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INVESTMENT DECISION-MAKING PROCESS: HEURISTICS AND BIASES IN SOUTH AFRICAN BASED INVESTMENT FIRMS

BY

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A research dissertation submitted to the School of Economic and Management Sciences, University of the Witwatersrand Johannesburg, in fulfilment of the requirements of a Masters of Commerce in Management Degree (100% Research).

JOHANNESBURG
SOUTH AFRICA
MARCH 2018

ABSTRACT

This research explores the heuristics and biases associated with investment decision-making in South African based firms. The key theoretical frameworks of the study investigate the impact that local and global financial, economic and political conditions have on investment decision-making. The key theoretical frameworks further explore the extent that heuristics and biases influence investment decision-making. Lastly, rationality and irrationality associated with investment decision-making is investigated.

The research method follows a general inductive qualitative approach. The sample method is purposive heterogeneity sampling. The sample includes 20 investment decision-makers in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining, defensive, credit, retail and industrial sectors, in Johannesburg, South Africa.

There is extensive research on biases and heuristics, or preferences and judgements influenced by possible associations of personal preferences and beliefs. However, there is a lack of knowledge on the impact that heuristics and biases have on investment decision-making.

Uncertainty within a given economy impacts investor psychology that results in heuristics and biases. Furthermore, the market in which investment decision-makers invest is also subject to heuristics and biases because the individuals that invest in the market possess personal biases and heuristics that drive market prices.

Firstly, the research found that political instability, uncertainty and government actions influence investment decision-making. The research further found that perceptions have a significant impact on investment decision-making and the market in which they operate.

Secondly, the research found that emotions, perceptions, experiences, ‘gut-feel’, cultural biases, uncertainty and past mistakes influence investor psychology and investment decision-making. Further, the main biases associated with investment decision-making include (i) familiarity bias, (ii) confirmation bias, and (iii) disposition effect bias.

Thirdly, the research found that there are distinguishing characteristics between rational and irrational investment decision-making. The research indicated that investment decision-making associated with rationality mainly involves (i) a defined process, (ii) emotional separation and (iii) portfolio diversification. Irrationality associated with investment decision-making was found to be the opposite of rationality associated with investment decision-making.

Therefore, this research investigates the extent to which heuristics and biases are associated with investment decision-making by investment decision-makers in Johannesburg, South Africa. The significance of this study is its contribution to the literature of management theory on heuristics and biases associated with investment decision-makers in firms based in Johannesburg, South Africa.

CONTENT OVERVIEW

A content overview is provided to guide the reader through this dissertation. Chapter 1, titled ‘Introduction', introduces the research problem and significance of the study. The contributions provide insight into previous research and explains the significance and contribution to this study. Lastly, the research questions, theoretical framework and research process are provided.

Chapter 2, titled ‘Literature Review', addresses the theoretical underpinnings of heuristics, biases and current market and economic conditions associated with investment decision-making. Thus, theoretical underpinnings of local and global economic, financial and political conditions, heuristics and biases, and rationality and irrationality associated with investment decision-making are discussed to better understand the extent that these factors influence investment decision-making.

Chapter 3, titled ‘Methodology', explains the methodology that the research applied in the study. This research follows an inductive approach to focus on gathering data that explains experiences and behaviours within a social context. This research followed an exploratory approach to investigate the proposed phenomenon that exists amongst the research topic. The research method followed a general inductive qualitative approach and drew from an interpretive paradigm. The sample comprises of 20 investment decision-makers, between the ages of 21 to 63, in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining, defensive, credit, retail and industrial sectors, in Johannesburg, South Africa. Further, this study followed purposive heterogeneity sampling. The research instrument was face-to-face interviews and comprised of semi-structured and open-ended questions to allow for further elaboration and discussion. The data was analysed through a microanalysis open coding approach to identify key categories relative to the study and relate the findings to the theoretical underpinnings discussed.

Chapter 4, titled ‘Analysis of Findings', critically analyses the data collected. Four themes were emerged from the research. The themes that will be discussed include local and global economic, financial and political conditions; heuristics and biases associated with investment

decision-making; rationale and irrational investment decision-making; and individual investment decision-making processes. It is important to note that these themes are delimitated to the scope of the research. However, within these themes, evidence relative to the study has been explored. Further, there are a series of questions that pertain to each theme. Lastly, the research questions are readdressed and summarised.

Chapter 5, titled ‘Synthesis Discussion' addresses the theoretical underpinnings discussed and draws a comparison between theory and the truth. The findings of the research are examined and discussed relative to the theoretical underpinnings. Chapter 6 is titled ‘Conclusions and Future Recommendations' which provides a summary of the research. The purpose of this chapter is to (i) provide a summary of the research; and (ii) to make future recommendations for studies of a similar nature.

DECLARATION

I hereby declare that this dissertation is my own work. It is being submitted in fulfilment of the requirements for a Master of Commerce Degree in Management (100% research) to the University of the Witwatersrand Johannesburg. It has not been submitted before to any other university for a degree of examination.

_____

SINA TRACY MOYANE

Signed on this the_____ day of _____, 2018.

ACKNOWLEDGEMENT

I would like to acknowledge certain individuals who have been a source of strength and support throughout this year and each step of the development of my research.

I would firstly like to thank my family. My parents Dan and Odete Moyane for always showing me love, support and believing in my academic dreams. "I am because you are". My siblings Joe, Nkhensani, Daniel and Cuba Moyane, who kept pushing me to do better, be better and continuously supporting me throughout.

I would like to thank my supervisor, Professor Chris Callaghan, for making me appreciate the research, for pushing me, teaching me and believing in my research. He made me realise that nothing is impossible and that with drive and determination, all is attainable.

I would like to thank all the individuals that allowed me to conduct my research on them and who took the time to sit and answer my interview questions. They have each contributed to my future success.

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LIST OF ACRONYMS

DM	*Developed Market*
EM/s	*Emerging Market/s*
UK	*United Kingdom*
US	*United States*
USA	*United States of America*

CHAPTER 1

INTRODUCTION

1. INTRODUCTION TO THE STUDY

Large sums of monetary value have been lost, across multiple sectors, due to poor investment decision-making (Gold, Siegel, Russel & Weinstein, 1996; Gorton, 2010; Cici, 2011). Investment decision-making has a substantial influence on society and the economy (Odean, 1998). Thus, rational investment decision-making is significant (Friedman & Miles, 2001). However, human irrationality, or unreasonable and illogical reasoning (Thompson, 1995), influences investment decisions negatively because individuals are goal driven in pursuit of opportunities and incentives (Tversky & Kahneman, 1986). Hence, Barberis and Thaler (2003) stress that rationality, or sensible reasoning and logic (Thompson, 1995), should motivate investment decision-making.

It is argued that investment decision-making is influenced by cognitive abilities (Hilton, 2001; Au, Chan, Wang & Vertinsky, 2003; Ackert, Church & Deaves, 2003) such as the core skills used to problem-solve and reason; market conditions (Sharpe, 1964; Dyl, 1977; Busse & Hefeker, 2007) which are the sector characteristics such as economic growth and competition; and subjective perceptions (Samuelson & Zeckhauser, 1988; Feng & Seasholes, 2005; Chen, Kim, Nofsinger & Rui, 2007; Fenton-O'Creevy, Soane, Nicholson & Willman, 2011; Sewel 2017) such as personal judgements and opinions.

Lucey and Dowling (2005) propose that subjective perceptions and emotions experienced at a given time influence decision-making. According to Gigerenzer and Gaissmaier (2011) an analysis of alternatives, probabilities and consequences are essential for decision-making. However, Mauk and Buonomano (2004) argue that it is difficult to decipher how the human brain processes complex stimuli. Sterman (1989) proposes that restrictions and uncertainty that bound human rationality result in biased judgements and systematic errors.

Systematic errors and judgements influence heuristics and biases associated with investment decision-making (Daniel, Hirschleifer & Subrahmanyam, 1998). Heuristics has received attention in the field of management sciences (Wright & Von Lanzenauer, 1989). Heuristics are the preferences and judgements influenced by possible associations of personal preferences and beliefs (Kahneman & Tversky, 1996).

Daniel *et al* (2001) further argue that human factors influence heuristics and biases in investment decisions. Sherman (2017) highlights that there are eight main biases, or prejudices and predispositions (Thompson, 1995), associated with investment decision-making. The eight main biases will be discussed in the proceeding chapters and a model illustrating the relationships amongst these biases will be explained.

Considering that investors and investment firms are influenced by investment decisions, to what extent are biases and heuristics present in investment decision-making? It must be taken into consideration that the global economy is changing (Lazarus, 1995; Barnett & McKendrick, 2004). Thus economic, social, political and legal conditions influence investment decision-making (Yartey & Adjasi, 2007).

Therefore, the focus of this research is to investigate the heuristics and biases associated with investment decision-making by investment decision-makers in Johannesburg, South Africa. This chapter will provide an overview of the background to the study, research problem and research objectives. The purpose, significance and contributions of the study will follow. Lastly the research questions, theoretical framework and research process will be discussed.

1.1 RESEARCH PROBLEM

There is substantial research on investment decision-making. However, what is not clear from this literature are the motivations behind investment decision-making in firms in the South African context. Further, there is a lack of knowledge about the rationales that underlie investment decisions. Theory typically predicts that firms will seek to maximise their returns (Alchian, 1950; Knetsch & Thaler, 1986). However, Becker (1962) argues that investment decisions need to follow rationality. The research problem addressed, therefore, is the lack of theory relating to the heuristics and biases associated with investment decision-makers within a South African context.

South Africa's historical events have reshaped its political and economic conditions, which has influenced decision-making processes by investment decision-makers (Alden & Soko, 2005). Further, what is little understood are the implications that heuristics and biases have on investment decision-making and insight into how heuristics and biases can be managed in

investment decision-making. This study, therefore, investigates the heuristics and biases associated with investment decision-making.

Portfolio investment theory predicts certain patterns of investments that would be optimal, given the risk frontier (Fabozzi, Gupta & Markowitz, 2002). However, to what extent are investment decisions driven by subjectivity and perceptions associated with human heuristics? This knowledge is important to understand the decision-making process of investment decision-makers, the consequences associated with biases and heuristics and the rationales behind investment decision-making processes.

1.2 SIGNIFICANCE

The significance of this study is its contribution to the literature of management theory on heuristics and biases associated with investment decision-making by investment decision-makers in Johannesburg, South Africa. Furthermore, to provide insight into the knowledge associated with the impact that investment decision-makers heuristics and biases have on investment portfolios and firms. Huberman (2001) argues that investment decision-making is based on biased familiarity and not economic theory. Thus, the key to this research is to decipher the impact that heuristics and biases have on investment decisions.

1.3 CONTRIBUTIONS

There has been research on heuristics and biases associated with decision-making. What is not clear from this literature, however, are the heuristics and biases associated with investment decision-making within a South African context. The significance of this research, therefore, is its contribution to management theory on heuristics and biases related to investment decision-making by investment decision-makers in Johannesburg, South Africa.

De Bondt (1998) researched judgements and decision-making errors by individual equity investors. Hilton (2001) investigated currency trading and dealing and investment decision-making. However, this study extends on heuristics and biases associated with investment decision-makers that includes dealers, portfolio managers, individual investors and investment analysts who invest or specialise in investing across multiple sectors within

financial markets. Miller and Shapira (2004) did a study on how investment managers value their put and call options. However, this study builds on stock valuation amongst factors that further contribute to portfolio valuation in investment decision-making processes.

Baker and Nofsinger (2002) investigated the significant mistakes influenced by emotional and cognitive weaknesses by investors. Further, the extent to which social factors influence financial decisions. This study builds on the motives that result in emotional and cognitive weaknesses and how to manage these weaknesses when making investment decisions. This study further adds economic, financial and political factors that influence investment decision-making.

Chen *et al* (2007) investigated decision-making in emerging markets. However, this study supplements investment decision-making explicitly in an emerging market. Chira, Adams and Thornton (2008) researched how elements of individual behaviour misrepresent individual decision-making. However, this research extends the underpinnings of various behavioural motives and the impact on heuristics and biases associated with investment decisions-making.

Samuelson and Zeckhauser (1988) researched 'status quo' bias in decision-making. Pratt (2007) explored the role that intuition has in managerial decision-making. Chandra (2008) investigated the impact that behavioural factors and investor psychology have on decision-making. This study, however, builds on the factors that impact investor psychology, such as emotions, perceptions, 'gut-feel' and the current state of affairs. This study further extends on how investor psychology can be better managed when making investment decisions.

Rachlinski (2000) investigated heuristics and biases in courts. Benartzi and Thaler (2007) did research on heuristics and biases in retirement savings behaviour. Gigerenzer and Gaissmaier (2011) did a study on heuristic decision-making. However, this research supplements heuristics and biases associated with investment decision-making.

De Bondt (1998); Baker and Nofsinger (2002); and Chira, Adams and Thornton (2008) research was based in the United States of America. Miller and Shapira (2004) research was based in New York. Chen *et al* (2007) study was based in China. The abovementioned research has been based on a Western Context. This research is based on a South African context, which is not only an emerging market but has diverse cultures (Gefen, Gregory,

Warkentin & Pavlou, 2005) and historical legacies (Carter, 2001) that influence investment decision-making (Alden & Soko, 2005).

Miller and Shapira (2004) research was on MBA students. Chira, Adams and Thornton (2008) research was done on undergraduate and graduate students. Research done by Miller and Shapira (2004); Chira, Adams and Thornton (2008) was done on undergraduate and postgraduate students. This research, however, is based on investment decision-makers in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining, defensive, retail, industrial and credit sectors.

Chen *et al* (2007) research was based on brokerage account data. Chandra (2008) research used secondary data. Chen *et al* (2007); and Chandra (2008) research was based on secondary data. However, this research extends primary findings - investment decision-makers that invest or specialise in investing in various sectors within the market. Previous research was based on quantitative techniques. However, this research follows qualitative measures to provide further insight and explain how heuristics and biases impact investment decision-making.

Therefore, this research is significant because it provides qualitative analysis on heuristics and biases associated with investment decision-makers that invest or specialise in investing in various sectors within the market. Furthermore, this research provides detailed insight into heuristics and biases associated with investment decision-making. Lastly, this research is based on investment decision-makers within firms from a South African context.

1.4 RESEARCH QUESTIONS

Economic theory predicts that favourable economic conditions yield higher returns (Quinn & Woolley, 2001). However, it would be irrational to invest in investment initiatives that do not produce high returns (Fama, & French, 2006). The main research question explores the heuristics and biases associated with investment decision-making. Thus, the following research questions are proposed.

1. How do local and global economic, financial and political conditions influence investment decision-making?

2. How are investment decisions made by investment decision-makers in South African based firms?

3. To what extent are heuristics and biases are associated with investment decision-making?

4. To what extent are rationality and irrationality associated with investment decision-making?

1.5 THEORETICAL FRAMEWORK

There has been much research on human behaviour and decision-making within financial markets (Hilton, 2001). Investment decision-making typically involves market forecasts and subjective perceptions (Tversky & Kahneman, 1991). Griffin and Tversky (1992) propose that systematic errors can be a result of irrational judgements, subjective perceptions and overconfidence. Tversky and Kahneman (1981) argue that systematic errors are associated with human judgements and heuristics.

Systematic errors, or biased logic (Grimes & Schulz, 2002) involved in decision-making under conditions of uncertainty are influenced by subjective probabilities and intuitive predictions (Tversky & Kahneman, 1973). Further, subjective probabilities, personal judgement and intuition are prevalent in decision-making under uncertain conditions (Kahneman & Tversky, 1977; Kahneman & Tversky, 1981).

Judgements mediate intuition and heuristics under uncertain conditions (Tversky & Kahneman, 1984). Thus, decisions associated with unfamiliarity and uncertainty should follow controlled thinking (Kahneman & Frederick, 2001). Kahneman and Tversky (1984) propose that decision-making follows either normative analysis, or the nature of logical and rational decision-making (MacCrimmon, 1968); or descriptive analysis, which is concerned with individual preferences and beliefs (Bell, Raiffa, & Tversky, 1988).

According to Kahneman and Tversky (1996) heuristics refers to preferences and judgements influenced by practical associations of personal preferences and beliefs. However, Gigerenzer (1991) contends that heuristics are errors associated with an inconsistency between an

individual's judgement and the norm, or knowledge representation and the interpretation of experiences (Kahneman & Miller, 1986).

Gigerenzer (2006) further disputes that the misconceptions of heuristics are used because of limited cognitive attributes and emotions. Baker and Nofsinger (2002) propose that there is a difference between the cognitive abilities - what investors think and emotional attributes - how investors feel. However, what is little understood is the negative impact that heuristics and biases have on investment decision-making.

Sherman (2017) highlights that there are eight primary biases associated with investment decision-making, namely familiarity bias, confirmation bias, disposition-effect bias, trend-chasing bias, hindsight bias, endowment-effect bias, self-attribution bias and regret aversion bias. Each of these biases will now be discussed and a model proposing the potential relationship amongst these biases will follow.

Firstly, familiarity bias is associated with known events given more probability over unfamiliar events (Fox & Levav, 2000). Investors prefer known and familiar investments, despite returns that could be gained from portfolio diversification (Sherman, 2017). Further, preference is often given to familiar investments with higher returns and less risk rather than less familiar investments (Foad, 2010). Chew, Ebstein and Zhong (2012) argue that familiarity bias is most prevalent under conditions of uncertainty. Investors tend to invest in local initiatives due to the familiarity of the home market, discarding portfolio investment theory of diversification (Huberman, 2001). Cao, Han, Hirshleifer and Zhang (2009) argue that familiarity bias is associated with investment decision-making in the following ways:

- Investments that are linguistically and geographically proximate
- Investments that favour current ownership positions
- Investments that follow the status quo, or the current state of affairs (Kahneman, Knetsch & Thaler, 1991)
- Investment portfolios that hold previously chosen or current stock options.

Secondly, confirmation bias involves selectively choosing information that supports one's own opinion (Jonas, Schulz-Hardt, Frey, & Thelen, 2001; Ask & Granhag, 2005).

Confirmation bias is associated with the tendency to overestimate the accuracy of one's judgements and discard the rationales behind the inaccuracy of the reasoning (Nickerson, 1998). Thus, investors seek information that supports their investment decision than to search for contradictory information (Sherman, 2017). Previous experiences significantly influence behaviours at the expense of learning correct rationales and reinforcements. (Doll, Hutchison, & Frank, 2011). However, confirmation bias is human reasoning that results in inferential errors (Evans 1989). Further, investors with a high confirmation bias display greater overconfidence which results in lower realised returns and performance (Park, Konana, Gu, Kumar, & Raghunathan, 2010); which is potentially linked to behaviour of self-affirmation, or the tendency to maintain the personal integrity of the self (Heine, & Lehman, 1997; Sherman & Cohen, 2006).

Thirdly, the disposition effect bias, according to Chen *et al* (2007) is that investors tend to sell winning stocks and hold onto losing shares. Cici (2012) further argues that many investment decisions follow the disposition effect because of the buying and selling market conditions. Fourthly, trend-chasing bias is the misconception that past performance and historical returns predict future performance. Further, the future is unpredictable and forces within the market can change returns (Sherman, 2017).

Fifthly, hindsight bias involves an investor believing that a decision made was predictable based on past events after the fact, when in fact, the event could not have been predicted with valid reasoning (Fischhoff, 1975; Sherman, 2017). According to Campbell and Tesser (1983) when the outcome of an event is known, the rationale of having known the result is exaggerated. Further, the reconstruction of knowledge, after the outcome or event, influences previous judgements and is often associated with prior beliefs (Hoffrage, Hertwig & Gigerenzer, 2000). According to Hell, Gigerenzer, Gauggel, Mall and Muller (1988) the recollection of outcomes tends more towards the correct approach after having been informed about the correct outcome. Furthermore, hindsight bias is a result of reluctance to accept personal errors and reduces learning propensity (Pezzo, & Pezzo, 2007). Biais and Weber (2009) argue that investment decisions associated with hindsight bias hinder learning, due to the ‘I knew it all along' tendency.

Sixthly, the endowment-effect bias involves price inconsistencies in the market that cause buying and selling behaviours due to negative market reactions (Zhang & Fishbach, 2005).

Seventhly, self- attribution bias consists of the extent to which internal and external factors contribute to performance (Libby & Rennekamp, 2012). Investors take credit for success or winning investment decisions yet blame unsuccessful or losing investment decisions on external factors (Sherman, 2017). Hoffman and Post (2014) argue that self-attribution is significantly related to investors' returns rather than market returns. Daniel *et al* (1998) argue that biased self-attribution causes distort shifts in investors' confidence supplementary to their investment outcomes. Further, past successes result in future behaviours of arrogance and overconfidence associated with decision-making (Doukas & Petmezas, 2007; Billett & Qian, 2008).

Lastly, regret-aversion bias involves an analysis of the actual outcome versus the outcome that could have occurred (Zeelenberg, & Beattie, 1997). According to Zeelenberg, Beattie, Van der Pligt and De Vries, (1996) regret causes individuals to correct their losses and negatively impacts individual psychology when making future decisions. Investors are reluctant to realise their losses due to poor investment decision-making and the negative outcomes associated (Bell, 1982; Sherman, 2017). Lastly, heuristics are associated with investment decisions because investors are loss-averse (Coval & Shumway, 2005).

Heuristics and biases associated with investment decision-making will be the foundation to the study. However, consideration needs to be given to the uncertainty in the local and global market that influence investment decision-makers, which will be discussed in the preceding chapter. The following table summarises the eight identified biases discussed and associated with investment decision-making.

Table 1: Investment Bias Types Summary

INVESTMENT BIAS TYPES	**DEFINITION**
Familiarity Bias	Known events are given more probability over unknown events (Fox & Levav, 2000).
Confirmation Bias	Selectively choosing information that supports one's own opinion (Jonas *et al*, 2001).
Disposition Effect Bias	Selling winning stocks and holding onto losing stocks (Chen *et al*, 2007).
Trend-Chasing Bias	The misconception that past performance and historical returns predict future performance (Sherman, 2017).
Hindsight Bias	Believing that the decision made was predictable based on past events, after the fact (Fischhoff, 1975).
Endowment-Effect Bias	Involves price inconsistencies in the market that cause buying and selling behaviours due to negative market reactions (Zhang & Fishbach, 2005).
Self-Attribution Bias	Taking credit for successful investments and blaming losing investments on external factors (Libby & Rennekamp, 2012).
Regret-Aversion Bias	The reluctance to realise losses due to poor investment decision-making (Zeelenberg, & Beattie, 1997).

The figure below is based on the above investment decision-making biases discussed. The identified biases include familiarity bias, confirmation bias, disposition effect bias, trend-chasing bias, hindsight bias, endowment-effect bias, self-attribution bias and regret-aversion bias. Familiarity bias and confirmation bias influence each other; and self-attribution bias and regret bias are interrelated. Furthermore, the existing theoretical relationships between these biases will be analysed and potential new connections amongst these biases will be explored.

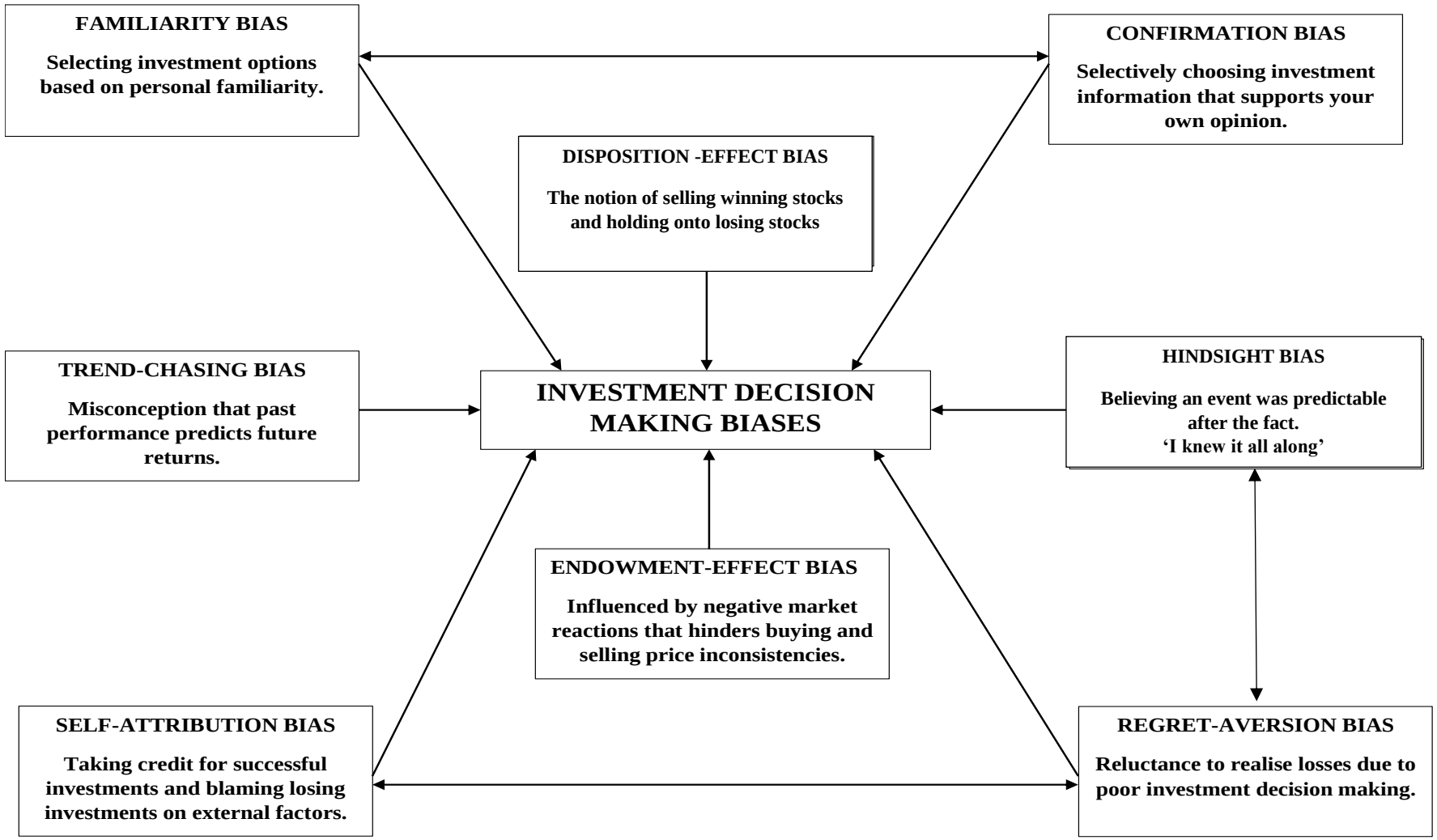


Figure 1**:** Investment Decision-Making Biases

1.6 RESEARCH PROCESS

A research process refers to the steps taken when conducting research. According to Cameron and Price (2011) a research process is a detailed plan of the research investigation under study. The research topic and subsequent topics have been identified. The background to the study has been provided and the literature review will be discussed in the proceeding chapter. The research will be following a general inductive qualitative approach. The sampling procedure will be purposive heterogeneity sampling and the data will be collected through individual face-to-face interviews. The data will be analysed through a microanalysis open coding approach to identify key categories relative to the study and relate the findings to the theoretical underpinnings proposed. Lastly, the research report will be concluded. The following diagram illustrates steps in qualitative research.

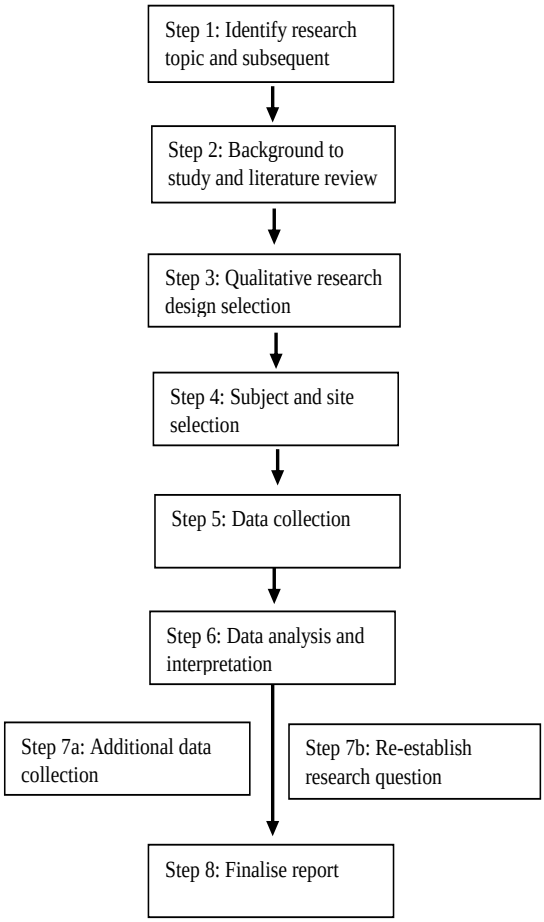


Figure 2: An Outline of the Main Steps in Qualitative Research

(Bryman & Bell, 2014: 41)

1.7 PROCEEDING CHAPTERS OUTLINE

The proceeding chapters include the literature review, methodology, analysis of findings, synthesis discussion and conclusion and future recommendations. The literature review will be discussing the theoretical underpinnings of local and global economic, financial and political conditions; heuristics and biases; and rationality and irrationality associated with investment decision-making to better understand the extent to which these factors influence investment decision-making.

The research methodology section will be explaining the research design, research paradigm, research approach and types of scientific research. Further, the sample, data collection, interpretation of data analysis and ethics will be addressed. The analysis of findings chapter will identify the key themes relative to the research topic and critically analyse the data collected. Furthermore, the research questions will be revisited and examined based on the findings. The synthesis discussion section will address the key findings and theoretical underpinnings. Lastly, the conclusions and future recommendations chapter will finalise the research and provide recommendations for future research.

1.8 CONCLUSION

The purpose of this study is to gain an understanding of the heuristics and biases associated with investment decision-making that influence portfolio outcomes. Further, to understand the impact that investment decision heuristics and biases have on portfolio outcomes. This knowledge is critically important because the performance of investments is a contributor to investment outcomes and firms.

Across theoretical contexts, there is extensive research on investment decision-making. What is not clear from this literature, however, are the motivations behind investment decision-making in South Africa - considering the unique economic, social, legal and political conditions prevailing in the emerging and newly democratic country.

The research problem addresses the lack of theory relating to the heuristics and biases associated with investment decision-making by investment decision-makers in South African firms. The proceeding chapter will be discussing the theoretical underpinnings of heuristics,

biases and current market and economic conditions associated with investment decision-making.

CHAPTER 2

LITERATURE REVIEW

2. INTRODUCTION

The literature on heuristics and biases associated with investment decision-making challenge notions of truth. This section will be addressing the theoretical underpinnings of local and global economic, financial and political conditions; heuristics and biases; and rationality and irrationality associated with investment decision-making to better understand the extent to which these factors influence investment decision-making.

2.1 LOCAL AND GLOBAL ECONOMIC, FINANCIAL AND POLITICAL CONDITIONS

Investment decisions are influenced by local and global financial and economic conditions (Tallman, 1988; Ghysels, Plazzi & Valkanov, 2016). Further, firms operate within a market that is directly affected by financial and economic factors. Financial and economic conditions influence the market in which investment decision-makers invest. Thus, this section addresses the current local and global economic, financial and political conditions prevalent in the market and the impact on investment decision-making.

South Africa's current economic state is in turmoil due to the political shifts that have created perceptions of political uncertainty (Suttner, 2017). Political uncertainty and corruption from government actions have negative implications on economic and financial conditions (Mo, 2001; Kelly, Pastor & Veronesi, 2016). Political instability has negative implications for economic growth and international investment (AleYou Researcher, Özler, Roubini & Swagel, 1996). Furthermore, economic and political uncertainty affects the variability of international investment (Frankel & Rose, 2001).

Fitch Rating Agency reported that the finance minister cabinet reshuffle will result in changes of economic policy and has a potential impact on international investment decisions (Eyewitness News & Reuters, 2017). South African credit-ratings were downgraded to non-investable according to Standard and Poor's (S&P) Rating Agency (Le Cordeur, 2017). Almeida, Cunha, Ferreira and Restrepo (2017) argue that sovereign rating downgrades directly influence investment decision-making.

The fourth change of the South African finance minister in 2017 weakened the Rand overnight (Saville, 2017). According to CNBC Africa (2017) South Africa's local assets have been disadvantaged since the finance minister reshuffle. Further, the credit-rating junk status will potentially result in higher premium risk perceptions and higher interest rates (Gernon and Mabuza, 2017). Fisher-French (2017) indicates that the results of South Africa's credit-rating downgrade has influenced investors to sell out of government bonds and the Johannesburg Stock Exchange (JSE).

Perotti and van Oijen (1999) argue that political risk, as a result of successful privatisation, could positively influence stock and economic growth in emerging markets. However, emerging economies have higher political uncertainty. Barr, Frankhauser and Hamilton (2010) argue that African countries have a low adaptive capacity, political uncertainty and are highly vulnerable. In an emerging South Africa, uncertainty persists as a nexus of forces in the open economy (Zafar, 2007).

Considering that South Africa is an open economy, it is directly affected by conditions in the global economy. The global economy is continuously changing (Freeman, 1994). Thus, investment decisions are influenced by changing local and global financial and economic conditions (Ghysels *et al*, 2016). Ghosh (2017) argues that recent political and economic changes in the leading world economies will impact global conditions.

Dhingra, Ottaviano, Sampson and Van Reenen (2016) argue that the United Kingdom's exit from the European Union, known as Brexit, will reduce trade between the United Kingdom and the rest of the world. Brexit could result in higher trade barriers and thus reshape foreign investments and business. Dhingra and Sampson (2016) further argue that after Brexit, the world economy will experience high political costs, a reduction in living standards and lower income. However, Staal (2016) argues that while most economies will be at a detriment to Brexit, other countries will gain. Pisani-Ferry, Röttgen, Sapir, Tucker and Wolff (2016) discuss that the existing integrated political alliances refurbish the balance of global economic factors.

With Donald Trump's election as president of the United States of America, many question his economic and political policies popularly called ‘Trumponomics’. Epstein (2017) contends that ‘Trumponomics’ is based on putting the American economy first by reducing

foreign investment schemes and keeping money in the USA. Gros (2016) discusses that ‘Trumponomics’ has a potential benefit and positive impact for Europe.

However, Nunns, Burman, Rohaly and Rosenberg (2016) argue that financial market volatility, economic outlook and global trade challenges are just a few of the negative impacts that ‘Trumponomics’ will have on external economies. Zanaki, Mandakovic, Gupta, Sahay and Hong (1995) highlight that financial market volatility restricts investment decisions.

Mikaelsson and Nilsson (2016) explain that ‘Trumponomics’ policy actions will result in increases in national debt, commodity price increases, rate hikes and oil price escalations. Bekaert (1995) discusses that high inflation, exchange rate control, lack of funds and poor credit-ratings are barriers to global market integration. Cook (2016) further argues that ‘Trumponomics’ is against international trade, business internationalisation and global output. Epstein (2017) argues that Brexit and Donald Trump's presidency have isolated the global economy and conflict globalisation.

Brexit and ‘Trumponomics’ support a closed economic approach, or countries that do not trade with the rest of the world (Wall, 2011). South Africa, which is a developing country, has an open economy which is influenced by global activities (Matthee, Farole, Naughtin & Ranin, 2016). This begs the question of whether open economies and the evolution of globalisation have been beneficial to all economies (Larsson, 2017); and whether localisation is more useful to economies than globalisation (Malmberg & Maskell, 2002).

Globalisation involves the transformation of business activities, policies and social interaction to global customs (Latif, 2010). Dreher (2006) argues that globalisation determinants such as social, political and economic integration contribute to economic growth. Barnes and Kaplinksy (2000) argue that there has been homogeneity in the global economy. Ietto-Gillies (1997) highlights that national and international investment decisions reinforce each other as an integrating tool in global markets. Despite the benefits of globalisation, is globalisation fair when rich countries continue to gain further riches? (Jackson and Senker, 2011).

Economic theory predicts that global openness brings growth (Baldwin, 2004). McMichael (2001) reasons that globalisation has improved technology and global issues. However, Altbach (2004) argues that globalisation has contributed to inequality between developed and developing countries. According to Rodrik (2008) established countries rapid growth has made it difficult for developing countries to close the economic gap. Further, Athreye and Cantwell (2007) discuss that global business activities favour economies with high competitive levels but dissatisfies economies with lower capabilities.

Globalisation has created international exposure. However, such disclosure has created conflicts of resource distribution within countries (Goldberg & Pavcnik, 2007). Further, the concentration of wealth has remained within well-established economies, defeating the purpose of global economic reform (Chossudovsky, 2003). Dolmas (2004) proposes that there has been a decline in real income in emerging countries due to an upsurge of international activities.

Bairoch and Kozul-Wright 1999, argue that only a few countries have managed to reinforce their domestic economies while participating in international activities. Archibugi and Michie (1995) agree that globalisation limits the attempts of governments to better innovation and technology domestically, making it futile for national growth systems. Governments should thus become more active in policies and financial stabilisation to ensure fairness between nations (Hirst, 1997).

Globalisation has influenced economic development through increases in technological transfers, efficiency improvements and structural changes (Patel & Pavitt, 1991). Brenner (1999) proposes that solutions to inequality between trade and international investments are infrastructure, transport and technological advances. However, Archibugi and Pietrobelli (2003) argue that technological advances have not been successful in benefiting developing countries that lack government and institutional support to improve infrastructure and technological transferability. Potterie and Lichtenberg (2001) propose that technology transfers and international investments benefit developing economies more than developed economies.

Developing countries have become more attractive and profitable for international investment (Nunnenkamp, 2002). Narula and Dunning (2000) argue that international investment

decisions favour developing countries with a higher return on investments and growth potential. Furthermore, Prasad, Kenneth, Wei and Kose (2003) argue that globalisation increases domestic financial industries, technological advances and economic growth in developing countries. However, economic and market conditions differ (Nelson, 1991). Therefore, the pace of globalisation will depend on local government policies (Buckley & Ghauri, 2004).

There are ‘winners' and ‘losers' in globalisation (O'Brien & Leichenko, 2000). Disadvantaged countries or ‘losers' in globalisation fall short in the benefits from participating in the global economy (Kaplinksy, 2000) Santos (2002) argues that globalisation has led to an imbalance of power whereby dominant economies and firms, or ‘winners' in globalisation, restructure their processes after disintegrating from other economies.

It is argued that economic activities are disintegrating on a worldwide scale (Swyngedouw, 2004). However, international organisations are constraining developing countries from localisation by enforcing regulations and strategies (Wade, 2003). Gereffi, Humphrey, Kaplinsky and Sturgeon (2001) propose that globalisation has resulted in distributive and societal inequalities.

However, Barnes and Kaplinsky (2000) argue that there has been homogeneity in the global economy despite the social and cultural inequalities. Guiso, Sapienza and Zingales (2009) highlight that national and international investments are dependent on the trust and cultural biases within foreign markets. Lee and Vivarelli (2006) argue that international investments and trade are beneficial to global market integration and macroeconomic stability.

Aizenman (2007) argue that developing countries need to focus on macroeconomic balance and financial liberalisation, or the reduction in international trade barriers (Lines, Marcouse & Martin, 2011). However, Hove, Mama and Tchana (2016) contest that economies in emerging markets experience macroeconomic instabilities regarding trade and commodity. Further, economic sustainability requires value creation and financial resources, which developing countries lack (Veiga, Ferreira & Sequeira, 2016).

Luiz (2016) proposes that South Africa is a middle-income economy with the potential to increase its value creation through capital initiatives and policy adjustments. Coetzee,

Kwarada, Naude and Swanepoel (1997) propose that international finance can improve South Africa's economic resources, growth, development and poverty through monetary and fiscal policy transformation. However, Baharumshah, Jabillo, Sirag, Ali and Muhammad (2016) argue that South Africa suffers from a fiscal deficit which has severe implications on investment decisions and saving schemes. The table below provides an overview of the critical applications of the globalisation process at national, international and global levels.

Table 2: The Processes of Globalisation
(Santos, 2002: 96).

Applications	Organisations	Arrangement of Control	Regulatory System	Formative Disputes	Chain of Command Criteria
National	Regions Global firms Joint monetary institutions Regional alliances European union World trade organisation	Inequalities entitlements of power	International agreements and law Law of local incorporation	Regional conflict for global position	Central or partial Boundaries
International Capitalist	Multinational corporations	Profitable principles and resource inequalities.	Patent rights Intellectual property rights International and Employment law	Assessment of financial resources conflicts	Local and global
Global Social and Cultural	Non state-owned firms Social actions Networks and movements	Unequal cultural and identity exchanges	Human rights Rights to emigration and nationality	Clashes of societal acceptance	National and international

Considering the impact that globalisation has had on local and global markets, how do these factors influence investment decision-makers who operate within these markets? Globalisation has led to an increase in foreign consumption and wealth in foreign assets through national and international investment decisions (Lewis, 1999). Artis and Hoffman (2011) further argue that globalisation reduces the risks involved in international investments. Calvo and Mendoza (1999) argue that when stock markets fall in open economies, investors withdraw from vulnerable markets. This begs the question of whether investment portfolios should consist of local or foreign investments. (Bernstein, Lerner & Schoar, 2013).

Emerging countries advance their strategies outside their home country when their local expertise and economies develop (Wright, Filatotchev, Hoskisson & Peng, 2005). Acquaah (2007) further argues that the network strategies and decision-making that local organisations pursue impact their international performance. Suh (2005) argues that diversification into foreign funds contributes to local economic growth. Graham, Harvey and Huang (2006) propose that investors' decisions between domestic and international portfolios are influenced by subjective probabilities, capabilities and behaviour. However, Schnabel (2012) suggests that investors' portfolios should be proportional to the markets current state of affairs.

Local investments have been decreasing since the 1990s through regional and global integration (Baele, Pungulescu & Horst, 2007). Further, Blake, Lehmann and Timmermann (1999) argue that investment portfolios should have less local investments. However, Coeurdacier and Rey (2011) argue that investment decision-makers hold large quantities of local equities, or shares in their portfolios (Fabozzi, 1998). Further, investors are more inclined to make portfolio decisions based on factors related to geographic proximity (Coval & Moskowitz, 1999)

Investors' preference of geographic proximity is a result of economic risks (Evans, 2001; Grote & Umber, 2006). However, Cooper and Kaplanis (1994) propose that local portfolios are consistent with high risk and negative returns in periods of financial uncertainty. Further, successful financial markets that allow infiltration from international investments have economic advantages (Alfaro, Chanda, Kalemli-Ozcan & Sayek, 2004).

