that this individual is not a risk-taker. This participant also indicated that he/she bases the risks he/she takes on the outcome associated with it. Participant 3 indicated that he/she is willing to take above average financial risks in order to gain above average returns indicating that the individual is risk-taking in nature. However, this individual also indicated that the risks he/she is willing to take depends on the consequences of the risk. This trend was found throughout the entire sample.

Very few studies indicate that outcome based risk-taking and uncertainty based risk-taking influences individual risk-taking behaviour (Figner & Weber, 2011). However, much theory exists on the risk versus return trade-off for individual risk-taking behaviour (Weber *et al.*, 2002; Weller & Tikir, 2010b; Figner & Weber, 2011). These responses were indicated in general terms, as students were not asked to indicate their likelihood of participating in financial risk-taking behaviours. The results from this theme are unique to this study's sample

and could be related to various factors such as demographic factors (age, gender, type of qualification).

4.10.2 Theme 2: individual risk appetite

In this theme, the risk appetite of individuals was identified. Theme two constitutes two subthemes, namely: individual risk appetite and financial knowledge. The subthemes identified correlate with the main theme, and support the risk-taking perception of individuals. The main theme and its subthemes, are all equally important to understand the concept of individual risk appetite. Table 4.30 indicates the subthemes identified for theme two.

Table 4.30: Theme two and its subthemes

Theme	Subthemes
Theme 2: Individual risk appetite	Individual risk appetite
	Financial knowledge

Source: Author's own construction

Risk appetite refers to the amount of risk that an individual or organisation is willing to accept with regards to an uncertain outcome (Gai & Vause, 2005:5; Hillson & Murray-Webster, 2011:30). Risk appetite further refers to the amount of uncertainty an individual is willing to bear in order for them to receive a return for the uncertainty they took (KPMG., 2008). Risk appetite constitutes two types of risk categories, namely: risk-aversion and risk-seeking. Risk aversion can be defined as the likelihood of an individual to prefer definite risks over risky options (Paulsen *et al.*, 2012:1). Whereas, a risk-seeking individual or risk-lover is someone who is said to have a preference for risk (Scholer *et al.*, 2010).

For an individual to know their level of risk appetite, they need to possess some financial knowledge. Furthermore, financial literacy is information that is stored in an individual's memory about financial experiences (Wang, 2009). An individual's financial literacy is affected by economic factors and policy, however, the individual still makes the financial decision (Robb & Woodyard, 2011). Borden *et al.* (2008) argues that individuals constituting higher financial literacy are able to make more sound decisions relating to finance, than those individuals with lower financial literacy.

From the interviews obtained, it is evident that the majority of the sample is risk-taking in nature as they have indicated they are willing to take risks when asked if they were comfortable with taking risks. The following excerpts indicate some of the responses in Table 4.31.

Table 4.31: Example quotations from the interview schedules for theme two

Verbatim quotations from theme two
"Most definitely. I like taking risks." (Participant 2)
"I like risk taking." (Participant 3)
"I would say yes, because I've been taking risk and I haven't experienced a bad outcome when taking risks." (Participant 5)
"I can say so." (Participant 16)

Source: Author's own construction

Participant 2 indicated that he/she is keen on taking risks, whereas, participant 3 indicated that he/she is also keen on taking risks. However, participant 16 indicated that he/she does take risks of some sort, but they did not indicate a specific yes or no answer. However, some indicated that they need sufficient information before they can engage in risk-taking behaviour. The following excerpts indicate some of the responses in Table 4.32.

Table 4.32: Example quotations from the interview schedules for theme two

Verbatim quotations from theme two
"Not having enough information about that certain decision that you are making and just the whole thing about consequences and the whole thing about how would it benefit me in the future and everything like that." (Participant 8)
"I feel like you first have to read up on it, know what you going to encounter before you do it and then you'll decide if it's worth it or not." (Participant 11)
"Uhm, okay, depending on the analysis, if you've done your research beforehand, err, depending on what it is." (Participant 12)

Source: Author's own construction

Participants 8, 11 and 12 indicated that they would take risks if they have sufficient information as a guideline to taking risks. Their responses indicated that they would like to participate in risk-taking behaviour, however, they are uncomfortable based on the little information they have. This behaviour is supported by theory where Borden *et al.* (2008) states that there is a positive relationship between financial literacy and financial risk-taking behaviour. Individuals with higher financial literacy expect to earn greater returns for greater risk in their decisions (Wang, 2009). Furthermore, individuals with lower financial literacy expect lower returns for the less risk they take in their financial decisions (Wang, 2009).

The majority of the participants indicated that they are risk-taking as far as their risk appetite is concerned. However, they also indicated that they need a better understanding of the risk they are about to take (increasing their financial literacy) in order to make more sound risk-taking decisions. Only a few participants indicated that they are risk-averse or conservative in nature, however, these individuals also indicated that they need sufficient information on which to base their decisions.

Many studies have found that risk appetite influences an individual's risk-taking behaviour. Evidence from this study is in line with the results of other studies (Grable, 2000; Hallahan *et al.*, 2003; Gai & Vause, 2005:5; Hillson & Murray-Webster, 2011:30).

4.10.3 Theme 3: individual personality

In this theme, the individual's personality traits were identified. This theme constitutes two subthemes, namely: accomplishment and self-esteem. The subthemes identified for Theme 3 correlate with the main theme, and support the individual's personality traits. The main theme accompanied by its subthemes, will be interpreted together as they are all equally important to understand the concept of individual risk appetite. Table 4.33 indicates the subthemes identified for theme three.