2.2 DECISION-MAKING

At this point, the research has highlighted local and global economic, financial and political conditions. These local and global factors are important because investment decision-makers operate within markets that are influenced by economic, financial and political conditions. This brings about the question of how these local and global conditions influence investment decision-making. Further, how are investment decisions made and to what extent are heuristics and biases; and rationality and irrationality associated with investment decision-making?

Goldbaum and Mizrach (2008) argue that investors pursue profit and utility maximisation when making decisions. Further, Popova, Morton, Popova and Yau (2006) propose that investment strategies have shifted towards an interchange between risk and return. Returns and risk aversion are associated with call options, while losses and risk-seeking are associated with put options (Miller & Shapira, 2004). Brenan and Cao (1997) argue that investment decision-makers follow the disposition affect bias, or purchasing assets when the returns are high and sell assets when the returns are low. However, Lipshitz and Strauss (1997) highlight that investment decision-making is subjective and inclusive, relative to the effect of risk.

Decision-making involves actors in situations with intentions (Eisenhardt & Zbaracki, 1992). Kaustia and Knupfer (2008) argue that experience influences investment decisions because reinforcement theory predicts that personally experienced outcomes have a significant effect on behaviour. However, investors with more experience do not exhibit less behavioural biases relative to less experienced investors (Chen *et al*, 2007).

Investment decision-making is dependent on the type of asset class, investment preference (Blake, Rossi, Timmermann, Tonks &Wermers, 2013); and cash sources being equal to the uses of the cash (Gatchev, Pulvino & Tarhan, 2010). However, individual investors are driven by fear, greed, mental accounting, anchoring and heuristics (Chandra, 2008).

Behavioural economics states that individuals do not achieve optimal results under all conditions (Bogacz, Brown, Moehlis, Holmes & Cohen, 2006). Lo (2005) argues that forces in the market overcome any irrational decision-making bias. However, Kahneman and

Tversky (1981) argue that decision-making under conditions of uncertainty follows intuition and personal judgement.

Decision-making under conditions of uncertainty results in heuristics judgements rather than intensive research approaches (Gilovich, Griffin & Kahneman, 2002). Svenson (1979) argues that decisions are influenced by judgements, perceptions or intuition and not extensive research or economic models. Further, Khatri and Alvin Ng (2000) argue that intuition plays a significant role in individual decision-making processes. However, individual judgements are influenced by irrelevant factors (Hilton, 2001). However, Nonaka and Peltokorpi (2006) propose that decisions can be objective and based on external factors. Sudana (2011) highlights that decision-making should involve careful analysis of all alternative options.

The literature on decision-making theory is based on the concepts of rationality, irrationality and bounded decision-making processes. A more recent model on decision-making is based on the use of heuristics. Thus to understand heuristics, one needs to understand the idea of rationality. Saaty (2008) argues that rationality or irrationality influence decision-making. However, behavioural finance assumes that individuals are always rationale (Baker & Nofsinger, 2002). Kahneman (2003) illustrated that irrationality is based on perceptions and intuition, such as emotion and stimulation; and rationality involves experience and predictions, as shown below:

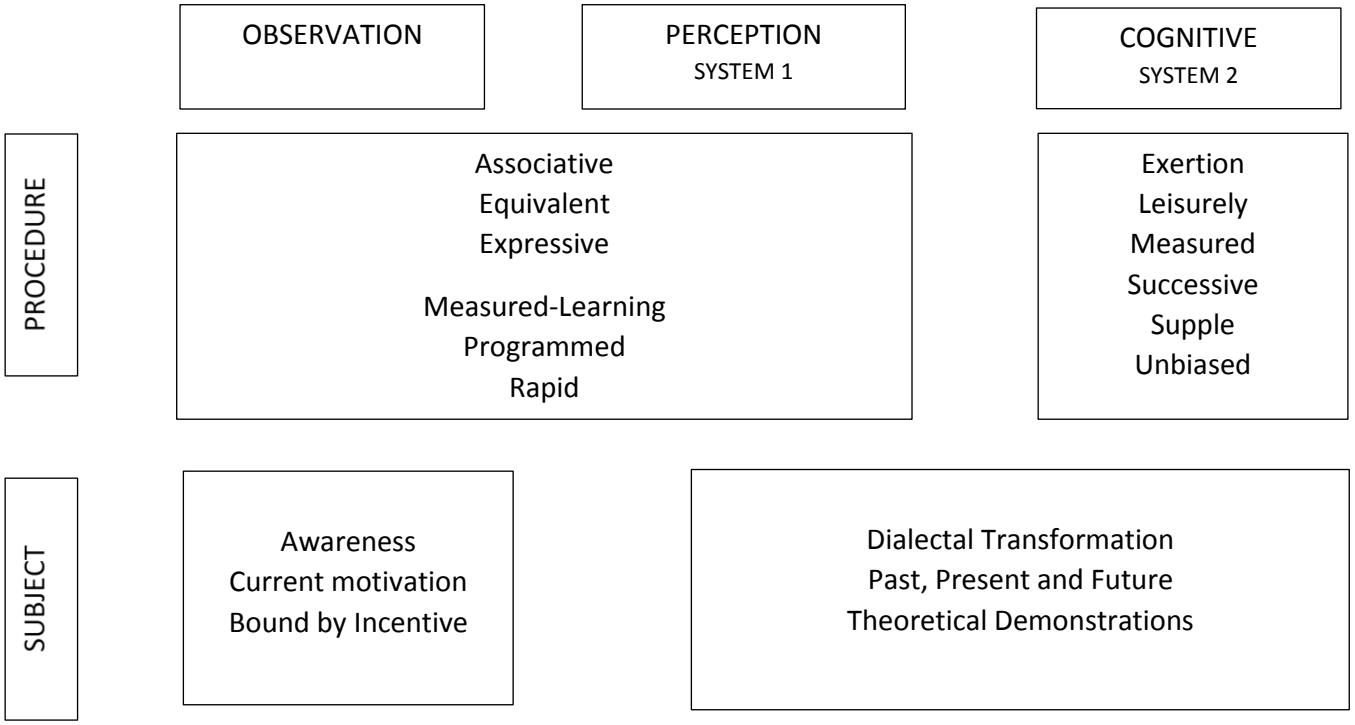


Figure 3: Three Cognitive Systems

(Kahneman, 2003: 1451)

Gigerenzer and Selten (2001) argue that the idea of rationality is influenced by two paths, namely that of fear which is inclined by unrestricted rationality or constrained optimisation. The second path is limited rationality that is controlled by satisfaction or fast and logical heuristics.

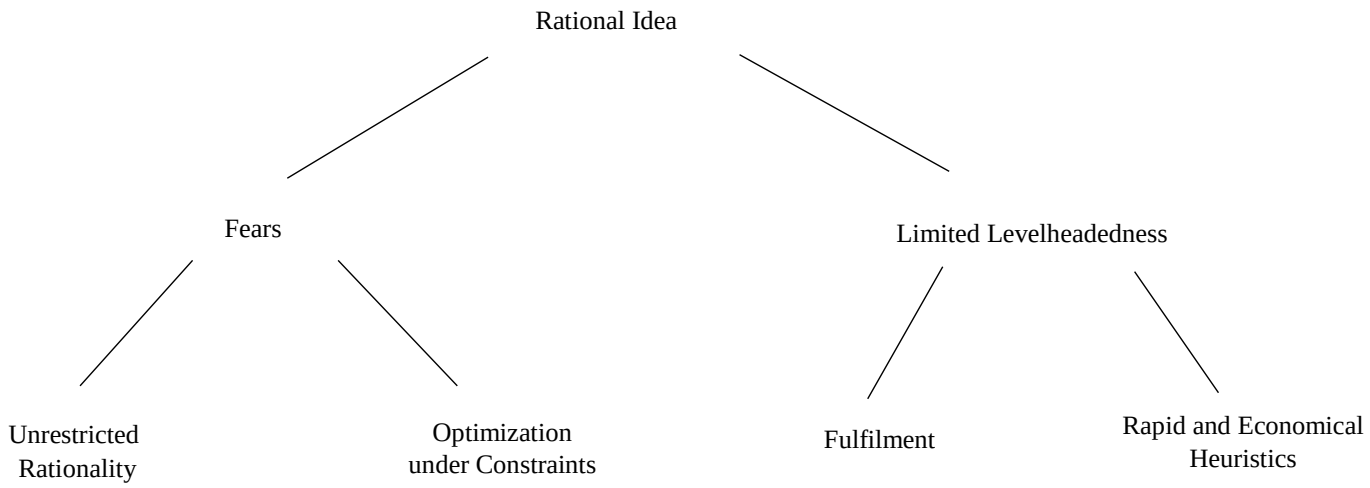


Figure 4: The Model of Bounded Rationality
(Gigerenzer & Selten, 2001: 39).

Investment decision-makers are reluctant to admit irrational investment decisions (Chang, Solomon & Westerfield, 2016). Thus investors tend to rebalance their portfolios in the event of investment losses (Grinblatt & Keloharju, 2001). Irrational investment decisions are influenced by biased self-attribution or overconfidence (Daniel *et al*, 1998). Daniel *et al* (2001) further argue that overconfidence stimulates heuristics in investment decisions.

Dean and Sharfman (1993) contend that individuals make rational decisions when they have extensive knowledge, or judgements based on experience (Tversky & Kahneman, 1973). Further, rational investment decision-making is influenced by economic conditions and business cycle fluctuations (Chalmers, Kaul & Phillips, 2013). Thus, investment decision-making requires the processing of information efficiently and creating knowledge effectively to adapt to changes in the economy (Bhatt, 2001).

Nonaka (1994) proposes that knowledge has become of increasing importance in society due to shifts in organisational rational and external factors. Nonaka, von Krogh and Voelpel (2006) argue that corporate knowledge creation is the process of enhancing the knowledge of individuals within organisations.

Nonaka, Toyama and Konno (2000) propose that tacit and explicit knowledge creation enhance decision-making abilities. Explicit knowledge is knowledge that is systematically transmitted into language; and tactic knowledge involves subjectivity that reduces reality or the truth. (Nonaka, Byosiere, Borucki & Konno, 1994). However, Gourlay (2004) argues that Nonaka's argument on explicit and tactic knowledge lacks empirical evidence.

Stokman, Assen, Knoop and Oosten (2000) discuss that society's mutual interests and perceptions influence decision-making. However, De Bondt and Thaler (1995) argue that portfolio investors make decisions based on information and not the perceptions or opinions of other investors. According to Buckley, Devinney and Louviere (2007) investment decisions follow less traditional models as investment choices increase. Furthermore, heuristics and biases outweigh cognitive abilities and performance when making decisions on a broad spectrum (Toplak, West & Stanovich, 2011). However, investors are naïve to historical price patterns, do not diversify their portfolio and have inferior trade behaviour (De Bondt, 1998).

Considering the notions of rationality and irrationality associated with investment decision-making, investment portfolio theory includes risk perceptions associated with investment decision-making. Thus to understand rationality and irrationality, one needs to understand risk attributes associated with investment decision-making.

It has been argued that risk-averse is associated with constrained rationality (Chira *et al*, 2008). Developed countries market and risk conditions influence developing countries stock markets and economic conditions (Harvey, 1994). However, Dow and Gorton (1997) argue that market conditions do not influence investors' decisions. Volatility within an economy supports risk sharing in the globalised economy (Bekaert & Harvey, 2002). Goldstein and Razin (2003) contest that the higher the risk in a portfolio, the higher the direct investment.

Investment decisions are based on preference and potential risk features (Coval & Moskowitz, 1999). Embrey and Fox (1997) argue that risk-bearing propensity influences investment decisions. Michenaud and Solnik (2008) highlight that volatility is the primary risk attribute in portfolio decision-making. Risk decisions typically involve conservative and aggressive approaches (Forrester Hyde, 2015).

Cochrane (1999) argues that investment decisions either follow riskier options for higher returns, or less risky investments through safer stock options. Goetzmann, Li and Rouwenhorst (2001) argue that portfolio diversification reduces risks associated with investment decisions. Further, portfolio diversification is beneficial to economic growth and market conditions (Bekaert, Harvey & Lundblad, 2003). At this point, the heuristics, biases, rationality and irrationality associated with investment decision-making have been proposed. It must also be taken into consideration that investment decision-makers are influenced by other individuals within organisations.

Organisational research influences the strategic choices made by top management (Carpenter, Geletkanycz, & Sanders, 2004). Top management decision-making is based on innovation, commitment to excelling competition and risk propensity (Papadakis & Barwise, 2002). Dimov, Shepherd and Sutcliffe (2007) argue that although decision-making within organisations rests with top management, investors' perception of rationality versus irrationality differ. Thus, companies need to discriminate between profitable and non-profitable investments (Coble, Dismukes & Glauber, 2007).

Hiller and Hambrick (2005) argue that top managers with high self-assessments are intimidating and overconfident with their decisions making. However, Lau and Redlawsk (2001) highlight that intellectual heuristics are used by individuals with authority when making important decisions. Thus, individual ethical practices throughout business activities support principled decision-making (Loe, Ferrell & Mansfield, 2000). Lyon, Lumpkin and Dess (2000) highlight that resource allocation, organisational behaviours and perceptions of management influence decision-making. Sterman (1989) argues that organisational procedures and group interaction dictate behavioural decision-making.

It is argued that individuals are reliant on mutual opinions of others to make decisions (Muchnik, Aral & Taylor, 2013). McCauey (1998) contests that group processes negatively impact ideal decision-making. Doyle (1998) argues that rational group decision-making involves mutual beliefs and preferences. Further, individuals are biased towards supporting information rather than conflicting information (Schultz-Hardt, Frey, Luthgens & Moscovici, 2000). Lastly, biases and heuristics have more of an impact on group settings because each group member will possess personal biases and heuristics (Kerr & Tindale, 2004).

Local and global economic, financial and political conditions; heuristics and biases; and rationality and irrationality associated with investment decision-making have all been considered important factors associated with investment decisions. The proceeding chapter will be explaining the methods used in the research.

CHAPTER 3

METHODOLOGY

3. INTRODUCTION

Research refers to a more in-depth study of phenomena based on a specific individual or more than one individual (Hays, 2004). This section will be discussing the research design, research paradigm, research approach and types of scientific research. Lastly, the sample, data collection, interpretation of data analysis and ethics will be addressed.

3.1 RESEARCH DESIGN

Collis and Hussey (2009) define research design as the systematic procedures to be followed in a study. According to Merton (1973) social sciences involves the scientific study of interpersonal relationships and human society. Natural science is the science of objects or phenomena that occur naturally such as the human body, earth and matter (Bhattacherjee, 2012). Scientific method refers to a set of techniques that are considered for building research (Kothari, 2004).

In order for scientific research to be considered acceptable research, it must satisfy parsimony, replicability, precision and falsifiability. Parsimony refers to an event made with the least probable assumptions (Aarts, 2007). Replicability is the ability for a researcher to obtain similar and possibly the same results if it is repeated (Chase 1970). Precision refers to research being so precise that other researchers can utilise the definitions to test theory and constructs (Gerring, 2001). Lastly, falsifiability is the ability for research to be disproven (Koivu & Damman 2015).

The research design phase outlines the comprehensive plan for the collection of data (Yin, 1994). The research design explains the data collection process, the research instrument development and the sampling process (Newman & Benz, 1998). This research was based on a qualitative approach. Attride-Stirling (2001) argues that qualitative studies are based on interrelated fragments of reality drawn from a naturalistic inquiry, or the behaviour of individuals within their natural settings based on their real experiences (Erlandson, Harris, Skipper & Allen, 1993). Lincoln and Guba (1985) argue that naturalistic inquiry allows for meaningful emergence through data processing and continuity.

3.2 RESEARCH APPROACH

A research approach refers to the way in which theory will either be tested or built. The two main research approaches are inductive and deductive research, which involve different research methods (Goel, Gold, Kapur, & Houle, 1997). Bryman and Bell (2014) define a deductive research approach as the utilisation of existing theory to be tested. Bhattacherjee (2012) describes an inductive approach as theory generated from the research findings.

An inductive research approach focuses on gathering data that explains individual experiences and behavioural interactions within a social context (Fossey, Harvey, McDermott & Davidson, 2002). This research will be following an inductive approach because existing theoretical underpinnings will be used against data collected from experiences and behavioural interactions within a social context.

Hood (2006) argues that qualitative research focuses on experienced informants who have extensive knowledge. According to Bryman and Bell (2014) the leading types of qualitative research are ethnography, or the study of human behaviour in natural settings (LeCompte & Goetz, 1982); and phenomenological designs, or research relative to experiences and reality (Polkinghorne, 1989). The table below summarises a comparison of qualitative research techniques. The main qualitative research approaches include general inductive method, grounded theory, discourse analysis and phenomenology.

Table 3: Comparison of Qualitative Analysis Approaches
(Thomas, 2006: 241).

	General Inductive Approach	Grounded Theory	Discourse Analysis	Phenomenology
Logical questions and strategies	To generate the primary research objections and relevant meanings.	To discover and generate theoretical underpinnings through academic sampling.	Deals with social practices and argumentative theory.	Concerned with understanding experiences and converting meanings into words
The investigation result	Objectified themes relevant to the identified research.	Theory consisting of themes or identified objections.	Identified language and text of multiple meaning.	A narrative of real life experiences.
The findings illustration	Description of most important themes	Theory based on essential themes.	The convergence of multiple meanings into textual foundations.	The experience conveyed into a descriptive and theoretical narrative.

This research followed a general inductive qualitative approach. The study developed theoretical underpinnings according to the research problem. Further, data was gathered to explain experiences and behaviours of investment decision-making relative to the theoretical arguments discussed. The data collected was analysed and themes were derived and evaluated. The implication of this study is the lack of knowledge on heuristics and biases associated with investment decision-makers within a South African context.

3.3 RESEARCH PARADIGM

A research paradigm is a collection of frames that are used to organise reasoning and objectives, and to create an overall belief system (Ponterotto, 2005). Positivism, interpretivism and post-positivism are the primary research paradigm approaches. Bhattacherjee (2012) defines positivism as the assumption that knowledge creation is restrictive to what can be measured and observed. Post-positivism is the combination of pragmatic evidence and logical reasoning (Bryman and Bell, 2014). Interpretivism is knowledge that is shaped by social contexts and human experiences (Bhattacherjee, 2012). Further, interpretivism is often associated with qualitative studies (Goldkuhl, 2012). Thus, this research was based on an interpretivist approach.

3.4 TYPES OF SCIENTIFIC RESEARCH

The purpose of exploratory research is to examine a particular phenomenon, behaviour or problem and to generate ideas (Bhattacherjee, 2012). This research followed an exploratory approach to investigate the phenomena of heuristics and biases associated with investment decision-making.

3.5 THE SAMPLING PROCEDURE

3.5.1 Population

The population of a study refers to the total collection of objects or individuals who possess significant characteristics (Kumar, 2011), which is a subset derived from a population of interest about a research study (Macnee & McCabe, 2008). The population of the study included investment decision-makers in the finance industry in Johannesburg, Gauteng, South Africa (refer to Annexure A).

3.5.2 Sample

The four main steps of qualitative sampling are defining the sample universe, deciding on the sample size, selecting a sampling strategy and selecting a sampling source (Robinson, 2014). The three main types of qualitative sampling strategies include convenience, judgement and theoretical sampling (Marshall, 1996). Theoretical sampling is used to build theory from new data and select new samples to extend theory (Coyne, 1997). Convenience sampling is the selection of the most accessible individuals (Farrokhi & Mahmoudi-Hamidabad, 2012).

Purposive sampling is based on generating a sample for specific purposes based on the research investigated (Teddlie & Yu, 2007), and is essential to the quality of data collected (Miles & Huberman, 1994). Purposive sampling usually involves a sample of 30 cases or less. Bernard (2013) reasons that purposive sampling gives provision to the researcher to specify the informants of the study. Heterogeneity sampling is a purposive sampling technique used to obtain diverse perspectives (Pitard, 1993).

Therefore, this study followed purposive heterogeneity sampling to find commonalities across the samples that are significant to present across multiple contexts. The purpose of the study was to investigate the heuristics and biases associated with investment decision-makers. Thus, the informants of the study were investment decision-makers. Heterogeneity was achieved through the different sectors that the investment decision-makers operate. The following tables have been identified as the key market sectors in Southern Africa that have potential growth and significant contributions to the South African economy. Thus, the tables below will be used as a basis to sample investment decision-makers working in these key market sectors.

Table 4: 18 Market Sectors in Southern Africa
(PricewaterhouseCoopers, 2016)

Asset Management	Manufacturing
Banking	Media and Entertainment
Chemical industry	Metal and Mining Industry
Construction and Engineering	Motor Industry
Education	Natural Resources and Forestry
Health and Medical Systems	Public Sector
Hospitality	Retail
Insurance and Financial services	Technology and Telecommunications Pharmaceuticals
International Development Assistance (IDA)	Transportation & Logistics

Coronnello, Tumminello, Lillo, Micciche and Mantegna (2005) argue that stocks in diverse sectors have behavioural differences. Further, sector diversification increases portfolio returns (Rudd & Rosenberg, 1980). The Department of Trade and Industry (2016) identified the following industries of growth potential.

Table 5: Potential Growth Industries
(Department of Trade and Industry, 2016)

Textiles	Energy-Saving
Heavy Automotive and Commercial Vehicles	Mineral beneficiation
Metals and Equipment	Oil and Gas Services
Pharmaceuticals	Nuclear
Forestry	Defence
Business	Technological
Crafts and Entertainment	

According to StatsSA's Quarterly Report 2017, the real estate and business industries were the highest contributors to the South African economy in the first quarter of 2017; and the mining, construction, manufacturing and trade were the lowest contributors (Lehohla, 2017). However, the mining, manufacturing, construction and trade industries turnover increased between March 2016 and March 2017 (StatsSA, 2017). Tabulated below are the industries that contributed the most and least to economic growth in the fourth quarter of 2016.

Table 6: Highest And Lowest Industries: Economic and GDP Contributors
(StatsSA, 2017)

Highest Contributors (Q4 2016)	**Lowest Contributors (Q4 2016)**
Construction	Public Service
Farming	Trade
Finance	Transportation
Industrial	Utility

Therefore, the population of the study was investment decision-makers in Johannesburg, South Africa. The sample included 20 investment decision-makers, between the ages of 21 to 63, in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining, defensive, credit, retail and industrial sectors, in Johannesburg, South Africa.

3.6 DATA COLLECTION

There are different techniques used for qualitative research such as interviews (Kothari, 2004). Interviews are a two-way conversation that is aimed at gaining evidence relative to the research topic (Gubrium & Holstein, 2002). There are different types of interviews including structured and semi-structured face-to-face, telephonic and email-based interviews (Silverman, 2016).

Telephonic interviews reduce the quality of information obtained in comparison to face-to-face interviews that allow the researcher to gain significant detail on the research topic (Holbrook, Green, & Krosnick, 2003). Semi-structured interviews provide impulsive narratives and descriptions (Brinkman, 2014). The research instrument used for this study was face-to-face interviews and comprised of semi-structured and open-ended questions (refer to Annexure A), to allow for further elaboration and discussion.

3.6.1 Data Collection Process

The research instrument used for this study was face-to-face interviews and comprised of semi-structured and open-ended questions. Once ethics approval was granted, individual investment decision-makers from the defined sample were approached. Each participant

completed the information letter and consent form (refer to Annexure A). Thereafter, the interviews commenced. The interviews were recorded, replayed and transcribed (refer to Annexure C). The recorded interviews have been securely stored. The interview transcripts have been incorporated into the final research report (refer to Annexure C). The interviews have been replayed and the transcriptions have been analysed to derive key themes for the research. The key themes emerged from the research and will be discussed further in the proceeding chapter.

3.7 INTERPRETATION OF DATA ANALYSIS

Goulding (2005) discusses that there are different methods and processes for analysing qualitative data, namely comparison on a constant basis and the notion of coding. Berg (2004) explains that themes and categories are derived from the textual context and summaries of findings in the coding process of qualitative research. Key themes are derived from the empirical data and transposed into theoretical concepts (Lester, 1999). Strauss and Corbin (1990) propose that there are three main types of coding, namely open, axial and selective.

Open coding refers to the emergent set of categories relevant for theory integration (Kendall, 1999). Axial coding is the creation of associations between categories and sub-categories (Pandit, 1996). Glaser and Holton (2004) argue that selective coding is the delimitation of information significant to theory generation. Strauss and Corbin (1998) argue that microanalysis is a coding technique that involves the data obtained from interviews and the researcher's interpretation of the research. It is important to note that the key themes emerged from the research. Further, the key themes were drawn from the evidence provided in the research. Thus, this study followed a microanalysis open coding approach.

3.8 ETHICS

Adair, Dushenko and Lindsay (1985) analysed studies to evaluate the impact of deception when conducting research. This ensures that ethical standards are taken into significant consideration throughout the study (Rogelberg, Church, Waclawsk & Stanton, 2002). To ensure the use of ethical procedures, all the research conducted and data collected should be honest and trustworthy (Ho, Vitell, Barnes & Desborde, 1997). This research ensured that

consent and full disclosure was implemented throughout the study. Further, ethical procedures such as honesty and trustworthiness were followed. The analysis was not misleading or misrepresented and the individuals interviewed have remained anonyms throughout the study.

To ensure the use of ethical principles, all the research conducted and data collected should be honest, trustworthy and not deceptive (Ho *et al*, 1997). Further, ethical principles such as honesty and trustworthiness were followed. The following section on ensuring authentic rigour will be discussing the ethical principles to follow in the study.

3.8.1 Ensuring Authentic Rigour

Franklin, Cody and Ballan (2001) define reliability as the extent to which the study can generate similar results if replicated by another researcher. Validity refers to the precision of the research results (Rafuls & Moon, 1996). Creswell and Miller (2000) argue that validity and reliability are often not used in qualitative studies. Thus, Lincoln and Guba (1985) propose that trustworthiness and authenticity are the primary criteria for analysing the rigour of qualitative studies. Trustworthiness and authenticity denote the same conceptual importance as reliability and validity (Denzin & Lincoln, 1994).

Sandelwoski (1986) proposes that credibility refers to the descriptions of human experiences and verification of the research findings. Further, credibility refers to the truth of the data and the interpretation of the data by the researcher (Cope, 2014). Holloway and Wheeler (2002) define credibility as the assured truth of the research findings. According to Merriam (1998) the researcher's credibility is based on the questions derived, which must be in accordance to the topic of study.

Shenton (2004) argues that dependability is the consistent similarity of the data settings and the research process should be replicable. Confirmability refers to the ability of the researcher to represent the findings derived from the data and not from the researcher's viewpoint (Tobin & Begley, 2004). Miles and Huberman (1994) argue that confirmability is the degree to which the researcher admits his or her own biases.

Transferability is the ability of the research to be reassigned to other groups and settings. Further, transferability is reached if the results are meaningful and depict personal experience (Houghton, Casey, Shaw & Murphy, 2013). Seale (1999) proposes that authenticity is the ability of the researcher to express emotions in a faithful manner relative to the participants' experiences. The research was credible, dependable, confirmable and transferable to ensure the trustworthiness and authenticity of the study.

3.9 CONCLUSION

This research followed an inductive approach to focus on gathering data that explains experiences and behaviours within a social context. Further, the findings were translated into data and followed an exploratory approach to investigate the proposed phenomenon that exists amongst the heuristics and biases associated with investment decision-making. The research approach followed an interpretive paradigm and undertook a general inductive qualitative approach.

The sample comprised of 20 investment decision-makers, between the ages of 21 to 63, in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining, defensive, credit, retail and industrial sectors, in Johannesburg, South Africa. Further, this study followed purposive heterogeneity sampling.

The research instrument used for this study was face-to-face interviews and comprised of semi-structured and open-ended questions to allow for further elaboration and discussion. The data was analysed through a microanalysis open coding approach. The recorded interviews were replayed and transcriptions analysed to identify key categories relative to the study. Further, the key categories emerged from the research. A comparison between theory and reality was addressed and conclusions have been drawn from the findings.

The research was credible, dependable, confirmable and transferable to ensure the trustworthiness and authenticity of the study. The significance of this study is its contribution to the literature of management theory on heuristics and biases associated with investment decision-makers in Johannesburg, South Africa. The proceeding chapter will be focused on identifying and analysing the data collected.

CHAPTER 4

ANALYSIS OF FINDINGS

4.1 INTRODUCTION

At this point, an overview of the background to the study, research problem, research objectives and research questions have been provided. The purpose, significance of the research and ethical considerations have been conferred. The theoretical underpinnings of local and global economic, financial and political conditions; heuristics and biases; and rationality and irrationality associated with investment decision-making have been discussed. The research design, research paradigm, research approach and types of scientific research have been presented. The sample, data collection, interpretation of data analysis and ethics have been addressed. This section will now be identifying and analysing the data collected.

4.2 BACKGROUND

There is substantial research on investment decision-making. However, what is not clear from this literature are the motivations behind investment decision-making in South African based firms. Further, what is little understood are the implications that heuristics and biases have on investment decision-making, and insights into how heuristics and biases can be managed in investment decision-making processes. This study, therefore, investigates the heuristics and biases associated with investment decision-making.

Portfolio investment theory predicts certain patterns of investments that would be optimal, given the risk frontier (Fabozzi *et al*, 2002). Further, firms will seek to maximise their returns (Alchian, 1950; Knetsch & Thaler, 1986). However, Becker (1962) argues that investment decisions need to follow rationality.

This knowledge is essential to understand the decision-making process of investment decision-makers, the consequences associated with biases and heuristics, and the rationales behind investment decision-making processes. The research problem addressed by this research, therefore, is the lack of theory relating to the heuristics and biases associated with investment decision-makers.

The participants of the study included 20 investment decision-makers, between the ages of 21 to 63 in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining,

defensive, credit, retail and industrial sectors, in Johannesburg, South Africa. Each participant was interviewed individually and the interviews were audio recorded and transcribed (refer to Annexure C).

The questions asked during each interview were following the primary research topic and subsequent research questions. The main research question explores the heuristics and biases associated with investment decision-making. Considering the primary research question, the following research questions were presented.

1. How do local and global economic, financial and political conditions influence investment decision-making?

2. How are investment decisions made by investment decision-makers in South African based firms?

3. To what extent are heuristics and biases are associated with investment decision-making?

4. To what extent are rationality and irrationality associated with investment decision-making?

These research questions were the basis for the themes. It is important to note that the themes emerged from the research. There are a series of questions that pertain to each theme and will be discussed further. The questions asked in the interviews were semi-structured and open-ended to allow for further elaboration. As explained in Chapter 3, the recorded interviews have been replayed and transcriptions analysed to identify critical categories corresponding to the study and relate the findings to the theoretical underpinnings discussed. A comparison between theory and reality have been addressed and conclusions have been drawn from the findings.

4.3 THEMES

Four themes emerged from the research. The themes that will be discussed include local and global economic, financial and political conditions; heuristics and biases associated with investment decision-making; rationale and irrational investment decision-making; and individual investment decision-making processes. It is important to note that these themes are

delimitating to the scope of the research. However, within these themes, evidence relative to the study have been explored.

4.3.1 Theme 1

Theme 1 focuses on the local and global economic, financial and political conditions. It has been argued that investment decisions are influenced by local and global financial and economic conditions (Tallman, 1988; Ghysels *et al*, 2016). It is essential to understand that investment decision-making is directly influenced by these conditions because investment decision-makers invest or specialise in investing in different sectors of the market. Thus, these factors dictate the market conditions that investment decision-makers invest.

Economic, financial and political conditions are important because investment decision-makers operate within markets that are influenced by economic, financial and political conditions. This brings about the question of how these local and global conditions impact investment decision-making. Local and global financial, political and economic conditions are very significant to this study.

Thus, the primary theoretical arguments on the local and global economic, financial and political conditions that influence investment decision-making will now be revisited. South Africa's historical events have reshaped its political and economic conditions, which has influenced decision-making processes by investment decision-makers (Alden & Soko, 2005). South Africa's current economic state is in turmoil due to the political shifts that have created perceptions of political uncertainty (Suttner, 2017).

It has been argued that political uncertainty and corruption from government actions have negative implications on economic and financial conditions (Mo, 2001; Kelly *et al*, 2016). Furthermore, political instability has negative implications for economic growth and international investment (AleYou Researcher *et al*, 1996) which affect the variability of international investment (Frankel & Rose, 2001).

The theoretical underpinnings discussed had to be explored further to better understand the direct influence that these factors have on investment decision-making. Therefore, the interview questions asked were as follows.

1.1 What global and local factors influence the way in which you make investment decisions?

1.1.1 How do these global and local factors influence the way in which you make investment decisions?

1.1.2 Which of these factors are most important to your investment decision-making?

1.2 What recent global and local events, in your opinion, have influenced the way that you make investment decisions?

1.2.1 Which of these factors would you consider most important and why?

1.3 What is your opinion of South Africa's current economic, financial and political conditions?

1.3.1 How do these conditions directly and indirectly influence your investment decision-making?

1.3.2 Which of these factors are the most important to your investment decision-making and why?

The table below summarises the questions that explain Theme 1. The below questions have been identified as critical questions to analyse the data collected and will be compared to the theoretical underpinnings discussed. The findings will be in interrogated and conclusions will be drawn.

Table 7: Summary of Main Questions for Theme 1

Theme 1 - local and global financial, political and economic conditions	**Questions**
Local and global factors on investment decision-making	What global and local factors influence the way in which you make investment decisions? Which of these factors are the most important to your investment decision-making and why?
Local and global events on investment decision-making	What recent global and local events, in your opinion, have influenced the way that you make investment decisions? Which of these factors are most important and why?
South Africa's current conditions	What is your opinion of South Africa's current economic, financial and political conditions? How do these conditions directly and indirectly influence your investment decision-making?

4.3.2 Theme 2

Theme 2 focuses on heuristics and biases associated with investment decision-making. Investment decision-makers have preferences, judgements and biases because it is human nature. Daniel *et al* (2001) argue that human factors influence heuristics and biases in investment decisions. However, what is little understood are the implications that heuristics and biases have on investment decision-making and insights into how heuristics and biases involved in investment decision-making can be managed. Thus, the main theoretical arguments of rational and irrational investment decision-making will now be revisited.

Hilton (2001) argues that there has been much research on the behaviours and human decision-making within the financial markets. Heuristics have received attention in the field of management sciences (Wright & Von Lanzenauer, 1989). According to Kahneman and Tversky (1996) heuristics refers to preferences and judgements influenced by practical associations of personal preferences and beliefs. It is argued that heuristics influence biases in decision-making processes (Koehler & Harvey, 2004).

Investment decision-making typically involves market forecasts and subjective perceptions (Tversky & Kahneman, 1991). Subjective probabilities, heuristics and intuition are prevalent in decision-making under uncertain conditions (Kahneman & Tversky, 1977; Kahneman & Tversky, 1981). Furthermore, judgements mediate intuition and heuristics under uncertain conditions (Tversky & Kahneman, 1984). However, Gigerenzer (1991) contends that

heuristics are errors associated with an inconsistency between individuals' judgement and the norm, or knowledge representation and the interpretation of experiences (Kahneman & Miller, 1986).

Griffin and Tversky (1992) propose that systematic errors can be a result of judgements, subjective perceptions and overconfidence. Tversky and Kahneman (1981) argue that systematic errors are associated with human judgement and heuristics. Systematic errors and judgements influence heuristics and biases related to investment decision-making (Daniel *et al*, 1998). Sherman (2017) highlights that there are eight significant biases associated with investment decision-making.

- Familiarity bias
- Confirmation bias
- Disposition-effect bias
- Trend-chasing bias
- Hindsight bias
- Endowment-effect bias
- Self-attribution bias
- Regret-aversion bias

According to Fox and Levav (2000) familiarity bias is when known events are given more probability over unknown events. Confirmation bias involves selectively choosing information that supports one's own opinion (Jonas *et al*, 2001). Disposition effect bias is the notion of selling winning stocks and holding onto losing stocks (Chen *et al*, 2007). Sherman (2017) argues that trend-chasing bias is the misconception that past performance and historical returns predict future performance. According to Fischhoff (1975) believing that a decision made was predictable based on past events after the fact is known as hindsight bias. Endowment-effect bias involves price inconsistencies influenced by buying and selling behaviour because of negative market reactions (Zhang & Fishbach, 2005). Libby and Rennekamp (2012) highlight that self-attribution bias is the extent to which internal and external factors contribute to performance. Lastly, regret-aversion bias involves the analysis of actual outcomes versus the outcomes that could have occurred (Zeelenberg, & Beattie, 1997).

The theoretical underpinnings discussed had to be explored further to better understand heuristics and biases associated with investment decision-making. It is important to note that heuristics and biases form part of human nature. However, being aware of heuristics and biases permits better investment decisions. Therefore, the interview questions asked, relative to Theme 2 were as follows.

1.1 To what extent do external market conditions and internal factors influence your investment decisions?

1.2 To what extent are your opinions, experience and personal views prevalent when making investment decisions?

1.2.1 Which of these are most important to you when making investment decisions?

1.3 Have you ever made any investment decisions that resulted in losses?

1.3.1 If so, how did you manage the aftermath of the loss in your professional capacity?

1.4 Have you ever made an investment decision under complex conditions?

1.4.1 If so, what factors influenced this?

1.5 Are you aware of your personal emotions on a given day?

1.5.1 If so, how do you manage these and separate it from your investment decision-making?

These questions were semi-structured and open-ended to allow for further elaboration and discussion. The below questions have been identified as critical questions to analyse the data collected and will be compared to the theoretical underpinnings discussed. The findings will be interrogated and conclusions will be drawn.

Table 8: Heuristics Summary of Main Questions for Theme 2

Theme 2 – Investment decision-making heuristics	**Questions**
Human heuristics and investment decision-making	To what extent are your opinions, experience and personal views prevalent when making investment decisions?
Acknowledgement of human heuristics and investment decision-making	Which of these are most important to you when making investment decisions?
Human emotions and investment decision-making	Are you aware of your personal emotions on a given day?
Control of human emotions and investment decision-making	If so, how do you manage these and separate it from your investment decision-making?

Table 9: Biases Summary of Main Questions for Theme 2

Theme 2 – Investment decision-making biases	**Questions**
Investment losses	Have you ever made any investment decisions that resulted in losses? If so, how did you manage the aftermath of the loss in your professional capacity
Investment uncertainty	Have you ever made an investment decision under complex conditions If so, what factors influenced this?

4.3.3 Theme 3

Theme 3 focuses on rational and irrational investment decision-making. This is considered important because rationality and irrationality have implications on investment decision-making. A more recent model on decision-making is based on the use of heuristics. Thus to understand heuristics, one needs to understand the idea of rationality. Rational and irrational investment decision-making is significant to the study and heuristics and biases. Thus, the main theoretical arguments of rational and irrational investment decision-making will now be revisited.

Large sums of monetary value have been lost, across multiple sectors, due to poor investment decision-making (Gold *et al*, 1996; Gorton, 2010; Cici, 2011). Investment decision-making has a substantial influence on society and the economy (Odean, 1998). Thus, rational investment decision-making is significant (Friedman & Miles, 2000). However, human irrationality influences investment decisions negatively because individuals are goal driven in

pursuit of opportunities and incentives (Tversky & Kahneman, 1986). Hence, Barberis and Thaler (2003) stress that rationality should motivate investment decision-making.

Investment decision-makers are reluctant to admit irrational investment decisions (Chang, Solomon & Westerfield, 2016). Thus, investors tend to rebalance their portfolios in the event of investment losses (Grinblatt & Keloharju, 2001). Irrational investment decisions are influenced by biased self-attribution or overconfidence (Daniel *et al*, 1998). Furthermore, Daniel *et al* (2001) argue that overconfidence stimulates heuristics in investment decisions.

Dean and Sharfman (1993) contend that individuals make rational decisions when they have extensive knowledge, or judgements based on experience (Tversky & Kahneman, 1973). Further, rational investment decision-making is influenced by economic conditions and the fluctuations of business cycles (Chalmers *et al*, 2013). Thus, according to Bhatt (2001) investment decision-making requires the processing of information efficiently and creating knowledge effectively to adapt to changes in the economy.

The theoretical underpinnings discussed explain rational and irrational investment decision-making. Rationality and irrationality form part of human nature and are influenced by heuristics and biases. Therefore, the interview question asked, relative to Theme 3 was as follows.

4.4 Considering the questions asked thus far, what would you consider rational and irrational investment decision-making relative to your field of expertise and experience?

This question is based on the personal experiences and nature of the investments. This question is semi-structured and open-ended to allow for explanations. This question has been identified as the key question to analyse the data collected and will be compared to the theoretical underpinnings discussed. A new model of rational versus irrational investment decision-makers will be presented.

Table 10 : Summary of Main Question for Theme 3

Theme 3- rational and irrational investment decision-making	**Question**
Rational and irrational investment decision-making.	Considering the questions asked thus far, what would you consider rational and irrational investment decision-making relative to your field of expertise and experience?

4.3.4 Theme 4

Theme 4 focuses on the factors that influence investment decision-making. This theme will evaluate individual investment decision-making processes separately. It is essential to understand that different sectors and types of investments will have different factors that influence investment decision-making. Thus, the primary theoretical arguments on factors that potentially influence investment decision-making will be revisited.

Goldbaum and Mizrach (2008) argue that investors pursue profit and utility maximisation when making decisions. Further, Popova *et al* (2006) propose that investment strategies have shifted towards an interchange between risk and return. Brenan and Cao (1997) argue that investment decision-makers purchase assets when the returns are high and sell assets when the yields are low. However, Lipshitz and Strauss (1997) highlight that an investor's decision-making is subjective and inclusive, relative to the effect of risk.

It is argued that investment decision-making is influenced by subjective perceptions (Samuelson & Zeckhauser, 1988; Feng & Seasholes, 2005; Chen *et al*, 2007; Fenton-O'Creevy *et al*; Sewel 2017) such as one's own judgement or opinion; cognitive abilities (Hilton, 2001; Au *et al* 2003; Ackert *et al*, 2003) such as the core skills used to problem-solve and reason; and market conditions (Sharpe, 1964; Dyl, 1977; Busse & Hefeker, 2007) which are the sector characteristics such as economic growth and competition.

Kahneman and Tversky (1984) propose that decision-making follows either normative analysis, or the nature of logical and rational decision-making (MacCrimmon, 1968); or descriptive analysis, which is concerned with individuals preferences and beliefs (Bell *et al*,

1988). The theoretical underpinnings discussed had to be explored further to better understand the direct influence that these factors have on investment decision-making. Therefore, the interview questions asked were as follows.

2.1 How do you make your investment decisions and what processes do you follow to select investments into your portfolio?

2.2 What sort of research do you do when making investment decisions?

These questions allowed the researcher to get a detailed view on the factors that influence investment decision-making processes. Further each participant's investment decision-making processes will be illustrated and discussed. The below questions have been identified as crucial questions to analyse the data collected and will be compared to the theoretical underpinnings discussed. The findings will be in interrogated and conclusions will be drawn.