Table 4.33: Theme three and its subthemes

Theme	Subthemes
Theme 3: Individual personality	Accomplishment
	Self-esteem

Source: Author's own construction

Personality refers to the constant emotional characteristics allowing for a prediction as to what an individual will do under certain circumstances (Cooper, 2003). Also, personality refers to a continuing nature of an individual to act constantly across different situations (Cooper, 2003). Personality is described as an individual's set of psychological characteristics inherent to the individual, which influences the individual's interactions with others and in different situations (Vazifehdoost *et al.*, 2012:246). Personality traits are the driving factors that lead individuals to certain behaviour, varying from one person to the next (Cooper, 2003).

During the thematic analysis, several themes were identified relating to accomplishment and self-esteem. The accomplishment theme includes sense of accomplishment, comfort zone and learning curve. The self-esteem theme includes self-esteem, image, peer pressure and personal experience. These themes are correlated with the personality traits as suggested in the literature (refer to Section 2.3.1 – 2.3.5). The following excerpts indicate some of the responses in Table 4.34.

Table 4.34: Example quotations from the interview schedules for theme three

Verbatim quotations from theme three
"I feel like I've, I've accomplished something great in a way" (Participant 2)
"I think self-esteem, like when you take a risk and you get something good in return, it could boost your self-esteem, it could make you feel that you accomplished something." (Participant 3)
"I'd define it as, mmm, doing something that is out of your comfort zone, that you are not, you, you are not used to." (Participant 2)
"I would define taking a risk as doing something which is outside of your comfort zone. Something new, something that you don't expect you could do." (Participant 11)
"Uhm, you know getting out of my comfort zone and then taking that risk despite. Knowing, ok knowing this, uhm, the outcome is gonna be, but maybe it might be a different outcome." (Participant 5)
"Example you, you learn. Sometimes that things that sound right, but they are not exactly right. There are things that seem right and they are not right. By taking the risk, if they are

right, you are now able to determine like, these are right, then if they are wrong you just know now that this is wrong."(Participant 14)
"I would say profit and learning experience as well." (Participant 17)
"and also the experience that you went through" (Participant 20)
"I will say the benefit is I get to be like, that moment of you only live once you know, making a decision quick." (Participant 8)

Source: Author's own construction

These results indicate that the individuals highly value their sense of accomplishment, self-esteem and the experience they obtained from taking part in risk related behaviours. Furthermore, they are also concerned with what others will think of them regarding a certain risk-taking activity. Peer pressure also affects the decision-making process of the individual taking part in the risk related behaviour as indicated by Participant 5 (Table 4.35).

Table 4.35: Example quotations from the interview schedules for theme three

Verbatim quotations from theme three
"I think what your friends will think about you, maybe, or your family. Like if you take a risk, and you fail at it, then you would feel like uhm, they judge you or you did something wrong." (Participant 3)
"How would it affect t-, how people see you because you know especially your parents, your family, specially when in taking that risk you must know how's it gonna affect your future?" (Participant 8)
"I would say peer pressure firstly, because you might be pressurised to take the risk or they might pressure you no to take the risk." (Participant 5)

Source: Author's own construction

These themes were identified by half of the sample and are thus important in terms of individual risk-taking behaviour. The literature also suggests that personality traits will influence the individual's risk-taking behaviour, regardless of their age and gender (refer to Section 2.3).

4.10.4 Theme 4: cultural differences

In this theme, the individual's cultural differences were identified. This theme constitutes two subthemes, namely elders/peers and environmental. The subthemes identified correlate with the main theme and support the individual's cultural differences. The main theme will be discussed alongside its subthemes, as these themes identified are all equally important to understand the concept of individual risk appetite. Table 4.36 indicates the subthemes identified for theme four.

Table 4.36: Theme four and its subthemes

Theme 4: Cultural differences	Elders/peers
	Environmental factors

Source: Author's own construction

Culture refers to the classification of shared values and beliefs distinguishing members of one group from other groups of people (Kreiser *et al.*, 2001:3; Grable, 2016:26; Heo *et al.*, 2016:43). During the course of thematic analysis, elders/peers, environmental and circumstances were identified, however, circumstances are less important than the first two subthemes, but will still be discussed briefly. The following excerpts indicate some of the responses in Table 4.37.

Table 4.37: Example quotations from the interview schedules for theme four

Verbatim quotations from theme four
"I'd talk to my, like my parents or friends and family and, uhm, I'd hear what they have to say about the options and, I'd also again look at the pros and the cons, and that would make me decide if I want to take it or not." (Participant 3)
"Growing up there are things that maybe your elders they, they tell you like, you grew up believing that these things are right. And sometimes I take the risk against those things in order for me to see for myself if they are right or wrong; I think taking risk depends on err, most of the time the environment that you grew up in" (Participant 14)

"and then in the end always go to my parents. I don't know, (laughs) you always go to your parents to, and explain to them what your situation and what you've come across and then they can help me, uhm, make my final decision." (Participant 20)

"I would say my family because we like to try new things, they're the ones who, who influence me and also the environment around me." (Participant 11)

"Mostly background I think, because I, I grew up in a, a single headed household" (Participant 16)

"You will look at the circumstances, the current situation you're in and then also you will look at all the advantages and disadvantages of the current situation." (Participant 19)

Source: Author's own construction

These themes are an indication of the effect cultural differences have on individual risk-taking behaviour. Cultural differences will influence individuals to not take a risk because their elders believed it is wrong, or they will take a risk because they saw it in their upbringing. Cultural differences will influence the individual negatively in order to be still accepted by their elders/peers, thus the individual will steer away from the risk related activity. The cultural differences found in this study is supported by cultural differences found in other studies (Grable, 2016:26; Heo *et al.*, 2016:43).

4.11 OVERALL SYNTHESIS

From the quantitative analysis, it is evident that risk-taking behaviour is practised throughout the entire sample. The two most significant domains where individuals take more risk are in the ethical and social domains. There is however a difference between the male and female subgroups, where males take more risk in the health/safety and ethical domain combination. This is also evident for the female sample; however, in this relationship males take more risk than their female counterparts do. However, the female subgroup takes more risks in the social domain compared to the male subgroup. This is supported by the qualitative findings where the first main theme identified risk-taking behaviour and four of the six examples being male participants indicating that they are willing to take risks. The remaining two female participants also indicated that they are willing to take risks in a social domain.

In terms of individual risk appetite, the quantitative portion of this study indicated that the majority of the sample is willing to take a risk in either one domain, or several domains of the

DOSPERT scale. This is also evident for the HEXACO-PI-R. These findings thus indicate that the individuals taking part in the study do have some form of risk appetite. The qualitative analysis supports these findings as the majority of the individuals indicated that they are willing to take some sort of risk. The respondents in the qualitative study also indicated that they are more willing to take risks for greater rewards, than not taking risks at all. The risk-taking behaviour is evident in both the male and female samples; however, the males are more likely to engage in risk-taking activities than their female counterparts are.

In terms of personality, both the male and female samples indicated that they are willing to take risks in most of the HEXACO-PI-R's subscales in the quantitative analysis (refer to Section 4.6). However, it is evident that the male subgroup was willing to take more risks than their female counterparts, although the female subgroup indicated an interest in risk-taking behaviour. Furthermore, the female sample indicated more relationships of risk-taking behaviour between the DOSPERT scale and HEXACO-PI-R than their male counterparts did (refer to Section 4.7). This behaviour is supported by the qualitative analysis where four of the five examples are female participants indicating they are willing to take more risks than their male counterparts are. These results are directly correlated with the results obtained from the quantitative analysis in terms of risk-taking behaviour (refer to Section 4.7).

In terms of cultural differences, little evidence is found in the quantitative analysis relating to risk-taking behaviour, as it is not part of the aim of this study. However, during the course of the qualitative theming process it became evident that cultural differences have a significant impact on individual risk-taking behaviour. Theory suggests that cultural differences should influence individual risk-taking behaviour, as this phenomenon was found in the qualitative analysis (Kreiser *et al.*, 2001; Heo *et al.*, 2016).

CHAPTER 5: CONCLUSION, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

5.1 INTRODUCTION

Understanding how people make different decisions in finance is a key concept for the financial market. Risk and uncertainty are two of the main drivers in the decision-making processes of individuals. An individual need to possess some form of knowledge relating to the risk they are willing to take, known as risk appetite. Risk appetite is the degree to which an individual is willing to bear uncertainty. When risk appetite is measured, two commonly found categories are distinguished, namely risk averse, and risk-seeking.

Individual risk-taking behaviour differs according to gender. It is commonly stated, and found, that females tend to be more risk averse than their male counterparts. This phenomenon has been studied widely, including in the South African context; however, little has been done to determine the differences in gendered risk-taking behaviour. Therefore, the dearth in the literature has created grounds for this research study. The main aim of this study is to determine the differences in gendered risk-taking behaviour in the South African context. The results obtained from this study are summarised in Section 5.3.

This chapter is aimed at providing an overview of the entire research study (chapters $1 - 4$). The layout of this chapter will constitute a discussion on the summary of this research study (Section 5.2), the main results found during the course of this research study (Section 5.3), and a section on the conclusion of the research study (Section 5.6). A section containing limitations and avenues for further research (Section 5.5) as well as recommendations (Section 5.4) will also be presented.

5.2 SUMMARY OF THE STUDY

In order to provide an impartial conclusion and recommendations on the study, an understanding of the previous four chapters is needed. Chapter 1 identified the primary objective of the study, revised in Section 5.2.1, followed by the theoretical objectives as stated in Section 5.2.2 and, lastly, the empirical objectives as revised in Section 5.2.3.

The primary aim of Chapter 1 was to introduce the research study along with the problem statement of the research study. Furthermore, Chapter 1 provided an overview for the study's

objectives, relating to both theoretical and empirical objectives. Finally, Chapter 1 also provided an outline of the research design implemented in this study.

The objectives of the study were formulated as follows (Section 1.3):

5.2.1 Primary objective

The primary objective formulated for this study is to determine whether there is a difference in gendered risk-taking behaviour in the South African context and if so, the causes of differences in gender-based risk-taking behaviour.

5.2.2 Theoretical objectives

To reach the primary objective, the following theoretical objectives were formulated for this study:

- Construct a theoretical framework for risk-taking and risk appetite;
- Theorise personality types relating to risk-taking behavioural domains; and
- Review relevant studies relating to gendered outcomes of risk-taking behaviour.

5.2.3 Empirical objectives

To reach the primary objective of this study, the following empirical objectives were formulated:

- Establish the domain-specific risk-taking personality traits of the target population;
- Measure the risk-taking levels of the target population based on the domain-specific results;
- Compare the different domain personalities' risk-taking levels amongst genders; and
- Determine the causes, if any, of female risk-taking behaviour.