Table 11: Summary of Main Questions for Theme 4

Theme 4 – factors that influence investment decision-making	**Questions**
Investment decision-making processes	How do you make your investment decisions and what processes do you follow to select investments into your portfolio?
Investment decision-making research	What sort of research do you do when making investment decisions?

The four themes have been discussed. The theoretical arguments that form the basis of this study have been revisited in each theme to ensure the significance of the study. The interview questions have been included and the key questions and have been highlighted. The next section will be based on the replayed audio recordings and analysis of the transcriptions. This section will be carefully identifying, interrogating and analysing the data collected based on the four themes. Further, investment decision-making processes will be illustrated and heuristics and biases will be identified.

4.4 ANALYSIS OF FINDINGS

At this point, the four themes relating to the fundamental theoretical underpinnings of the research have been discussed. Each theme pertains to the primary research question and the subsequent research questions. The themes emerged from the research and are delimitating to the scope of the research, however, within these parameters evidence has been explored. The sample of the data collected include 20 investment decision-makers, between the ages of 21 to 63, in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining, defensive, credit, retail and industrial sectors, in Johannesburg, South Africa. Of the 20 participants interviewed, only 18 interviews will be used in the research due to the responses received from 2 of the 20 participants interviewed.

Interviews were conducted on the abovementioned sample group. Each participant was asked a series of questions (refer to Annexure A) and each interview was audio recorded. The audio recordings were transcribed (refer to Annexure C). The interview questions were open-ended and semi-structured to allow for further elaboration and discussion. Some additional questions were asked in the interviews to obtain insightful information. Each interview took place in a boardroom at the participants' respective workplaces. Before the interview, an introduction to the research was done and each participant was presented with a participant information sheet and consent form to sign. Each participant was thanked for their participation and the proceedings of the interview were explained.

This section will now be critically analysing the data collected. Each question and answer by the participants will be presented and analysed to determine the key factors. The key factors will be compared to the theoretical underpinnings and conclusions will be drawn. It is important to note that the names of companies, individuals and stocks will be replaced with pseudonyms to ensure that anonymity and confidentiality are met, as per the ethical principles and practices.

4.4.1 Theme 1 Analysis

At this point, an introduction to the study has been presented. The theoretical underpinnings have been discussed and the methodology of the research has been explained. Lastly, the key

themes have been identified. This section will now critically analyse the findings and answer the research questions. Theme 1 focuses on the local and global economic, financial and political conditions. Investment decision-making is influenced by these conditions because investment decision-makers invest or specialise in investing in different sectors of the market. Therefore, local and global economic, financial and political conditions influence market conditions that investment decision-makers invest.

It is important to note that many local and global events occurred during the research, which was deemed important. Firstly, South Africa was experiencing dominant political changes that had a significant impact on the financial industry and investment market. To provide further insight, the South African Ruling Political Party had a National Conference whereby a new President for the Ruling Party was selected. It is important to highlight that there were two main prospective Presidential candidates, of which the market reacted positively towards the favoured candidate and negatively towards the non-favoured candidate. This left a lot of speculation, uncertainty and discomfort for investment decision-makers because the outcome of this conference was unknown.

It is also important to note that there was a lot of corruption, spontaneous decisions and therefore repercussions that were not taken into consideration under the Former President of South Africa. The theoretical underpinnings identified that the political shifts create notions of political uncertainty (Suttner, 2017). Furthermore, political uncertainty and corruption from government actions have negative implications on economic and financial conditions (Mo, 2001; Kelly *et al*, 2016).

As a result, South Africa's bond market and foreign issued debt credit-ratings were downgraded to non-investable. According to Almeida *et al* (2017) investment decision-making is directly influenced by sovereign rating downgrades. During this research, the Former South African President made his fourth Finance Minster change. It was argued that the fourth change of the finance minister in 2017 weakened the Rand overnight (Saville, 2017); and South Africa's local assets had therefore been disadvantaged since the finance minister reshuffle (CNBC Africa, 2017). In an emerging South Africa, uncertainty persists as a nexus of forces in the open economy (Zafar, 2007). Considering that South Africa is an open economy, it is directly affected by conditions in the global economy.

The main global events discussed in the theoretical underpinnings included Brexit - the United Kingdom's exit from the European Union, and Donald Trump's election as president of the United States of America. Considering the above mentioned local and global events, the first theme focused on local and global financial, economic and political conditions. These are important because investment decision-makers invest in local and global markets that therefore have a significant influence on their investment decisions.

The first set of questions related to the local and global economic, financial and political factors on investment decision-making, as well as which of these factors are most important to investment decision-making. The second set of questions related to the impact that local and global events have on investment decision-making as well as which these events are most important and why. The third set of questions referred to South Africa's current economic, financial and political conditions and how these directly and indirectly influence investment decision-making.

4.4.1.1 Emerging Markets versus Developed Markets

The respondents indicated that local and global economic, financial and political factors are key when making investment decisions. "*Largely because those, given the various research efforts that we put in, [financial factor] tends to be the key driver of our creation*" [T1GLEFP-Q1-P3]. Local and global economic, financial and political factors are important because local and global factors have a direct influence on market conditions and therefore investment decision-making.

It must be taken into consideration that South Africa is an emerging market and a comparison between other emerging markets and developed markets also influences investment decisions. "*How it is congruent or correlated with other Ems* [emerging markets] - *so you have a DM* [developed market] *versus EM* [emerging market] *decision and then with EM's* [emerging markets]*and you have a look what SA is doing relative to that, to assess that*" [T1GLEFP-Q1-P8].

There has been much research on emerging versus developed markets. Developed markets are given preference because of their resources and capabilities. However, South Africa is more advanced than other emerging markets. "*If I look at the financial environment and it's a*

strange concept to think that we see ourselves as an emerging market, but, benchmarked against other emerging markets, we really are forward thinking and we have access to vehicles and instruments that very few emerging markets, other developed markets have access to" [T1GLEFP-Q3-P17]. Economic and financial factors in the global economy are used as a benchmark for local factors. Thus, global factors influence investment decision-making.

4.4.1.2 Global Factors Impact on Local Markets

Global factors impact South African based firms because South Africa is an open economy and thus subject to external pressures. These external pressures therefore directly influence the companies stocks that investment decision-makers invest. "*Our market is, what I would call an open market, whereby it is then influenced by both local events and global events* [T1GLEFP-Q1-P4]. *Because we work in a global world and South Africa forms part of that, I have to look at what had happened before I do what I do and after I do what I do* [T1GLEFP-Q1-P5]. *Given the market environment which impacts on all the companies that we focus on"* [T1GLEFP-Q1 – P3].

The main global factors, that influence investment decision-making include (i) growth, (ii) fiscal and monetary policies, (iii) inflation and (iv) interest rates that range back to currency *"Another example outside of politics would be macroeconomic data, like things like inflation, things like GDP growth, interest rates, fiscal and monetary policies and maybe to a small extent imports and export data. So, it's macroeconomic data, when you get to see what economies are doing. So, if an economy is shrinking, that's going to tell you something about the companies that operate in that economy right and we trade in on the companies* [T1GLEFP-Q1-P5]. *So, in terms of when we choose the companies to invest in, the global factors would mainly be macro. I suppose the macro factors will be growth, which will translate into inflation and interest rates and then range back to the currency*" [T1GLEFP-Q1-P6].

"Macroeconomic factors mostly, so primarily things like currencies; direction in which they move; commodity prices, GP figures; rates; global interest rates [T1GLEFP-Q1-P8]. *It is important to note that the global macro environment filters into the local environment and thus has a significant influence on investment decision-making. Your macro environment both*

globally and locally are both big drivers, what happens globally filters through to what happens locally and ... and has got a significant or can have a significant impact for" [T1GLEFP-Q1-P7].

The respondents indicated that a separation exists between the global factors that influence the South African market. The global market drivers include (i) foreign cash availability, (ii) currency and (iii) interest rates. These market drivers create a relationship between the local and global market. *"And that had a significant impact on our local market because a lot of foreigners started withdrawing cash from local markets which means high interests rates here, a weaker currency which have a reserve impact, so again it's, it's lower US rates meaning lower SA rates, a stronger currency, more flows into our market*" [T1GLEFP-Q1-P7].

However, not all global factors have a negative impact on South Africa's market. "*To the point that we are on the precipice of our investment grade, country, from all three rating agencies who rate us....and yet we still manage to attract immense amounts of capital flows. And that is driven by other factors that are not related to the fundamentals of South Africa. It relates to very low interest rates available in Europe and the United States*" [T1GLEFP-Q1-P12]. Irrespective of South Africa's low credit-ratings, South Africa still managed to receive large amounts of capital into the country; but and most importantly, due to factors not related to the South African market. This further indicates the importance and impact that global economies have on local economies. "*And how, you know, for example, if you mismanage your economy and your politics, as we have been doing here in South Africa, for a while you shouldn't be able to attract as much as capital as we have*" [T1GLEFP-Q1-P12]. This statement provides a contradictory view to how the market is responding in the credit space. Naturally credit-rating downgrades, due to political uncertainty, would result in fewer capital inflows. However, in the credit market in South Africa, this has not been the case. Rather, South Africa received more capital inflows.

This gives precedence to favourable and unfavourable market conditions. If market conditions are favourable, then companies that benefit from these favourable conditions are given more preference. However, companies that are affected negatively are given less preference. The differentiating factor, given the external pressures, is the ability for companies to respond to such market pressures. "*And the differentiation is always around*

how the best companies respond to the market environment which differentiates the winners from the losers. There will always be losers and winners" [T1GLEFP-Q1-P3]. Favourable and unfavourable market conditions derive from the economic, financial and political factors. However, it has been found that the political landscape influences economic and financial conditions in South Africa.

4.4.1.3 The Importance of the Political Landscape

It is important to understand that the political environment is the foundation to economic and financial factors. "*So, the political environment and the importance of that key in my view because it will drive the confidence of the country and it will drive and give confidence to spend and grow in the country*" [T1GLEFP-Q3-P4]. Political, financial and economic conditions have a direct influence on the earning potential of companies which have a direct bearing on the company stocks invested. "*So, all those factors then will influence what happens in South African companies and that will manifest itself as to share prices on the JSE*" [T1GLEFP-Q1-P4]. Political factors within global and local environments are significant because the policies set by politicians and government influence the market in which investment decision-makers operate. "*Locally first, the political decisions or the political landscape in South Africa will affect our investment decisions and the key reason for that is because the politicians will set policy and are responsible for job creation, housing, etcetera, etcetera, which is spent on infrastructure, power, utilities, water…all these things drive employment*" [T1GLEFP-Q1-P4].

Amongst these local and global economic, financial and political factors, the political landscape is given most precedence. The political environment had the most significant impact on the financial environment and is the driving force for investment decisions. *"Locally, I mean it's like the whole political thing. Currently that is a big influence for us. I mean that has been driving our market for the last three, four years. We have passed fundamentals*" [T1GLEFP-Q1-P11]. *Political environment is probably ranked as the most important as having an impact on the financial environment* [T1GLEFP-Q3-P17]. *I want to say the short term for the last five to six years, the biggest factors what one considers is the political state of affairs in South Africa. Those political state of affairs in South Africa are very represented by the day to day realities of what we face* [T1GLEFP-Q1-P17]. *So, a big*

part of who we are and how we invest in the local market is influenced by sentiment…in my view. And that sentiment is driven by what see in the political arena" [T1GLEFP-Q1-P17].

Political factors are the most important factor for any given country and the stability associated is the overlay for investment decisions making. "*Politics is generally the big* swinger [T1GLEFP-Q1-P5]. *And would overlay that with political stability and you know, country stability* [T1GLEFP-Q1-P6]. *Whatever is happening politically is big drivers with regards to what happen"* [T1GLEFP-Q1-P7]. Political factors therefore have a ripple-effect on individuals and companies because government policies have an influence on the living conditions of individuals within South Africa. This is important because living conditions influence consumer spending, which drives the earnings of the companies that investment decision-makers invest. *"Employment drives growth, which drives income. That will then drive consumer spending. And consumer spending will drive company earnings. So that is why the political decisions are very relevant*" [T1GLEFP-Q1-P4]. Therefore, political decisions are essential to investment decision-making. However, the political uncertainty in South Africa has impacted investment decision-making negatively.

4.4.1.4 Political Uncertainty

Political uncertainty increases complexities associated with investment decisions. Investment decision-makers are therefore forced to invest in stocks and currencies because it provides security. "*I think recently… I mean if you go back to the earlier part of the conversation when I'm saying you know we've had all of this macro events, political events. But in South Africa in particular that has not been the case and then you have had a situation where, if you look at the companies we invest in, the stocks that we invest in, purely based on fundamentals, they do not make sense. Right? Given what we are seeing from a political point of view. But, by the same token, the political side of things creates so much uncertainty that people put money into stocks. And the currency, because it provides them with some shelter. Right?"* [T2HB-Q4-P3].

Further, political uncertainty has influenced investment decision-making negatively because investment decision-makers are uncertain of future outcomes. Investment decision-makers are forced to take a view and show conviction in their investment thesis. *"Then you have other situations where, like now, this conference this weekend, the outcome is not clear. So*

how do you go into that conference with an investment portfolio, if you are not sure what is going to happen the next day? Right? Not that it is ever certain, but I think more now than ever before. But, at the same time, there is no conviction in investment thesis, because there is this big lull now where you are just not sure what is going to happen. And the outcome could be anything. It could literally be anything. You cannot even take a guess at what the outcome is going to be and say: Okay I'm going to do it this way or the other way…You just hope for the best essentially" [T2HB-Q4-P3].

Further, the uncertainty associated with South Africa's political environment has created difficulties for investment decision-making. "*And then politics. Of course, we have been very thematic in the last two years or so. That is having the effect of generically impacting the investment scenario. It makes it a lot more difficult to… it adds a lot of uncertainty which is generally a negative thing for investors* [T1GLEFP-Q1-P12]. *Political instability, obviously affects interest rates directly. Also, then local inflation* [T1GLEFP-Q1-P12]. *The uncertainty in South Africa has resulted in political instability and has a direct influence on perceptions of economies. So, when you look at that, take it in the context of South Africa, if your client is government, people view it as negative. But government has never defaulted and but it's just the perception that people have that look, you are exposed to government, therefore you have government risk within, but government does not default on their rentals* [T2HB-Q1-P10]. Thus, the need for direction from government actions and policies are the key to political stability and investment decision-making. *We kind of need a direction and for that to happen we need, you know, the government to be stable and to do the things to try and you know, boost up growth that they said they're going to do"* [T1GLEFP-Q2-P6].

The uncertainty that persists as a nexus of forces in South Africa's political landscape has raised much concern for the future. It is important to note that irrationality associated with investment decisions, due to the unexpected events, is futile. *"What has a marginal impact is the South African political situation. The uncertainty and the ins and outs and the to's and fro's of what these guys are actually going to do? What policies are going to look like? That has caused some volatility within the cycle caused by these global factors* [T1GLEFP-Q2-P20]. *That seems to be abating somewhat. Do you now panic and you try and get out of your positions? Or do you maar sit through it and wait until the market stabilises?"* [T1GLEFP-Q1-P11].

However, politicians do not usually influence the investment space, but with all South Africa's current state of affairs, their impact has been much more substantial than anticipated. "*I think 10, 15 years ago everyone had an answer...and you know there was a trend. You sort of knew what was going up or come down again. But that's not the case now. It's very different* [T1GLEFP-Q1-P11]. *Right now, politics. Because their weight… you know I've just described how important certainty is. And normally politicians don't matter that much. That is the truth. To be honest…because if they just kind of get out of the way of the economy… that's my belief anyway, businessmen will do what businessmen will do* [T1GLEFP-Q3-P12]. *It must be taken into consideration that the local and global landscape is "a very topical conversation and one that rages in my own head"* [T1GLEFP-Q1-P16].

However, a contradiction between the negativity associated with South Africa's political uncertainty exists because the markets and investments reacted positively. There is a dislocation between the view of the country and investment decision-making which has created heuristics of perceptions versus reality. *"But, you know if you walk around, you talk to people in business, you talk to employees, you talk to anyone, they will tell you it is tough times. But then you read the headlines, it says it's an all-time high. So, it just creates that big dislocation where it just doesn't make sense"* [T2HB-Q4-P3]. The dislocation within the South African economy, therefore, influences the way in which the market reacts. Reactions based on perceptions are considered human heuristics because the market will respond quickly to a given event without considering all factors.

It has also been found that economic conditions are relevant to country growth which influences the growth of companies that investment decision-makers invest. *"Economic decisions are also very relevant, because of a similar thing and will fire the economic growth in the country, the GDP, affect the growth of the companies that we invest in"* [T1GLEFP-Q1-P4]. However, South Africa's economic conditions are below potential due to political uncertainty and instability. *"So, the political landscape in South Africa, which is very well publicised at the moment as to what has happened in the last few years, has affected and stagnated our economic growth which has affected the private sector growth and the public-sector growth. Regarding the financial aspects, it all feeds through because there is a lack job creation, lack of company spends, lack of growth and it will affect our financial wellbeing of both companies and individuals in the country"* [T1GLEFP-Q3-P4].

Much attention has been given to political factors that influence investment decision-making. Corruption within the government has created negative implications and instability on the South African economy. *"A lot of this is due to what is happening in the political front, such as corruption, instability. You know all that sort of stuff "*[T1GLEFP-Q3-P4]. However, corruption is not only apparent in the public sector. Corruption and misallocation of resources are also prominent in the private sector.

4.4.1.5 Public and Private Sector Corruption

Corruption is not only subject to the public sector but equally to the private sector. A country can be corruption free from the political front, but corruption can persist in businesses, which results in detriment to a country's economy and market. Corruption within South African based entities that control the infrastructure of the country could have a negative effect on the economy and thus drive down the company earnings listed on the JSE. *"So politically, obviously, there are big noises in the market with regards to corruption and driving out corruption. But it is in the public and the private sector. People can say it is the public sector, it is not. That is actually prevalent in the private sector as well* [T1GLEFP-Q3-P18]. *They will lose sales. If they lose sales their profits go down and that will impact or affect valuation of the price you see on the stock market or in the JSE"* [T1GLEFP-Q3-P4].

Corruption and governance issues were experienced in South Africa's entities that citizens and businesses of the country are dependent on. "*And one of those is state-owned enterprises. And the situation in state-owned enterprises is Entity A, you know, Entity Band others, as being one where the governance at those enterprises has not been what… It has not been acceptable. There are very serious ones with national consequences, you know, so that is probably a good example on a situation where a factor has affected our…directly affected our decision-making*" [T1GLEFP-Q2-P12]. Poor governance and corruption experienced by these entities had a direct impact on investment decisions because the outcomes are critical to business survival.

The corruption that occurs within South Africa's public and private sector are due to (i) mishandling of capital and (ii) resources. *"Here and the private sector is to blame as much as the public sector, it's not one or the other. Poor corporate governance throughout. It's not insurmountable and it can clearly be fixed, but I don't know whether there is the political-will*

to fix it. We don't hold people accountable for their actions or a lack thereof and as long as that doesn't happen, it's not going to fix itself" [T1GLEFP-Q3-P8]. Further, the lack of accountability allows corruption to occur at a rapid rate. Corruption and governance issues have resulted in uncertainty. Thus, government actions are futile to investment decision-making.

4.4.1.6 Government Actions

Investment alignment with the political landscape and government policies must be aligned to an investment thesis. *"So, if you have part or a government that is susceptible to making policies that would not align to your investment decision, then you would try to analyse that and see whether they fit in with your investment thesis or not"* [T1GLEFP-Q1-P10]. *So you go and fire the finance minister with no reason…and you come to work the next morning and bond deals were sold off a 100 points, 150 to 200 points. The Rand has lost its value, 2, 3, 4%. I mean it's not something you see every day. Stock B, for instance, what we've had now and Stock C"* [T1GLEFP-Q1-P11]. Unexpected actions made by the Former President of the Ruling Party had such drastic implications on the market and therefore made investment decisions more difficult.

The unexpected change in South Africa's finance minister caused a negative impact on the markets. *"Well, locally the politics have been quite a significant risk for us. If you go back two years to December 2015 when the President decided to hire Finance Minister X as...finance minister, it had a very significant impact on our market - your saw bond deals shooting skywards and that reversed when he announced that Ex Finance Minister was going to take over from* [T1GLEFP-Q2-P6]. *There's so many ifs, ifs, ifs. So, there has also been this negative or almost, ja, it's a negative risk, so things that could happen - a lot of it didn't happen"* [T1GLEFP-Q2-P5]. Many investors are basing their investment decisions on possibilities, which forms part of human heuristics. Yes, political instability has negative impacts on markets, but the notion of it being a possibility and not reality is a risk in itself.

The market, which is driven by local and global factors and individual investors that trade on the market, respond to changes in the market. The prospects of a new President are significant to the market and dictate the reactions of the market. *"So, of these factors...so whatever governments are doing on a macro level because markets tend to respond to what's*

happening outside of markets sometimes unless it's a unique market driven rally, but there's usually external factors [T1GLEFP-Q1-P5]. *Ja. Ja, you will typically find that politics…especially in South Africa and especially the role it's playing…has played and defining not only economic…not only the local economy but perceptions towards it"* [T1GLEFP-Q1-P14].

"So right now, for instance, what we did with the current conference, South African Presidential Candidate A is perceived to be bullish for the market. South African Presidential Candidate B, not too much South African Presidential Candidate [T1GLEFP-Q1-P8]. *The market will react to the political 'noise' and changes the outlook of an operating environment. "Especially with the political noise to the extent that it changes the outlook for the operating environment. We…you would adjust your portfolio, but if it is just noise, then we usually choose to remain invested through the noise"* [T1GLEFP-Q1-P19]. The 'noise' associated with the political landscape influences investment decisions to remain or reduce exposure to a specific stock relative to the country.

However, the markets tend to react in a fictitious manner. This brings about a significant point that investors that drive the market have heuristics and biases that potentially leads to decisions based on irrationality or *"on the back of nothing"* [T1GLEFP-Q2-P8]. There is no substantial evidence but rather the perceptions associated with each Presidential Candidate that influences investment decisions. *"I suspect the market might rally substantially on the back of nothing really* [T1GLEFP-Q2-P8]. *They think this man has got magic hands and he is going to fix everything and it's a happy place. And that is not the case"* [T1GLEFP-Q2 –P11].

However, the favoured Presidential Candidate, by both investors and the market, was not the preferred choice for all investment decision-makers- for example in the bond market. *"We thought it would be South African Presidential Candidate B. We didn't see Presidential Candidate A. And I think now the market has sort of got hold of these results as well* [T1GLEFP-Q2 –P11]. This brings about the notion of perception and the significant impact that perception has in a given economy. *"Rather the rest of the South African Presidential Candidate slate, was perceived as negative for the market"* [T1GLEFP-Q1-P8]. This is important because perceptions result in human heuristics and biases. The market is driven by the actions and reactions of individuals within the finance industry. Thus, individual's decisions are subject to judgements and perceptions. Furthermore, the market reaction to the

Presidential Candidates was based on perception and not the truth. One cannot predict future actions, therefore indicating that human biases and heuristics also drive the market.

Furthermore, there are two possible outcomes with the Presidential selection, one associated with positive market outcomes and the other negative market outcomes. *"Locally, in terms of events, we current as we speak, the guys sitting at Nasrec trying to choose the next president for the current majority party". It's become a two-horse race according to commentary. There's a market friendly outcome and there's a non-market friendly outcome. I won't mention names, but should things go the market friendly way, we expecting the Rand to rally, we expecting ... some people have even said we are going to 12 or 11 to a dollar, but should things go the other way, we're going to see 14 and 15 and those things sort of affect how we trade, particularly with bonds and how rating agencies view us* [T1GLEFP-Q2-P5]. *So, if we say well 'Mr X was corrupt and now he's gone, but now Mr X's friend comes in we're probably going to be in the same kind of thing' and so there's that view, but another person who knows nothing about Mr X comes in, we're more excited about that. That's what markets tend to do. They trade ahead of themselves and then when things don't happen the way they do, they try to reverse that. So, we're manoeuvring around those. That's from a local perspective, the big event"* [T1GLEFP-Q2-P5]. This is considered important because investors are a driving force in the market and will react according to personal views and perceptions. The market is associated with human heuristics and biases because the perception of the potential candidates versus the future of the candidate's abilities to govern South Africa are unknown. The markets, however, reacted according to perception.

4.4.1.7 Politics and Perception Heuristic

Some believe that South Africa has become less *"investor-friendly"* [T1GLEFP-Q3-P11]. However, others believe that the South African political environment is exaggerated and that South Africans have more of a negative view towards the country which is influenced by (i) associated risk with the country. "*On the local side, local side it's more political factors, whether or not that feeds back into a risk on or risk of environment"* [T1GLEFP-Q1-P8]; and (ii) operating directly in a given country. *"I think political environment is blown out of proportion. I think obviously, there are risks but risks are the sentiments around that has been blown out of proportion. People have been exaggerating the risk. It is there but I think people have been exaggerating risk but because if you speak to for example, to people who*

invest because we're exposed in South Africa and that exposure of, like ourselves, so that is really minimal. If you speak to people who invest in different markets, not South Africa, they're not as negative as we are towards our own country. So, this is when you notice that maybe we're just too hard on ourselves because [T1GLEFP-Q3-P10]. *We are human. I don't know, it's difficult to comment on it…because as I say, because we are in the country, your local negativity. And that impacts you psyche, so your negative to the country, you're negative of what is happening here and that, because we're human, tends to translate into investments as well"* [T2HB-Q1-P6].

Thus, the investors that operate directly in a given economy are more subject to heuristics and biases relative to that economy. Superiority has been given to the South African political landscape and the impact that it has on investment decision-making. Corruption and political stability have been highlighted as significant factors that impact the market. However, there has been political instability and uncertainty from government actions in the global economy that influences associated risk and investment decisions. *"And so globally, political stability, the thing that we look at and country risk…We'd focus on country risk, which is a sub-set of political risk* [T1GLEFP-Q1-P10]. *And you've also, while you've locally seen politics come to the forefront, you've also seen this globally through Trump* [T1GLEFP-Q2-P14]. *Hmm, okay, 2016, 2017, I forget when Brexit happened, whether that was '15 or '16, or '17, Brexit was material. Trump presidency"* [T1GLEFP-Q2-P7]. Brexit, Trump's Presidency and the global financial crisis were the leading global events that impacted investment decision-making.

4.4.1.8 'Nationalism' for 'Trumponomics' and Brexit

'Trumponomics' and Brexit are described as *"leftist or nationalist type sort of policies"[*T1GLEFP-Q2-P3]. These policies being enforced are moving away from the notion of globalisation and creating closed economies that shy away from foreign integration. *"Where people are trying to reclaim sort of their national sovereignty. Which is: What could you and I do to help maybe the reversal of the global integration? But it is too early to call it. But, nevertheless, we have seen those radical trends coming through. Now which clearly has not made it easy from the financial markets point of view"* [T1GLEFP-Q2-P3].

Global events of moving towards forming more nationalistic economies, such as Brexit and 'Trumponomics', has impacted investment decisions. *"So globally, we certainly take punches*

from uncertainty. Political uncertainty. So, we saw what happened in the UK with the Brexit. Ja. Look we would definitely...we would have been at stage like that. As I have said, it just depends on what is happening out in the market. And the conditions out there. So, there are things that would happen. For example, Brexit. Something like that. So, yes. That is definitely something that would impact [T2HB-Q4-P15]. *So, it seems like people are moving, for some reason I think they are voting, or something is happening what is actually the unexpected and people would think: Yes, the outcome is going to be this, but then the opposite happens. I think it is the same as what happened in the US with Trump as well. Everybody would have assumed that it would be a Clinton win, but it didn't happen"* [T1GLEFP-Q2-P13].

a. Brexit

Brexit had a negative impact on firms based in South Africa because they have earnings and revenue in the UK. The stocks invested in the UK took a considerable knock because the Pound weakened and therefore reduced the profits of some of South Africa's companies. *"The global factors that will affect us will be factors like Brexit because many of our companies invest abroad and they are companies that have invested or have earnings or revenue and you can be affected by that* [T1GLEFP-Q2-P3]. *In terms of the global considerations, in the UK for instance, where we've had Brexit, we found that all of our UK stocks were slashed quite a bit and the Pound has weakened so in terms of translation effect we found that there's been a drag on the South African names* [T1GLEFP-Q1-P6]. *The global factors that will affect us will be factors like BREXIT. The US elections, like electing Donald Trump and the policies he sets will have implications on South Africa"* [T1GLEFP-Q2-P3].

b. ‘Trumponomics’

‘Trumponomics' is the term used to define Donald Trump's policy changes. It is important to note that the United States of America is the biggest economy in the world. Thus, unfavourable policy changes in the USA negatively influence the South African market and investment decision-making. *"Global…obviously the current President of America, I think he had a massive impact. I think the world is changing how we are trading ... and our trading partners* [T1GLEFP-Q1-P11]. *So, when Trump says something about tax, Trump makes changes on Obamacare, the pharmaceutical sectors tend to be sensitive and that is because*

pharma prices in the US are quite high and it remains the single biggest market for any global pharma [T1GLEFP-Q1-P6]. *But you're always scared is going to happen. What is the next bomb that's going to go off? So, you tend to be under wait or under a wait duration. I said now that the US policy normalisation has been slower than anticipated, foreigners coming back into our market which has been supportive of local market, but we are so scared of what is the next local bomb that's going to go off"* [T1GLEFP-Q2-P7].

Further, changes to interest and inflation rates in the USA resulted in disinvestments from the South African market and into the US market. *"The US decides to normalise interest rates; it means that foreigners rather go to the US instead of investing here and that in turn has an impact on what happens here, so it's quite a big…uhm what's the word...impact from, from global macroeconomics into our market* [T1GLEFP-Q1-P7]. *You look at the US market for example, when they announced a couple a years ago that they are going to start tapering their stimulus, that…it's known as 'taper tantrum' and global investors start pulling out of emerging markets because they said, okay now the US is going to start hiking interest rates, so higher US rates then mean it's more attractive for investors to invest there than in risky EM assets"* [T1GLEFP-Q1-P7].

However, despite the concern and uncertainty associated with Trump's Presidency, his policies, such as tax reduction in the USA are beneficial to the South African market. The tax decrease for USA citizens will result in higher retained income and thus increase purchasing power. Therefore, citizens will have more money to purchase products exported by South Africa and thus boost growth within the South African market. For example, the resources from the mining industry will be exported more to the USA. *"In the States we've got these new tax reforms that President Trump is trying to push through. The idea there is to boost the individual's capacity to spend in the States and when we, or they, are all spending, inflation comes up, growth comes up and the economy is revived again. So, for example, we'll dig up gold here but they'll be the biggest buyer of that gold, so when they're doing well, they'll buy more from us and we'll be exporting more and everyone sort of wins when they win kind of thing. So that's from a big point"* [T1GLEP-P5].

Further, Trump's policies to weaken the US Dollar had a positive impact on other currencies in Africa. *"So global you would say for example the, if I take the example of the US, in the US since Trump got elected and his economic policies have meant for example that we're*

expecting a depreciation of the US Dollar, He wants to make it weak to make US products and exports more competitive. Based on that is that when he makes the US Dollar weak, the relationship that currency, the US Dollar has gained with the emerging market currencies and emerging markets" [T1GLEFP-Q2-P13].

4.4.1.9 The Global Financial Crisis

A third global factor highlighted by respondents was the global financial crisis. The global financial crisis still has a significant impact on the investment industry. The long-term effects are related to policymakers and politicians trying to implement corrective measures, since the global financial crisis, but have not managed to execute these actions successfully because many issues are still prevalent. *"A lot...and it varies. And they have changed, pretty much since the global financial crisis. There is a completely new set of factors versus prior to the global financial crisis. So, I don't know if that will prove to be a massive line in the saying that one day we will look back in history and say that this was a defining moment, or whether this is just a phase and it's going to disappear and we will revert back to some sense of normalcy"* [T1GLEFP-Q1-P12].

"So, over the last… well, I think since 2008, opposed to the global financial crises…what has become very clear is that there is big thematic macro events and themes that have tended to dominate the investment outlook. And this largely because, if you look at the global financial crises, I mean that had such an impact, a profound impact on the functioning of the financial services industry" [T1GLEFP-Q1-P20]. Further, the aftermath of the global financial crisis resulted in people of authority making decisions to attempt to repatriate the effects. *"Or just a global financial system, as we have known it, so it almost became a business unusual type scenario, where markets, financial markets and the pricing of financial assets got driven, not by fundamentals but by the actions of the authorities. And those actions were aimed at trying to redress some of the fallout that came about with the global financial crises"* [T1GLEFP-Q1-P20].

4.4.1.10 Investor Psychology and Perception

The negativity associated with the local and global political landscape, government actions and policies has influenced the psychology and perceptions of investment decision-makers. It

is important to note here that the political landscape has the most significant influence on investors' perceptions, biases and therefore investment decisions. *"So, unfortunately, like most investors psychology, your emotional response is always the exact wrong one! You know? So, when things are really bad. I think you, you…when the news headlines in South Africa are particularly bad, you're sort of biased towards offshore, you think that it's the beginning of the end, things are only going to get worse. You cannot see the light at the end of the tunnel. And so, you shift money offshore. And as it spins - as it has with the South African Ruling Party electoral conference, now all of a sudden, we just cannot get enough of South Africa!"* [T1GLEFP-Q2-P16].

The political uncertainty associated with local and global economies has diminished the confidence of investment decision makes. *"Obviously we all know what is happening in the US. There are things changing. Certain tax reforms are coming through. But I think people are struggling to all understand what is happening and I think that is affecting them a bit, especially in the last few days if one looks at the markets. The markets have gone down a bit. So, I'm not too sure what is happening there. But obviously I think that influences us as well"* [T1GLEFP-Q1-P15].

The confidence of investors is directly affected by the political landscape which determines economic and financial factors. These global and local events have impacted the psychology of investment decision-makers and influenced their biases and heuristics. *"So that is why I say the political environment will be key, because it will give investors confidence. And that does affect our views and inform our decisions* [T1GLEFP-Q3-P4]. *I suppose what is the fickle nature of the human mind. You trust what you see, what you hold, what you experience* [T1GLEFP-Q2-P17]. *Yes, I think as human beings we are all… We are all a little bit biased when it comes to investments* [T1GLEFP-Q3-P16]. *There are biases in each individual and those contribute to the way that you think about your decision-making process. And with the power of the human mind and what you see, what is tangible to you that always influences the way that you think about certain things"* [T1GLEFP-Q1-P17].

Instability and uncertainty associated with political affiliations are not attractive to investment opportunities, as this diminishes the confidence of investment decision-makers. *"And the last two or three years domestic politics have played a significant role as well...influencing investor confidence, our ability or SA's ability to investment locally and*

that sentiment drives local growth in turn influences how we investment" [T1GLEFP-Q1-P7]. The confidences that investors have towards a given country are political stability and political certainty.

4.4.1.11 South Africa's Challenges

Despite the economic, financial and political factors, South Africa still faces many challenges that could have a potential impact on future investment decisions. The main challenges in South Africa include (i) GDP growth; (ii) high unemployment rates; (iii) education system; and (iv) the mishandling of capital and resources. *"GDP growth, with unemployment rates, with the lack of education"* [T1GLEFP-Q1-P17]. The unemployment rate in South Africa is highest amongst the working class. *"And that creates other problems in the form of social ills and that we will see later. The most evidence one being unemployment, especially amongst our young people who are then supposed to be your most productive part of the population in the labour force. So, economically, we are not in a good space. And then the challenges are plenty"* [TQ3-P3].

Further, the education system in South Africa lacks entrepreneurial stimulus. *"And then on the other hand a big stumbling block remains our education system, where people are still educated to go and look for a job and have someone employ them, as opposed to being self-employed and creating something. And sometimes someone…to pay for. So, until such time as we have something… you know somewhat of an entrepreneurial type skills set, where we have people trying to create jobs, as opposed to queuing up to get jobs, nothing will have that challenge"* [T1GLEFP-Q3-P3]. This is a challenge for South Africa because there will be less economic growth. Furthermore, to create healthy economic growth, jobs need to be created through individuals seeking out opportunities and creating opportunities for others.

"We are not a poor nation, financially, but the way we allocate our resources, financial resources, that is very poor. And in that largely lies also quite frankly the poor policy and the implementation thereof. And you can see it with corruption, which is rampant, both in the private sector and in the public sector. But actually, capital is not the problem, but the people are misspending it and misusing it" [T1GLEFP-Q3-P3]. South Africa has large amounts of resources and capital. However, due to the corruption that occurs in both the public and private sectors, there is a misuse and misallocation of these financial resources and

capital. *"Financial I think we're in a bit of a fix, we owe a lot of people. I'm talking investors internally and externally* [T1GLEFP-Q3-P5]. *So uhm so in terms of political, I hope things will level up and will sort itself out* [T1GLEFP-Q3-P5]. *We are seeing an improvement on the politics, which is obviously playing through in terms of the outlook, so it is investors' sentiment and consumer sentiment"* [T1GLEFP-Q3-P19].

Respondents indicated that South Africa's current state of affairs is disheartening because of the potential in the economy. *"I get a bit disheartened because we're working against all these global, you know, we're competing in a global sphere and even the things we should be good at" [*T1GLEFP-Q3-P6]. A resolution to such challenges would be that key people of authority will need to make the right decisions to attract investors back into the economy and that capital allocation be redirected into areas of importance. *"I just really think with key people, just taking the right actions and making the right decisions, I think it can really turn around and I think there I big positives about it. It is just attracting the investors back into the country, making sure that they know the money that they are putting in here, did not...you know it's going to be worth their while"* [T1GLEFP-Q3-P15].

However, despite these challenges, many investment decision-makers are hopeful of the prospects of South Africa. *"I think from a growth perspective there are lots of opportunities. There is lots of growth areas. The simple things that we need to get right as a country and as a…I would say as a business, not just as a country* [T1GLEFP-Q3-P18]. *Then there are definitely areas of significant improvement that we need to have and those areas of improvement are around matters like corruption. Everything about what we have seen in the last year with the Family A, the State-owned enterprises. So, again, I am hopeful and optimistic, but there are still a lot of work still to be done* [T1GLEFP-Q3-P17]. *And I think there is still very much potential in South Africa...personally, for me. That is the way that I would see it. And I think people just sometimes get caught up a little bit in the negativity which I think is unnecessary"* [T1GLEFP-Q1-P15].

The theoretical model below explains theme 1 which is local and global economic, financial and political conditions. The purpose of a building theoretical model is to process explanations and theories (Pentland 1999). Theoretical models explain the relationships that the various factors have on a research topic (Gottman, Katz, & Hooven, 1996).

The identified sub-themes identified include emerging versus developed markets, economic, financial and political landscape. Further sub-themes include local factors, such as South Africa's challenges, political uncertainty, corruption and government actions. The global factors include ‘Trumponomics', Brexit and the global financial crisis. All of which influence market reactions, perceptions, investor psychology, heuristics, biases and investment decision-making. The diagram will be illustrating the relationships that these sub-themes on each other and investment decision-making. Further, the below connections have been derived from the findings and a summary has been provided. The below diagram can be tested through quantitative measures in future research.

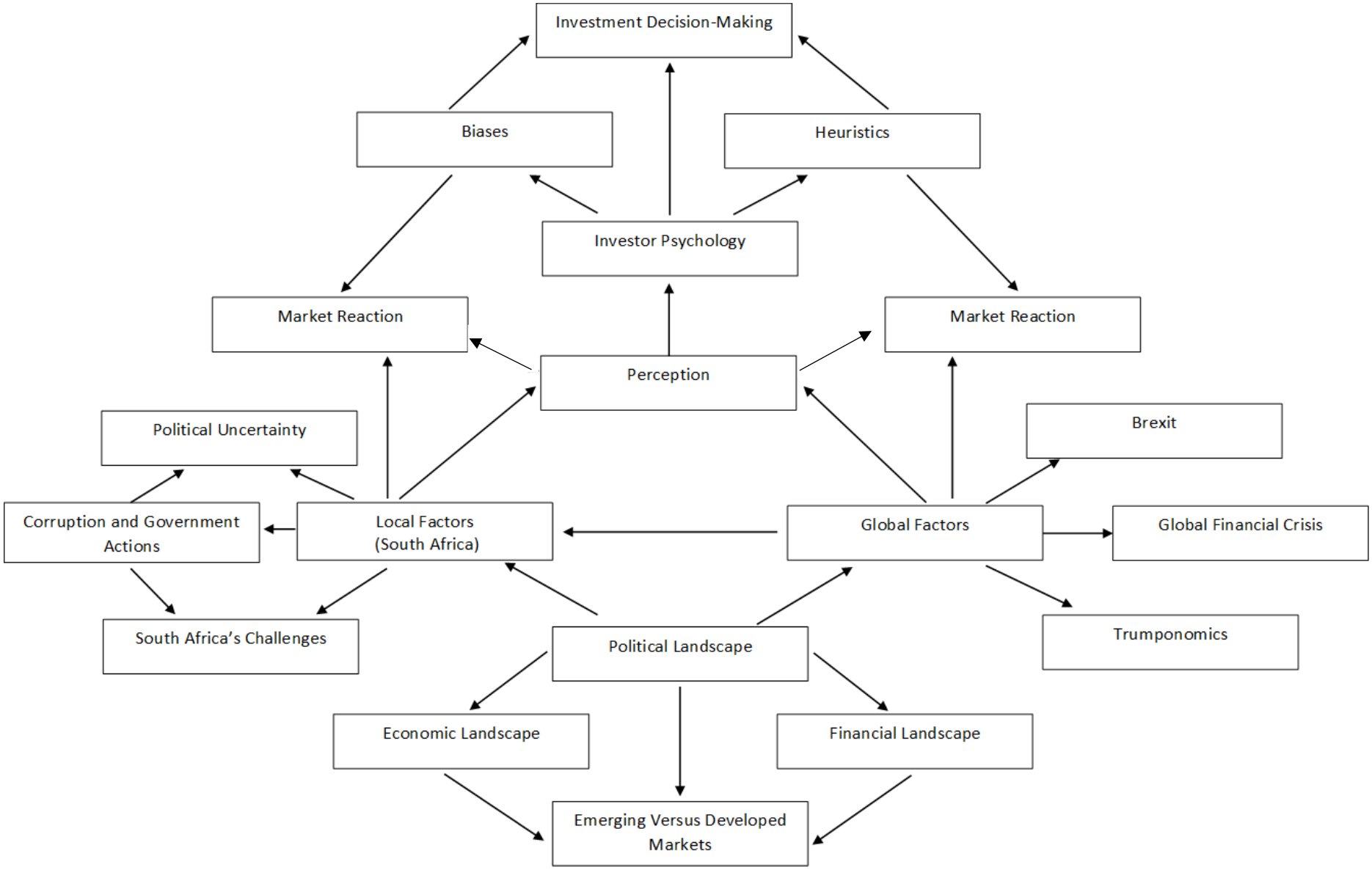


Figure 5: Theoretical Model on Local and Global Economic, Financial and Political Factors Associated with Investment Decision-Making.