Chapter 2 identified the theoretical construct for the study as identified in Chapter 1 (sections 2.2.1 and 2.4 respectively). To achieve the first theoretical objective (Section 5.2.2), Chapter 2 provided an overview of the theory relating to risk-taking behaviour, risk appetite and risk perception. These sections, respectively, included a thorough theoretical basis relating to the need for understanding individual risk-taking behaviour and appetite. Additionally, a section relating to the factors of individual risk-taking behaviour was presented.

The two measuring instruments that were identified for this study are the DOSPERT scale and the HEXACO-PI-R, which were discussed in sections 2.4 and 2.5, respectively. The two measuring instruments were discussed in detail in order to form a thorough understanding of how they work, what they are intended to measure, and how the results from the two measuring instruments are to be interpreted. Following the discussion of the measuring instruments, was a section relating to the third theoretical objective (Section 5.2.2), this section constituted a discussion on previous studies relating to the difference in gendered risk-taking behaviour, similar to this study, and the measuring instruments they implemented. Furthermore, a brief summary was presented on the results each study obtained (Section 2.6).

Chapter 3 was aimed at identifying the research methodology that was implemented in this study. This chapter's layout constituted a discussion on the different types of research designs and highlighted that this study followed a mixed methods research design. Section 3.2.4 identified the different types of mixed methods research designs and identified that this study followed an emergent explanatory sequential mixed methods approach. Following the study design, was a discussion on the different research paradigms. Section 3.3.3 identified that this study followed two research paradigms, namely the positivist paradigm for the quantitative portion of this study and the constructivist paradigm for the qualitative portion of this study.

Thereafter, a discussion on the sampling strategy was presented. This section presented theoretical groundwork for the target population (Section 3.4.1), the sampling frame (Section 3.4.2), as well as the different sampling techniques (Section 3.4.3). Section 3.4.3.3 identified the sampling strategies implemented in this research study. The quantitative phase of this study constituted a non-probability convenience sampling technique. Whereas, the qualitative portion of this study constituted a purposive sampling technique.

Furthermore, Chapter 3 identified the different data collection methods in Section 3.5. The data collection method employed in this study constituted structured questionnaires for the quantitative phase and semi-structured interviews for the qualitative phase as identified in Section 3.5.5. The following sections provided an overview of the importance of pilot testing both data collection methods (Section 3.6), along with a discussion on the administration of the data collection methods (Section 3.7).

Finally, Section 3.8 provided an overview of the data analysis techniques employed in this study. These techniques included reliability analysis (Section 3.8.1), validity analysis (Section

3.8.2), coding analysis (Section 3.8.3), and a method to combine the quantitative and qualitative analysis techniques (Section 3.8.3).

Chapter 4 provided the discussions on the analysis and interpretation of both the quantitative and qualitative phases' findings. Section 4.3 provided an overview on the preliminary data analysis, including the coding information (Section 4.3.1), the tabulation information (Section 4.3.2), as well as the data gathering process (Section 4.3.3). Thereafter, a discussion on the descriptive statistics for the quantitative phase was presented (Section 4.4), including demographic information (Section 4.4.1), reliability and validity analysis for both measuring instruments (Section 4.4.2) and descriptive statistics for the quantitative portion of this study (Section 4.4.3).

Following on these sections, is Section 4.5, which relates to the analysis of the DOSPERT scale. The scale's reliability was tested (Section 4.5.1), followed by factor analysis (Section 4.5.2). The factor analysis indicated that two factors were predominant, however, all five factors constituting the DOSPERT scale, explain the total variance in the data set. Following factor analysis was the section describing the gendered differences for the DOSPERT scale (Section 4.5.4). This section highlighted the similarities and differences between gendered inclinations to participate in risk-taking behaviour.

Section 4.6 described the HEXACO-PI-R. This section provided an overview of the scale's reliability (Section 4.6.1), as well as the scale's factor analysis. The factor analysis extracted two primary factors, however, the remaining four factors explained the remaining variance in the data set, and could thus not go unnoticed. Section 4.6.4 provided the similarities and differences relating to personality traits for the gendered subgroups.

In Section 4.7, the correlational analysis between the DOSPERT and HEXACO-PI-R was described. This section provided discussions on the correlation between each of DOSPERTs domains with the HEXACO-PI-R subscales (sections 4.7.1 – 4.7.2). Thereafter, gender differences between the DOSPERT scale and the HEXACO-PI-R were discussed. This discussion included correlation analysis between each of the DOSPERT domains and the HEXACO-PI-R subscales (sections 4.8.1 – 4.8.5).

The qualitative analysis followed the quantitative analysis and is presented from Section 4.9 onwards. First, the descriptive statistics for the qualitative portion of this study were discussed. Thereafter, the main themes identified from the qualitative data were presented and discussed.

Four main themes were identified, namely risk-taking behaviour, individual risk appetite, individual personality and cultural differences. Following the identification of the main themes, were discussions on each of the themes, respectively (sections 4.10.1 – 4.10.4). Finally, the last section for Chapter 4 constituted the synthesis of the quantitative and qualitative study's results (Section 4.11).

5.3 OVERVIEW OF FINDINGS

This section provides an overview of the main results obtained from the quantitative portion of this study, the qualitative portion of this study and the overall synthesis for this study. The main findings are correlated with the empirical objectives as set out in Chapter 1 (refer to Section 5.2).

5.3.1 Establish the domain-specific risk-taking personality traits of the target population

The first empirical objective formulated for this study was to establish the domain-specific risk-taking personality traits of the target population. This objective was reached by testing the target population's inclination for participating in risk-taking behaviour across the five domains of life, namely ethical, financial, health/safety, recreational and social. The results obtained from the quantitative analysis indicate that the sample used in this study participate in risk-taking behaviours across the five domains. However, there is a clear distinction between the inclination of participating in risk-taking behaviour amongst gender.

In order to fully explain the first objective, the results from the risk-taking behaviour analysis (DOSPERT scale) were correlated to the individual's personality traits (HEXACO-PI-R). The results obtained from the correlation analysis indicated that the honesty-humility, openness to experience and conscientiousness subscales were the three biggest influencers on the individual's risk-taking behaviour in terms of personality traits. Within these three subscales, for both the male and female subgroups, risk-taking behaviour was equally influenced by the honesty-humility subscale. Furthermore, the same result is evident from the conscientiousness subscale. However, for the emotionality domain, the male subgroup indicated a greater influence on their risk-taking behaviour than the female subgroup. Thus, the first empirical objective was achieved when the personality traits were correlated with the individual's risk-taking behaviour.

5.3.2 Measure the risk-taking levels of the target population based on the domain-specific results

The second empirical objective formulated for this study was to measure the risk-taking levels of the target population. This objective was achieved by computing the mean scores for the DOSPERT scale's domains. The results indicated that there was a statistically significant difference in the risk-taking behaviour between the male and female subgroups in four of the five domains tested, namely ethical, financial, health/safety and social. However, the recreational domain showed no statistically significant difference in risk-taking behaviour between males and females.

These results indicated that both the male and female subgroups participated in risk-taking activities; however, for the male sample there were higher levels of participation than for the female sample, based on their level of financial knowledge (Section 4.5.4). Thus, the second empirical objective of measuring the risk-taking levels of the target population based on their domain-specific results was achieved.

5.3.3 Compare the different domain personalities' risk-taking levels amongst genders

The third empirical objective formulated for this study was to compare the different domain personalities' risk-taking level across genders. This was achieved by means of a correlational analysis between the DOSPERT scale and the HEXACO-PI-R. The statistics were divided into the two subgroups (male and female) to be able to interpret the results more easily.

The results indicated that the male sample was more inclined to participate in risk-taking activities than their female counterparts. However, it is worth noting that the female sample also displayed an inclination to participate in risk-taking behaviour, except to a lesser extent, given their level of financial knowledge. The male sample outweighed the female sample in terms of risk-taking behaviour in four of the five domains, namely ethical, financial, health/safety and recreational. They also participated in risk-taking behaviour in the social domain of the DOSPERT scale, but to a lesser extent than their female counterparts.

In terms of the personality traits influencing risk-taking behaviour, the male sample indicated that all six subscales of the HEXACO-PI-R influenced their risk-taking behaviour; whereas, for the female sample, the agreeableness subscale did not influence their risk-taking behaviour in any of the DOSPERT domains. Thus, when the gendered outcomes in terms of personality

traits influencing individual risk-taking behaviour are compared, it is evident that this sample conforms to the literature stereotype of female risk aversion. Thus, the third empirical objective was also achieved.

5.3.4 Determine the causes, if any, of female risk-taking behaviour

The final empirical objective of this research study was to determine the causes, if any, of female risk-taking behaviour. In order to determine the causes for female risk-taking behaviour, volunteers from the quantitative phase of the study attended a semi-structured interview for the qualitative phase of this study.

From the 18 respondents interviewed, seven were male and 11 were female. The female respondents indicated that the following causes influenced their risk-taking behaviour, namely:

- First, all of the female respondents indicated that they will only take part in a risky activity if they received something in return for participating in that activity.
- Secondly, eight of the female respondents indicated that they needed sufficient information regarding the risk-taking activity before participating in the risk-taking behaviour.
- Thirdly, eight respondents indicated that they needed to be aware of the outcome before participating in a risk-taking activity.
- Finally, four of the respondents indicated that they needed advice from their elders and/or peers before engaging in a risk-taking activity.

Some respondents also indicated that they would participate in a risk-taking activity because they wanted to experiment and step out of their comfort zones. Two respondents indicated that their upbringing and immediate environment influenced their inclination to engage in risk-taking activities. Thus, the female sample indicated a willingness to participate in risk-taking behaviour, but to a lesser extent than their male counterparts. The final empirical objective was thus achieved, since the reasons for female risk-taking behaviour have been identified.

5.4 RECOMMENDATIONS

The resulting recommendations are grounded on the contributions of the preceding chapters, which comprised a literature review on the risk-taking behaviour and personality traits of individuals (Chapter 2), and the statistical analysis of both the quantitative and qualitative portions of this study's results. Grounded on the results obtained from this study, as presented

and discussed in Chapter 4, the total sample surveyed in this study participate in risk-taking behaviour across the different domains of life.

The study indicated that the male and female samples participated in risk-taking behaviour in all of the domains, however, the male sample were more inclined to participate in risk-taking behaviour than their female counterparts. The greatest influence on the individual's risk-taking behaviour in terms of personality traits, are the honesty-humility, conscientiousness and openness to experience subscales. Authors in academia, creators of investment vehicles and the literature authors should consider the following recommendations.

- **Risk versus reward behaviour**

This study identified that individuals are inclined to participate in risk-taking behaviours across the five domains of life (ethical, financial, health/safety, recreational and social), as well as in the six subscales of personality (honesty-humility, emotionality, extraversion, agreeableness, conscientiousness and openness to experience). However, these individuals weigh their risk-taking behaviour against the outcome or reward they will receive for participating in the risk-taking event. Thus, it is recommended that students enrolled at traditional universities for commerce degrees (similar to this study's sample), should be educated in not only the theory pertaining to the financial and investment markets, but also for their personal understanding.