Firstly, the summary provided explains the causal relationships between the sub-themes derived from the research. It is important to note that the arrows in the above model illustrate the relationship that these sub-themes have on each other and investment decision-making. The relationships are represented by the arrows pointing to each sub-theme and explained below.

Investment decision-makers will make a comparison between emerging verses developed markets. The comparison between emerging and developed markets is based on economic, financial and political landscapes. It is important to note that the political landscape influences financial and economic conditions. The political landscape filters into local and global factors. Further, global factors influence local factors.

Government actions and policies in the global economy influence investment decision-making. Brexit, 'Trumponomics' and the global financial crisis were the main global factors that had a negative influence on investment decision-making. Most participants mentioned that this changed the UK and US markets due to the uncertainty and radical economic changes. Further, the long-term effects of the global financial crisis are related to policy makers and politicians trying to implement corrective measures but have not managed to execute these actions successfully because many issues are still prevalent.

Government actions and policies in South Africa's local environment have influenced investment decision-making. Government actions and corruption have resulted in economic, financial, political and social challenges for South Africa. These challenges impede on investment decision-making. Furthermore, government actions and corruption have created political uncertainty. Political uncertainty and corruption from government actions not only has negative implications on economic and financial conditions but the confidence of investment decision-makers.

These local and global factors create perceptions associated with a given country. Further, these local and global factors will cause the market to react. However, market reactions are based on perceptions. It is important to note that the market is also subject to heuristics and biases because the individuals that trade in the market possess personal biases and heuristics that drive market prices.

Lastly, the perceptions associated with local and global factors, such as political uncertainty, by investment decision-makers and the market will influence investor psychology. Investor psychology will affect heuristics and biases that will, therefore, impact investment decision-making.

4.4.2 Theme 2 Analysis

Theme 2 focuses on heuristics and biases associated with investment decision-making. Investment decision-makers have preferences, judgements and biases because it is human nature. The first set of questions asked related to human heuristics and biases impact on investment decision-making.

The second set of questions asked referred to human emotions and investment decision-making as well as controlling human emotions involved in investment decision-making. It has been argued that personal views, opinions and experiences influence heuristics and biases. It is essential to understand to what extent these factors are prevalent in investment decision-making and the impact that they have.

4.4.2.1 Personal Views, Opinions and Experience

Personal views, opinions and experience impact heuristics and biases in investment decision-making. The ability to acknowledge personal heuristics and biases in investment decision-making requires (i) maturity and self-correction mechanisms; (ii) revaluation and interrogation of thinking; and (iii) transparency and accountability. *"Probably judgement because I think experience goes a certain way, but it also makes you miss the step changes or circular changes. So, you need, you always need to revisit and re-interrogate your own thinking* [T2HB-Q1-P6]. *I try to make it as little about my personal judgments as possible. Transparency and accountability are absolutely key to it. So, ja, you can easily get trapped in a personal viewpoint with a personal agenda* [T2HB-Q1-P9]. *If you are mature enough you could have that self-correcting, sort of to invest: Actually, there is anchoring here. You are holding on to your prior winners, hoping that they will do the same going forward. You are not looking at it from the point of a fresh perspective. You need to do that and then you can hopefully self-correct"* [T2HB-Q1-P3].

Some respondents indicated that personal opinions are of significance when making investment decisions. *"Okay, so opinions are probably everything. If that's the departure point. So, like I say, I have got a shortlist of counters, which is largely based on opinion. In addition to having counter opinions, I have got an asset allocation opinion. But, at the end of the day, it is an opinion I suppose that shapes the view"* [T2HB-Q1-P16]. However, other respondents indicated that personal views are key when making investment decisions. "*I think they will always be prevalent, because you always have views that you form over the years, in terms of industries that you like and management teams that you rate. So, I think they always will form part of the decision-making process. Yes, either directly or indirectly. I think they are all very similar actually"* [T2HB-Q1-P19].

It was found that experience is the most significant factor when making investment decisions. *"So, it comes with experience. A lot of experience!* [T2HB-Q1-P18]. *Experience by far. Experience by far* [T2HB-Q1-P5]. *I think…I think it plays quite a big role. The longer you have been around, the more you are experienced, the more you have been involved* [T2HB-Q1-P20]. *Further, experience will influence personal views and opinions. No, I think experience counts, hey. Ja experience counts. So, it's experience and? Ja I think experience counts for a lot, to the extent that I think it influences the other two* [T2HB-Q1-P3]. *For me, experience definitely. In fixed income and that is why I say if you actually started at the bottom with the groundwork you learn how to value the stuff. The dynamic of the instruments. What is it doing? What it is doing? I definitely do think it helps being in this. The more you work with the stuff, the more you see". So, ja, you still have that as well. You never have all the answers"* [T2HB-Q1-P11].

However, it is important to note that having more experience than other people can induce arrogance when making investment decisions. Thus, the ability to accept and diversify opinions and views is essential. *"It is just natural to think you know more than the next guy. So, I have to sometimes stop myself from my view dominating and my opinion and: Yes, I hear what you guys are saying, but… But you are wrong…and so…and I am particularly focussed on that, because we have got a diverse team and guys with lots of different opinions, different levels of experiences, different backgrounds, different ways of looking at things. So, I do like to listen to a lot of different opinions and it gets used"* [T2HB-Q1-P20].

Therefore, the best experience is that associated with (i) sufficient information; and (ii) adequate knowledge gained from past experiences. *"Experience to be able to deal with financial markets and also understanding the financial markets and also having the academic background to be able to deal with ii. But I do believe is that the contribution of the resources that are at my disposal as well as my consumption of those resources, in relation to the knowledge that we all have, is what contributes to the eventuality or outcome* [T2HB-Q1-P17]. *Although experience within a given sector will expose you to trends and patterns prevalent that can predict outcomes, there are scenarios when outcomes are not predictable. So, I think even Employee A will tell you that. There are often days where he also doesn't have the answers* [T2HB-Q1-P11]. *I have never encountered something like it collectively, on a global and domestic front. And some of my experiences I found redundant. It doesn't work anymore. So, it is important and it is a factor and I have seen a lot of things and seen most things. But it doesn't mean that you are going to be on top of every environment and situation"* [T2HB-Q1-P20].

It has been found that personal views, opinions and experiences are prevalent when making investment decisions. However, the separation of these in investment decision-making has proven difficult. *"I think it is a combination of all three,* [T2HB-Q1-P7]. *So, a lot of personal factors do come into it and you've got to almost try and hold yourself back…from those biases and you do it by constantly testing your due* [T2HB-Q1- P4]. I*t's probably all of it. It's probably, you know, 100%* [T2HB-Q1-P6]. *No, they are always there. It's hard to shut them off. They do count"* [T2HB-Q1-P3].

4.4.2.2 Separation of Personal Views, Opinions and Experience

The separation of personal views, opinions and experiences has been proven to be difficult. However, investment decision-makers will surround themselves with a team who can identify the individual heuristics and bias to reduce the association when making investment decisions. *"Look, it is tricky. But then that is why it helps to have other people around you. Right? People who can… I mean the one might point it out as a bias, but they will point out where maybe your logic is falling short. And then that may be because of a prior bias that you are carrying with you. Right? So, working in a team actually helps to prevent that. But that is why we talk to other people in the team. Just to make sure that where there are biases, you know at least you can almost self-correct in a way* [T2HB-Q1-P3]. *But by having other*

people around you, that is a lot easier, because they don't have the worries you have [T2HB-Q1-P3]. *Usually geared towards that and your peers are there to kind of make you take a step back and look at it differently, so they do you know, influence your decision but I think in any call I make perhaps like 10% and then 90% because I would have spent most time with the management with the industry and I know better you know. Sense and the 10% would also - when I rely on them because I think my judgment is clouded* [T2HB-Q1-P6]. *So, what I do, I distribute a lot of stuff to people within the bank, saying what's happening in the industry, how I interpret in the industry – and we've got open dialogue of how things should be done. I think it's very important to do"* [T2HB-Q1-P9].

Furthermore, organisational culture, trust, valuable opinions and a personal value system all aid in reducing heuristics and biases when making investment decisions. *"You try and surround yourself with clever people. People who you can trust. People whose opinions you value, you know and that will guide your decision-making when you need to make a decision. And you need to make a decision quickly, you know and so it is about… It is about also the value system that you personally endorse. And also the value and the culture of the company that you work in. And so a combination of both of those will guide your decision-making. But a lot of it is personal, right? And a lot of it is personal. If it is underpinned by the right principles. And in that a personal value set is important. But also how you deploy and where you deploy this personal value set of yours. Do you deploy it in a, as I would like to think, in an ethical company like ourselves. , you know, Then I think more often than not, that plus a combination of the people that you surround yourself with, more often than not you are going to make the right decision, but it is not always as clear-cut as that. So, sometimes, ja we make the wrong decision"* [T2HB-Q1-P14].

4.4.2.3 Group Heuristics and Biases

However, there are biases prevalent in group dynamics because individuals possess their own set of heuristics and biases which influence investment decision-making. *"I think I will say my personal views. Yeah, but sometimes when you go to Credit Committee you can come out with a better view because you'd find someone else on the Committee who will say, "But have you considered one, two, three? And they will convince you and you will see when you come out of that, "No, I should have considered this" and then you can eventually even change the decision you're making, your decision"* [T2HB-Q1-P10]. *So I sit on our Asset allocation*

Committee and get a lot of influence in terms of geography sectors, insurance cycles. Those sort of things. I like to think it is mine, but the reality is, I am probably borrowing some of those views from our economists" [T2HB-Q1-P16]. It is important to note here that although diverse views and opinions from professionals is essential, individuals are subject to personal heuristics and biases based on their expertise and experience.

Past experiences influence future investment decisions. It is found that bad experiences can make investment decision-makers sceptical to repeat these mistakes and good experiences would create a bias that the same decisions will result in success. Both of which are irrational because past experiences will not result in the future outcome. *"And then if there are biases, I mean you do find with experience you get to limit your things. And then you become sceptical of repeating the same mistake. Where you do not want prior experiences, good or bad, to have a significant influence on your decision-making right now"* [T2HB-Q1-P3].

Thus, being able to justify your rational associated with an investment decision is critical. *"So, for example, you do not want to invest in a company that you did 10 years ago and actually went well for you, thinking that that is going to continue to do well in the same way going forward. Right? And by being part of a team those guys can ask: Why do you think it's going to do well going forward? And the answer cannot just be: Well, because it has done well in the past. You should be able to justify it, using our process and in the process of justifying the investment thesis* [T2HB-Q1-P3].

Further, investment decision-makers tend to use information that supports their own opinion, known as confirmation bias. Thus, using information that contradicts a personal view can aid in reducing personal heuristics and biases when making investment decisions. *"You want your colleagues to challenge you. And that is what I like. People often disagree with me. I think it's gorgeous. People should always disagree with each other. You can do that in a way that isn't deconstructive. But for me and the people that work for me, I always tell them: Have an opinion, even if it's wrong; even if you disagree with me. You can tell me why and if it's solid it's great"* [T2HB-Q1-P14].

Contradicting views will also eliminate personal emotions associated with heuristics and biases in investment decision-making processes. *"And then also listening to the other side of the coin. Like, if you like the company, unlike someone who doesn't like the company. And*

then find out why someone doesn't like it. It's not smart to only, if you like the company, speak only to people who like the company because then you are never going to know what is happening on the other side. So our personal biases do come in it a lot" [T2HB-Q1- P4].

4.4.2.4 Personal Emotions and Investment Decision-Making

Respondents indicated that emotions impede on investment decisions because investment decision-makers allow their emotions to cloud their judgements. Thus, taking an independent view is essential. *"So you would like the CEO's that have good performance in the past and you less like the CEO's less that have done not so good in the past , you know, so to answer your question, yes, our personal biases do come in and we try to limit it. You try to be as independent as possible* [T2HB-Q1- P4]. *We investors, or...we can fall in love with our positions of our stock and sometimes it...helps to either get an independent view, or a second…you know, from yourself, or to even go away, distance yourself from the stock and look at it in a pure, cold light of day... almost like to pour cold water on yourself, to look at it with a fresh approach or a fresh eyes. And a fresh pair of eyes never impedes. So I think it's...ja, I think it's...important" [*T2HB-Q1-P13].

Some respondents indicated that a risky nature associated with specific sectors results in an automatic and inherent bias that clouds rational judgements and investment decision-making. *"I don't want to be investing in constructions. We are. We are doing the best we can to recover what we can for our clients. But it's a dire, dire situation. And it's horrible. And honestly, if somebody bring me a construction company to invest in tomorrow, I'm just going to die! Even, you know I'm going to have a hard time being impartial and impartially assessing this thing from scratch. Even if it was the most marvellous construction company on earth, I am still going to have that tainted feeling that the whole sector is risky, which is sometimes true and sometimes not. So I mean that the nature of the bias. Right?* [T2HB-Q1-P12]. *No, that's not entirely true. There are some stocks that I probably wouldn't put in even if they scream properly, mostly construction companies, you know, It's probably not necessarily based on emotions, rather it's based on history – I had a bad experience with them and that sort of thing"* [T2HB-Q2-P8].

It has been found that personalities and behaviours are influenced by emotions and thus have an impact on investment decision-making. *"It is probably in the nature of…I know you are*

sort of looking at personalities and behaviours and that. I think… I would be surprised if you found an investment professional or a portfolio manager that didn't believe his own view and back himself. So a strong and dominant backing of your own ideas and that, but I am determined for that not to be my downfall sometimes. And to try and intersperse that with other people's thoughts and to use those ideas" [T2HB-Q1-P20].

4.4.2.5 Emotional Awareness

Emotions are inherent in human nature and thus investment decision-making. However, it is important to separate personal emotion from investment decisions as this will distort rational thinking. *"So… Ja this is pretty much the most important question. In my space, one of the things that I have had to learn very quickly is to separate everything else in my life versus the professional side of it. So when I come to work, by the time I come through the gate, then everything else is way behind me, to the point where I will not even call home through the day* [T2HB-Q2-P3]. *The ability to separate emotions from investment decision-making takes time, experience and acknowledgement of emotions It takes time and experience* [T2HB-Q2-P3]. *Because you need to separate your emotions from decision that you are making, because sometimes if you just are making a decision based on an emotion that is maybe the incorrect emotion that you are experiencing, then you might take the wrong decision in terms of business* [T2HB-Q2-P15]. *My success personally in dealing with emotions is being able to realise quickly enough and being able to do something about that emotion. That emotion can be related to any of these circumstances. But being able to move beyond that is a peace of mind thing"* [T2HB-Q2-P17].

Emotional separation involves (i) experience; (ii) the type of person that you are; and (iii) a change in psychology. *"I don't know. I think it depends on, to a certain extent, I think experience does teach you how to strip the two, but it's also going to be part of the type of person you are - are you able to strip out your emotions and get on with your work or ... I think it's going to be very much a personal thing, I can't really comment on that* [T2HB-Q2-P7]. *So, for example, one day I could be very opportunistic. Be keen on investing, in my opinion, or sorry, by my measure a decent amount of money. And the next day in a different mood, I could trim that back. But because it is quite mechanical and it is numbers, I often reflect on: Why the difference? Why have I changed my opinion? Is it the right thing to do? Am I getting caught in a bit of an emotion in terms of doing it? So I almost interrogate my*

own emotions quite a lot when I invest [T2HB-Q2-P16]. *It is just a perception. Now, historically, emotionally, in market crashes we see your paper money disappear and it is traumatising, whereas I suppose my psychology is completely changed. I suppose that sort of change happens only when you are very cognisant to your emotions. And how it affects your decision-making"* [T2HB-Q2-P16].

Separating emotions from investment decision-making has proven to be difficult. However, placing emotional control measures have proven effective for investment decision-makers. Emotional control measures are a constant reminder of the people who investment decisions are made for and thus removes emotions from overwhelming their investment decisions. *"It's very difficult. What helps me right, so before a trade I have private checks in my mind. Uhm we manage money for pension funds, for municipalities, for so many people and when you have that client in mind, I take it even further, I think of a minor, I think of an orphan, I think of a retired widow, I think of ... what I'm doing here is I'm trying to make sure that those people get the best value for the money that I'm managing for them. Well, that we are managing for them. So whether I'm down, whether I'm excited, whether I'm whatever, I need to make sure that the widow, the orphan, the minor, the municipality always gets the right price. So if you have those checks in your mind, they almost park your feelings even though sometimes feelings try to overtake that"* [T2HB-Q2-P5].

However, it is important to note that it is inhumane to completely separate emotions from investment decisions. Humans are genetically built with emotions that will guide and influence their decisions. *"If you are aware of it. You cannot remove emotion from a process entirely. You cannot. And look, sometimes emotion does give you an edge. Emotions still guides us because, as you've said, we are all human. I try and separate getting emotionally involved, because we do, unfortunately, deal with angry people, many, many times"* [T2HB-Q2-P14].

Some respondents find it difficult to remove emotions from investment decisions, which is due human nature. *"No, I usually just ask my boss. So I'm very, I can panic* [T2HB-Q2-P6]. *It is really hard. Because sometimes you are just grumpy. Or sometimes you are just grumpy about a particular deal* [T2HB-Q2-P12]. *Being emotional by nature will influence all decisions made by individuals. However, emotions associated with investment decisions clouds judgement and rational thinking, ja, emotions play a large role. And I think your kind*

of character set, you know, your strengths influences that as well. I am an emotional person, so my emotions does, unfortunately, cloud some of my decision-making. I am aware of that. , you know, it is not always easy to manage" [T2HB-Q2-P14].

Thus seeking guidance from other people can assist in reducing emotions from clouding investment decisions. *"And then I do rely on my team for kind of them to overlay it* [T2HB-Q2-P6]. *As an investment person, as an ex-financial planner, I do not manage my money very well and that is why I always have a sounding board person. Somebody that I trust and knows that this person goes through a similar due diligence as myself* [T2HB-Q2-P18]. *So I think it is important to be having that kind of conversation with the right person that has a similar thinking than you. That will help guide you back into…you know what, it will help getting the emotion out of the way. And get back into your right mind of thinking. I will admit it: My emotions are caught up into it, then I cannot see what is right or what is wrong…can you just help me with something? Just guide me. And in that way, I will get the right answer. So I think I am aware. It is just that… You know just getting to somebody that you can trust"* [T2HB-Q2-P18].

While most respondents admitted that it is difficult to separate emotions from investment decisions, some respondents indicated that their emotions do not play a role when making investment decisions. *"Hm. I'm not very emotional when it comes to investing"* [T2HB-Q2-P8]. This is due to the systematic processes that involve transparency and documentation of investment decisions. Thus, one emotional day will not have a significant influence on investment decision-making "*Uhm…because you've got to do things transparently and with the method so that it's not just your overlay. So yes, experiences things, but you've got to write down 'In my experience this is what it was. So no, I wouldn't say having a bad day…makes a side difference to it. And the way that we publish things and discuss things, no, I don't think me having a bad day is that significant* [T2HB-Q2-P9]. *I am acutely aware of the way I am changing.* [T2HB-Q2-P16]. *Again, I actually do not think your emotions have an impact on your work, because what we are doing is… there is method to it, you know? You have got a set criteria in terms of your investment process, your investment rationale, your spreadsheets. So I do not think it should have an impact actually, your personal state of mind that you would build or trade on a portfolio"* [T2HB-Q2-P19].

"But also, you must try and not let it cloud your emotions… cloud your judgment. So when I wake up in the morning and I don't feel great…ja, to mean look sometimes, I'm sorry to say, you pretend. It's difficult and very, very, very dangerous" [T2HB-Q2-P14]. This raises the questions of whether the other participants who have stated that their emotions do not impact their investment decisions are just pretending. If so and it works successfully then would pretending be rational in investing decision-making?

4.4.2.6 Emotional Intelligence and Gender Role Biases

Emotional intelligence involves not only being aware of personal emotions but emotions of other people. Emotional intelligence is important in investment decision-making because a team often surrounds investment decision-makers and thus being aware of their emotions is key. *"But for me, personally, I am very in tune in terms of emotions, just not only for myself but for other work colleagues. Or I might have been outside of the work as well. Emotional intelligence...I think that is quite important. For me as a person, I think I am tuned in with that. I can immediately pick up if there is something going…or something is not right with a colleague that I am working with, or whatever. I think that is really important to understand and also to be open about that as well. Because I think some colleagues might not be open about that, when you do talk to them about that* [T2HB-Q2-P15]. This brings about the notion of gender biases associated with investment decision-making. *"So you need to sort of try and still yourself and have a bit of compassion and humanity and… Ja. That is a woman's view of things* [T2HB-Q2-P11]. It has been argued that women are more emotional than men and that showing emotion is seen as weakness. *"Because you can see your emotions as a sign of weakness"* [T2HB-Q2-P17]. However, showing emotion and compassion to others forms part of emotional intelligence.

It must be taken into consideration that the investment industry is still predominantly male-dominated. Thus, the notion of expressing emotion in this industry is often associated with the perceptions of women being emotional. *"Ja, I think also, the longer you work in this industry…the longer you work with men. I have just realised that! You go to the bathroom, you have your little tantrum…or your whatever…and then you maar try and be as professional as you can at your desk"* [T2HB-Q2-P11]. It was found that women in the industry are strong, implying that in this male-dominated industry, women have to possess characteristics of strength. *"You just have to pull yourself together. Ja you just have to pull*

yourself together and that's… ja, just… I think it's just how the industry looks. I think you see all the other… It's… I think it's mostly strong woman" [T2HB-Q2-P11].

4.4.2.7 Emotional Separation and Investment Decision-Making

Separating investment decisions from other aspects of your personal life is effective. Placing these two worlds on opposite sides of the spectrum has been proven to aid in eliminating all possible emotions, heuristics and biases associated with investment decision-making. *"I don't even call my wife. And lately, it has been so bad that I don't even listen to the radio. I don't want to listen to the news. I read the paper, just from the company, you know from a results point of …and when I leave, I don't take anything home to read. , you know, I don't take reports… I don't do work at home. Weekends, I don't even come close to work. That is how far I live also. I make sure that there is no temptation. And I think that balances it and I think that separation is key. Because if you meddle it, then you could have other factors that can influence your…either your professional side or your personal side. So consciously, I have had to make that decision and I draw that line"* [T2HB-Q2-P3].

The ability to acknowledge emotions involves being (i) aware of emotions; (ii) holding back investment decisions; (iii) separating emotions; and (iv) professionalism to ensure that investment decisions are not based on emotions. *"And me, personally, sometimes if I'm feeling excited about something, I'm feeling excited about a company and I want to buy the stock, I actually hold myself back. And I say to myself: Let me rather sleep on this. If I miss an opportunity I miss an opportunity because I don't want to rush into making decisions, based on emotions. I would rather make a decision based on facts, on a well thought out process"* [T2HB-Q2-P4].

"And there will definitely be days that… I mean: Jeez I am tired of this… I can't do this anymore. But I wouldn't say that it ultimately feeds through to my investment decisions, or influences it in any way. The changes are, if I am in an emotional state of mind that is volatile, either way… good or bad, I would likely just try an withdraw from, from…from work and making investment decisions. Just go home [T2HB-Q2-P20]. *I think your emotions do influence the way you behave, but you need to be able to strip that apart* [T2HB-Q2-P7]. *So we can't allow our own, you know, we're humans, but we can't...we shouldn't allow our personal or emotional sort of feelings to override our professionalism and how...ja, approach*

and behold to introduce. So I would say, you know, professionalism counts for a lot [T2HB-Q2-P13]. *My internal response to myself has been to. I've been working on awareness. So being aware of what emotions are going on inside. You know that initial panic. Denial. Ja… but everybody else was investing in it. You know, that kind of response? Being aware of that. And making it… maturing that a little bit. It's first of all getting to a calm place. Because I can make decisions and a better analysis and assessment to the scenario if I'm calm. And I can respond better to clients if I'm calm. So I've worked on that inside of me as* well [T2HB-Q3-P12*]. We're humans, but we can't...we shouldn't allow our personal or emotional sort of feelings to override our professionalism and how...ja, approach and behold to introduce. So I would say, you know, professionalism counts for a lot" [T2HB-Q2-P17]*.

However, humans are subject to emotional outbursts that are not controllable but rather a reaction to a situation. Thus, learning to channel your emotions is vital. *"Examples of those are when you are on the road and when the guy in front of you does something ridiculous, you are not in control of your emotions because the first thing, your adrenaline starts to pump and you want to react. I would say, yes you get the emotional bursts and that emotional burst can be one of anger, one of frustration, one of empathy. One of those lessons is how to channel your emotions into positive thoughts or into positive energy"* [T2HB-Q2-P17]. Further, emotions can be separated into two parts, context and human nature. Thus the circumstances that prompt an emotional response are important on how to deal with them. *"Dealing with the emotion in this context is a lot more different to dealing with emotions that are truly of a human nature. Right? Because here we can divorce it. Here is something that is on a system more grand scheme. You look at that performance and you feel frustrated because you are missing out, versus on where your pet dies. The difference in those circumstances are very different in the way that you also treat them* [T2HB-Q2-P17]. *And I am grateful for that, because I would imagine it was quite tough… it would be quite tough to make objective investment decisions if you are sitting there and you have just had a huge fight with your wife. Or if I don't know? Or if somebody in your family is very sick. Or you've just won the lottery… Whatever your emotions are…in objective decisions. "But not always. I mean we are human"* [T2HB-Q2-P20].

External pressures can result in investment decision-makers judgements to be clouded and emotional. Thus, seeking external advice can aid in reducing emotions when making investment decisions. *"So when I feel - so if there's a news flash and the news are big and I*

haven't factored it in and the share price is already down 15% before I sell, I'd usually just put my, you know, lay my opinions out there and say in reality I actually don't know what to do. I am feeling , you know, maybe management lied to me, or I feel they didn't tell and I had asked the question, so - and I'm angry either because I lied to the management and I feel let down. So instead of just shorting the whole position just because of this one event, I would usually rely on my colleagues. But ja, it is a - you do sometimes just wake up and you're just irritated at the management and you're like 'let me just sort…this stuff', but then you need somebody else who sits outside to manage and make sure that it always goes back to our process, you know" [T2HB-Q2-P6].

Although it has been proven difficult to separate emotions from investment decisions, investment decision-makers have the responsibility to make investment decisions that will provide the best possible outcome. Thus, objective and rational thinking is of crucial importance. *"But you've still got a job to do. And you've got a responsibility to do that, regardless of how you feel and you need to be able to strip that out. So you might be less friendly while doing it, but you still need to objectively look at what you're doing and why you're doing it and apply proper rationale to that* [T2HB-Q2-P7]. *How do you allow that not to also affect your investment decisions, making that...at the bottom end is there, we've got a fiduciary duty, so I will try to manage it in the most...in the best professional manner* [T2HB-Q2-P13]. Emotions form part of human nature. However, it must be taken into consideration that intuition or 'gut feel' are also innate in humans.

4.4.2.8 'Gut-Feel' and Investment Decision-Making

The notion of 'gut-feel' is associated with heuristics and biases because it is human nature and influences the way in which decisions are made. Further, 'gut-feel' is learnt through experience. *"Now I've been trading for a while. There's something about trading that when you look at the market, you just know that this is not the right time to buy. No textbook can tell you this. No Master's Degree thesis can tell you this. You almost have to be dealing for long enough. The world calls it a gut feeling, but you know inside of you that this is not the right price* [T2HB-Q1-P5]. *I mean you've got the team that pushes back but unfortunately because valuation and an investment is almost it's an art, once you have a certain gut feel"* [T2HB-Q1-P6].

The notion of ‘gut-feel' is prevalent under conditions of uncertainty and complexity. *"So in my world a lot of things we do is unfortunately not always clear-cut. So I think you try the decision you end up making in the end and I know this is going to sound bad, but it is really a gut feel. And that gut feel gets the…what I mean by that is very important as well, as it comes with experience"* [T2HB-Q4-P14]. Thus, methodological investment decision-making is critical to making investment decisions. *"So again, what I do believe in is that in this particular environment being investments that a sound academic background and a sound decision-making process in leaning into that investment decision and once you have placed that investment decision, is of critical nature. That, for me, relates to what is going to be the successful outcome that you want to achieve"* [T2HB-Q1-P14].

It is important to note, however, that emotions and ‘gut-feel' are human nature and thus influence heuristics and biases. External factors contribute to personal heuristics and biases, which influenced investment decision-making. However, it is difficult to separate these heuristics and biases. *"And you as a local don't generally see that because you've got this negative bias overhanging it. So it's got, it's got a big impact. Sometimes you do need to step back and…say okay, ignoring all of this noise and my own local negativity almost, what does things look like - and that's difficult to do because you're already in this bad space* [T2HB-Q1-P6]. *Because your personal view is going to be heavily impacted by how you feel about things and that's not always a clear picture because you might have driven through that pothole this morning and now you're just angry with everybody and the government and that clouds your personal view or it impacts your personal view, so you should almost be stripping that out* [T2HB-Q1-P7]. *All people are biased and that individuals have an inherent bias because it is part of human nature. "All people are biased. You always have an inherent bias"* [T2HB-Q1-P8]. It must be taken into consideration that inherent biases could also derive from cultural upbringings.

4.4.2.9 Cultural Biases and Investment Decision-Making

It has been found that culture plays a significant role in investment decisions. Cultural upbringing provides notions of reality and individual truths, which are reflective when making investment decisions. Further, organisational culture sets the tone of an organisation, the way in which it operates and thus the decisions made by investment decisions. *"So when*

culturally you can't understand something, you tend to be naïve and your investments are perhaps, you know, not great" [T2HB-Q4-P6].

a. Cultural Upbringing

This research identified that cultural upbringing bias is associated with investment decision-making *"And then another kind of bias that comes in and I think this is the one I alluded to, is that and it comes from your own culture and your own upbringing"* [T2HB-Q1-P12]. It is crucial to note that South Africa is a multi-cultural country and has historical events that had and continues to have an extreme impact on the country. *"Now if I'm just going to be honest you find yourself in a South Africa context defending things that you are pre-disposed to against someone else from a different – because we come from different cultures and that people would just generally have a negative opinion based on their ideology or pre-dispositions"* [T2HB-Q2-P10]. *"In a country like South Africa where there isn't one culture. Right. In Germany or… A lot of European countries, you can say: Well, the culture is, you know, there might be slight differences but ultimately there is the same culture. But in South Africa it's multi… very multi-cultural. And obviously we have a history and a past. And it hasn't been that well integrated in the past. And even now 25 years later, it isn't that well integrated"*. [T2HB-Q1-P12].

Cultural biases cloud rational judgements and have a significant influence on investment decisions due to a lack of cultural knowledge and understanding. *"Here is a really good example. SA Taxi Finance. Okay? So I am a White female… I have actually ridden in a taxi, believe it or not! It was in Kenya. I hailed it down myself and everything… But I have not grown up having to live in that scenario. Okay? But I understand that. Obviously. It's the life blood actually of South African economy. If taxis didn't exist we would have a very, very different economy. And towards the end of last year we were presented with the opportunity to invest in a company called SA Taxi Finance and their business is to lend money to taxi owners who often just have one taxi. Some of them have multiple taxis and repay it out of the funds that they receive for the trip that they do. And this company…you know, in my mind I had to sort of really think about it, you know, if I, myself, were to go and lend to something like that, I would not understand how to lend to that situation. Because I would say: Well, this guy is a small business. And like: How am I going to find him? And: Does he even have an*

address? So there is a whole bunch of biases that come into… like: I could not even lend to a taxi owner" [T2HB-Q1-P12].

The lack of knowledge, due to cultural upbringing, results in difficulties with investment opportunities that are not familiar with cultural upbringings. *"And it's a cultural sort of background understanding there…I can't even understand what that risk looks like. I don't know what his ability is to pay me back. Because, for all I know, he could pay me by cheque and off he disappears with the taxi and then I go: Whoops! Nee! However, there is a company that is in taxi finance that has a track record of successfully doing this. And I had to get my head around the fact that I don't know how to do it. But they seem to know how to do it, because they are proving with their results that they know something that I don't know. So that is an investment bias thing that I have had to face to say: Well okay… So I am definitely biased, because… I don't know. I see taxis as risky. Lending to a taxi owner as very risky"* [T2HB-Q1-P12].

b. Organisational Cultural and Time Horizon Bias

Organisational culture is also significant to investment decision-making because the culture within an organisation provides the foundation to investment decision-makers. *"Ja. Okay. Personal experience. Look...sjoe! I have been with the company for quite a while. So I have been with them for twelve years so I think you get a little more accustomed to what the culture is and what they are trying to achieve and where they are going. Obviously within a company I think there are always changes. So I think that can impact you as a person, personally. But I think as you move along in your career I think you get accustomed to these things"* [T2HB-Q1-P15].

The time horizon for any investment decision could potentially be a bias. To elaborate further, the assumptions that things will self-correct over an extended period could be a bias because it may not self-correct. *"I think it depends on your time horizon… personally. Perhaps it's a bias on its own? But my belief is that fundamentals is not getting away from fundamentals… over time. So given a long time period, the fundamentals should all square back to what the situation is"* [T1GLEFP-Q1-P12]. This could also potentially be related to trend-chasing bias because, in the past, investments self-correct over a long period but these

may not self-correct in future because other factors may have a further impact. However, the assumption that stocks will self-correct in future is irrational because the same influencing variables do not exist through time. *"The, but those things change over time, so just because something was an explanatory variable or a useful metric juristic, doesn't necessarily mean that those juristics exist through time"* [T1GLEFP-Q1-P8]. Cultural upbringing and organisational cultures influence biases associated with investment decision-making. However, it must be taken into consideration errors associated with past investment decisions also result in biases when making investment decisions.

4.4.2.10 Wrong Investment Decisions

Wrong investment decisions are a result of (i) lack of clarity; and (ii) lack of information. *"Many of those decisions, you make decisions with a lack of clarity and a lack of information and that certainly contributes. But the important thing is to take ownership of something"* [T2HB-Q3-P14]. Thus, taking ownership and being accountable for losses is key. "*So, I will take ownership of it. I will sit in front of the people asking me why this decision was wrong. And I will take ownership of it, you know. And I will defend my position, even if it is wrong. And the most important thing is to…sometimes it is difficult because sometimes the loss has already translated. It's not a paper loss. So, it's a loss that has materialised. But you've got to take ownership of that, you know. You have to take ownership of the fact that: I have made this decision. And then you have got to stand by why you did it. And you've got to be able to defend why this is the decision you made. And then what is important is to learn from it. I know it is easy to say that. But you go home and you analyse the thing in hindsight, you know. And you learn from it. So, I learned… You just learn from it. And you get a different, an extra tool in your set of tools that you can deploy when the pressure is on. You just take a step back and look for things. You look at things slightly different. Maybe involve somebody else. So, as long as you learn from it, that is value"* [T2HB-Q3-P14].

Respondents indicated it is common to make wrong investment decisions that result in losses. *"All the time* [T2HB-Q3-P3]. *Yes, you make a decision based on a process [T2HB-Q3-P4]. Lots of those.* [T2HB-Q3-P6]. *I think one often does that* [T2HB-Q3-P7]. *No. So I'm certainly not saying I get everything right, but I just think I was…when I arrived back at the bank, it was just at the right time I think* [T2HB-Q3-P9]. *All the time* [T2HB-Q3-P13]. *Ja look that*

happens. You cannot be one hundred percent right all the time [T2HB-Q3-P15]. *I am…okay, lots of times. Okay? Lots of times"* [T2HB-Q3-P20].

It is important to note, however, that wrong decisions and losses is part of the nature of investing. *"It is part of what you do* [T2HB-Q3-P3]. *And Ja, so you do… I mean it comes with the territory* [T2HB-Q3-P18]. *Yes. Because you will always make wrong decisions. It is the nature of investing* [T2HB-Q3-P19]. *Second of all… I just want to beat the competitors. And so, getting decisions wrong have impact in those spheres. But to let it eat away actually and to let it mess with your mind and to let it depress you or really get you down, I have learned over the years to deal with that a lot better. So, I don't know if it comes with age or experience of what? But it is a little bit of like: You know this has happened… Did I do that to the best that I could in the situation? And if so, then it is what it is. It has happened. It is not going to go away"* [T2HB-Q3-P20].

Making wrong investment decisions is highly probable in the investing space. However, the recovery from losses is necessary because it can negatively impact investor psychology. *"And I must say this because for me it's not whether there is good or bad decisions, because you are going to make those. But the big issue is how you recover once you've made a bad decision. Because how you recover then determines whether they can be good or bad decisions, going forward. And it requires a lot of tenacity. And it requires a lot of self-introspection. And then you need to have the confidence to can stand up again and then want to do it. Right? And in a way, it is good to have made bad decisions, because it just grounds you as an investment professional, you know, you can very easily be deluded into a sort of a star type mentality. If you have too many quick successes* [T2HB-Q3-P3]. *And your decision doesn't materialise because your view is based on your view of the future. So, there are times where we make… so we often make the wrong decisions. But key is to then revaluate without being biased. How do you… how do you… what decision to do you take then? And try to keep your biases out, is what will make a decision ultimately turn in your favour or not. So, we constantly do these assessments* [T2HB-Q3-P4]. *The truth is everybody is going to make a mistake. It's how you handle it. So, by assigning blame… I mean there are ineffective ways of dealing with the problem. I am always of the opinion: I will take ownership of it. Any day I will take ownership of the problem"* [T2HB-Q3-P14].

"Oh, the aftermath, okay. So as long as you can explain your reasoning to your portfolio ... because you're accountable to your portfolio manager right. Portfolio manager is going to ask so what was our price in this thing, great. What was the price of everyone who traded it? This is the value weighted average price on the day and where did the stock close. So, he'll ask 'why did you trade at that price? You'll be like well, the reason I traded at this price is because at this time, this is what my thinking process was. If you can show that you followed a reasonable enough process which came to your decision, even when it was wrong, you get some comfort and understanding from the portfolio manager [T2HB-Q3-P5]. *It's…in the end no-one knows what the future is going to hold in and you come up with a certain view, or certain expectations and you trade accordingly and sometimes it doesn't work out. You need to be able to strip the emotions out of it and say okay I've made a decision, it was wrong, how do I pick up the pieces and go on?"* [T2HB-Q3-P7].

4.4.2.11 Financial Losses and Investment Decision-Making

Financial losses result in control measures to mitigate future losses. *"It's…in the end no-one knows what the future is going to hold in and you come up with a certain view, or certain expectations and you trade accordingly and sometimes it doesn't work out. You need to be able to strip the emotions out of it and say okay I've made a decision, it was wrong, how do I pick up the pieces and go on?* [T2HB-Q3-P7]. *However, investors tend to blame losses on external factors. "When you do take a position, or you do make a decision and you see it goes negatively, so you make a loss in your investment, the one thing you always go back to, you get a second opinion. So, you go back and test everything again. And you run through that. And it might be, maybe in a...or short term weakness, because let us say there was some negative noise in the market, negative noise in the sector that affected the stock, so it was not due to anything in the business case, it was just market noise, so that's...you have to dissect all those things* [T2HB-Q3-P13]. *Yes, so if something has fundamentally changed with the company. If there is fraud that has been committed. If the operating environment has changed so significantly that they are no longer able to operate. And then you call results in, change in your view and it can result in significant losses from a share price perspective"* [T2HB-Q3-P19].

However, managing investment losses has proven to be difficult. *"So, for instance, I called one of the hospital stocks a buy because there was good value, it went down and it went down*

further and at some point, I had to cut my losses. So it's always very difficult locking in your losses because whilst you still hold it and it's going down it's only a potential loss, but once you've bought it at 100 and you are selling at 90, you've locked in that loss, so it's an actual loss and you get uneasy because is there anything new, is there realistically anything that you've missed, or do you still expect the share to cut again? [T2HB-Q3-P6]. *I will most probably shoot myself. I was short over December and I would have fallen in such a depression "[*T2HB-Q3-P11].

Some respondents indicated that they had not made wrong investment decisions that have resulted in losses. *"Not yet, hey. No* [T2HB-Q3-P10]. However, in the dealing space, it is difficult to make wrong decisions because, at time of the investment decision, it was the right decisions because the market conditions were favourable. *"It's difficult for a dealer because we justify what we do all the time, so I bought this thing at this price because this was the information I had at the time and therefore it was the best at that time, right. But obviously, then we can just walk around saying we always make right decisions. That's not on. We then get measured in the day, so to come back to the question, yes, I have made decisions that weren't good, even with the limited information* [T2HB-Q3-P5]. *No that is impossible. So, there might be a decision that you have made that is probably not the right one. And whatever that is, it just depends on what it is. There could be a little bit of a delay, reaction, in terms of the decision that you've made. And maybe it is something that is going to pull through later. So, again, I just think if you are convinced and convicted in your view and your strategy that you have taken and although there are impacts at the moment that might seem to be the wrong decision"* [T2HB-Q3-P15].

Poor investment decisions that result in losses affect clients and business. Thus, it is important that rationality drives investment decisions. *"I think that is the worse is to go to the client and do your little dance, in front of your client, you know. Sometimes they are not as understanding as the rest of the team is. Ja… And I mean you could lose funds because of it. Which could have a financial impact on a company* [T2HB-Q3-P11]. *Ja, so look, this is the behavioural economics 101. Cutting losses. I suppose…so I have definitely made bad investment calls. So not all of them work out the way you plan. What tends to happen is, you know, traders are supposed to cut their first losses the biggest. It is always very difficult"* [T2HB-Q3-P16].

Wrong investment decisions also influence team dynamics and strength of investment teams. *"I suppose that also tests the team, you know, can you still work together when everything is not so 'rosie'. So, I guess…We could actually deal with that. Yes. And I think a team that has worked well together for a long time. They haven't performed. That is the frustrating thing if you are in that position as a team. That is the true test. You will see how resigns and who doesn't…and who doesn't. But I mean it's the same in life"* [T2HB-Q3-P12]. However, it is important to note that not all mistakes are associated with wrong investment decisions, but rather just general mistakes. *"I've never been in that but in my previous life...I've made mistakes. But I don't think it was like mistakes based on an investment decision, but it was a mistake based on just mistakes. You think you're putting a one and you put a five so and you lose some money for someone in the process"* [T2HB-Q3-P10].