- **Increased financial knowledge**

The female subgroup who participated in this research study indicated that they are willing to take greater risks (in financial terms), however, they would need a better understanding of the risks they are to take and the outcome of participating in the risk-taking event. This study thus highlighted that there is room for an intervention to be developed, in order to decrease the degree of female risk aversion, by means of a risk tolerance intervention.

- **Educational interface for financial knowledge**

Furthermore, it was identified that the male sample participated in risk-taking events without considering the consequences. This identifies the room for an educational interface to teach students how to take financial risks responsibly instead of gambling with the little income they receive. By educating these students, there will be an influx in the financial market in terms of investment behaviour.

5.5 LIMITATIONS AND AVENUES FOR FURTHER RESEARCH

5.5.1 Limitations to the study

This study was conducted by means of utilising the mixed methods approach. The results obtained are an indication of the target population's inclination to participate in risk-taking behaviour, as well as the personality traits relating to the risk-taking behaviour. This research study examined the reasons pertaining to the differences of participation in risk-taking behaviour amongst genders. However, this study was limited to only using two measuring instruments for determining risk-taking behaviour and personality traits of participating in risk-taking behaviour. The opportunity to use several different measuring instruments to determine risk-taking behaviour and personality traits relating to the risk-taking behaviour thus exists.

This study was limited to only one registered HEI in Gauteng. This is primarily due to the availability of the sample during the data collection period. Thus, the same study could be conducted at several different registered HEIs in South Africa, and the results compared in order to determine whether regional differences in risk-taking behaviour exists. Furthermore, this study's results could then be compared to those obtained from other registered HEIs in South Africa. A comparison can then be made between commerce and non-commerce fields of studies to determine whether a lack of financial knowledge influences the individual's level of risk-taking behaviour.

Another limitation presented to this study was the use of the HEXACO-PI-R. The results obtained from this study were in line with the results obtained in other studies also utilising the HEXACO-PI-R. However, this study indicated that only four of the six subscales were relevant for this study. Finally, future research can be carried out utilising more measuring instruments in order to determine the individual's inclination to participate in risk-taking behaviour, and the personality traits these individuals exhibit when participating in risk-taking behaviour.

5.5.2 Avenues for further research

This study identified that cultural differences are an important factor in determining an individual's inclination to participate in risk-taking behaviours. However, this study did not examine the causes pertaining to the cultural differences. Thus, future research can be conducted in order to determine why individuals perceive cultural differences as an important factor for participating in risk-taking behaviour. Furthermore, a comparison between the

different cultural beliefs can be examined in order to determine the causes of risk-taking behaviour based on culture. The future research can incorporate the differences in gender, pertaining to cultural differences, in order to capture the essence of this factor fully.

Finally, in order to examine the causes relating to female risk aversion fully, in general, an intervention should be created to decrease the degree of female risk aversion. The individual's level of risk tolerance should be examined, followed by an appropriate course of action that suits their risk-taking capabilities, in order to participate in risk-taking behaviour. The research should be conducted in the South African context, as there is currently no such intervention available to decrease female risk aversion.

5.6 CONCLUDING REMARKS

In conclusion, risk appetite and personality traits are the driving factors for individual risk-taking behaviour. It is important for individuals to be aware of their degree to which they are willing to bear uncertainty, in order to make effective financial decisions. An individual should also be aware of their personality traits relating to their risk-taking behaviour, in order to avoid participating in risk-taking behaviours with which they are not comfortable. Risk-taking behaviour and personality traits differ from one individual to the next, however, this sample indicated that risk-taking behaviour and personality traits can be generalised for this study. Once the individual is aware of their risk appetite and personality traits, they are able to compete in the financial market effectively.

This research study allowed for a comparison between male and female risk-taking behaviour, and for the comparison between male and female personality traits. In addition, promoting risk-taking behaviour in the financial industry, will lead to an influx of investments for the industry. The results obtained in this study can aid in the development of investment vehicles specifically for students, willing to participate in risk-taking behaviours. The results obtained can also be of aid to educators, researchers as well as the government, as the student market currently is unexploited in terms of investment behaviour. Furthermore, the results obtained in this study, can aid in the economic empowerment of the female population in the South African context.

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APPENDIX A

Personality and Risk Taking: exploring gender-based differences

Please do not put your name, surname, student number or any identifying marks on your questionnaire.

You are being invited to take part in a research project that forms part of a MCom study in Risk Management. The purpose of the study is to explore the differences in risk-taking behaviour across genders in higher education institutions.

Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research is about and how you could be involved. Also, your participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you did agree to take part. You are kindly requested not to withdraw without careful consideration, since it may have a detrimental effect on, inter alia, the statistical reliability of the project.

By agreeing to take part in the project, you are also giving consent for the data that will be generated to be used by the researchers for scientific purposes as they see fit. The data will be **confidential** and your results will be reported in aggregate (as part of the whole sample) and not individually. The questionnaire should take, on average, less than 30 minutes to complete.

This study has received ethical clearance from the Social and Technological Sciences Research Ethics Committee of the Faculty of Economic Sciences & IT of the North-West University and received the following ethical clearance number: ECONIT-2016-073. The study will be conducted according to the ethical guidelines and principles as prescribed to by the North-West University (www.nwu.ac.za). It might be necessary for the research ethics committee members or relevant authorities to inspect the research records to make sure that we (the researchers) are conducting research in an ethical manner.