On the contrary, making wrong investment decisions are seen as good because it keeps investors level-headed. Further, too many successes results in over-confidence. *"It's actually…it's a good thing in a bizarre kind of way. But you do need a few of those setbacks, just to bring a little bit of humility into you as a person, as an investment professional* [T2HB-Q3-P3]. *We learn from that that is not what is successful. However, we also learn from the market; there would have been a mark that indicated* [T2HB-Q3-P18]. *And I don't know? I was always of the view that understanding that you are going to get lots of decisions wrong is the first step to helping you deal with it. So, it shouldn't surprise you when it happens. And it still doesn't make it easy. As I have said, I take them, or I can take them a little bit personally. And it gets to me. And it stresses me out, because, you know, first of all I am trying my absolute best to deliver to the client's expectations"* [T2HB-Q3-P20].

Thus, showing conviction towards investment decisions is critical, even if it was not the right decision. *"If you have convinced them of your view, then you just need to set it out. I think that is really important. I do not think you should go and start and changing your views or any of your actions, because it is not happening at the moment. Or markets are probably trying to force you in taking a different view or decision. So, I am not too sure if that is one hundred percent correct? So, yes, I think you are going to take some decisions sometime that is not one hundred percent correct. But you need to look at your long-term view. And a long-term view, if you believe and you are convinced, then that is what you are going to do* [T2HB-Q3-P15]. *It is equally tempting to hold out for better news. Even though perhaps it is psychological? Because nothing does change. At least you are not reasonably expecting*

something to change. So very often I hold positions longer than I should, I suppose like many people who trade [T2HB-Q3-P16]. *And I can always give you… I can always, with conviction, tell you: This is why I made this decision. Whether it is right or wrong. And sometimes it is wrong. But I will stand by it. I have conviction in why I made this decision. Because at the time it made sense. Yes. At the time these are the variables I had to play with. , you know, that is what I took into account. And I made the decision* [T2HB-Q1-P14]. *So do I trust myself 100% when I make an invest decision and understand what it is earmarked for and to see the benefit of that? Yes. Always* [T2HB-Q1-P17]. *Where does that conviction come from? As I have said, it is because I trust myself "[*T2HB-Q1-P17].

4.4.2.12 Past Mistakes and Investor Psychology

However, it is important to note that past mistakes impede on the psychology of investment decision-makers. Errors associated with investment decisions negatively impacts investors' confidence and thus influences their abilities to make a rational investment decision, of similar nature, in future. *"So if you've made an investment decision and it is supported to be wrong, it can get difficult to have the confidence to go back in again, because of you have been bitten by it. So you would rather want to do something else* [T2HB-Q1-P3]. *And it has developed from things like, if the company has done well in the past… you think they will always do well. But it doesn't happen that way. Because if you think they've don't badly in the past, you think they will always do badly. It doesn't happen that way either"* [T2HB-Q1-P4].

Further, fear is associated with past mistakes and thus influences investment decision-making. *"Oh absolutely they must, because your… if I've experienced a default, you know, in our field and experiencing somebody who can't pay you back, that is horrible. It's a horrible experience. It involves lots of lawyers and it's just a terrible drawn out, soul straining experience to go through it. So if you've experienced, especially when you are accountable for it, a default… that sort of almost scars you. Or it becomes imprinted on your mind for the future. You know, in my own experience, I'm having difficulty in construction right now. It's a horrible, horrible process"* [T2HB-Q1-P12]. There are heuristics and biases associated with wrong decisions and financial losses that impact investment decision-makers psychology. Furthermore, fear of mistakes and losses will influence investor psychology and impact future

investment decisions. It must also be taken into consideration that quick decisions, uncertainty and complexity also influence the psychology of investment decision-makers.

4.4.2.13 Heuristics and Quick Decision-Making

"And I think we need to act quickly and see how we could counter for that and see what you are going to do. So, ja, again I... this is a different...a total different philosophy in terms of the multi-asset, multi-strategy type of investing. And I mean it is not something that you can leave for two, three days or a week. You need to take a decision and take a stance and execute accordingly. Ja, you have to do that, because the longer you take, it might have a bigger impact. So, I think it is quite crucial for you to understand that and understand the decision that you are making that that is the right decision. And I think, ja, that is where we are" [T2HB-Q4-P15]. There are heuristics associated with investment decisions. This supports the theory of heuristics by definition that heuristics are associated with making quick decisions and personal judgements about unclear situations. *"So, if I'm rushed and I can't do the quality job, then I sometimes feel less enthusiastic about any particular investment. So, rushing is the thing that I do not like. It's really hard though because, ja, sometimes you don't realise why you not keen on something. It's… it is something that sometimes I become aware of it. And I try to be objective and… you know on the emotion side it always helps if you leave it for the next day. You know especially if you are not being rushed"* [T2HB-Q2-P12].

It has been found that investment decision-makers continuously make difficult decisions. *"We are constantly making difficult decisions. Because we are trying to take a view in the future and I don't even know what is going to happen in the next hour! I'm going to try and take a view as to what I think the company will do in the next 12 months, 24 days, six months…Five years* [T2HB-Q4-P4]. *I think it's always complex because as I say you don't know what the future holds. If you knew what was gonna happen, everybody would…investing would be easy and everybody would be millionaires. So, unfortunately, it doesn't work that way, so I think every decision that you make is stressful. There is always a - it's the same process always and I can't"* [T2HB-Q4-P7].

Thus, investment decision-makers tend to take more conservative portfolio positions, under conditions of complexity and uncertainty. *"So, in those cases, you take a more conservative*

approach. Other times you've got more confidence and you would take bigger positions. But I think every environment is uncertain, it's stressful, I wouldn't say there's one or a certain type that's easier or more... difficult to do [T2HB-Q4-P7]. *And now it's not for me. It wasn't – it sounded very nice, but I wasn't sure whether they would actually deliver. Because what sounds quite good doesn't – in my experience - until it actually translates into action, you just don't know"* [T2HB-Q4-P9].

Further, investors will make a 50-50 call whereby the outcome is either positive or negative. *"So, to your question is that sometimes there are other things that are – that I…I don't have to make a 50-50 call. That's the key. And when I do have…do have to…going along those lines, then there is usually a system in place that can actually guide your decision for you"* [T2HB-Q4-P9]. However, sticking to your investment decision is critical. "*Ja, I think it complex… you know, you must… you have your plan what you sit and do…when you decide to trade and all the levers you look at. And I think you must just be consistent in your process. You must always just look at the same stuff. Don't like today to go: Oh, now I'm panicking so let's look at this…, you know, just stick to your guns. And you've got your list and you've ticked them all. And… so that is also why sometimes you know you lose money for three, four months consecutively but you are sticking to your guns because you know eventually the market turns and it has to turn"* [T2HB-Q4-P11].

4.4.2.14 Uncertainty and Complexity Associated with Investment Decision-Making

Uncertainty impedes on the complexity of investment decisions and can result in demotivation. *"Every day. That's a difficult question. It's sometimes because companies keep frequently issuing debts all the time. You know what to expect from Credit Committee... this is what I need to prepare. This is what these guys are going to say. But you are not motivated to even do the credit properly because you can sort of anticipate what you're going to get and you think it's wrong by the way because if you didn't think it was wrong you wouldn't even take the credit to them* [T2HB-Q4-P10]. *Hm…so I would say that most of them are very complex decisions. You can always, for example, invest in stocks. You can always just grab a PE ratio and take it on, on the face of it. But very often that is misleading. You know? So even if you do believe the investment case is sound. For a sector company you believe the management is good. Everything works out from a theoretical sense, you still have the odd Stock A, you know. So, would it have been to my benefit? And just taken a*

deeper dive into the financials? Absolutely. But we only know that in hindsight. So, it is a situation terribly complex" [T2HB-Q4-P16].

Respondents indicated that seeking advice from external parties under complex situations can assist with rational investment decision-making. *"Well, first of all, I separate it into two categories of complicated. One category is that it is complicated because it's a distress scenario. The more complicated the deal, the more people's opinions I will ask. And the more eyeballs I would like to be on what I'm doing, just to check that I'm not believing my own bullshit. Because you do believe your own bullshit. Don't say bullshit…We can say bullshit. There you go! You do. You do believe your own rubbish. You convince yourself and in your head. And somehow you are right! And so, the more complex it is, the … and these are new deals and distress deals the more people's input you want because you want to challenge your own assumptions. You want to challenge your own thinking and not rattle around in your own head"* [T2HB-Q4-P12].

Familiarity bias is associated with uncertainty because investors will avoid unknown or unfamiliar investment decisions under uncertain conditions. *"I almost try and avoid things that are untested…because there are risks that I don't know, I don't know about. Do you know what I mean? Whereas if you go the tried and tested route and do things that are similar to what we have done and have worked in the past, so I try to stay there and I try to simplify as much as I can"* [T2HB-Q4-P12]. Many factors will impact the complexities associated with investment decision-making including that investors tend not to share information under conditions of uncertainty and complexity. *"So, it was very... ja, there was a lot of factors that made it very difficult to make a pure investment decision, but, ja, you still had to operate in that environment* [T2HB-Q4-P13]. *Because of the factors at play, sometimes it's too complex to really ascertain exactly what it is. Sometimes it is because you've got a lack of information. A lack of clarity. A lack of transparency from the people that you deal with, you know and in our kind of world a lack of transparency is sometimes the way we kind of operate where people keep cards close to their chests"* [T2HB-Q4-P14].

However, complexities associated with investment decision-making are reduced through comprehensive research and analysis before making investment decisions. *"I cannot think of a situation where something has been significantly more complex. Which has required to change in the way that you would think about it, you know? If you are looking across markets*

and across industries and stuff [T2HB-Q4-P19]. *I mean I am picking on them, because they are topical at the moment. But you know often there are complex companies to analyse, where you really have got to understand the granularity of the stuff to get a good handle on it. And if you put the work in and the time and you end up making the right decision, then you know that that is what it is about then. That is why we do what we do. And it is quite rewarding and quite fulfilling. You are investing if fixed income market opportunities. They are there. They are fairly transparent. You have just got to decide which way are they going to go? And so, they are not necessarily complex, but still takes a lot of work and intuition and experience to get the direction that they are going to move in, in the markets"* [T2HB-Q4-P20].

Thus, investment decisions under conditions of complexity and uncertainty require (i) thought processes; and (ii) due-diligence. *"I think all investment decisions require a lot of thought processes and due diligence because there is always a lot surrounding it. You have to think about the quality of management. The quality of the financials. You know, the macro environment that they are operating in. The valuation of the various companies"* [T2HB-Q4-P19].

The theoretical model below explains theme 2, which focuses on heuristics and biases associated with investment decision-making. The purpose of building theoretical models is to process explanations and theories (Pentland 1999). Theoretical models explain the relationships that the various factors have on a research topic (Gottman *et al,* 1996).

The identified sub-themes identified include personal views, opinions, experience and emotions; and the separation of these factors from investment decision-making. Further sub-themes include wrong decisions, financial losses, past mistakes, complexities, uncertainty and quick decisions. All of which influence investor psychology, heuristics and biases when making an investment decision. Lastly, group dynamic biases, emotional intelligence, gender biases, cultural biases and ‘gut-feel' also influence investment decision-making. The diagram illustrates the relationships that these sub-themes on each other and investment decision-making. Further, the below connections have been derived from the findings and a summary is provided. The below diagram can be tested through quantitative measures in future research.

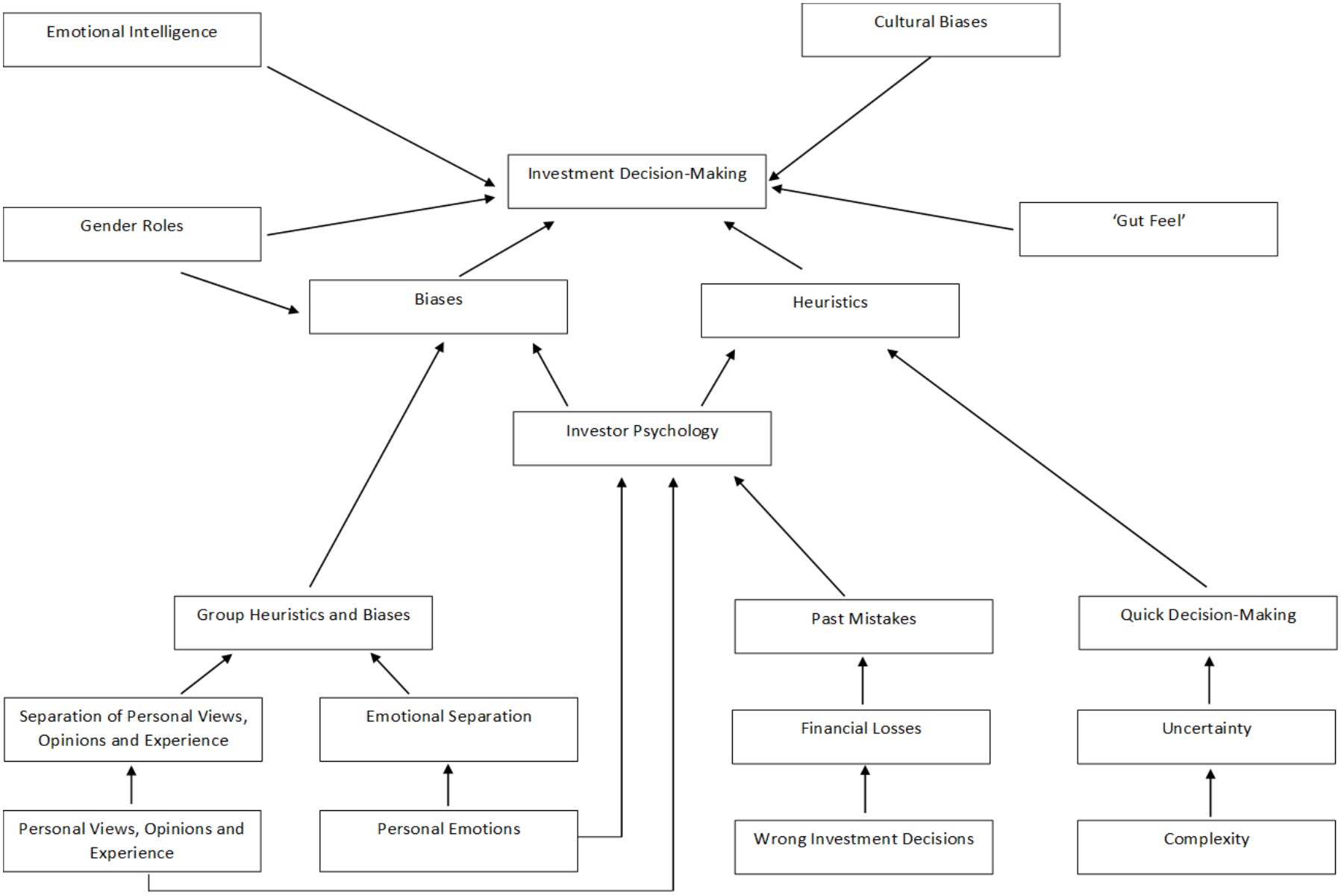


Figure 6: Theoretical Model on Heuristics and Biases Associated with Investment Decision-Making

The summary provided explains the causal relationships between the sub-themes derived from the research. It is important to note that the arrows in the above model indicate the relationship that these sub-themes have on investment decision-making which is represented by the arrows pointing to each sub-theme and explained below.

Personal views, opinions and experiences all influence investment decision-making. It was found that experience is most prevalent in investment decision-making. However, personal views, opinions and experiences can cloud rational thinking and impact investment decision-making. Thus, the separation of personal views, opinions and experience from investment decisions is difficult but imperative. Further, personal views, opinions and experiences all influence investment decision-making. Thus, to successfully reduce heuristics and biases, investment decision-makers will surround themselves with a team who can identify heuristics and bias.

Personal emotions are innate to humans and thus influence decision-making. However, emotions can cloud rational thinking when making investment decisions. Thus, separating personal emotions from investment decisions will improve rational thinking. However, separating emotions from investment decision-making is difficult. Thus, exercising emotional control measures have proven to be sufficient for investment decision-makers. Further, following systematic investment processes and seeking guidance from other people can assist in reducing emotions from clouding investment decisions.

Controlling mechanisms for personal views, opinions, experiences and emotions include seeking assistance from external parties, such as team members or managers. However, it must be taken into consideration that there are biases prevalent in group dynamics because individuals possess their own set of heuristics and biases which influence investment decision-making.

Emotional awareness involves emotional intelligence. Emotional intelligence includes personal emotional awareness and emotional awareness of other individuals. Thus being empathetic and understanding towards other people is critical for investment decision-makers. However, gender biases are associated with emotional intelligence. It has been argued that women are more emotional than men and that showing emotion is considered weak. It must be taken into consideration that the investment industry is still predominantly

male-dominated. Thus, the notion of expressing emotion in this industry is often associated with the perceptions of women being emotional. However, showing emotion and compassion to others forms part of emotional intelligence. Thus emotional displays in the investment industry results in heuristics and biases associated with investment decision-making.

Additional factors that influence heuristics and biases in investment decision-making include wrong decisions, financial losses, past mistakes, quick decision-making, uncertainty and complexity. It is important to note, however, that wrong decisions and losses form part of the nature of investing. Wrong investment decisions can result in financial losses. These contribute to past mistakes and investor psychology. Investment decision-makers will be biased towards future decisions because the losses experienced from wrong decisions and past mistakes negatively impact investors' confidence and thus influences their abilities to make rational investment decisions of a similar nature in future.

Investment decision-makers are also faced with complexities and uncertainty when making investment decisions. Complex and uncertain conditions result in quick decisions. However, there are heuristics associated with investment decisions under such conditions. Thus, investment decision-makers tend to take more conservative portfolio positions under conditions of complexity and uncertainty.

The notion of 'gut-feel' is prevalent under conditions of uncertainty and complexity. Intuition or 'gut feeling' is associated with heuristics and biases because it is human nature and influences the way in which decisions are made. It was found that using 'gut feelings' as a basis for investment decision-making is irrational. It must also be taken into consideration that culture plays a significant role in investment decisions. Cultural upbringing provides notions of reality and individual truths. Organisational culture sets the tone of an organisation and thus the decisions made by investment decisions.

Investor psychology influences heuristics and biases. Heuristics and biases are based on personal views, opinions, experiences, emotions, uncertainty, complexity, quick decisions, wrong decisions, financial losses and past mistakes when making investment decisions. Thus, controlling mechanisms are significant to investment decision-making.

4.4.3 Theme 3 Analysis

Theme 3 focuses on rational and irrational investment decision-making. The research question asked related directly to a rational versus an irrational investment decision maker. This was a direct question and asked each participant to define and describe what characteristics are associated with a rational and an irrational investment decision maker. A new model of rational versus irrational investment decision-making has been proposed.

Heuristics and biases have received attention in the field of management. A new model of heuristics and biases associated with investment decision-making has been proposed, but to understand heuristics and biases, one needs to understand the idea of rationality and irrationality. The notion of rationality and irrationality associated with decision- making has been widely studied in the field of management. However, rationality and irrationality associated with investment decision-making lacks knowledge. Each participant was asked to describe what they would consider a rational versus an irrational investment decision-maker.

4.4.3.1 Rational Versus Irrational Investment Decision-Making

The respondents had some contrary views with rationality versus irrationality associated with investment decision-making. The notion of rationality and irrationality is subjective. Further, disagreeing with an argument does not pose the concept of irrationality but rather that of personal preference and belief. *"Ja, you see I don't necessarily think - I've never met an investment professional that was irrational. I've encountered people that I would say I would disagree with their arguments, I would even strongly disagree with their arguments, but I wouldn't say that their arguments are irrational"* [T3RIIDM-Q1-P8].

Investment decisions are based on the related framework that influences the rationality associated with an investment decision. *"It depends on the framework. So, within their framework, their decision is obviously rational"* [T3RIIDM-Q1-P8]. Thus, irrationality can be based on assumptions that are rational to the factors associated with a particular framework. "*Why? Because something seems irrational in my framework if you do this and then you find out, oh, it's because he makes that assumption. Well, if you make that*

assumption, sure, then everything makes sense, so let's challenge this assumption then. So that's why I am not a fan of that phrasing 'irrational'…this is irrational [T3RIIDM-Q1-P8].

Other contrary views posed were whether human beings are rational. *"Are any of us really rational? [Chuckles]"* [4Q1-P7]. This is an important question because human beings are bound to making irrational decisions because the perceptions of rationality and irrationality are based on subjectivity and perception of the norm. However, drifting away from the norm can be perceived as irrational. *"You defer it away from what you do normally* [T3RIIDM-Q1-P18]. Contrary to popular belief, irrationality may not be the wrong decision to make. "*Whereas irrational...ja, look, you might have cases where irrational might be the right decision! Let us not move away from that"* [T3RIIDM-Q1-P15].

4.4.3.2 The Nature of Investment Decision-Making

The nature of investments requires logic and scientific methods when making investment decisions. *"Especially in the business that we operate in, where it is supposed to be more of an exact science. And that vulnerability can lead to irrationality"* [T3RIIDM-Q1-P17]. However, the ability to acknowledge irrational investment decisions has proven difficult. *"Or stop yourself from being irrational. That sometimes is the hard part"* [T3RIIDM-Q1-P20].

Therefore, the notion of science associated with investment decisions requires a level of wisdom and the ability to comprehend perceptions constructively to make a substantial investment decision. *"And I think this is the most important one, is to be able to collect the combination of the first two, to be able to digest the wisdom and the perceptions and deal with what other people are gauging you on and then to be able to make that informed decision yourself and put that on the table"* [T3RIIDM-Q1-P17].

4.4.3.3 Investment Biases

The main biases that have been associated with the concept of irrationality are the trend-chasing bias and disposition-effect bias. Trend-chasing bias involves using historical data to predict future returns. The future is unpredictable and the action of trying to predict the future is irrational *"You build a financial model. I mean you cannot accurately forecast the future"* [T3RIIDM-Q1-P4]. However, the respondents use historical data to predict future returns of a

given stock. This begs the question of whether this is the nature of the investment industry, given the information that is readily available.

The disposition-effect bias relates to investors selling winning assets - when the market price is high and holding onto losing assets - when the market price is low. This is considered irrational because investors tend to chase market movements and do not take a long-term view *"So we are only gauging irrational decision-making where you would buy a share because it is sold off. Or you will sell a share because it has gone up. So, to repeat that, irrational is when you make a decision based on share price movements"* [T3RIIDM-Q1-P4].

Conversely, the action of holding onto losing stocks and selling winning stocks is rational because of the potential return earnings that a stock can generate. *"So, you wanted to buy something because it's down. So, you hesitated and then it turn and it runs and so you want to buy it. So, you are just chasing the market. Similarly, when it turns and it falls down and you want to sell instead of buying"* [T3RIIDM-Q1-P3]. This begs the question of whether chasing the market is considered rational or irrational. Further, whether the nature of the investment industry is to gain short-term earnings while the opportunity presents itself or rely on long-term returns under the assumption that long-term growth is inevitable. It is important to note that the nature of investments is short-term or long-term. Thus the nature of investment opportunities will also influence investment decisions. *"So, because we take long term views. We are not a trading portfolio. And so if I would say, I honestly do not think it has an impact"* [T2HB-Q2-P19].

4.4.3.4 Characteristics of a Rational Investment Decision Maker

Each respondent was asked to explain what they would consider a rational versus irrational investment decision maker. Firstly, a rational investment decision maker follows a comprehensive process. *"So rational, in my mind, is where you can show a process that you follow to get to that decision. Irrespective of the outcome. So, you could have gotten the outcome wrong, but at least you can show a detailed, thorough process which is transparent, which is repeatable* [T3RIIDM-Q1-P3]. *So rational decision-making is when you follow a process and you are true to your process. So, as an example, as you assess a company. Assess the sector. See what its competitors are doing, you see what this company does have,*

what drives this company's performance. You assess the strength of the management team. And you go through many processes" [T3RIIDM-Q1-P4].

Secondly, a rational investment decision maker is someone who has a plan and a clear objective. *"It involves a rational investor actually referring back to his original plan of what is he trying to do. That is really rational to me* [T3RIIDM-Q1-P12]. *I think a rational decision-maker is somebody who has a clear objective, who goes through a very…I don't want say dogmatic, but a process to arrive at a decision* [T3RIIDM-Q1-P16]. *So rational is somebody that follows the steps that are in place, that you have always followed* [T3RIIDM-Q1-P18]. *Rational is someone who has a very clear idea of what the process is. The type of investments that they would like to make. Rational people is people that will stick to that process"* [T3RIIDM-Q1-P19].

Thirdly, a rational investment decision maker includes comprehensive research in their investment decision-making processes. This includes the ability to understand the industry, gather the relevant facts and obtain a holistic view. *"Rational is fundamental research, so when you understand the industry and you take long-term bets on the industry, on the management, which is what we do* [T3RIIDM-Q1-P6]. *A rational investor is one that gathers facts and then bases his opinion on the available information in front of him* [T3RIIDM-Q1-P13]. *The first one being the facts with the situation and how you understand and deal with the facts. Okay? Because what makes a person rational is being able to consume information that is at hand and to be able to make an informed decision about that information. Those sort of facts are very important* [T3RIIDM-Q1-P16]. *Sjoe! Okay. I think a rational decision maker is probably somebody that takes into account all aspects. So, you are not making a decision based on the fly, based on one piece of information that you have received. Or based on just one specific event. You need to take everything into account"* [T3RIIDM-Q1-P15].

Fourthly, a rational investment decision maker is someone who has a long-term view of their portfolios and does not purely base their decisions on market movements. *"In my space is one who considers the long-term effects of what they're doing. At the back of their mind, with the idea that I still need to be in the best position for today, because you competing with day traders, you also a trader on that day, but it's more holistic"* [T3RIIDM-Q1-P5].

Fifthly, a rational investment decision maker is someone who can identify and exploit opportunities, has guiding principles and a substantial reference structure. *"Rational. Looking at the opportunities set, you know. Taking into account most of the variables in play. And have a good frame of reference for, you know. The guiding principles. Very important"* T3RIIDM-Q1-P14].

Sixthly, a rational investment decision maker is someone who has a balance between the risks and rewards associated. *"I think a rational one is one where you… It's like where there are processes in place. You know what levers to look at. When you feel comfortable when trading when those levers reach a certain point, whatever trigger point. So, it's a balance between risk and reward"* [T3RIIDM-Q1-P11].

Seventhly, a rational investment decision maker is someone who can divorce emotions from logic. *"So, somebody who can almost separate the emotion from the journey, I suppose is the most rational* [T3RIIDM-Q1-P16]. "*Yes, you may have your own opinion. You have chatted to your other colleagues today and they have very different answers to the questions that you have asked. There is no right or wrong answer in a lot of situations… there is not a right or wrong answer. It is a combination of wisdom* [T3RIIDM-Q1-P17]. *So, my number one is that you've got to be aware if you're falling in love with something. And that's not to say you can't have beliefs ...and that you can't make…that you can't champion a cause, that's not to say you can't. But you've got to be careful of not crossing that line as that you've…that you've crossed it because of…because of something that's just emotional as opposed to logical"* [T3RIIDM-Q1-P9].

Lastly, the ability to disassociate emotions and admit wrong-doings is considered as a rational investment decision-maker. *"Rational would just be the antithesis of all of those. So, someone who is stable. Someone who is not too emotional. Someone who can admit that they were wrong. Someone who doesn't…who is not greedy"* [T3RIIDM-Q1-P20].

4.4.3.5 Characteristics of an Irrational Investment Decision Maker

Firstly, an irrational investment decision maker is someone whose emotions cloud their judgement and dictate their investment decisions. *"Irrational is often linked to emotions, I think. So, if the emotional mood swings on a personal level or in you…or just your DNA are*

wild, I think it can come through in irrationality. Bone headedness is irrational [T3RIIDM-Q1-P20]. Furthermore, someone who panics when unexpected situations arise. Okay so I, I think an irrational one is one who panics. When something happens, unexpected external thing happens and you panic" [T3RIIDM-Q1-P11].

Secondly, an irrational investment decision maker is someone who will champion a decision and is overconfident. *"You have and it doesn't matter whether it's an advisor, technical advisor or not, but you have people that fall in love with companies or CEOs or…and ideas and that's what you've got to be very careful of, is that you've got to…you start to champion a cause and actually you shouldn't be"* [T3RIIDM-Q1-P9]. In addition, overconfidence is derived from emotions and assumptions that the outcome will always be favourable. *"Irrational would be someone who thinks that they are going to get all their calls right. Or most of them even right"* [T3RIIDM-Q1-P20].

Thirdly, an irrational investment decision maker is someone who continually changes their investment decision based on their emotions. *"An irrational decision-maker is someone who chops and changes his mind regarding an investment, constantly. So, someone who is just moved by the market…like...emotions"* [T3RIIDM-Q1-P13].

Fourthly, the use of 'gut-feel' when making investment decisions is considered irrational. *"I think what relates to irrationality is the fact that often people go, in the absence of knowing and try and use instinct or their gut feeling and that could also lead to right answers, but that is, in it's very from"* [T3RIIDM-Q1-P17].

Fifthly, an irrational investment decision maker is someone who bases their investment decisions on judgements and assumptions. *"Somebody who is irrational, whose emotions cloud their judgment, they let… they make decisions purely based on assuming. And assumptions. And I think many times they try and go it alone. So be part of an effective team that is effective…to be part of a productive kind of cohesive unit which you surround yourself with"* [T3RIIDM-Q1-P14].

Sixthly, an irrational investment decision maker is someone who tries to prove a point and lack of emotional awareness. *"What also can lead to irrationality is not being able to take the emotions of the concession into account and only using those to try and perform with your*

view, just because you either want to prove that you are better than someone else. That you want to… you just have a different view, for the sake of having a different view, which often happens" [T3RIIDM-Q1-P17].

Seventhly, an irrational investment decision maker is reactive to external 'noise' and has a lack of investment experience. *"Irrational investment decision-maker is someone who is constantly reacting to noise"* [T3RIIDM-Q1-P19]. Also, an irrational decision-maker would be someone who has no experience in a particular type of investment. Or investing in a particular sector or field. *"And doesn't have access to someone who has got that experience*" [T3RIIDM-Q1-P12].

Eighthly, an irrational investment decision maker is someone who does not do research or follow a comprehensive process. *"Irrational is when either you did not have the process, or you have it and you don't follow it. And you are just acting you know in between this, reacting most of the time* [T3RIIDM-Q1-P3]. *Uses incomplete and bad quality research obviously irrational is someone who has based his or her investment decision on incomplete or bad quality research* [T3RIIDM-Q1-P12]. *So irrational would be someone who, first of all, does not do the work. Or the analysis. Because then it is guessing"* [T3RIIDM-Q1-P20].

Ninthly, an irrational investment decision maker is someone who reacts to market movements. *"So probably I think if you chase short-term gains, it's always going to be irrational, so the market moves up and down for various reasons and we can get clouded on, today it's up tomorrow it's down* [T3RIIDM-Q1-P6]. *And taking very short-term views and short-term bets* [T3RIIDM-Q1-P19]. *Irrational is just trying to do what day traders do in a non-day trader example. You can't do that. It's not like when you buy something you're not going to sell it again, so you need to make sure that you buy properly. If I'm buying, I'm buying. If I'm selling, I'm selling. I'm not trying to make money on the spot* [T3RIIDM-Q1-P5]. *Relies on day-to-day moves. Watches it daily and allows that to influence the behaviour. That's irrational. Or perhaps equally irrational is somebody who does not know themselves"* [T3RIIDM-Q1-P16].

Lastly, an irrational investment decision maker is someone who does not diversify their investment opportunities and places all their investments into one asset. *"So, I think an irrational investor would be someone that just goes all out all the time and so you're not risk*

cognisant... so you just 'gooi' everything into one pot and hope for the best. That's not acting rationally, because we're investing people's retirement money if you think about it" [T3RIIDM-Q1-P7].

4.4.3.6 New Model of a Rational Versus and Irrational Investment Decision Maker

Therefore, a rational investment decision-maker is someone who has a defined process, does comprehensive research and industry analysis. Further, a rational investment decision-maker is someone who uses logic, separates emotions when making investment decisions and diversifies their investment portfolio. An irrational investment decision-maker is emotional, does not do research or follow a comprehensive process. An irrational investment decision maker is someone who uses their 'gut-feel' and is emotionally driven. Further, they do no diversify their investment opportunities and react to market movements. Based on the above mentioned characteristics associated with a rational and an irrational investment decision maker, a new model of rationality versus irrationality associated with investment decision-making has been proposed.

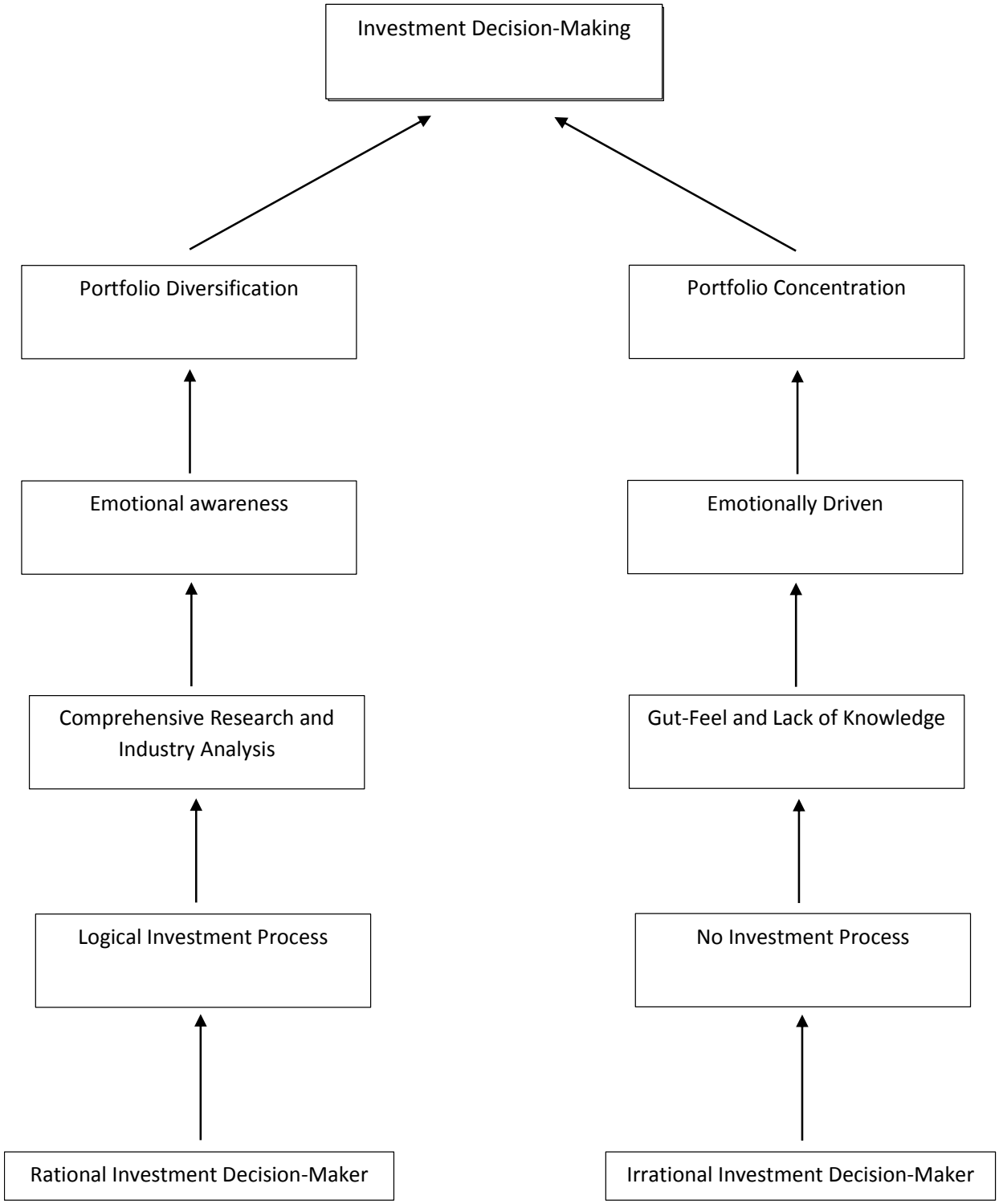


Figure 7: Theoretical Model on Rationality versus Irrationality Associated with Investment Decision-Making

4.4.4 Theme 4 Analysis

Theme 4 focuses on the factors that influence investment decision-making. It is important to understand that the nature and sectors of investments will have different factors that influence investment decision-making. The questions asked referred to investment decision-making processes and a subsequent question related to the type of research done prior to making an investment decision. The investment decision-making processes will also be presented in a diagram form. Human heuristics and investment biases will be highlighted, discussed and further explained.

4.4.4.1 Individual Investment Processes Analysis

i. Participant 3

Participant 3 specialises in investing in equity and explained that his investment decision-making process involves four steps. The first step is a bottom-up analysis that evaluates valuations and assessment of fundamentals. The valuation phase comprises of internal and external analysis. The internal valuations include an understanding of the industry and the use of personal judgements and experience. The external phase comprises of asset valuation, peer comparison and historical asset data analysis.

The assessment of the fundamentals phase includes analysing the operational environment regarding market evaluation and perspective. Further, the trading position follows market prices and determining whether to buy or sell. Further, if the market price is low, then a stock or stocks will be bought, or if the market price is high, then a stock of stocks will be sold.

The second step involves an analysis of non-financial internal and external factors. The internal factors include an analysis of management quality, business exposure, company track record and governance, and the share price and global earnings. The external factors comprise of an analysis of the industry position, whether the company is a price leader or price lagged, the company ranking, industry survey and stewardship of the company.

The third step evaluates the thematics of the stock which includes evaluating the emergence of the market-company, regulation and legislation and investment thesis. Once these steps have occurred, Participant 3 will make his final investment decision. Heuristics and biases were identified in Participant 3's investment decision-making process. The heuristics and biases identified were as follows.

Firstly, heuristics and biases are prevalent within the first step - bottom-up analysis. The first bias is trend-chasing bias. Trend-chasing bias is an investment bias that involves the use of historical data to predict future performance of a company or stock. He stated that "*when looking forward, we come up with an assessment that says: This company is going to grow at 18%, for example"* [T4IIDMP-Q1-P3]. Participant 3 highlighted that part of his internal analysis of assets is to predict the future growth and return of a stock based on its past performance.

A second bias that appears in his process is during the assessment of fundamentals. He stated that "w*ell, if we think it is better in the stock, compared to where it is trading in the market, then we will buy"* [T4IIDMP-Q1-P3]. To provide a bit of background, in the investment space, investors will value a stock based on their criteria. If their stock value is lower than the market offering, they will sell and if the stock is valued higher that the market price, they will buy. In context, he mentioned that if their stock value is higher than the market price, he will decide to buy the stock because, according to his criteria, the stock price is low. This is an indication of the disposition-effect bias that includes selling a stock when it is high and holding onto a stock when the price is low.

A subsequent question asked related to the type of research Participant 3 does prior to making an investment decision. Participant 3 mentioned that he relies on his own research due reduce the confusion and noise. He further explained that he will use different sources to objectify his research. "*And then we present that to the team and get a debate going as to when and what…other people to tell me what they think. They can test my views and vice versa. And I implement. And once there is a position in the portfolio then I can look and talk to our people and see what they are thinking"* [T4IIDMP-Q2-P3]. He then mentioned that once has completed his research, he will have a debate with team members to get difference views and make a final investment decision.

"And *I double check… you know, maybe my own thinking. But if I've done a good enough job, I should not be swayed from what I thought"* [T4IIDMP-Q2-P3]. He then mentioned that he will double check himself. He pointed out that he should not be swayed by his final decision. "*It should either be corroborating my initial view, or where there are differences… right? From other people, when there is contrary view, then I need to go and test that and hopefully prove it wrong".* He made a very interesting point that he will try to prove contradictory views wrong. This is an indication of human heuristics and biases. More so confirmation bias and the notion of confidence. "*You are not just being influenced by someone else. And this is largely because also there are a lot of people out there that have different views. Right? So, you can flip-flop every day"* [T4IIDMP-Q2-P3].



Figure 8: Participant 3 - Investment Decision-Making Process (Internal and External 4 Step Process)

ii. Participant 4

Participant 4 specialises in investing in the retail sectors and explained that his investment decision-making process involves three phases. The first phase is research and involves market and economic analysis. The market analysis includes a local and global overlay, industry and market strength, consumer and company needs, and independent views. The economic analysis comprises of examining annual company reports, company capabilities, capital allocation and financial drivers of the company.

The second phase involves site visits of the potential investable company. This involves visiting the company, factories and subsidiaries, engaging with management, and an analysing the company stewardship. The third phase is an analysis of the financials and financial modelling. The financial analysis evaluates the cost and capital management, returns, operating assets and the share issue rate. The financial modelling involves analysing the market price – if the market price is high, then this indicates a sale and if the market price is low, then this indicates a buy. Once these three phases have been completed, he will make his final investment decision.

Within his three investment-decision-making phases, there are human heuristics and investment biases prevalent. The first bias in his process is trend-chasing bias. He said that "*I would start reading annual reports for the last ten or more years"* [T4IIDMP-Q1-P4]. This indicates that he analysis the companies using historical data to determine the prospects of the company. The second bias is in his third phase whereby he will build financial models "*Yes, therefore I want to buy it, because it is undervalued. Then the opposite is true"* [T4IIDMP-Q1-P4]. This bias is relating to the disposition effect bias whereby investors sell winning stocks - when the price of a stock is high and hold onto losing stocks - when the price of a stock is low.

The first human heuristic relates to him analysing the company. He stated that he will analyse *"how long you have to wait in queues. How is the service level?"* [T4IIDMP-Q1-P4]. There are human heuristics involved in this because service levels and queuing time are very subjective. He may be patient which would thus influence his judgement on how long or short the queueing time was. Further, his opinion of service levels will differ to another

person. This analogy is based on personal perspectives and is thus a personal heuristic and bias.

The second human heuristic was revealed when the question of personal emotions was posed. He mentioned that upon his site visits, he meets the CEO's of the companies. He explained that some CEO's are more charming than others. Thus, he might be in favour of one CEO over another when visiting the company. This human heuristic is a result of his emotions, feelings and opinions. "*You take a view of them. And the view could range from some CEO's are very charming. And after meeting them and speaking to them, you want to buy the stocks straight away"* [T4IIDMP-Q1-P4].

A subsequent question asked related to the type of research Participant 4 does prior to making an investment decision. "*External research being that we visit the company. And look at their operating distribution centre and that. Exactly. And then you take all of those perspective into…all of those… all of those you take into account. And we look at what their competitors are doing"* [T4IIDMP-Q2-P4]. Participant 4 explained that he does external research by visiting the companies that he wishes to invest in prior to making his investment decision. He also explained that he will review what the company's competitors are doing.

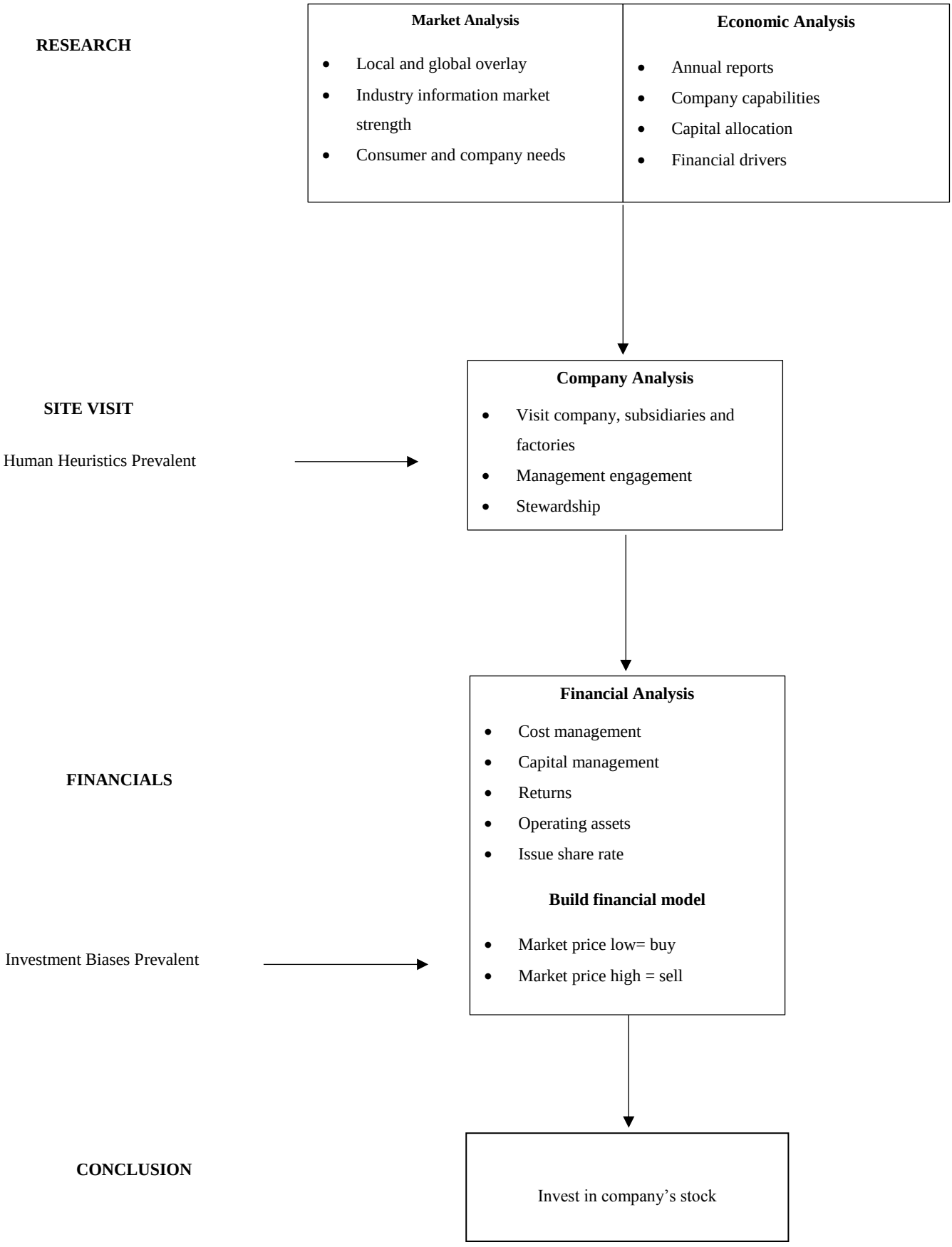


Figure 9: Participant 4 - Investment Decision-Making Process (Market Analysis Process)

iii. Participant 5

Participant 5 is a dealer and invests in stocks across multiple countries. He explained that his investment decision-making process involves three stages. The first stage is the investment decision whereby a comparison between an asset and its benchmark are analysed as well as a debate amongst the investment committee takes place. The second phase involves market and price analysis, conversations with brokers, and the buying and selling behaviour of a stock. The last phase is the buy and sell analysis whereby Participant 5 will buy if the stock price is low and sell if the stock price is high. After these three phases have been executed, he will then invest in the company's stocks.

The first phase involves a debate with his team as to which stocks to invest. There are human heuristics prevalent because the members of the debate will possess personal views and opinions as to which company to invest. "*So that takes time and we bash ideas and we debate and we think no, you can't be right there or whatever it is, but the minute we come to a decision that decision then has to be implemented"* [T4IIDMP-Q1-P5].

It is important to note that within those views and opinions, some of them are subject to heuristics and personal biases. In stage three, Participant 5 will do a buy and sell analysis. "*I want to go to the guy that's selling it at the least amount, so I can buy it at the lowest price right"* [T4IIDMP-Q1-P5]. This is considered as the disposition-effect bias because he will buy stocks when they are low and sell stocks when they are high.

A subsequent question asked related to the type of research Participant 5 does prior to making an investment decision. He then provided a very detailed scenario of a company that he has researched prior to making his investment decision. "*So yes, there is a lot of information that goes into our decisions. And we are always questioning things"* [T4IIDMP-Q2-P5]. Participant 5 explained that he has does very detailed research and constantly questions the information provided. This is considered a good thing because he will make sure that he does informed research on all aspects of his research.

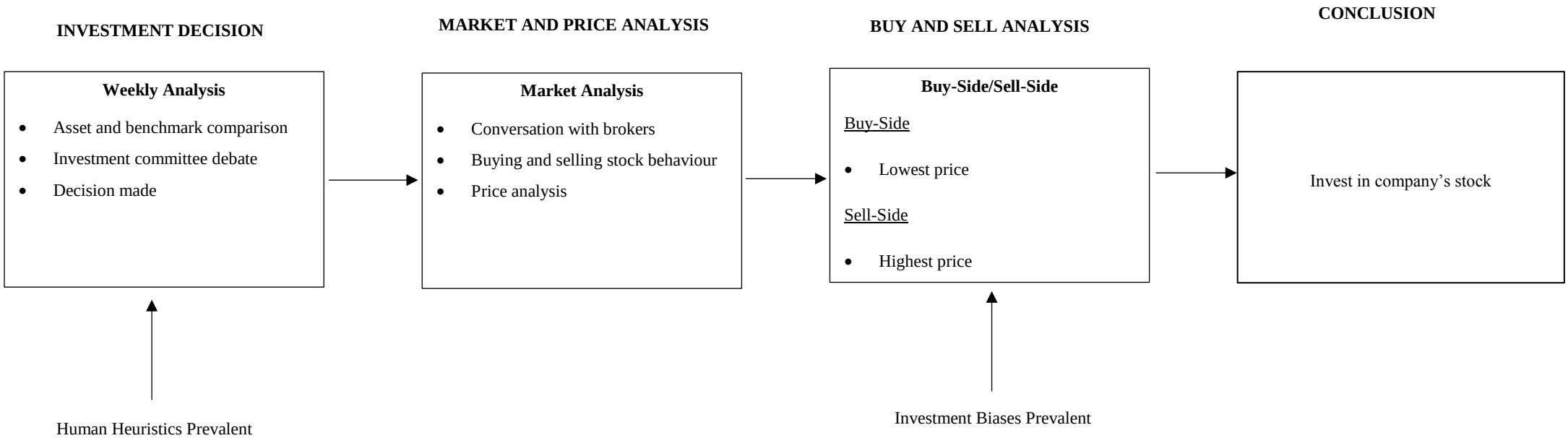


Figure 10: Participant 5 - Investment Decision-Making Process (Price and Market Driven Process)

i. Participant 6

Participant 6 specialises in investing in pharmaceutical and defensive sector and explained that her investment decision-making process typically follows three stages. The first stage involves a macro-environmental and company analysis. The environment analysis comprises of evaluating the target market, consumer behaviour, pay-out percentage, taxes, levies and industry assumptions. The company analysis involves an examination of the company costs, structure, assets and profit. The second stage analyses the competitive landscape that evaluates local and global competitors and long-term growth prospects.

The third stage involves investment decision factors such as geographic analysis which includes domestic and global evaluation and significant-sense; regulatory analysis; management discussion and site visits; and management decisions that analyses growth strategies. Further, the third stages includes risk and market success; regulatory analysis that evaluate government thinking and the issuing of licences; and site visits that involves an idiosyncrasy of the company and industry. After the three stages have been complete, she will take make an investment decision.

In the first stage of analysing the macro-environment, there are human heuristics and investment biases prevalent. She stated that "*I would then forecast depending on the macro overlay. So typically, casinos would grow, you know, 0.5 times what GDP grows and I would make those assumptions"* [T4IIDMP-Q1-P6]. The human heuristic is that she makes assumptions. Assumptions are involved judgements that are not based on facts. Furthermore, she does not have the facts, but she will assume a future outcome. Secondly, she mentioned that she will forecast the prospects of the company. This is typically trend-chasing bias because she is predicting the future of a company based on historical data.

A subsequent question asked related to the type of research Participant 6 does prior to making an investment decision. Participant 6 explained that her research involves a three-step process "*So we've got the valuation, we've got quality and you've got the matics". So, quality is talking to corporate governance, those kind of things. "If you're in a highly regulated industry and maybe negatively regulated, environmental impacts, let's say the mining industry, we'd tend to rank them very low and then the valuation speaks to the numbers. So, once we've done the industry and we've put in the numbers, what do the numbers say and*

then theme goes to the macro, so do we think we in a low growth environment so we like defensive stocks, are we in high growth" [T4IIDMP-Q2-P6]. Participant 6 has identified criteria to shortlist potential investment opportunities. The processes are very straight forward and based on the evidence provided.

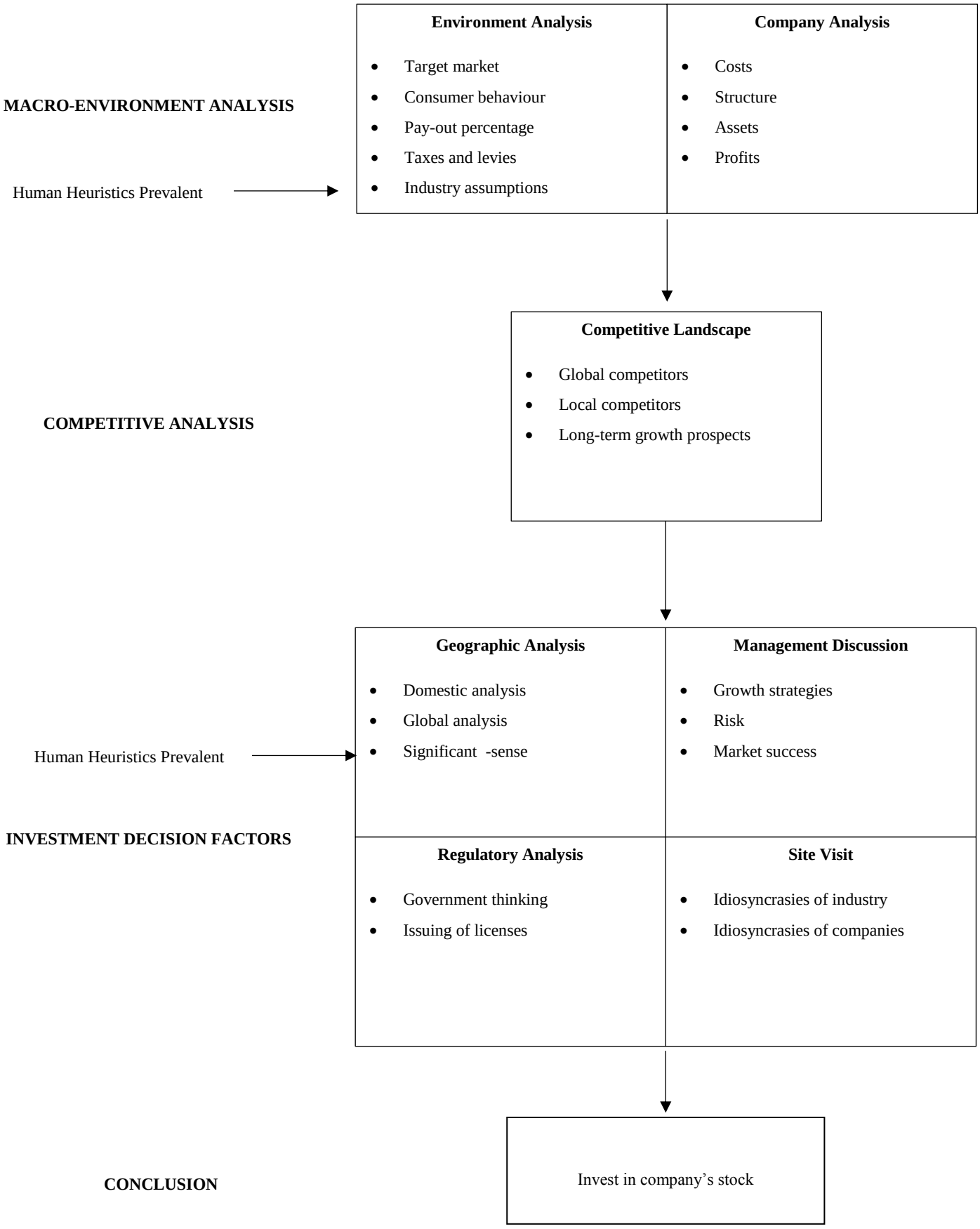


Figure 11: Participant 6 - Investment Decision-Making Process (Global and Local Market Analysis Process)

ii. Participant 7

Participant 7 specialises in investing in the fixed income sector and explained that his investment decision-making process is a simultaneous process that involves both a top-down and bottom-up approach. He will then take a view on his portfolio and make his final investment decision. The top-down approach involves an analysis of the global economic environment and the impact on the local environment, fair-value, current trading behaviour, future view of the stock, risks and short-term opportunities.

The bottom-up approach includes an analysis of patterns, historical data, quantitative measures and fundamental macro-economic processes. Once both top-down and bottom-up process occur simultaneously, a portfolio view to buy or sell the stock will be decided and the final investment decision will be made.

The investment bias in his process is in his top-down approach. He mentioned that "*So where are we relative to history, so a more quantitative view. Relative to history, given the current environment. So, you're joining the two, but where are we at the moment and do we see a pattern? Is something mean reverting? What is the shape the yield curve looks like, relative to history in the current environment?"* [T4IIDMP-Q1-P7]. This involves hindsight bias because he used historical date and incorporates that into the current environment to ultimately predict future returns.

Participant 7 explained that he is dependent on other people views. "*So, there is a large or big chuck of this stuff is coming from sell-side research, so someone presenting their views and ideas and you would not just look at one analyst that's obviously collating information from various people"* [T4IIDMP-Q1-P7]. The sell-side investors potentially have human heuristics and biases associated with the information they provide. Thus, he potentially bases his decisions on those heuristics and biases.

A subsequent question asked related to the type of research Participant 7 does prior to making an investment decision. "*And then you throw all that together in a pot and you assimilate that internally and you come up with your own view"* [T4IIDMP-Q2-P7]. He lastly mentioned that he will collate all his research and take a personal view that will influence his investment decision. It is important to note that the information provided is based on other personal

views and his personal view. Thus, there are a lot of points of human heuristics and biases associated.

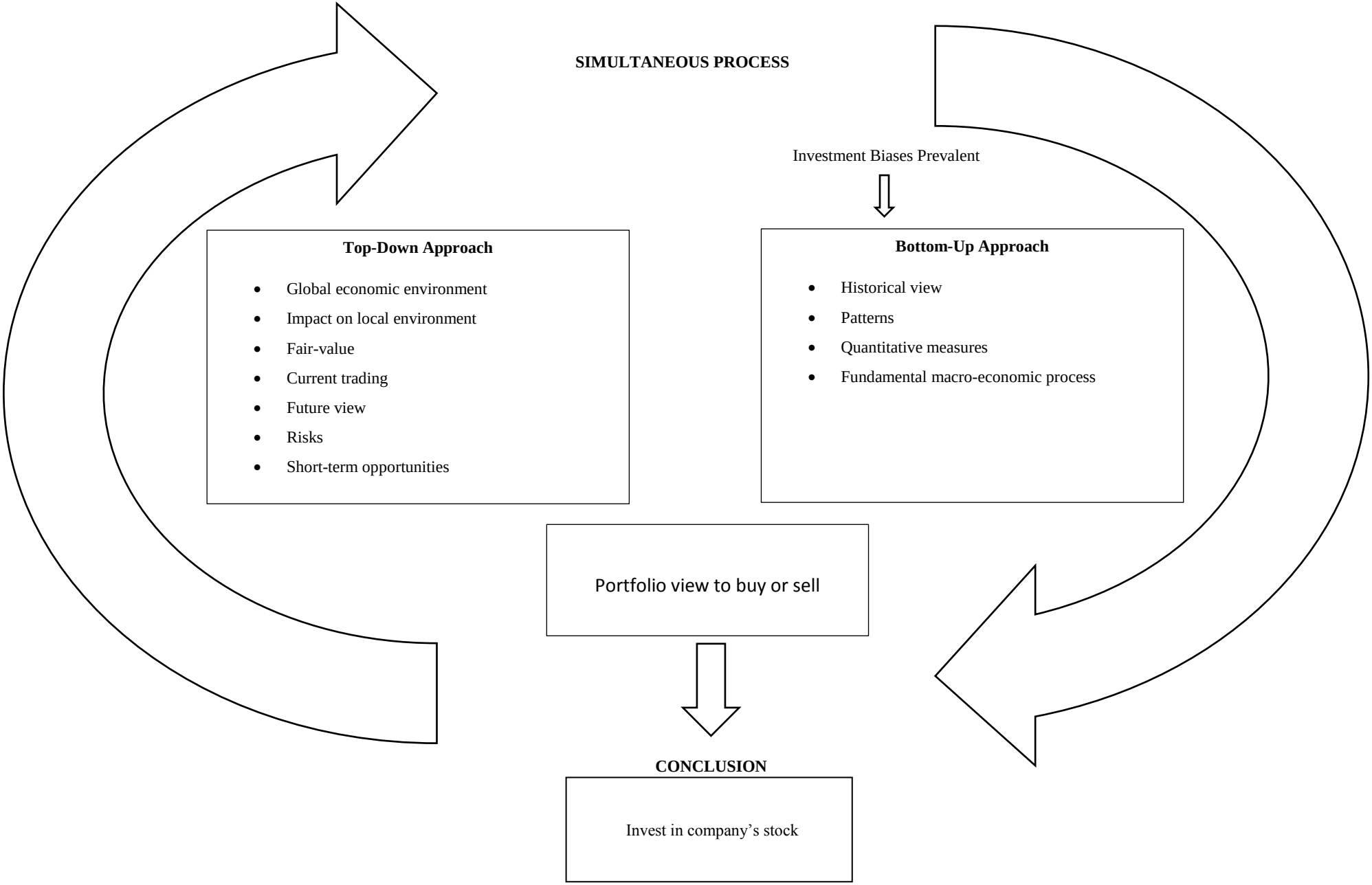


Figure 12: Participant 7 - Investment Decision-Making Process (Bottom-Up/Top-Down Process)

iii. Participant 8

Participant 8 specialises in associated risk in the equity sector. He explained that he has five stages in his investment decision-making process. The first stage is to analyse the current portfolio position which analyses the current portfolio and portfolio position. The second stage involves quantitative analyses that projects the tracking error associated with a stock. The third stage involves external research like current affairs and other people's views about a stock. The fourth stage includes reviews from different analysts and assessment that includes the analyst's portfolio position and their opinion. The last stage involves investigating and analysing the stock exposure and whether he will increase or decrease his investment exposure to a stock based on the guarantee of alpha and the associated risk.

A heuristic relates to the fourth stage of analysts review and assessment. He will consult an analyst about a company or sector and that analyst most likely has their own heuristics and biases towards a specific company, as seen by for example Participant 4 and how he can be persuaded by the charisma of a CEO. He stated that "*So then I go to the Company A analyst and I'm like: Listen Employee A, how are you? What do you think of this position? Are you happy? Do you like it?"* [T4IIDMP-Q1-P8]. He will thus make a judgement based on someone else's judgement that could be influenced by heuristics and biases.

Participant 8 explained that he looks at *"randomness"* [T4IIDMP-Q1-P8] associated with his statistical and quantitative analysis, that leaves very little room for biases and heuristics. "*Hm, I actually just look at random…randomness…itself. So, I look at models, do model volatility; looking at the ways in which you can decom…I do quantitative…level research. So, it's mostly pertaining to decomposition of tracking error, risk measures. And then I do some operational kind of research as in to how to best construct these models within databases or whatever the case might be"* [T4IIDMP-Q1-P8].

A subsequent question asked related to the type of research Participant 8 does prior to making an investment decision. Within his investment decision-making process, he explained that he will see what is in the news. It is important to note that the news can be subjective and biases which influences views and judgements. "*Then you read the news and you say, oh hang on"* [T4IIDMP-Q2-P8]. The news can persuade an individual to change their judgement or view on a particular matter. Thus, the notion of human heuristics is likely prevalent.

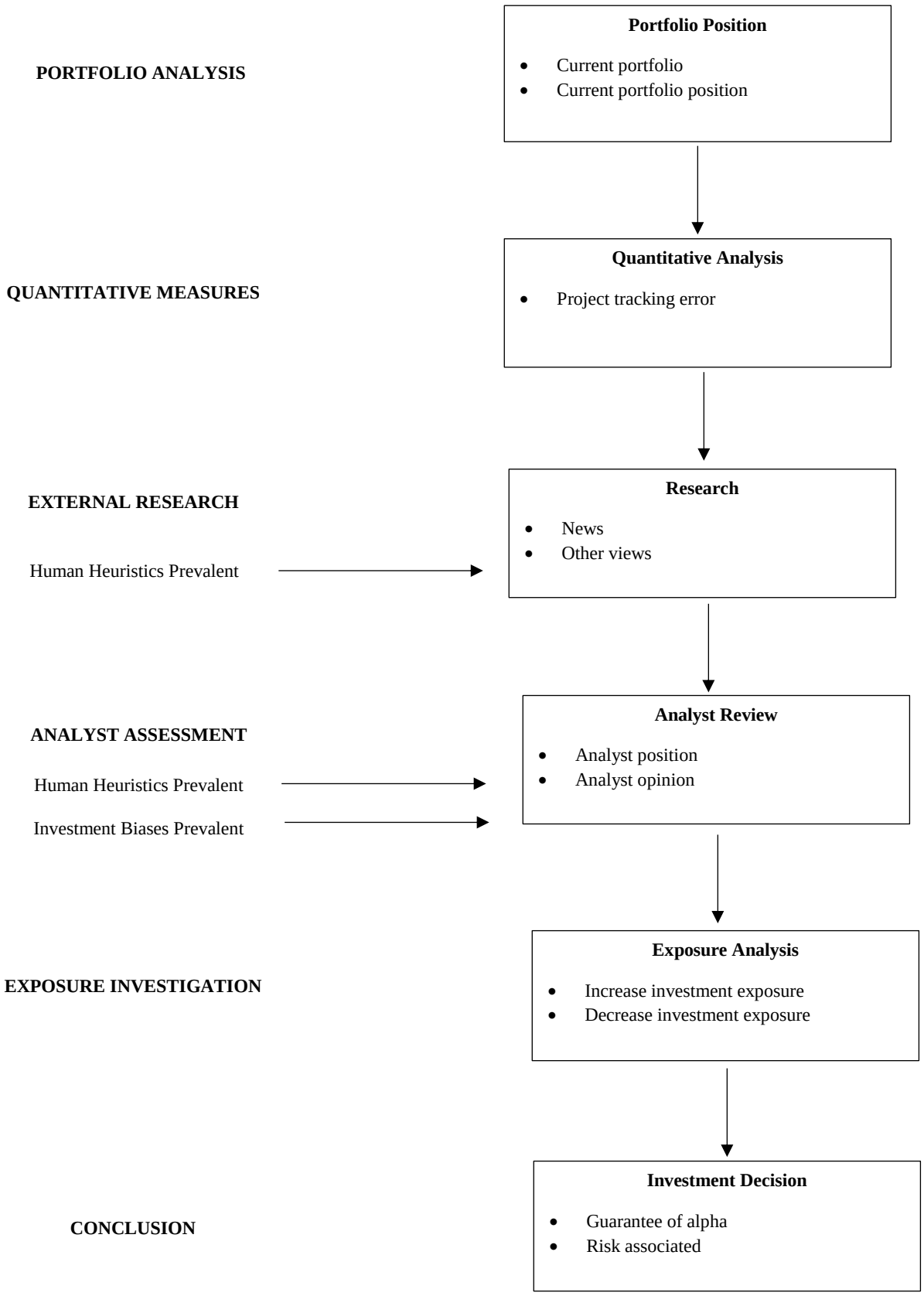


Figure 13: Participant 8 - Investment Decision-Making Process (Associated Risk Process)

iv. Participant 9

Participant 9 specialises in investing in the mining sector and explained that he has 3 stages in his investment decision-making process. The first stage is an analysis on resources and reserves. Within the analysis of resources and reserves, the main question asked is what he has versus what he can attain. Political, economic, social, technological, environmental and legal factors are also taken into consideration.

The second stage involves a corporate analysis of the company, such as costs and return; and its price structure that includes the company's strategies, action plans, deliverables and checks. The last stage involves a technical analysis which analyses the role of management, planning engineering, experience, disaster management, flexibility and cost-cutting strategies. Thereafter, other team members will calculate ratios based on his process and an investment decision will be made.

His process is very fixated on facts. Thus, there seem to be no human heuristics or biases prevalent. He mentioned in his answer to the emotional awareness questions that "*Uhm…because you've got to do things transparently and with the method so that it's not just your overlay"* [T4IIDMP-Q1-P9]. Thus, the nature of his specialisation is transparent and methodological, which does not involve human heuristics or biases.

Participant 9 expressed that his experience has assisted him with his research because of trends "*so all this – I'm very old, which does help. I've been through quite a lot with it. So, a lot of it's on my previous experience and – because I'm looking at a lot, so therefore I'm writing a lot on these things. So, you get trends that happening"* [T4IIDMP-Q1-P9].

A subsequent question asked related to the type of research Participant 9 does prior to making an investment decision. *"So often it's just a revamp of old stuff with – look, it might be new technology, so therefore we'll investigate the new technology. New management – we just look at what are they going to do different in new management side to it. So very rarely are we pushing the boundaries of state changes"* [T4IIDMP-Q2-P9]. He mentioned that he looks at *"old stuff"* which is an indication of trend-chasing because he is basing his research on historical information.

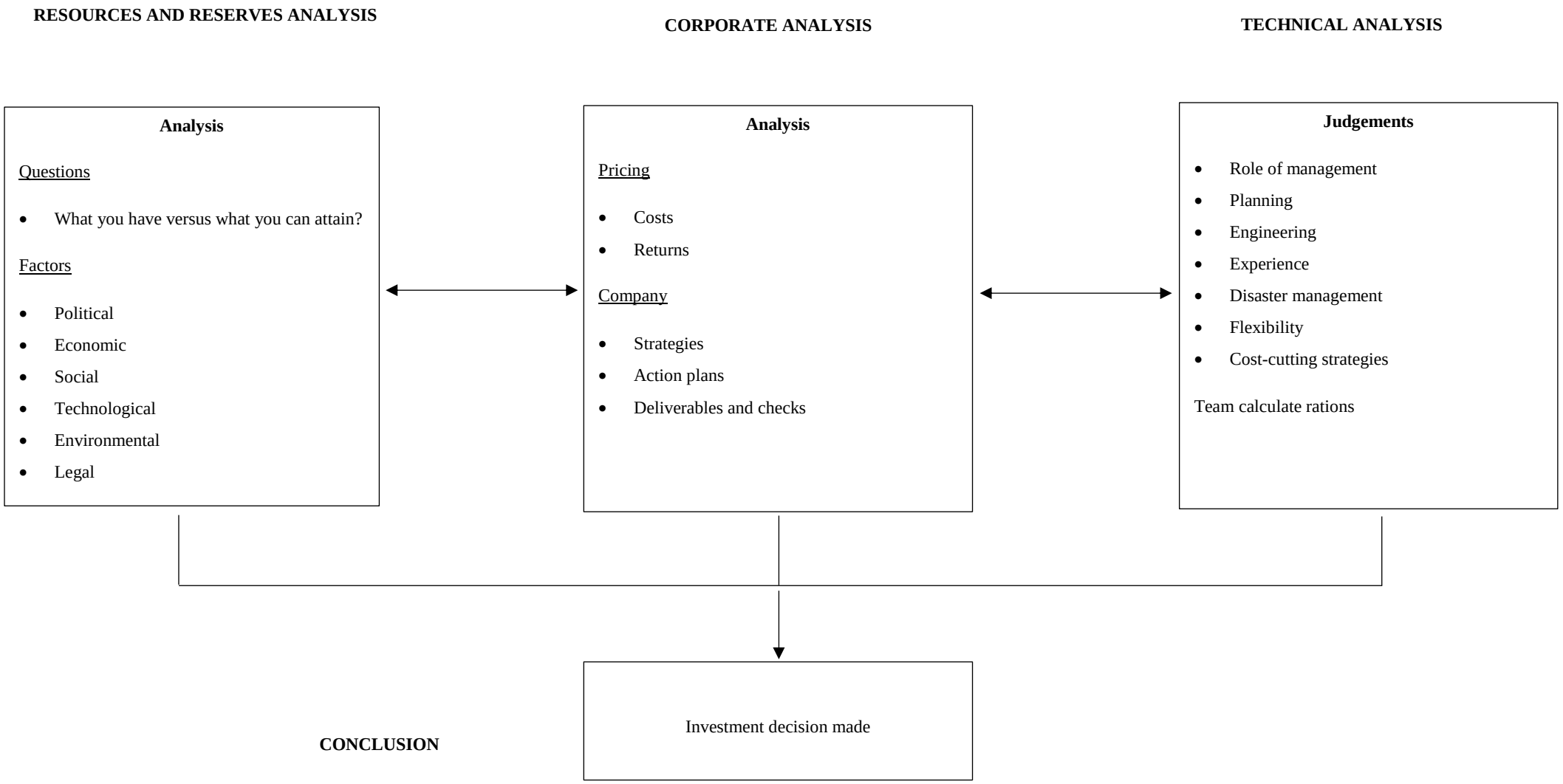


Figure 14: Participant 9 - Investment Decision-Making Process (Technical Analysis Process)

v. Participant 10

Participant 10 specialises in investing in the credit sector and explained that there are 4 steps he takes when making investment decision. The first step involves research on the market and management. The market analysis includes instruments and specifics, financial security and credit enhancement. The management analysis involves the track record, qualifications, success and failures, the board members and compliance of the company management.

The second step is a competitive and financial analysis that includes peer comparison in terms of size and performance; and financial analysis such as cashflow and financial statements. The third step involves an analysis of the methodology that includes internal ratings such as sector specific ratios, scoring and allocate rating. The pricing analysis includes risk, exposure and risk compensation. The fourth step involves a discussion with the investment committee whereby they will debate, evaluate and analyse the credit option. Once the abovementioned steps have been completed, he will make an investment decision.

Human heuristics and biases are prevalent in the fourth stage whereby the investment committee will have a debate, analyse and evaluate the investment. It is important to note that that the investment committee will have their own personal views, biases and judgements that will influence Participant's 10 investment decision. *"No, I'm not going to…and yeah and then you take it to Credit Committee, you present to Credit Committee, this is what I think because I think he deserves"* [T4IIDMP-Q1-P10]. The notion of heuristics and biases in group setting has been briefly addressed in the literature. This could be a potential topic for further exploration.

A subsequent question asked related to the type of research Participant 10 does prior to making an investment decision. Participant 10 explained that he examines the financial statements and does industry research. "*First, I think the purpose of my research is they are financial statements and then I'd look for industry research from sale side guys...like your banks would normally supply you with research, what they think is happening on the SOE industry as a whole or on the property industry as a whole. But personally, I don't take one bank's opinion. I will just – I just keep reading and generate my own opinion. So sometimes I don't even go back because I've just been reading consistently on things, so I have all these*

ideas" [T4IIDMP-Q2-P10]. Participant 10 expressed that he will not rely on one source and will continue to research and ultimately generate his own opinion.

Participant 10 further explained that he will get opinions from other people and will also visit the management company and analyse their strategy implementation to gain a holistic view. "*And I will also speak to equity analysts or equity analysts when financials...because we covered the same sectors. So, I would go and speak to him, what is your opinion about this and yea. But most of it then I would – and I also speak to management because management normally comes up to...don't come here and then I go to them, interview management and get a sense of, like a closer sense of where they think the company is going, the strategy because the strategy is very important, the strategy. And then how they're going to execute the strategy"* [T4IIDMP-Q2-P10].

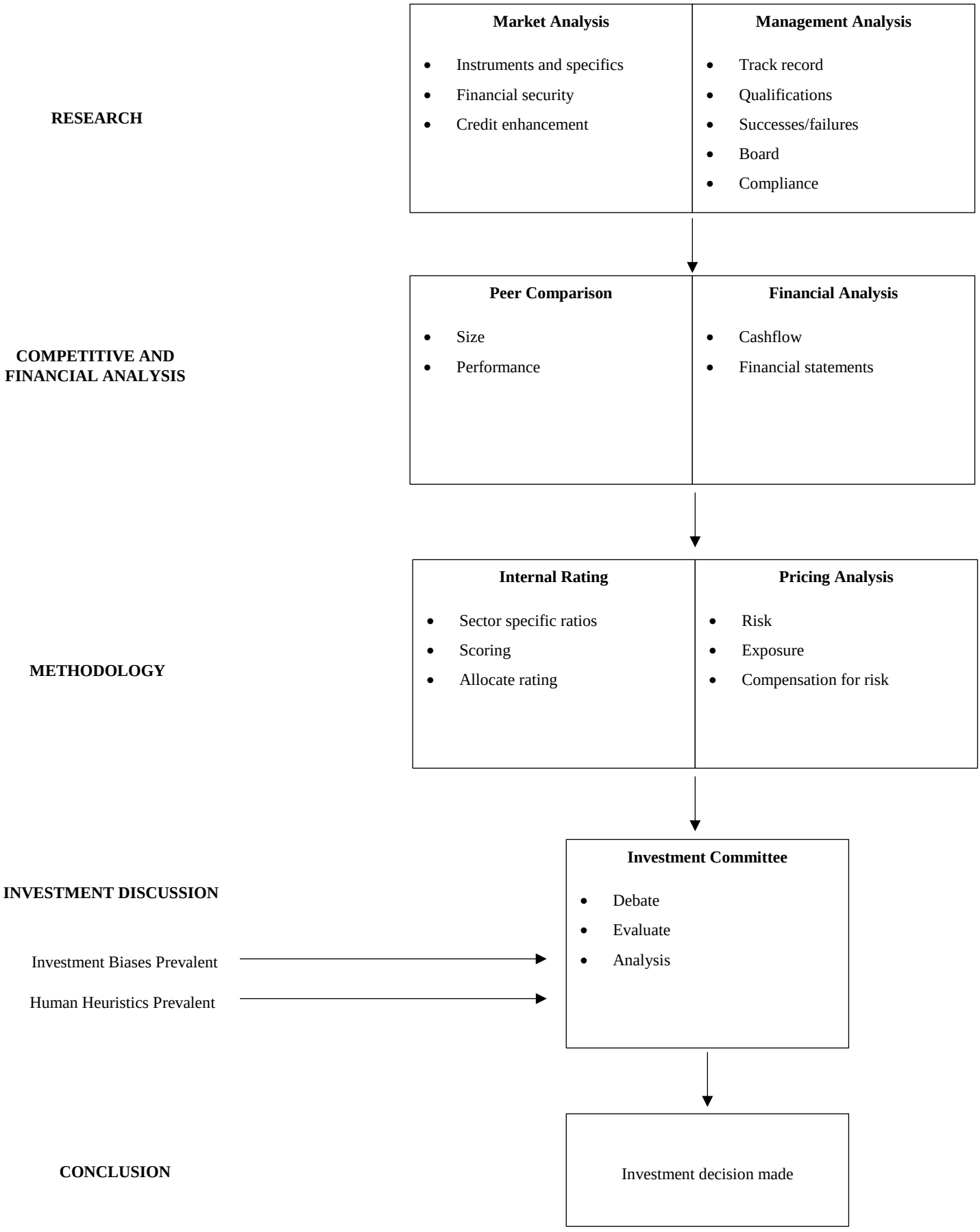


Figure 15: Participant 10 - Investment Decision-Making Process (Credit Process)

vi. Participant 11

Participant 11 specialises in investing in the bond sector and explained that her investment decision-making is a continuous process that involves analysing market auctions and bids; cashflow; macro and ratings analysis; broker list analysis; daily issuances; investment opportunities; bonds analysis; and currency analysis. Once these factors have been considered, she will decide to buy a stock if the market price is low and sell if the market price is high.

The first bias identified in Participant 11's process is the disposition effect bias. She mentioned that if stock prices are low then she will buy and if stock prices are strong then she will sell. She said that "*Like in the morning we might have said: Buy. But if something has happened in the market and bonds are 15 points weaker or 15 points stronger in the afternoon, then we might sell"* [T4IIDMP-Q1-P11]. She explained that if the bond price is weaker then she will buy and if the bond price is higher, then she will sell. She will change her position relative to the market.

A subsequent question asked related to the type of research Participant 11 does prior to making an investment decision. Participant 11 explained that she will get information from brokers and reports. "*Ja, we've got that. And then we've got our… the guys you trade with, your brokers. So, they will send out all snippets and reports and you will read that. Ja, ag, you know". "And then sometimes it's just a general market view. Nobody sees value in the long end of the inflation curve. So, then there is a sort of herd mentality. Everybody does the same thing in those scenarios. But, ja, it's mostly broker reports. Reading stuff, the financial newspapers and whatever"* [T4IIDMP-Q2-P11].

She made two very interesting points; she firstly mentioned that she will consider the general market view. The individuals in the investment industry contribute to the way in which the market reacts, thus the *"market view"* [T4IIDMP-Q2-P11] could potentially be based on heuristics and biases. She secondly mentioned that she sometimes follows the *"herd"* [T4IIDMP-Q2-P11] and that *"everybody does the same thing"* [T4IIDMP-Q2-P11], which too is associated with heuristics and biases.

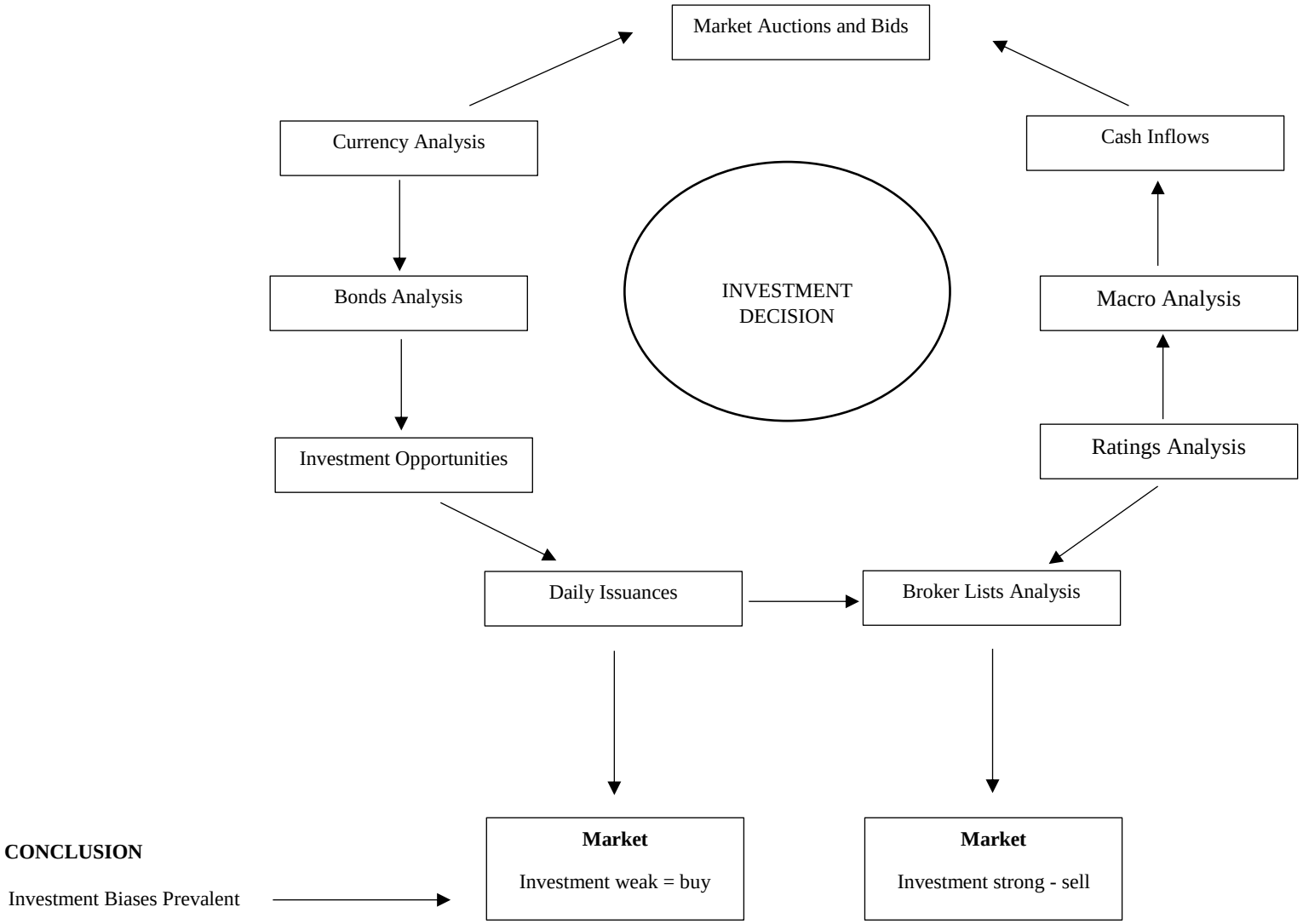


Figure 16: Participant 11 - Investment Decision-Making Process (Continuous and Simultaneous Process)

vii. Participant 12

Participant 12 specialises in investing in the credit sector and explained her investment decision-making process comprises of three phases. The first phase involves a universal analysis of credit opportunities such as offerings and opportunities; and macro analysis that includes a macro-economic analysis and fixed-income levers. The second phase provides a fundamental and qualitative analysis that involves quantitative and qualitative factors referred to hard and soft factors. The hard factors include macro-economic analyse; sector impact; company performance; peer analysis; management team; company strategy; financial performance and position; and debt sustainability.