Should you have any queries please contact Jessica Lawrenson at lawrensonjessica@yahoo.com. Alternatively, you can contact Dr Diana Viljoen at (016) 910-3403, Diana.Viljoen@nwu.ac.za or Mr Henry Cockeran at (016) 910-3525, Henry.Cockeran@nwu.ac.za.

If you have any concerns or complaints that have not been adequately addressed by the researcher you can contact the chair of the Social and Technological Sciences Research Ethics Committee (Prof Dawid Jordaan) at (016) 910-3260 or Dawid.Jordaan@nwu.ac.za.

SECTION A

What degree are you enrolled for?	Accounting	1
	Economics & Risk management	2
	Economics, Risk & Investment management	3
	Economics & International Trade	4
	Marketing	5
	Business management / Entrepreneurship	6

Year level	1st year	1
	2nd year	2
	3rd year	3
	4th year	4
	Honours	5
	MCom or PhD	6

Age	

Gender	Male	1
	Female	2

Race	African	1
	White	2
	Coloured	3
	Asian	4

Other:_____

Marital status	Never married	1
	Married	2
	Divorced	3

Other:_____

Nationality	South African	1

Other:_____

What is your home province (if you live in South Africa?)	

What language do you mostly speak at home?	Sesotho	1	Tshivenda	4	SiSwati	7
	IsiZulu	2	IsiNdebele	5	English	8
	Sepedi	3	IsiXhosa	6	Afrikaans	9

How are you paying for your studies?	Bursary	1
	EduLoan	2
	NSFAS	3
	Student loan at a bank	4

	Your parents	5	Other:_____

SECTION B

***Indicate the degree to which you* agree or disagree with this statement**								
		Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1	In most ways, my life is close to ideal	1	2	3	4	5	6	7
2	The conditions of my life are excellent	1	2	3	4	5	6	7
3	I am satisfied with my life	1	2	3	4	5	6	7
4	So far I have gotten the important things I want in my life	1	2	3	4	5	6	7
5	If I could live my life over I would change almost nothing	1	2	3	4	5	6	7

SECTION C

During the past month, how often did you feel the following ways:							
		Never	**Once or twice**	**About once a week**	**2 or 3 times a day**	**Almost every day**	**Every day**
1	Happy	1	2	3	4	5	6
2	Interested in life	1	2	3	4	5	6
3	Satisfied with life	1	2	3	4	5	6
4	That you had something important to contribute to society	1	2	3	4	5	6
5	That you belonged to a community (like a social group, school, neighbourhood, etc.)	1	2	3	4	5	6
6	That our society is a good place, or is becoming a better place, for all people	1	2	3	4	5	6
7	That people are basically good	1	2	3	4	5	6
8	That the way our society works made sense to you	1	2	3	4	5	6
9	That you liked most parts of your personality	1	2	3	4	5	6
10	Good at managing the responsibilities of your daily life	1	2	3	4	5	6

11	That you had warm and trusting relationships with others	1	2	3	4	5	6
12	That you had experiences that challenged you to grow and become a better person	1	2	3	4	5	6
13	Confident to think or express your own ideas and opinions	1	2	3	4	5	6
14	That your life has a sense of direction or meaning to it	1	2	3	4	5	6

SECTION D

For each of the following statements, please indicate the likelihood that you would engage in the described activity or behaviour if you were to find yourself in that situation.

		Extremely unlikely	Moderately unlikely	Somewhat unlikely	Not sure	Somewhat Likely	Moderately Likely	Extremely Likely
1	Admitting that your tastes are different from those of a friend	1	2	3	4	5	6	7
2	Going camping in the wilderness	1	2	3	4	5	6	7
3	Betting a day's income at the horse races	1	2	3	4	5	6	7
4	So far I have gotten the important things I want in my life	1	2	3	4	5	6	7
5	If I could live my life over I would change almost nothing	1	2	3	4	5	6	7
6	Investing 10% of your annual income in a moderate growth diversified fund	1	2	3	4	5	6	7
7	Drinking heavily at a social function	1	2	3	4	5	6	7
8	Taking some questionable deductions on your income tax return	1	2	3	4	5	6	7
9	Disagreeing with an authority figure on a major issue	1	2	3	4	5	6	7
10	Betting a day's income at a high-stake poker game	1	2	3	4	5	6	7
11	Having an affair with a married man/woman	1	2	3	4	5	6	7

12	Passing off somebody else's work as your own	1	2	3	4	5	6	7
13	Going down a ski run that is beyond your ability	1	2	3	4	5	6	7
14	Investing 5% of your annual income in a very speculative stock	1	2	3	4	5	6	7
15	Going whitewater rafting at high water in the spring	1	2	3	4	5	6	7
16	Betting a day's income on the outcome of a sporting event	1	2	3	4	5	6	7
17	Engaging in unprotected sex	1	2	3	4	5	6	7
18	Revealing a friend's secret to someone else	1	2	3	4	5	6	7
19	Driving a car without wearing a seat belt	1	2	3	4	5	6	7
20	Investing 10% of your annual income in a new business venture	1	2	3	4	5	6	7
		Extremely unlikely	**Moderately unlikely**	**Somewhat unlikely**	**Not sure**	**Somewhat Likely**	**Moderately Likely**	**Extremely Likely**
21	Taking a skydiving class	1	2	3	4	5	6	7
22	Riding a motorcycle without a helmet	1	2	3	4	5	6	7
23	Choosing a career that you truly enjoy over a more secure one	1	2	3	4	5	6	7
24	Speaking your mind about an unpopular issue in a meeting at work	1	2	3	4	5	6	7
25	Sunbathing without sunscreen	1	2	3	4	5	6	7
26	Bungee jumping off a tall bridge	1	2	3	4	5	6	7
27	Piloting a small plane	1	2	3	4	5	6	7
28	Walking home alone at night in an unsafe area of town	1	2	3	4	5	6	7
29	Moving to a city far away from your extended family	1	2	3	4	5	6	7