The soft factors include an analysis of the quality of the company strategy, competitive advantage, quality and sustainability of management team. The third phase involves peer comparison and current opportunities and a price comparison in terms of peer price and price offerings. After these phases have been completed, she will make an investment decision. There were no biases or heuristics identified in Participant 12's process because of the nature of her specialisation. She mentioned that "*we don't just get to say: Oh, that is our favourite and we go and choose that. We almost need to choose from the opportunities who is presented to us at any point in time"* [T4IIDMP-Q1-P12].

A subsequent question asked related to the type of research Participant 12 does prior to making an investment decision. Participant 12 mentioned that her research is based on the research done by analysts. She also mentioned that she will look at annual reports. "*Ja, so the analyst would largely be responsible for that, I mean an analyst that would be digging into the details of a particular company or sector. So, they would first of all start with the annual report of the company through time. We look at it. We don't look at any one point in that time. We want to look over a period of time because what we are very interested in is the trends. The trends in particular"* [T4IIDMP-Q2-P12]. She then made an interesting point that the research she does is based on historical information to decipher trends. This is associated with trend-chasing bias because the past performance of a company is used to predict the future of the company.

"So even if you are looking at a particular name for the first time, you can almost rely on the inputs of that person, because they might have covered it for five years and they have the

history and the context of what you are looking at" [T4IIDMP-Q2-P12]. Participant 12 further explained that she can rely on historical information for a company being researched for the first time. This further illustrates the notion of trend-chasing bias.

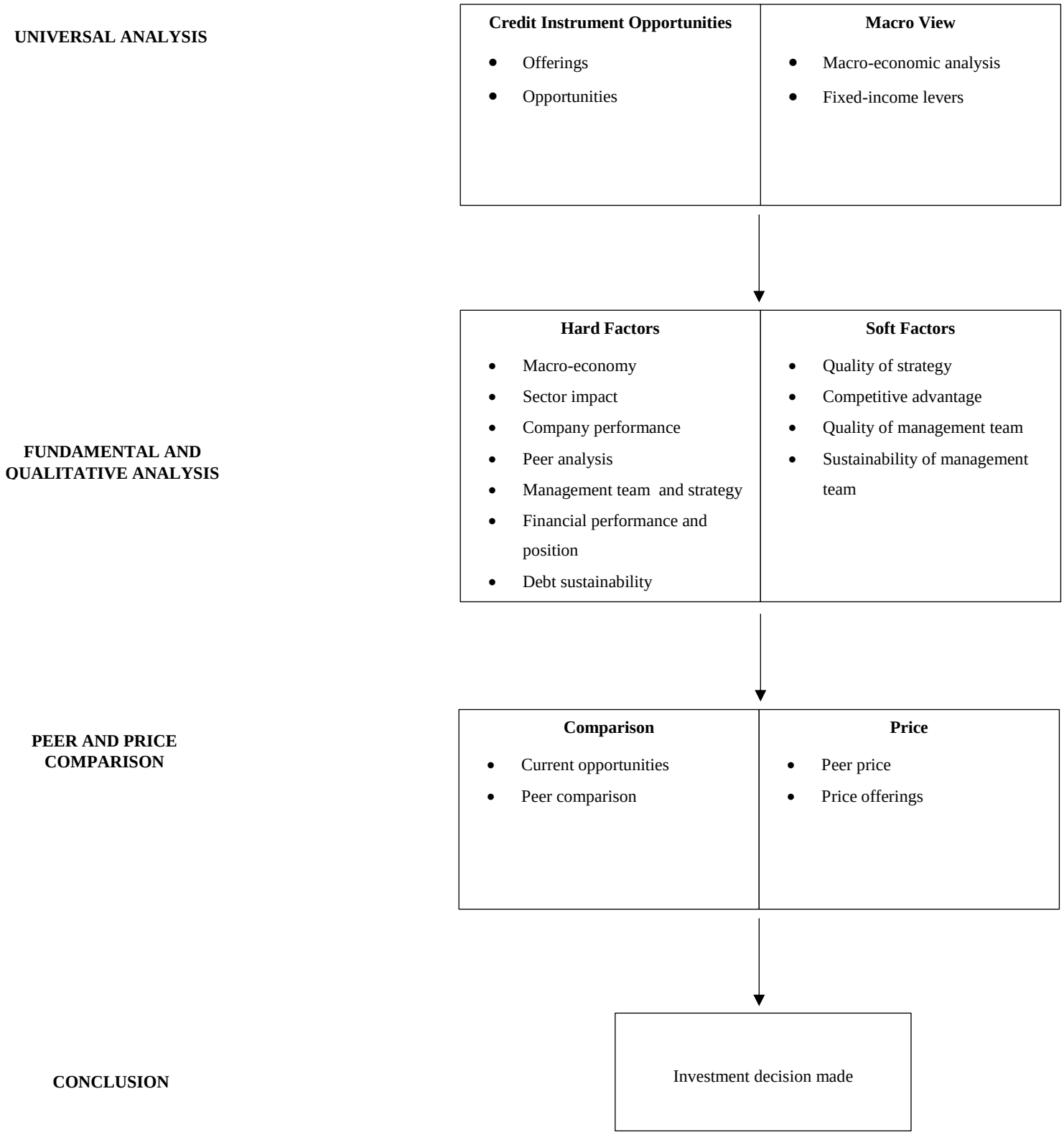


Figure 17: Participant 12 - Investment Decision-Making Process (Corporate Credit Process)

viii. Participant 13

Participant 13 specialises in investing in stocks in Africa and explained his investment decision-making process comprises of five stages. The first stage involves a universal fundamental approach that includes a universal view, screening tools, measures, sectors and demand. The second phase involves an internal company analysis and evaluates the management company creativity, adaptability, speed, investor capital and whether they are good investors. The third phase involves an analysis of the company financials in terms of return on capital and strength of long-term returns.

The fourth phase is universal screening of the market and analyses the stability, penetration, conviction, position and opportunities of the market. The fifth phase involves research and analyses sell-side research, opportunity generation, meeting companies and travelling around Africa. Once these five phases have been completed, he will make an investment decision. There were no heuristics or biases identified in Participant 13's process. The factors that go into his process are non-subjective and factual.

Participant 13 also indicated trend-chasing bias. "S*o, looking at the historic, we look at the financials, go to the annual reports. Look at the historic performance"* [T4IIDMP-Q1-P13]. He mentioned that he researches the sectors of the companies and meets the management of the companies before making an investment decision. "*We have an idea and look at the sector as well, we do sector research and then, based on that, we formulate an idea or an impression on how we expect the company to perform or how we think they can perform. We chat to management. We ideally want to meet with management before we make an investment. We chat to management. We ideally want to meet with management before we make an investment"* [T4IIDMP-Q1-P13].

A subsequent question asked related to the type of research Participant 13 does before making an investment decision. Participant 13 explained that he researches the financials of the company and builds models relative to the potential return. He lastly explained that these models will then be discussed to get a better understanding and make a final investment decision. "B*ecause we have a…model, whoever comes up with the investment idea will share it with the others, so we actually get idea from both parties, from both myself and my colleague. So, we acquire it. We work with a border equity teams, so we also bounce our*

ideas off them as well. As an equity team, especially where some of those stocks are in the same sector that our...let's say in-house specialist covers" [T4IIDMP-Q2-P13].

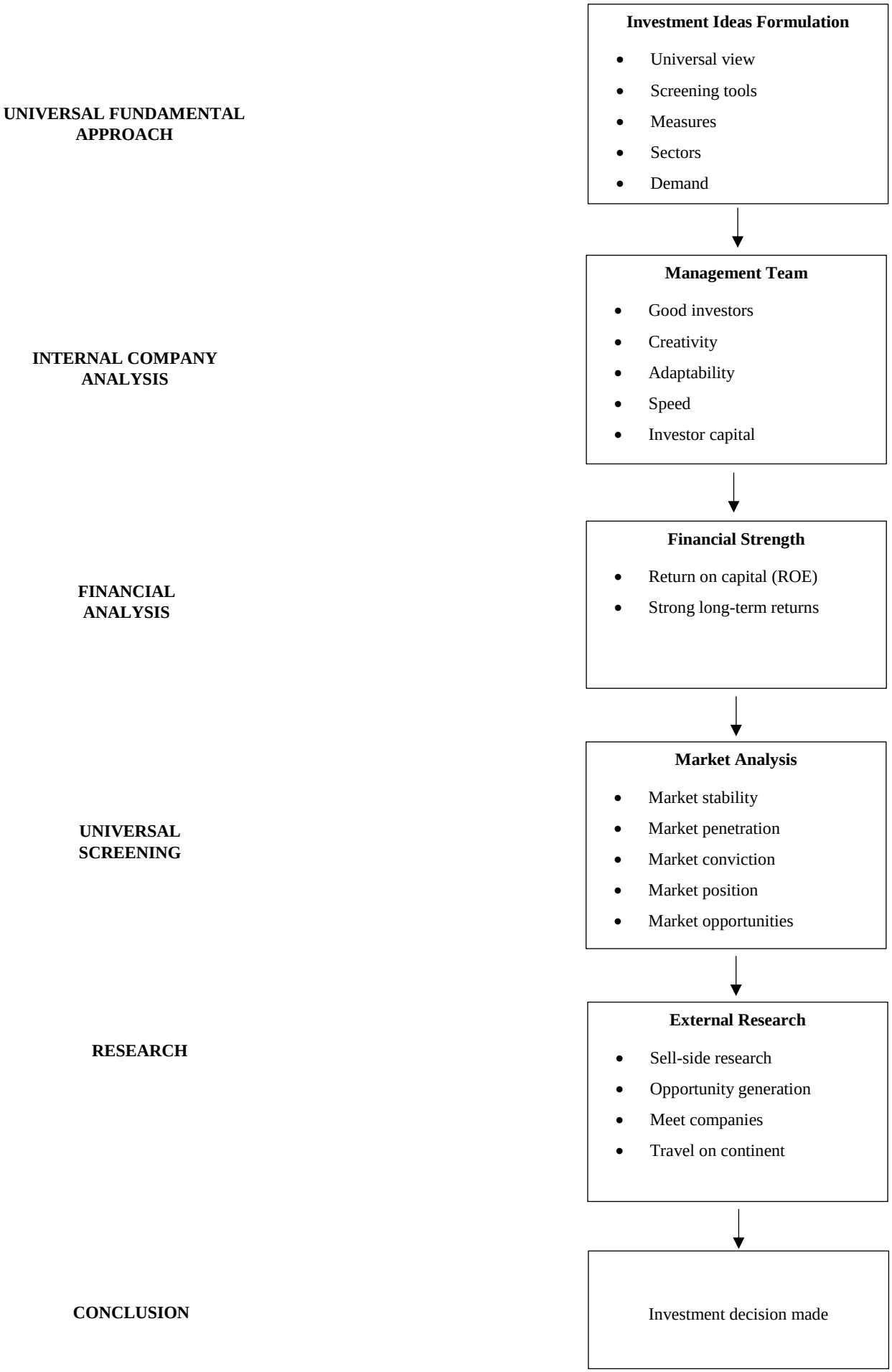


Figure 18: Participant 13 - Investment Decision-Making Process (Equity and Hedging Strategy Process)

ix. Participant 14

Participant 14 specialises in investing in both local and global markets. He explained that his investment decision-making process involves two parts such as pricing analysis and a bespoke approach. The pricing analysis includes evaluating how to retain clients, client loyalty, opportunity seeking and creation. The bespoke approach evaluates differentiation, client alignment, client interest, a set of rules and a client centric perspective.

He further mentioned that he ensures that these two processes are aligned with the company's philosophy. His investment decision-making will thus be a result of the pricing and bespoke approach. There were no heuristics or biases identified in his investment process because the factors that go into his process are factual and methodological.

A subsequent question asked related to the type of research Participant 14 does prior to making an investment decision. Participant 14 explained that research is a hobby and is thus constantly doing research. "*So, I think, luckily for me, part of my hobby and what I like to do is to read. And so, it is very interesting, so I do a lot of reading, Financial Mail, scour the internet"* [T4IIDMP-Q2-P14]. He further explained that he will research what is currently headlining in the news about the economy. "*About the economy. What is going on? Hot topics. Developing things on, let's say, crypto currencies, or Stock X".* [T4IIDMP-Q2-P14].

"You know and so you really need to have… your knowledge set really needs to be very well diversified to be in this role because you are putting things in place for people which are typically non-standard" [T4IIDMP-Q2-P14]. Furthermore, Participant 14 explained that having diversified knowledge is the key driver to the nature of retail investment decision-making.

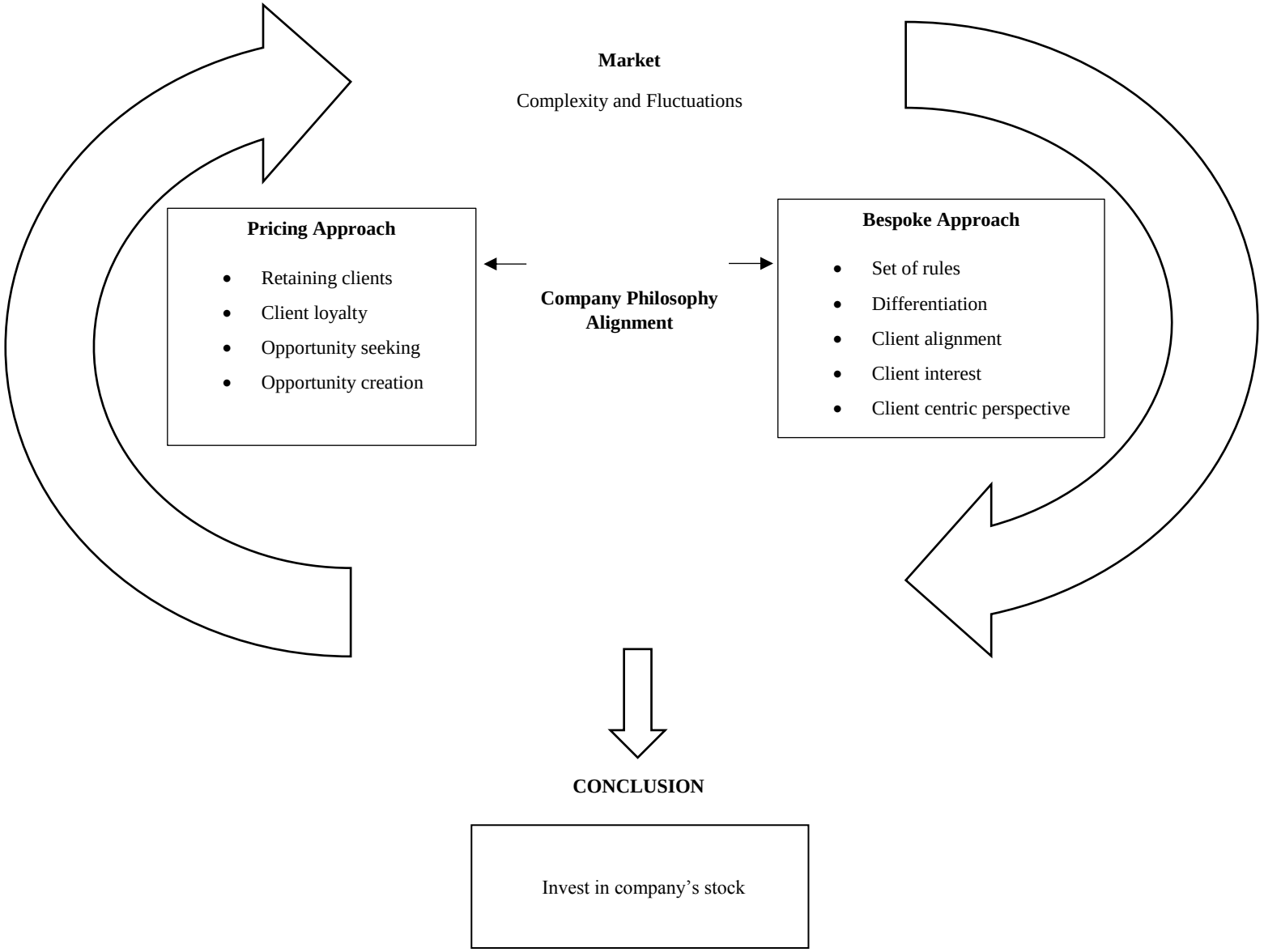


Figure 19: Participant 14 - Investment Decision-Making Process (Client Centric Hybrid Process)

x. Participant 15

Participant 15's investment process involves dealing with individual clients invested in pooled investment portfolios and high net-worth individuals. He explained his investment decision-making process involves two building blocks. The first phase is the internal building block. The internal building block involves in-house solutions that includes an investment committee discussion, overall viewpoint and growth; and underlying fund manager evaluation that includes due-diligence, fund manager persuasion and manager philosophy. The internal building block phase filers into the second phase that is the external building block. The external building block involves research committee that includes the research tea, overall client view and fund availability analysis that involves due-diligence and the attempt to change the mind-set.

There were heuristics and biases in Participant 15's process. The first bias is in his internal building block phase, being that of group dynamics. He stated that *"obviously we would have an investment committee. Okay, so the investment committee…I think I am going to talk about...I think what is going to be the easiest is if I talk about in-house solutions? Okay, let's talk about that"* [T4IIDMP-Q1-P15]. Participant 15 mentioned that he would meet with an investment committee after consulting internally to get an independent perspective. It is important to note here that the members internal to the business and external investment committee may possess certain investment biases.

The second heuristics and biases are in the internal building block. Participant 15 stated that "b*ut, what's lacking here is, is not what you have with in-house solutions where you can actually go and meet with the fund managers on a quarterly basis, talk to them, ask questions. You do not have that luxury actually and I think that is where it becomes tough. But I think it is difficult to convince the market actually to buy in to this and it is a mind-set. I think people got so much more…through the years, they just got so accustomed to these things"* [T4IIDMP-Q1-P15]. He does not have the opportunity to meet with fund managers when reviewing the company. He further mentioned that it *"become tough"* [T4IIDMP-Q1-P15] because he must convince investors to invest in a portfolio, which then becomes a *"mind-set"* [T4IIDMP-Q1-P15]. The human heuristics and biases here are that he will have to make assumptions and judgements to convince investors to invest in his portfolio based on his assumptions and judgements.

A subsequent question asked related to the type of research Participant 15 does prior to making an investment decision. Participant 15 explained that he does not do his own research but reliant on a team of researchers to provide information on an investment decision. "*Ja, so obviously there is research done and that needs to be done. Physically me, I will not be the actual person doing the research. But there is a team doing it. So, if I look again, I will split it up in the two different ways. So in-house, yes. There are the guys who would look at the various, or they will decide on a decision on a view that they would want to take and how they want to build a specific fund. And they will look for fund managers that will fulfil that"* [T4IIDMP-Q2-P15]. This is an interesting point because although there is a dedicated team to do the research, there may be biases and heuristics associated with the team or Participant 15.

He then stated that the team would find someone who fits in with their view based on the research done. *"They would look for somebody that will fit in with the view that they want to take and what they want to achieve with the…a specific fund. And they will need to feel comfortable with that and I think if they are comfortable with that, they will move along"* [T4IIDMP-Q2-P15]. The research team is therefore bias because they will find someone who can execute their decision. They actively seek people that support their views and not people who may contradict their views.

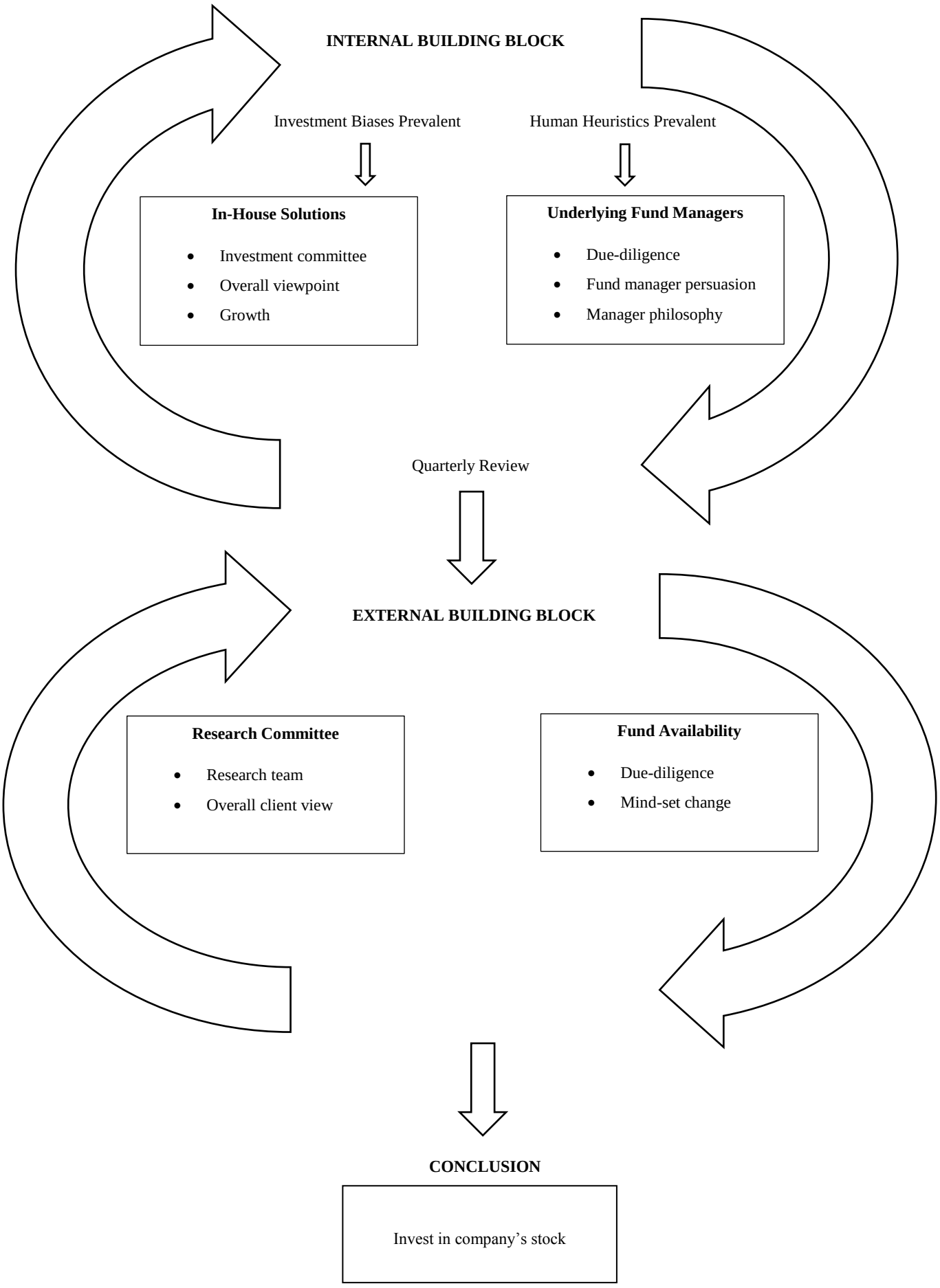


Figure 20: Participant 15 - Investment Decision-Making Process (Multi – Asset Solutions Process)

xi. Participant 16

Participant 16 explained that although he works for a company in the financial services, he is also a private investor and would thus be providing insight from his private investment space. He explained his investment decision-making process as a private investor comprises of four phases. The first phase involves a fund overview and includes his house-hold earnings, long-term view and debt-free opportunities. The second phase analyses the psychological factors of him - who is more risk seeking and his wife - who is more risk averse. The third phase involves research on the prospective companies and evaluates the company prospects, valuation, portfolio balance and diversification. The last stage involves an analysis of themes and includes sector weighting and his personal market feel. Once the four phases are complete, he will invest on the JSE.

There were two human heuristics identified in Participant 16's process. The first heuristics is in phase two, the psychological characteristics. He stated that "i*t differs by psychology. So, if my wife is just buy, buy make-up, more conservative person. So, she tends to save a dedicated amount every month, moving into something that is quite stable, like I would say, like a multi-asset, moderately risky unit trust, local and offshore"* [T4IIDMP-Q1-P16]. He explained that he and his wife are private investors. He said that he would naturally seek riskier investments. However, his wife is more conservative by nature and thus more risk-averse. Their personal attributes influences their personal preferences when investing.

He further stated that "*it is just a personal characteristic. Regardless of interest rate. It is not always a good one, but it is just a personal preference of ours, as a household"* [T4IIDMP-Q1-P16]. Their human nature would therefore be a heuristics and bias because they will invest in stocks that are more relatable to their natural state of being. Further, confirmation bias is prevalent because they will seek investments that are familiar to them.

The second human heuristic identified was in phase four, the theme analysis phase. He stated that "*That is usually nothing more than a personal feel of the market. Like I say, I'm not rocket scientist. It does work out more often than not, but that is not a guarantee that you'll beat it"* [T4IIDMP-Q1-P16]. He explained that he and his wife will involve how they personally feel about the market. It is evident that feelings influence their investment decision-making. Further, their feelings may cloud their rationale judgement.

A subsequent question asked related to the type of research Participant 16 does prior to making an investment decision. Participant 16 admitted that he gets his research, for his personal investments, from the research team at work. "*Ja, so I am a bit of a cheat. In that we have got a team of researchers who sit in Momentum securities. So, we have got a dedicated research desk, which cover … I do not want to say the whole of the market, but I would say a good 60%, 70% of the market. Research there is very comprehensive. So, it is everything from management calls to running through the financials"* [T4IIDMP-Q2-P16].

He then explained that he will read through the company reports generated by the research team and selectively choose which companies stocks he wishes to invest. "*So, on any given weekend, usually it sees me wake with a cup of coffee and read through company reports. I usually have a list of, I call it 20 companies which are on my immediate watch list. Many of those are obviously old. I am very up to date on their news. And what tends to happen is, I have got a shortlist of potentials...which I probably spend, I don't know, anywhere between 3 and 6 months, getting to know the counter. Very often it falls off the list and isn't really something, other than a passing interest. And sometimes they graduate into the portfolio"* [T4IIDMP-Q2-P16].

"I am obsessed with reading. So, I probably read anywhere between 100 and 300 pages a week, whether that is financial literature, magazines, newspapers, research reports. So, it really is maybe a little bit more serious than a hobby. Also, my job though. Ja, so that sort of feeds the process". And I think all of that leads to investment decisions. So, you usually get a bit of a gut feel that works like an opportunity. And I follow that, provided it meets the investment criteria. But I do cheat. JA, so I give a nice valuation of companies. I do not actually troll through all the financials. I need to be honest" [T4IIDMP-Q2-P16]. He lastly explained that he will actively research all possible publications to make his final investment decision but admitted again that he does not do the comprehensive company research himself.

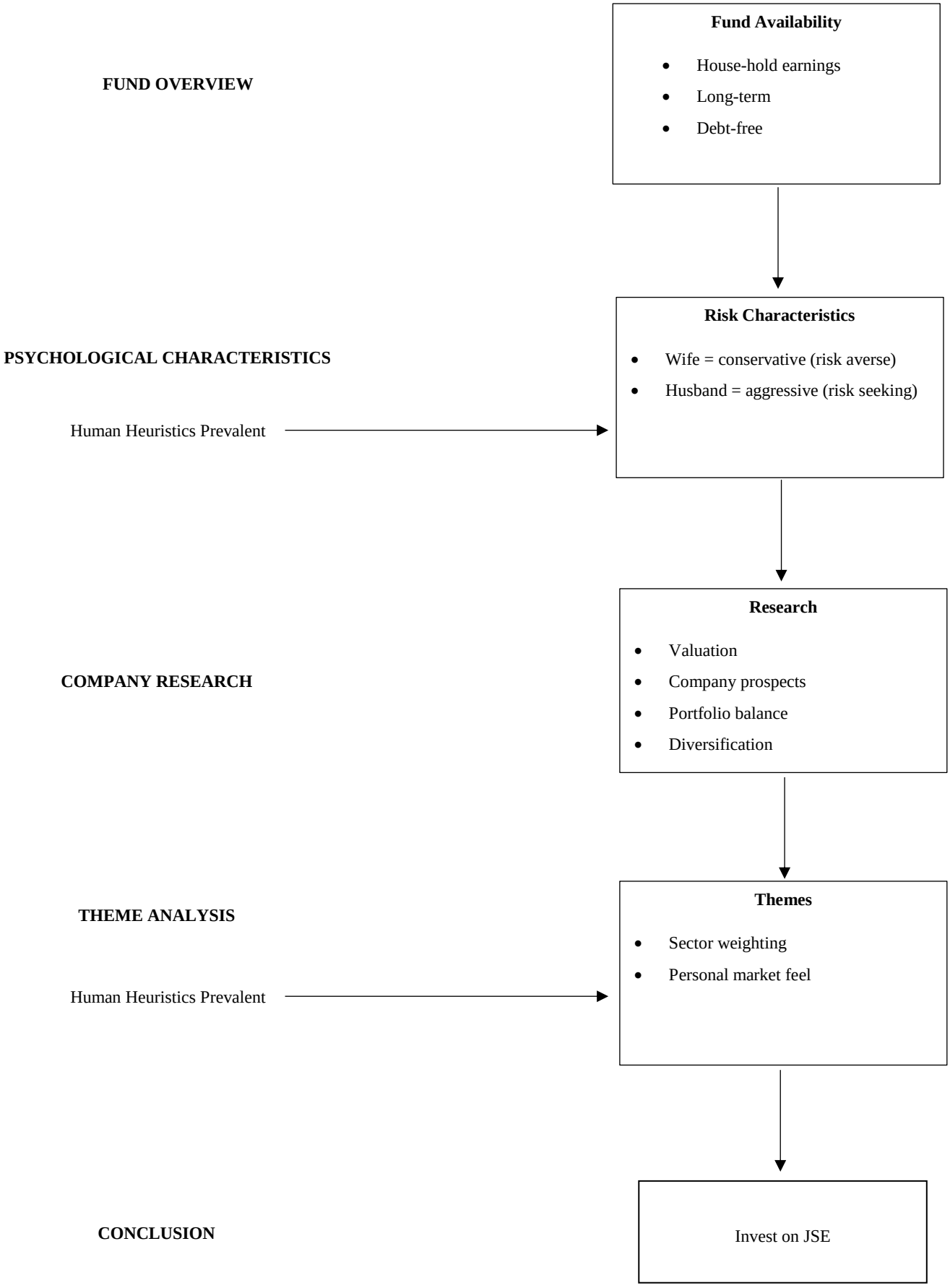


Figure 21: Participant 16 - Investment Decision-Making Process (Independent Investment Process)

xii. Participant 17

Participant 17 specialises in investing in the retail space- retail being individual investors in a pooled investment portfolio and high net worth individuals. He explained that his investment decision-making process includes four stages. The first stage analyses the client's needs and wants in terms of technicality, client knowledge and client circumstances. The second phase analyses risk and time components that includes the term to maturity, risk budget, risk propensity and investment vehicles. The third stage involves an analysis of the client's financial ability and evaluates the returns budget, money needs and affordability. The fourth stage involves financial planning, a constant analysis of regulation and revaluation. Once the four stages have been completed, he will make an investment decision.

There was one main human heuristic identified in Participants 17's second phase that involves risk analysis. He mentioned that he will investigate the client's risk propensity. The client could be risk-averse or risk-seeking which would thus influence Participant 17's decision. *"Being young I can afford to take a bit more risk. But is that risk is going to deteriorate? Or is it going to detract from me being able to achieve that outcome? If so, to what extend am I comfortable with that? And that is another factor to consider"* [T4IIDMP-Q1-P17].

It is important to note there is a difference between the willingness of risk and the abilities of risk. Willingness to take risks does not mean that the one does not have abilities to take a riskier portfolio. Investment theory supports that the higher the risk the higher the return, thus Participant 17 and the client may be influenced by incentive to take a riskier option to gain higher returns, yet his or her ability does not permit this, the opposite would then be true.

A subsequent question asked related to the type of research Participant 17 does prior to making an investment decision. Participant 17 included the type of research he does when explaining his investment decision-making process. To recap, he explained his process from a personal point of view. He highlighted that he will understand what the client's needs and circumstances are; their risk propensity; and budget. *"As well as understanding the risk budget that I have, to be able to spend that Rand that is what contributes to my decision to invest"* [T4IIDMP-Q2-P17]. He will further research the regulations associated with the type of investment vehicle and make his final decision. *"Big firms, like Company A and so on are*

taking strain with their audit requirements, which is in a super regulated environment, like the one we are operating in at the moment. That also starts to beg certain questions as to how safe any investment is" [T4IIDMP-Q2-P17]. Due to the fact that he specialises in the retail space which is client centric, he will do a full analysis of the client's needs and wants and thus make an investment decision on that.

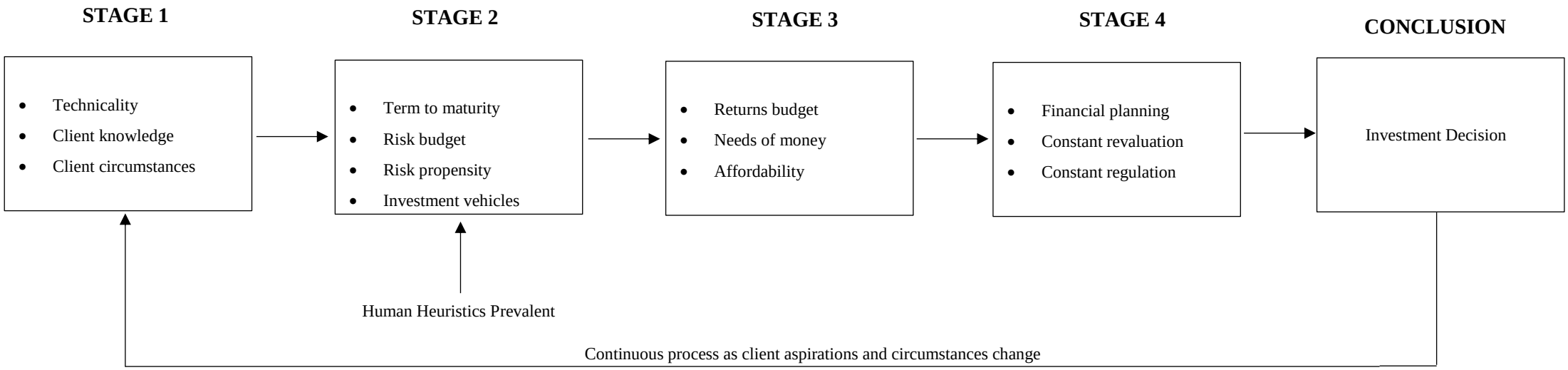


Figure 22: Participant 17 - Investment Decision-Making Process (Retail Investment: Client Life Cycle Process)

xiii. Participant 18

Participant 18 specialises in product planning and sell-side investment decision-making for retail clients - retail being individual investors in a pooled portfolio (e.g. pension funds) and high net worth individuals. He has a very detailed investment decision-making process. He explained that there are multiple levels.

The first level includes the investment purpose by analysing the client's needs. The second level involves an analysis of the long or short-term time horizon of the investment. The third level analyses the high or low growth strategy of the investment. The fourth level analysis the high or low levels of liquidity. The fifth level analysis the risk-averse or risk-seeking associated. The sixth level comprises of analysing external factors such as currencies and interest rates. The seventh level identifies the investment portfolio factors between local and global factors and diversification. Once the seven levels have been completed, an investment decision will be made. There were no biases or heuristics identified in Participant 18's process.

Participant 18 mentioned that he is client centric and thus builds investment vehicles for his clients. "*I have been at the front end. I know clients. I know how they think. I know what they ideally would like"* [T4IIDMP-Q1-P18]. He expressed that he has been on the opposite end of the spectrum and thus understands clients and what they want.

A subsequent question asked related to the type of research Participant 17 does prior to making an investment decision. *"The first thing we do is actually get in touch with some of our consultants. Some of our… some of my ex-colleagues in the broker space". This is just because I get an independent view from them and they will tell me: Look, there is a need for this type of thing"* [T4IIDMP-Q2-P18]. He explained that we would get an independent view to provide further insight into his research. "I *would take that same conversation and discuss it with a…I would not say a partner, but an associate of Company X". "So just test the thinking"* [T4IIDMP-Q2-P18].

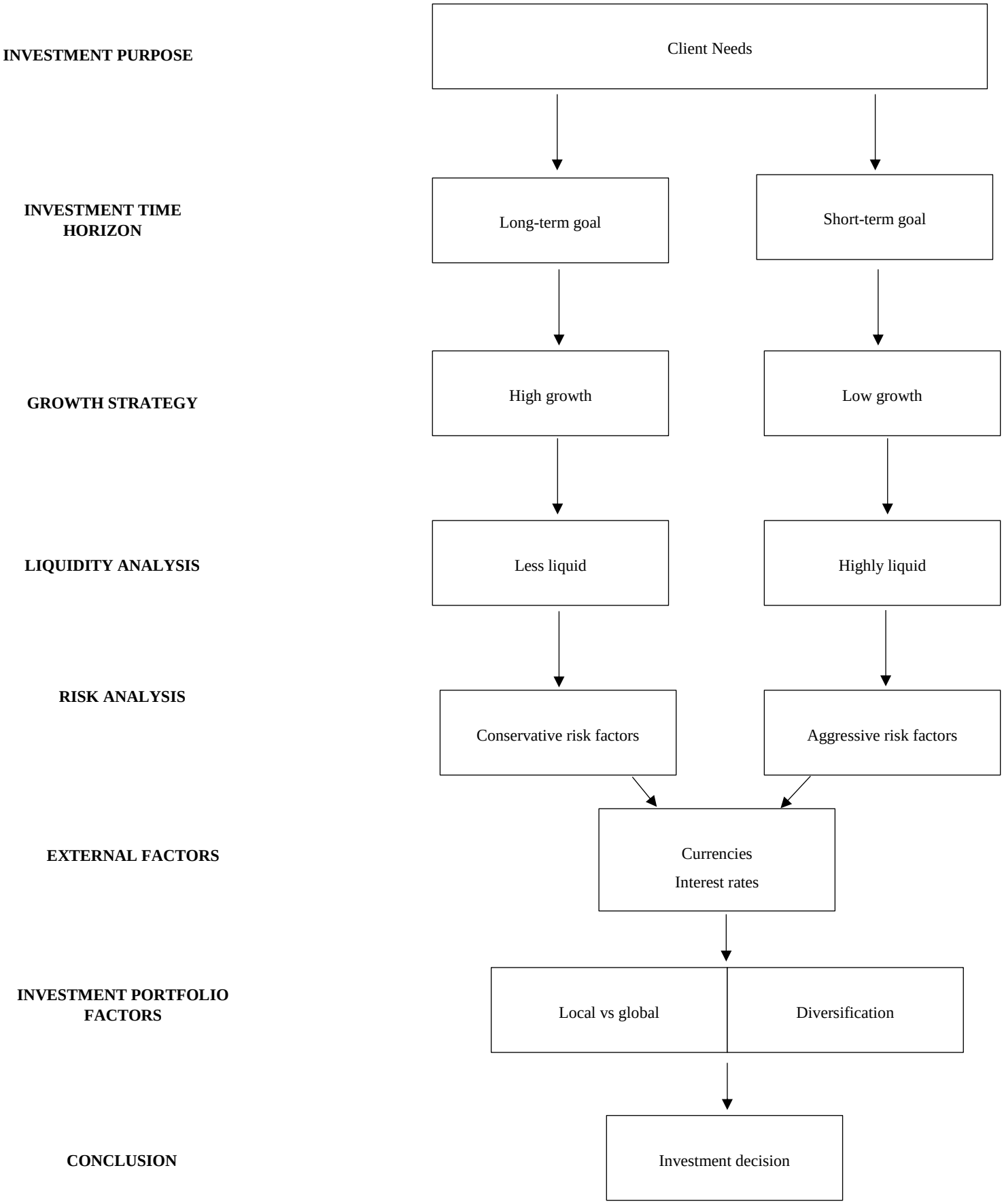


Figure 23: Participant 18 - Investment Decision-Making Process (Retail Investment Process)

xiv. Participant 19

Participant 19 specialise in investing in the companies' stocks in Africa and explained that her investment decision-making process involves three steps. The first step is analysing the macro environment in terms of exchanges, company liquidity and valuation. "*So because we invest across countries, we will always have to take a very strong macro view. So we look for…we are investing across exchanges, across countries. We focus on liquid companies, so we will screen for liquid large market cap companies. And then we will look for companies where we like the valuation, where we are comfortable with the ability of management to deliver through the cycle that are operating in industries"* [T4IIDMP-Q1-P19].

Further the ability of management and industry growth; which is then over-layered into the second stage. The second stage is applying a macro-overlay and involves an analysis of returns, up-side, currency risk, political risk and money repatriation. The third stage comprises of weighting factors in terms of the high or low stock weighting relative to the market. Thereafter, the company's stock will be ranked and she will make her investment decision. There were no biases and heuristics identified in Participant 19's process because it is factual, simple and straight-forward. *"We will apply a macro overlay which will look at currency risks, political risks, the ability to actually monetise the position by being able to repatriate how many and all of that comes into the risk factor, which will dictate either a need for a higher weighting or a lower weighting in that stock"* [T4IIDMP-Q1-P19].

A subsequent question asked related to the type of research Participant 19 does prior to making an investment decision. Participant 19 kept her answer short and to the point. She explained that she and her team will look at financials, speak to brokers, regulators and management teams. "*So, we obviously look at financials. We build our models. We speak to brokers and management teams. We meet with, or we try to talk to regulators and operators locally, as well"* [T4IIDMP-Q2-P19].