30	Starting a new career in your mid-thirties	1	2	3	4	5	6	7
31	Leaving your young children alone at home while running an errand	1	2	3	4	5	6	7
32	Not returning a wallet you found that contains R200	1	2	3	4	5	6	7

SECTION E

	Please read each statement and decide how much you agree or disagree with that statement					
		Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
1	I would be quite bored by a visit to an art gallery.	1	2	3	4	5
2	I plan ahead and organize things, to avoid scrambling at the last minute.	1	2	3	4	5
3	I rarely hold a grudge, even against people who have badly wronged me.	1	2	3	4	5
4	I feel reasonably satisfied with myself overall.	1	2	3	4	5
5	I would feel afraid if I had to travel in bad weather conditions.	1	2	3	4	5
6	I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed.	1	2	3	4	5
7	I'm interested in learning about the history and politics of other countries.	1	2	3	4	5
8	I often push myself very hard when trying to achieve a goal.	1	2	3	4	5
9	People sometimes tell me that I am too critical of others.	1	2	3	4	5
10	I rarely express my opinions in group meetings.	1	2	3	4	5
		Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
11	I sometimes can't help worrying about little things.	1	2	3	4	5
12	If I knew that I could never get caught, I would be willing to steal a million dollars.	1	2	3	4	5
13	I would enjoy creating a work of art, such as a novel, a song, or a painting.	1	2	3	4	5
14	When working on something, I don't pay much attention to small details.	1	2	3	4	5
15	People sometimes tell me that I'm too stubborn.	1	2	3	4	5
16	I prefer jobs that involve active social interaction to those that involve working alone.	1	2	3	4	5
17	When I suffer from a painful experience, I need someone to make me feel comfortable.	1	2	3	4	5

18	Having a lot of money is not especially important to me.	1	2	3	4	5
19	I think that paying attention to radical ideas is a waste of time.	1	2	3	4	5
20	I make decisions based on the feeling of the moment rather than on careful thought.	1	2	3	4	5
21	People think of me as someone who has a quick temper.	1	2	3	4	5
22	On most days, I feel cheerful and optimistic.	1	2	3	4	5
23	I feel like crying when I see other people crying.	1	2	3	4	5
24	I think that I am entitled to more respect than the average person is.	1	2	3	4	5
25	If I had the opportunity, I would like to attend a classical music concert.	1	2	3	4	5
26	When working, I sometimes have difficulties due to being disorganized.	1	2	3	4	5
27	My attitude toward people who have treated me badly is “forgive and forget”.	1	2	3	4	5
28	I feel that I am an unpopular person.	1	2	3	4	5
29	When it comes to physical danger, I am very fearful.	1	2	3	4	5
30	If I want something from someone, I will laugh at that person's worst jokes.	1	2	3	4	5
31	I’ve never really enjoyed looking through an encyclopedia.	1	2	3	4	5
32	I do only the minimum amount of work needed to get by.	1	2	3	4	5
33	I tend to be lenient in judging other people.	1	2	3	4	5
34	In social situations, I’m usually the one who makes the first move.	1	2	3	4	5
35	I worry a lot less than most people do.	1	2	3	4	5
36	I would never accept a bribe, even if it were very large.	1	2	3	4	5
		Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
37	People have often told me that I have a good imagination.	1	2	3	4	5
38	I always try to be accurate in my work, even at the expense of time.	1	2	3	4	5
39	I am usually quite flexible in my opinions when people disagree with me.	1	2	3	4	5
40	The first thing that I always do in a new place is to make friends.	1	2	3	4	5
41	I can handle difficult situations without needing emotional support from anyone else.	1	2	3	4	5

42	I would get a lot of pleasure from owning expensive luxury goods.	1	2	3	4	5
43	I like people who have unconventional views.	1	2	3	4	5
44	I make a lot of mistakes because I don't think before I act.	1	2	3	4	5
45	Most people tend to get angry more quickly than I do.	1	2	3	4	5
46	Most people are more upbeat and dynamic than I generally am.	1	2	3	4	5
47	I feel strong emotions when someone close to me is going away for a long time.	1	2	3	4	5
48	I want people to know that I am an important person of high status.	1	2	3	4	5
49	I don't think of myself as the artistic or creative type.	1	2	3	4	5
50	People often call me a perfectionist.	1	2	3	4	5
51	Even when people make a lot of mistakes, I rarely say anything negative.	1	2	3	4	5
52	I sometimes feel that I am a worthless person.	1	2	3	4	5
53	Even in an emergency I wouldn't feel like panicking.	1	2	3	4	5
54	I wouldn't pretend to like someone just to get that person to do favors for me.	1	2	3	4	5
55	I find it boring to discuss philosophy.	1	2	3	4	5
56	I prefer to do whatever comes to mind, rather than stick to a plan.	1	2	3	4	5
57	When people tell me that I'm wrong, my first reaction is to argue with them.	1	2	3	4	5
58	When I'm in a group of people, I'm often the one who speaks on behalf of the group.	1	2	3	4	5
59	I remain unemotional even in situations where most people get very sentimental.	1	2	3	4	5
60	I'd be tempted to use counterfeit money, if I were sure I could get away with it.	1	2	3	4	5

THANK YOU!