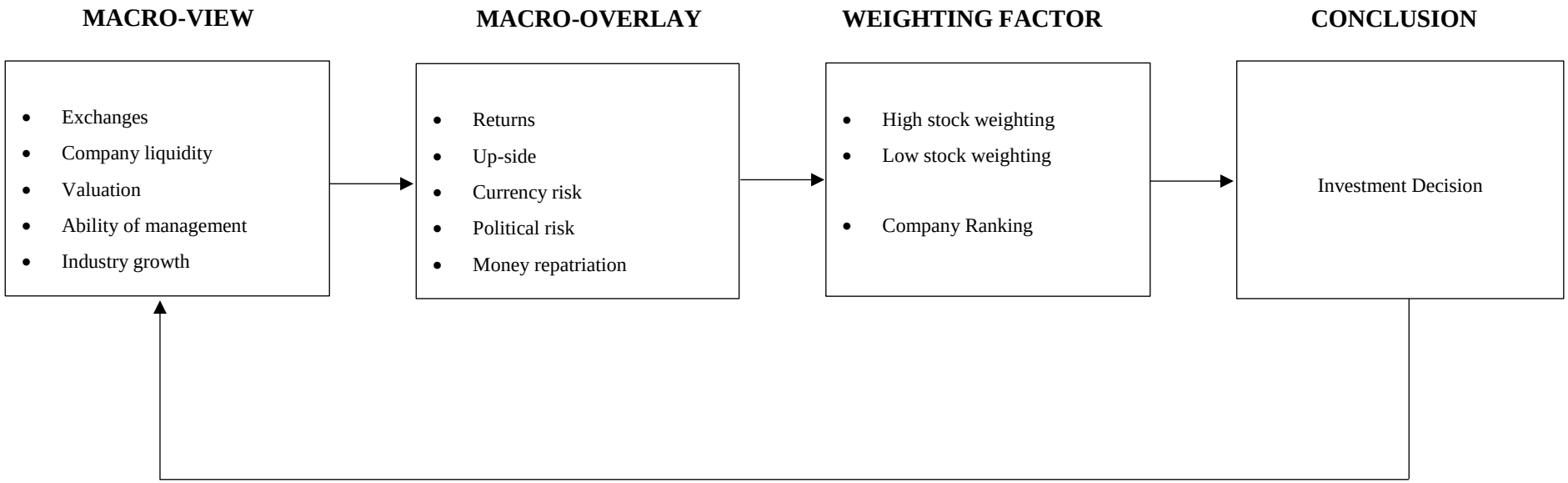


Figure 24: Participant 19 - Investment Decision-Making Process (Multi-Country Process)

xv. Participant 20

Participant 20 specialises in investing in fixed income and credit investment portfolios and explained that his investment decision process comprises of three steps. The first step involves defining the investable universe that includes client mandate, legislation, personal capabilities, systems and personal comfort. The second step is the research phase and involves fundamental and quantitative analysis, tools and model building. The third step analyses the portfolio risk and return which evaluates the return forecast, risk analysis and maximum versus minimum risk. Once the three steps are complete, an investment decision will be made. Participant 20 explained that his process involves ongoing monitoring and portfolio reassessment.

There were human heuristics and biases identified in the first stage of Participant 20's process. He mentioned that he will incorporate his personal comfort in his investment decision. He stated that he will ask "w*hat you are comfortable with. Which types of things you are comfortable with analysing and investing in"* [T4IIDMP-Q1-P20]. The notion of personal views and feelings can cloud his rationality associated with his investment decisions. This is also a representation of confirmation bias because he will actively seek out investments that he is familiar and comfortable with [T4IIDMP-Q1-P20].

A subsequent question asked related to the type of research Participant 20 does prior to making an investment decision. Participant 20 included his research in his investment process. He mentioned that he will analyse his investable opportunities by doing fundamental research and quantitative research to build models. *"So, to define investable universe, then the research process starts. Each one of those investable opportunities is analysed. So fundamental research. Quantitative research. All the different types of tools we have available, building models to try and predict how that investment opportunity will pan out. And the research process then generated an output that forecasts a return for this investable opportunity. And a level of risk"* [T4IIDMP-Q2-P20]. He mentioned that the models are used to try and predict the future outcomes and returns of the investment opportunity. This is an indication of trend-chasing bias because historical data to predict future returns.

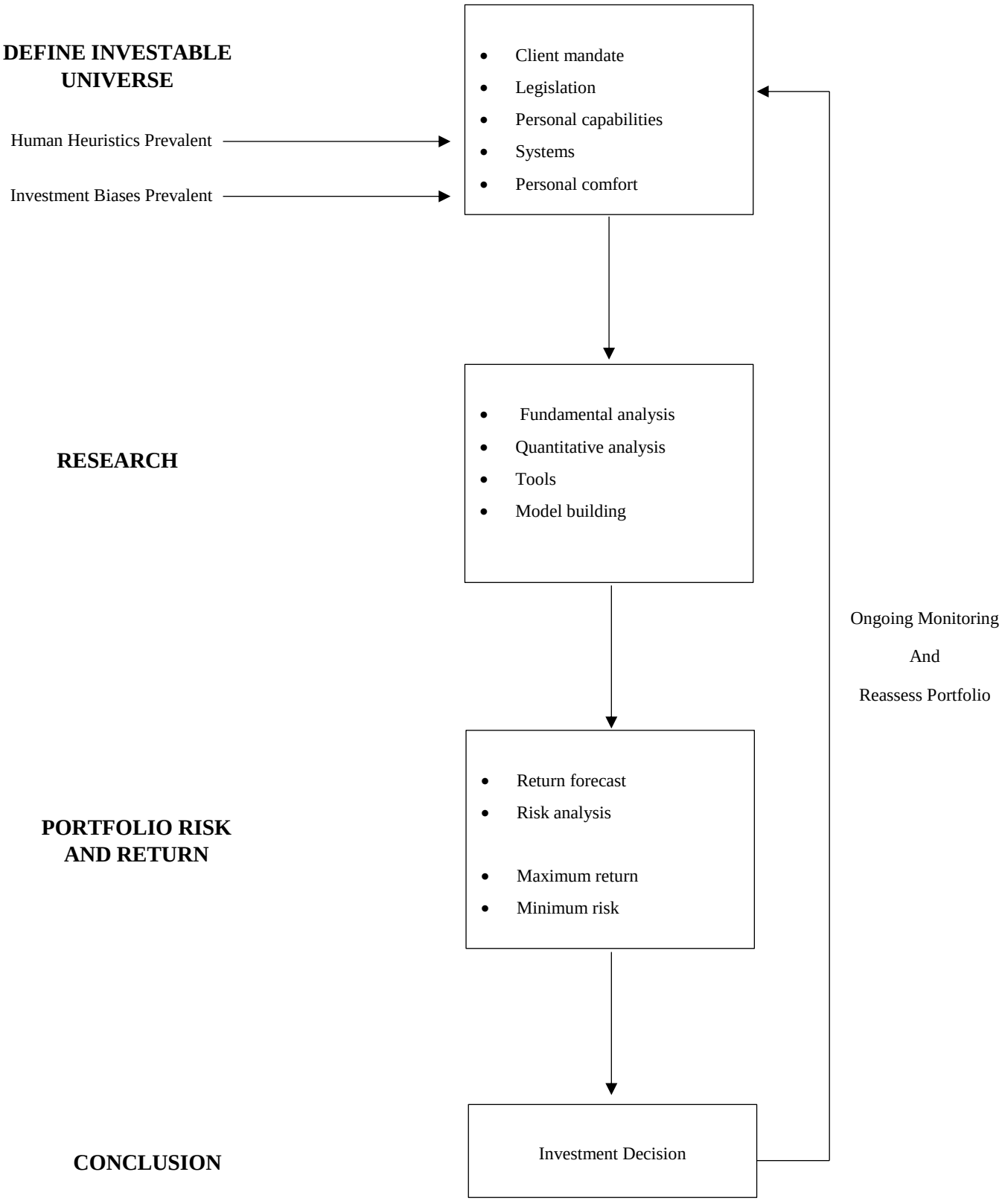


Figure 25: Participant 20 - Investment Decision-Making Process (Fixed Income Process)

4.5 RESEARCH QUESTION ANALYSIS

The primary research question explores the heuristics and biases associated with investment decision-making in South African based firms. The research questions investigated were as follows.

1. How do local and global economic, financial and political conditions influence investment decision-making?
2. How are investment decisions made by investment decision-makers in South African based firms?
3. To what extent are heuristics and biases are associated with investment decision-making?
4. To what extent are rationality and irrationality associated with investment decision-making?

4.5.1 Research Question 1

The first research question addressed how local and global economic, financial and political conditions influence investment decision-making. The research found that all three factors in the local and global market have significant influences on investment decision-making. Further, the political landscape is the most significant factor that has an impact on investment decision-making.

Uncertainty associated with these political factors influences investor confidence and therefore their investment decision-making. Political stability and certainty are significantly crucial to investment decision-making as this affects investor confidence in a given economy. It is important to note that there were many local and global events during the research that were deemed necessary. Firstly, South Africa was experiencing dominant political changes that had a significant impact on the financial industry and investment market. It is essential to understand that the political environment implement policies and regulations that not only govern the country but influence the finance industry. Thus, policy and regulatory changes impact investment decision-makers.

To provide further insight, during the time of the research, two of South Africa's entities, that citizens, businesses and the economy are highly reliant on due to the monopolistic services they provide, were under public scrutiny due to the corruption and mismanagement of resources. This resulted in changes to the board members of these entities. However, during the time of the public scrutiny, many South African's were worried about the prospects of the country. Some of the participants highlighted this in the research and explained that negative implications it would have on businesses, individuals and therefore investment decision-making.

There were a few contradictions to the literature on credit-rating downgrades and the impact that it has on investment decision-making. The research supports that credit-rating downgrades have negative implications on investments. However, South Africa experienced large capital inflows regardless of the credit score. This was potentially due to other global factors outside of South Africa that resulted in these inflows because the market appeared to be more stable than other markets.

The second point made was the election of a new President for South Africa's Ruling Political Party. It is important to note that in the past, South Africa's politicians have not had much of an impact on the investment industry. However, due to recent events, their influence has been much more significant than before. This was largely due to the actions and perceptions associated with investors and the market in which they invest. Many of the participants expressed that they were in favour of Presidential Candidate A. It was also mentioned, however, that perceptions and not facts drove the reactions to the favoured Presidential Candidate. It is important to mention that the psychology of individuals was exaggerated because of the corruption and economic downfall under the former President of South Africa's leadership.

Thus, the idea of a new President excited individuals and changed their heuristics and biases. Thus, the notion of perception tends to be a pivotal driver to investment decision-making. Lastly, the market is driven by external pressures and investors. It was also evident that the participants would try and keep their market positions neutral until the finalising of the Presidential Election because of the uncertainty that still prevailed in the market and economy. Therefore, the research has supported heuristics and biases are associated with the market.

On a global scale, Brexit and ‘Trumponomics' were the main global factors that had a negative influence on investment decision-making. Most participants mentioned that this changed the UK and US markets due to the uncertainty and radical economic changes. However, one participant mentioned that the reduction in tax implemented by President Trump is positive because US citizens will spend more and products exported by South Africa will increase. Another participant mentioned that Trump's Presidency weakened the US Dollar which had a positive impact on other African currencies. Some participants mentioned that the effects of the global financial crisis are still prevalent in the market. Lastly, it is evident that the world operates on a global scale and thus global factors will infiltrate into local economies and influence investment decision-making.

During the time of the research, there was an international upsurge on a specific stock listed on the market. There was mismanagement of the company's financial resources and corruption was exposed which caused the stock price to fall drastically. Majority of investors held this stock in their portfolios across the finance industry. Thus, the decline of this stock was highly significant and there were substantial global losses that occurred. Many participants also referred to this stock as having substantial negative implications on their investment portfolios and that investment decisions had to make decisions under stress and uncertainty. The primary investment bias prevalent in the market was the endowment-effect bias which is price inconsistencies in the market caused the buying and selling behaviour due to negative perceptions and market reactions.

South Africa has become less attractive from an investment viewpoint. However, the majority of the participants were very optimistic about the future of South Africa and the global market as a whole. However, there are many issues in South Africa, such as employment, education and growth that discourages investment decision-makers. Further, South Africa has many resources and capital, but the mishandling of these resources and capital have created a detriment to the economy. What is further understood is that the effects will not occur over a short duration of time because of the long-standing issues that are currently in their worst state. However, the possibilities of positive change and political stability have improved the psychology and confidence of investors and positively influenced investment decision-making.

Lastly, both public and private sectors contributed to turmoil in the global market. Corruption and resource mismanagement were prevalent in both areas due to a lack of accountability which impedes on investment decision-making.

4.5.2 Research Question 2

The second research question addressed the extent to which heuristics and biases are associated with investment decision-making. The research found that there are human heuristics and biases related to investment decision-making.

It is argued that investment decision-making is influenced by subjective perceptions (Samuelson & Zeckhauser, 1988; Feng & Seasholes, 2005; Chen *et al*, 2007; Fenton-O'Creevy *et al*, 2011; Sewel 2017); cognitive abilities (Hilton, 2001; Au *et al*, 2003; Ackert *et al*, 2003); and market conditions (Sharpe, 1964; Dyl, 1977; Busse & Hefeker, 2007).

All of the participants admitted that their personal views, opinions and experiences have a significant influence on their investment decision-making. Majority of the participants stated that experience had taught them to make sure judgements when making investment decisions. However, some experiences may be negative and influence future investment decisions. Thus, seeking guidance for other individuals reduces heuristics and biases when making investment decisions.

It is important to note here that diverse views and opinions from experts is essential because independent views allow for the reduction of human heuristics and biases in investment decision-making. However, individuals are subject to personal heuristics and biases. One participant stated that the opinions of an investment committee persuaded his decisions.

Some participants admitted that they have to remove their personal biases when making investment decisions actively. Other participants agreed that their own biases could cloud their rationale when making investment decisions. Some participants also mentioned that having good conviction is vital when making investment decisions. It is important to note that investment decision-makers need to stand by their investment decisions and thus to have good conviction regardless of the outcomes.

The next question asked related to acknowledgement of personal emotions and the ability to separate these from investment decision-making. All of the participants admitted that it is difficult to separate their emotions from their investment decisions. It was found that the external environment has an impact on emotions and ultimately investment decisions. Some participants stated that they actively manage to separate their emotions from their investment decisions while others mentioned that they are still working on separating their emotions from their decisions.

A few participants mentioned the concept of emotional intelligence, which can potentially be further explored in future research. Heuristics and biases can be managed through concepts of emotional intelligence. One of the participants pointed out that emotions can be separated into two parts, context and human nature. Thus, the circumstances that prompt an emotional response are essential on how to deal with them.

Another question asked investigated human heuristics and biases that result in financial losses. Majority of the participants admitted that they had made many bad investment decisions and losses. However, some argued that the conditions served right when making an investment decision. They further mentioned that logical explanations as to how they made their decisions is critical. One of the most significant challenges is when the client has to be informed of their losses because they do not understand how these losses occurred. This is important because people tend to forget that investment decision-makers are also human and are subject to human error.

Other participants admitted that they had made bad investment decisions that impacted their psychology and required introspection. The key point to note here is that past doings should not influence future opportunities. This was supported to be difficult as some participants admitted that bad investment decisions that result in losses are difficult to comprehend and challenging to accept.

Another question related to investment decision-making associated with uncertainty and complexity. The literature discussed explains that heuristics and biases are very prominent under conditions of uncertainty. Mauk and Buonomano (2004) argue that it is difficult to decipher how the human brain processes complex stimuli. Sterman (1989) proposes that restrictions and uncertainty that bound human rationality results in biased judgements and

systematic errors. Kahneman and Tversky (1981) argue that decision-making under conditions of uncertainty follows intuition and personal judgement. Decision-making under conditions of uncertainty results in heuristics and judgements rather than intensive research approaches (Gilovich *et al*, 2002). However, Svenson (1979) argues that decisions are influenced by perceptions or intuition and not extensive research or economic models. Further, Khatri and Alvin Ng (2000) argue that intuition plays a significant role in individual decision-making processes.

Majority of the participants stated that all of their investment decisions are complex. They further elaborated that the South African political environment, global events and corruption have created complexities associated with investment decisions. Some of the participants admitted that impulsive decision-making under conditions of uncertainty impedes on their investment decisions.

Some participants admitted to using their ‘gut-feel' when making investment decisions which is considered irrational. Kahneman (2003) argues that perceptions and intuition, such as emotion and stimulation are considered irrational. Other participants stated that the notion of ‘gut-feel' is wrong when making investment decisions. Your gut cannot predict the future and thus relying on a feeling instead of being able to justify your rationale for making an investment decision is irrational.

4.5.3 Research Question 3

The third research question analysed the notion of rationality and irrationality associated with investment decision-making. The research found that rationality and irrationality are associated with investment decision-making. The literature on decision-making theory is based on the concepts of rationality, irrationality and bounded decision-making processes. A more recent model on decision-making involves the use of heuristics. Thus, to understand heuristics, one needs to understand the idea of rationality.

Irrational investment decisions are influenced by biased self-attribution or overconfidence (Daniel *et al*, 1998). Daniel *et al*, (2001) further argue that overconfidence stimulates heuristics in investment decisions. Dean and Sharfman (1993) contend that individuals make rational decisions when they have extensive knowledge, or judgements based on experience

(Tversky & Kahneman, 1973). Further, rational investment decision-making is influenced by economic conditions and the fluctuations of business cycles (Chalmers *et al*, 2013).

All of the participants described what they would consider a rational versus an irrational investment decision-maker. It was explained that a rational investment decision-maker is someone who has a defined process, does comprehensive research and industry analysis, uses logic and separates emotions when making investment decisions. Further, a rational investment decision maker is someone who diversifies their investment portfolio. An irrational investment decision-maker is someone who is emotional, does not do research or follow a comprehensive process, uses their 'gut-feel' and reacts to market movements. Further, they do no diversify their investment opportunities. Based on the above, a new model of rationality versus irrationality associated with investment decision-making has been proposed.

4.5.4 Research Question 4

The fourth research question addressed how investment decisions are made by investment decision-makers in South African based firms. The research found that investment decision-makers follow a comprehensive process that derive investment decisions. Further, some human heuristics and biases are prevalent in their processes.

The research found that there are biases and heuristics associated with investment decision-making processes. Not all of the participants' investment decision-making processes involved heuristics and biases. The most significant biases amongst these participants were trend-chasing bias, the disposition-effect bias, confirmation bias and familiarity bias. The disposition-effect bias is selling winning stocks and holding onto losing shares (Chen *et al*, 2007). According to Sherman (2017) trend-chasing bias is the misconception that past performance and historical returns predict future performance. Familiarity bias is when known events are preferred over unknown events (Fox & Levav, 2000). Confirmation bias is selectively choosing information that supports one' own opinion (Jonas et al, 2001). This begs the question of whether these biases are significant in the investment industry due to the nature of the industry and the information that is available.

CHAPTER 5

SYNTHESIS DISCUSSION

5.1 INTRODUCTION

At this point, an introduction to the study, literature review, research methodology and analysis of findings have been addressed. This section will now be providing a synthesis discussion between the key findings and theoretical underpinnings.

5.2 DISCUSSION

This section will be analysing the findings and theoretical underpinnings. The purpose of this section is to provide a comparison between theory and reality. This section will discuss local and global economic, financial and political conditions; heuristics and biases and rationality and irrationality associated with investment decision-making.

5.2.1 Local and global economic, financial and political conditions associated with investment decision-making

The research found that perceptions influence investment decision-makers. It is argued that investment decision-making is influenced by subjective perceptions (Samuelson & Zeckhauser, 1988; Feng & Seasholes, 2005; Chen *et al*, 2007; Fenton-O'Creevy *et al* 2011; Sewel 2017). Perceptions was supported to have high significance to investment decision-makers and the market. An example of this related to the new South African Presidential Candidate whereby the investment decision-makers and the market responded positively towards the preferred Presidential Candidate and negatively towards the unfavoured Presidential Candidate.

The research further found that perceptions associated with political instability and uncertainty influence investment decision-making. South Africa's current economic state is in turmoil due to the political shifts that have shaped perceptions of political uncertainty (Suttner, 2017). This was mainly due to government actions and corruption. Political uncertainty and corruption from government actions have negative implications on economic and financial conditions (Mo, 2001; Kelly *et al*, 2016). The fourth change of the finance minister in 2017 weakened the Rand overnight (Saville, 2017). According to CNBC Africa (2017) South Africa's local assets have been disadvantaged since the finance minister reshuffle.

It has been argued that the credit-rating junk status will result in higher premium risk perceptions and higher interest rates (Gernon and Mabuza, 2017). Further, Fisher-French (2017) indicates that the results of South Africa's credit-rating downgrade have influenced investors to sell out of government bonds and the Johannesburg Stock Exchange (JSE). The bond market in South Africa experienced a downfall due to South Africa being downgraded to non-investable. However, irrespective of the credit-rating downgrade, South Africa still experienced large capital inflows from foreign countries. It must be taken into consideration that other factors such as global political uncertainty resulted in the capital inflows experienced in South Africa.

The research supported the theoretical underpinnings that political instability reduces growth within an economy. South Africa was subject to growth declines because of the variability associated with the economy. Political instability has negative implications for economic growth and international investment (AleYou Researcher *et al*, 1996). Furthermore, economic and political uncertainty affects the variability of international investment (Frankel & Rose, 2001). Emerging economies have higher political uncertainty. Barr, Frankhauser and Hamilton (2010) argue that African countries have a low adaptive capacity, political uncertainty and are highly vulnerable. Calvo and Mendoza (1999) argue that when stock markets fall in open economies, investors withdraw from weak markets.

South Africa is an emerging economy and operates as an open market. In an emerging South Africa, uncertainty continues as a nexus of forces in the open economy (Zafar, 2007). Considering that South Africa is an open economy, it is directly affected by conditions in the global economy (Matthee *et al*, 2016). It is argued that investment decision-making is affected by market conditions (Sharpe, 1964; Dyl, 1977; Busse & Hefeker, 2007).

Investment decisions are influenced by local and global financial and economic conditions (Tallman, 1988; Ghysels, Plazzi & Valkanov, 2016). Further, firms operate within a market that is directly affected by financial and economic factors. The global economy is continually changing (Freeman, 1994). Thus, local and global financial and economic changes impact investment decisions (Ghysels *et al*, 2016).

It was further indicated that the political landscape was significant to investment decision-making. Ghosh (2017) argues that recent political and economic changes in the leading world economies will impact global conditions. The research found that Brexit and ‘Trumponomics' were the main global events that influenced investment decisions. It was found that Brexit had a negative impact on South Africa. After Brexit was announced, South African companies that invested in the UK experienced substantial declines in their earnings due to the Pound weakening.

Dhingra, Ottaviano, Sampson and Van Reenen (2016) argue that the United Kingdom's exit from the European Union, known as Brexit, will reduce trade between the United Kingdom and the rest of the world. Brexit could result in higher trade barriers and thus reshape foreign investments and business. Dhingra and Sampson (2016) further argue that after Brexit, the world economy will experience high political costs, a reduction in living standards and lower income. The research did not support beneficial outcomes from Brexit. However, Staal (2016) argues that while most economies will be at a detriment to Brexit, other countries will gain. Pisani-Ferry, Röttgen, Sapir, Tucker and Wolff (2016) discuss that the existing integrated political alliances refurbish the balance of global economic factors.

With Donald Trump's election as president of the United States of America, many question his economic and political policies popularly called ‘Trumponomics’. Epstein (2017) contends that ‘Trumponomics’ is based on putting the American economy first by reducing foreign investment schemes and keeping money in the country. Mikaelsson and Nilsson (2016) highlight that ‘Trumponomics’ policy actions will result in increased costs for businesses that will lead to trade wars and redirection of production chains.

Further, there will be a negative impact on emerging markets, an increase in national debt, commodity price increases, rate hikes and oil price escalations. Bekaert (1995) discusses that high inflation, exchange rate control, lack of funds and poor credit-ratings are barriers to global market integration. Nunns *et al* (2016) argue that financial market volatility, economic outlook and global trade challenges are just a few of the negative impacts that ‘Trumponomics’ will have on external economies. The research found that ‘Trumponomics' created perceptions of uncertainty associated with the American economy. Further, many investors were reluctant to invest in the US economy.

However, the research also supported the theoretical underpinnings that Trump's policies would be beneficial to South Africa and other countries. Gros (2016) discusses that ‘Trumponomics’ has a potential benefit and positive impact for Europe. The research found that Brexit and ‘Trumponomics' followed a nationalistic approach which is opposite to the rest of the world. Epstein (2017) argues that Brexit and Donald Trump's presidency have isolated the world and conflict globalisation. Brexit and ‘Trumponomics’ support a closed economic approach, or countries that do not trade with the rest of the world (Wall, 2011). However, Trump's tax policies to reduce tax in America will increase individual’s purchasing power propensity. Thus, South Africa's exports will increase and result in economic growth.

It is important to note that economies experience cyclical shifts due to government actions, in the globalised economy. The research supported the theory that there are ‘winners' and ‘losers' when the economy is favourable or unfavourable. Thus, investment decision-makers will invest in companies that can differentiate in competitive markets. It has been argued that there are ‘winners' and ‘losers' in globalisation (O'Brien & Leichenko, 2000). Disadvantaged countries or ‘losers' of globalisation fall short in the benefits from participating in the global economy (Kaplinksy, 2000)

5.2.2 Heuristics and biases associated with investment decision-making

Despite the external pressures exposed to investment decisions makers, there are internal pressures that influence investment decision-making. The research supported the theoretical underpinnings that cognitive abilities affect investment decision-makers. Further, investment decision-makers will choose to invest in familiar investment opportunities. It is argued that investment decision-making is influenced by cognitive abilities (Hilton, 2001; Au *et al*, 2003; Ackert *et al* 2003). Huberman (2001) argues that investment decision-making is based on biased familiarity and not economic theory.

Lucey and Dowling (2005) propose that subjective perceptions and emotions experienced at a given time influence decision-making. The research found that perceptions and emotions largely influence investment decision-making. It is important to note that perceptions and emotions are inherent in human nature. Daniel *et al* (2001) further argue that human factors influence heuristics and biases in investment decisions.

Further, heuristics are apparent under conditions of uncertainty. Thus, investment decision-makers will hold conservative portfolio positions. Behavioural economics states that individuals do not achieve optimal results under all conditions (Bogacz *et al* 2006). Systematic errors and judgements influence heuristics and biases associated with investment decision-making (Daniel *et al*, 1998).

Systematic errors, or biased logic (Grimes & Schulz, 2002) involved in decision-making under conditions of uncertainty are influenced by subjective probabilities and intuitive predictions (Tversky & Kahneman, 1973). Further, subjective probabilities, personal judgement and intuition are prevalent in decision-making under uncertain conditions (Kahneman & Tversky, 1977; Kahneman & Tversky, 1981) Sterman (1989) proposes that restrictions and uncertainty that bound human rationality results in biased judgements and systematic errors.

Intuition and heuristics are mediated by judgements under uncertain conditions (Tversky & Kahneman, 1984). Thus, decisions associated with unfamiliarity and uncertainty should follow controlled thinking (Kahneman & Frederick, 2001). Kahneman and Tversky (1984) propose that decision-making follows either normative analysis, or the nature of logical and rational decision-making (MacCrimmon, 1968); or descriptive analysis, which is concerned with individual preferences and beliefs (Bell *et al*, 1988).

Decision-making under conditions of uncertainty results in heuristics judgements rather than intensive research approaches (Gilovich *et al*, 2002). However, Svenson (1979) argues that decisions are affected by perceptions or intuition and not extensive research or economic models. Further, Khatri and Alvin Ng (2000) argue that intuition plays a significant role in individual decision-making processes. Investment decision-makers tend to rely on their intuition or ‘gut-feel'. The respondents could neither explain nor justify how their ‘gut-feel' influence their investment decisions but that it does influence their investment decisions.

However, Nonaka and Peltokorpi (2006) propose that decisions can be objective or based on external factors. The research also found that some investment decision-makers follow methodological processes that involve transparency and objectivity. Further, investment decision-making processes require comprehensive analysis and constant comparison. Sudana

(2011) highlights that decision-making should include a careful review of all alternative options.

It is important to note that investment decision-makers operate within investment teams. Further, they will present their investment opportunity to investment committees before making a final investment decision. Stokman, Assen, Knoop and Oosten (2000) discuss that society's mutual interests and perceptions influence decision-making. However, De Bondt and Thaler (1995) argue that portfolio investors make decisions based on information and not the perceptions or opinions of other investors. It is argued that individuals are reliant on mixed opinions of others to make decisions (Muchnik, Aral & Taylor, 2013).

Investment decision-makers will seek guidance from external parties when making investment decisions to eliminate biases and gain further insight. However, it is important to note that individuals have inherent heuristics and biases which potentially impact investment decision-making. Doyle (1998) argues that rational group decision-making involves mutual beliefs and preferences. Further, individuals are biased towards supporting information rather than conflicting information (Schultz-Hardt *et al*, 2000). Biases and heuristics have more of an impact in a group setting because each group member will possess personal biases and heuristics (Kerr & Tindale, 2004).

Griffin and Tversky (1992) propose that systematic errors can be a result of irrational judgements, subjective perceptions and overconfidence. Tversky and Kahneman (1981) argue that systematic errors influence human judgements and heuristics. The research found that overconfidence is irrational. Further, past success results in future behaviours of arrogance and overconfidence associated with decision-making (Doukas & Petmezas, 2007; Billett, & Qian, 2008). Thus, making mistakes will eliminate the notion of over-confidence because investment decision-makers will not always make the right investment decisions.

Sherman (2017) highlights that there are eight biases associated with investment decision-making, namely familiarity bias, confirmation bias, disposition-effect bias, trend-chasing bias, hindsight bias, endowment-effect bias, self-attribution bias and regret aversion bias. Familiarity bias is when known events are given more probability over unknown events (Fox & Levav, 2000). The research found that investment decision-makers possess familiarity bias

under conditions of uncertainty. Chew *et al* (2012) argue that familiarity bias is most prevalent under conditions of uncertainty.

Confirmation bias is associated with the tendency to overestimate the accuracy of one's judgements and discard the rationales behind the inaccuracy of the reasoning (Nickerson, 1998). Thus, an investor would look for information that supports their investment decision than to seek out contradictory information (Sherman, 2017). Confirmation bias is potentially linked to self-affirmation, or the tendency to maintain the personal integrity of the self (Heine, & Lehman, 1997; Sherman & Cohen, 2006). The research supported that investment decision-makers will seek information that they are familiar with and promote their own opinion. Thus, a relationship between familiarity bias and confirmation bias is true.

Thirdly, the disposition effect bias, according to Chen *et al* (2007) is that investors tend to sell winning stocks and hold onto losing shares. Cici (2012) further argues that many investment decisions follow the disposition effect because of the buying and selling market conditions. The research found that investment decision makes follow the disposition-effect bias mainly due to the nature of investing. Fourthly, trend-chasing bias is the misconception that past performance and historical returns predict future performance. Further, the future is unpredictable and forces within the market can change returns (Sherman, 2017). Investment decision-makers follow trend-chasing bias primarily due to the nature of investments and the information available to them. Thus, the nature of investment decision-making needs to be taken into consideration.

Fifthly, hindsight bias involves an investor believing that a decision made was predictable based on past events after the fact, when in fact the event could not have been predicted with valid reasoning (Fischhoff, 1975; Sherman, 2017). According to, Campbell and Tesser (1983) when the outcome of an event is known, the cognitive motive of having known the result is exaggerated. Further, the reconstruction of knowledge, after the outcome or event, influences previous judgements (Hoffrage *et al*, 2000). According to Hell *et al* (1988) the recollection of outcomes tends more towards the correct approach after having been informed about the actual result. Furthermore, hindsight bias involves the reluctance to accept personal errors and reduces learning propensity (Pezzo, & Pezzo, 2007). Biais and Weber (2009) argue that investment decisions associated with hindsight bias impedes learning, due to the 'I knew it all

along' tendency. The research did not support hindsight bias and could be further explored in future research.

Sixthly, the endowment-effect bias involves negative market reactions due to buying and selling price inconsistencies (Zhang & Fishbach, 2005). The nature of investments will result in price inconsistencies due to unfavourable market reactions.

Investment decision-makers tend to seek for external factors to justify losses. Seventhly, self-attribution bias involves the extent to which internal and external factors contribute to performance (Libby & Rennekamp, 2012). Investors take credit for success or winning investment decisions yet blame unsuccessful or losing investment decisions on external factors (Sherman, 2017). Hoffman and Post (2014) argue that self-attribution is significantly related to investor returns rather than market returns. Daniel *et al* (1998) argue that biased self-attribution causes distort shifts in investors' confidence supplementary to their investment outcomes.

Lastly, regret-aversion bias involves an analysis of the actual outcome versus the outcome that could have occurred (Zeelenberg, & Beattie, 1997). According to Zeelenberg *et al*, (1996) regret influences individuals to undo the losses produced after their decisions, or change their choices before making future decisions. Heuristics are associated with investment decisions because investors are loss-averse (Coval & Shumway, 2005). An investor is reluctant to realise their losses due to poor investment decision-making and the negative outcomes associated (Bell, 1982; Sherman, 2017). Thus, the primary biases identified in this study were familiarity bias, confirmation bias, the disposition-effect, trend-chasing bias, the endowment-effect bias and regret-aversion bias.

5.2.3 Rationality and irrationality associated with investment decision-making.

Saaty (2008) argues that rationality or irrationality influence decision-making. The research found that there are distinguishing characteristics between rational and irrational investment decision-making. Self-attribution bias and overconfidence are considered irrational (Daniel *et al*, 1998). Daniel *et al* (2001) further argue that overconfidence stimulates heuristics in investment decisions. Dean and Sharfman (1993) contend that individuals make rational decisions when they have extensive knowledge, or judgements based on experience (Tversky

& Kahneman, 1973). Further, rational investment decision-making is influenced by economic conditions and the fluctuations of business cycles (Chalmers *et al*, 2013). Thus, according to Bhatt (2001) investment decision-making requires the processing of information efficiently and creating knowledge effectively to adapt to changes in the economy.

The research indicated that a rational investment decision-maker is someone who has a defined process, does comprehensive research and industry analysis, uses logic and separates emotions when making investment decisions. Further, a rational investment decision maker is someone who diversifies their investment portfolio. An irrational investment decision-maker is someone who is emotional, does not do research or follow a comprehensive process, uses their 'gut-feel' and reacts to market movements. Further, they do no diversify their investment opportunities. Based on the above, a new model of rationality versus irrationality associated with investment decision-making has been proposed.

Portfolio investment theory predicts specific patterns of investments that would be optimal, given the risk frontier (Fabozzi *et al*, 2002). Popova, Morton, Popova and Yau (2006) propose that investment strategies have shifted towards an interchange between risk and return. Kaustia and Knupfer (2008) argue that experience influences investment decisions because reinforcement theory predicts that personally experienced outcomes have a significant effect on behaviour. However, investment decision-making is dependent on the type of asset class and investment preference (Blake *et al*, 2013). Lastly, the research supported the theoretical underpinnings of risk and returns. It is important to note that the higher the risk, the higher the return. However, certain asset classes are subject to conservative investment options because of the nature of the investment.

Lastly, Lincoln and Guba (1985) propose that trustworthiness and authenticity are the primary criteria for analysing the rigour of qualitative studies. Trustworthiness and authenticity denote the same conceptual importance as reliability and validity (Denzin & Lincoln, 1994). Seale (1999) proposes that authenticity is the ability of the researcher to express emotions in a faithful manner relative to the participants' experiences. This research is trustworthy and authentic because the analysis showed emotions in a reliable manner relative to each participant's experiences.

Sandelwoski (1986) further proposes that credibility refers to the descriptions of human experiences and verified research findings. This research is credible because the descriptions of each participant's experiences were verified. Shenton (2004) argues that dependability is the consistent similarity of the data settings. Further, the research process should be replicable. This research is dependable because the study is reproducible and the data settings were consistent. Each participant was interviewed within boardrooms at their workplaces.

Confirmability refers to the ability of the researcher to represent the findings derived from the data and not the researcher's viewpoint (Tobin & Begley, 2004). This research is confirmable because the findings were derived from the data collected. Lastly, transferability is the ability of the research to be reassigned to other groups and settings. Further, transferability is reached if the results are meaningful and depict personal experiences (Houghton *et al*, 2013). This research is transferable because the results explain personal experiences of each participant and can be reassigned to different groups and different setting.

CHAPTER 6

CONCLUSIONS AND FUTURE RECOMMENDATIONS

6.1 INTRODUCTION

At this point, an introduction to the study, literature review, research methodology and analysis of findings and synthesis discussion between the key findings and theoretical underpinnings has been addressed. This section will now be completing the research and providing future recommendations.

6.2 FINAL REMARKS

The purpose of this study was to gain an understanding of the heuristics and biases associated with investment decision-making that influence portfolio outcomes. Further, to understand the impact that heuristics and biases associated with investment decision-making have on portfolio outcomes. This knowledge is critically important because performance of investments is a contributor to investment outcomes and firms. There is extensive research on investment decision-making. What is not clear from this literature, however, are the motivations behind investment decision-making in South Africa - considering the unique economic, social, legal and political conditions prevailing in the emerging and newly democratic country.

The significance of this study is its contribution to the literature of management theory on heuristics and biases associated with investment decision-makers in Johannesburg, South Africa. The research problem addressed the lack of theory relating to the heuristics and biases associated with investment decision-making by investment decision-makers in South African firms. Large sums of monetary value have been lost, across multiple sectors, due to poor investment decision-making (Gold *et al*, 1996; Gorton, 2010; Cici, 2011). Investment decision-making has a substantial influence on society and the economy (Odean, 1998). However, human irrationality influences investment decisions negatively because individuals are goal driven in pursuit of opportunities and incentives (Tversky & Kahneman, 1986). Thus, rational investment decision-making is critical (Friedman & Miles, 2000).

This research followed an inductive approach to focus on gathering data that explains the experiences and behaviours within a social context. Further, the findings were translated into data and followed an exploratory approach to investigate the proposed phenomenon on heuristics and biases associated with investment decision-making. The research approach

drew from an interpretivist paradigm. The research method followed a general inductive qualitative approach. The sample comprised of 20 investment decision-makers, of which 18 were used in the research. The sample included investment decision-makers between the ages of 21 to 63, in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining, defensive, credit, retail and industrial sectors, in Johannesburg, South Africa. Further, this study followed purposive heterogeneity sampling.

The research instrument used for this study was face-to-face interviews and comprised of semi-structured and open-ended questions to allow for further elaboration and discussion. The data was analysed through a microanalysis open coding approach. The recorded interviews were replayed and transcriptions examined to identify critical categories relative to the study and relate the findings to the theoretical underpinnings discussed. The themes identified emerged from the research. A comparison between theory and reality was addressed and conclusions were drawn from the results. The research was credible, dependable, confirmable and transferable to ensure the trustworthiness and authenticity of the study.

The first research question addressed how local and global economic, financial and political conditions influence investment decision-making. According to the literature, investment decisions are influenced by local and global financial and economic conditions (Tallman, 1988; Ghysels *et al*, 2016). The research found that all three factors in the local and global market have significant influences on investment decision-making. It was found that the political landscape is the most significant factor that has an impact on investment decision-making. Furthermore, the uncertainty associated with the political landscape influences investor confidence and investment decision-making. The research found that the political landscape infiltrates into the economic and financial environment. It is important to note that firms operate within a market that is directly affected by financial and economic factors.

According to the literature, political uncertainty and corruption from government actions have negative implications on economic and financial conditions. (Mo, 2001; Kelly *et al*, 2016). Political instability has negative impacts on economic growth and international investment (AleYou Researcher *et al*, 1996). Further, economic and political uncertainty affect the variability of international investment (Frankel & Rose, 2001). Therefore, political

stability is significant to investment decision-making and investor confidence. It was found that South Africa's political landscape was the most critical factor for all of the participants of the research.

The second research question addressed the extent to which heuristics and biases are associated with investment decision-making. The research found that there are human heuristics and biases associated with investment decision-making. Furthermore, some additional biases and heuristics were discovered, such as cultural upbringing.

All of the participants admitted that their personal views, opinions and experience have a significant influence on their investment decision-making. Majority of the participants stated that experiences influence their judgements when making investment decisions. According to the literature, experience influences investment decisions because reinforcement theory predicts that personally experienced outcomes have a significant effect on behaviour (Kaustia & Knupfer, 2008). However, negative experiences influence heuristics and biases when making future investment decisions. According to the literature, our behaviours are significantly influenced by previous experiences at the expense of learning true rationales and reinforcements. (Doll *et al* 2011).

The next question addressed personal emotions and the ability to separate these from investment decision-making. This is important because investment decision-makers are driven by their opinions and emotions when making investment decisions. All of the participants admitted that it is difficult to always to separate emotions from investment decisions. According to the literature, Lucey and Dowling (2005) propose that subjective perceptions and emotions experienced at a given time influence decision-making.

It was also made found that the external environment has an impact on emotions and investment decisions. Some participants stated that they actively manage to separate their emotions from their decisions. However, other participants openly admitted that they are not able to separate their emotions from their investment decisions. Emotional separation requires time and experience.

Some participants admitted that they have to actively remove their personal biases when making investment decisions which is difficult. While other participants agreed that their

biases cloud their rationale when making investment decisions. Some participants also mentioned that having conviction is critical when making investment decisions. It is important to note that investment decision-makers need to stand by their investment decisions regardless of the outcomes.

Another question addressed by the research related to investment decisions that resulted in losses and managing the aftermath of the loss. According to the literature, heuristics are associated with investment decisions because investors are loss-averse (Coval & Shumway, 2005). Further, investment decision-makers are reluctant to realise their losses due to poor investment decision-making and the associated unfavoured outcomes (Bell, 1982; Sherman, 2017).

Majority of the participants admitted that they had made many poor investment decisions that have resulted in losses. However, some argued that the conditions were favourable during investment decision-making. Thus, justifying investment decisions is crucial. It is important to understand that investment decision-makers are also human and are subject to human error. According to the literature, Daniel *et al* (2001) argue that human factors influence heuristics and biases in investment decisions.

Sterman (1989) proposes that restrictions and uncertainty that bound human rationality results in biased judgements and systematic errors. Other participants admitted that they had made bad investment decisions that impacted their psychology and required introspection. The critical point to note here is that past mistakes should not influence future investment decisions. However, participants admitted that bad investment decisions and losses are difficult to comprehend and challenging to accept.

Another question related to investment decision-making associated with uncertainty and complexity. Majority of the participants stated that all of their investment decisions are complex. They further elaborated that the South African political environment, global events and corruption have impacted investment decision-making negatively. Some of the participants admitted that impulsive decision-making under conditions of uncertainty impedes on their investment decision-making.

According to the literature, intuition and heuristics are mediated by judgements under uncertain conditions (Tversky & Kahneman, 1984). Systematic errors, or biased logic (Grimes & Schulz, 2002) involved in decision-making under conditions of uncertainty are influenced by subjective probabilities and intuitive predictions (Tversky & Kahneman, 1973). Further, subjective probabilities, personal judgement and intuition are prevalent in decision-making under uncertain conditions (Kahneman & Tversky, 1977; Kahneman & Tversky, 1981).

Some participants admitted to using their ‘gut-feel' and intuition when making investment decisions. According to the literature, irrationality is based on perceptions and intuition, such as emotion and stimulation (Kahneman, 2003). Other participants stated that the notion of ‘gut-feel' is wrong when making investment decisions.

The third research question analysed the notion of rationality and irrationality associated with investment decision-making. The research found that rationality and irrationality are associated with investment decision-making. The literature on decision-making theory is generally based on the concepts of rationality, irrationality and bounded decision-making processes. A more recent model on decision-making is based on the use of heuristics. Thus, to understand heuristics, one needs to understand the idea of rationality. All of the participants described what they would consider a rational versus an irrational investment decision-maker.

In the literature, two models on rationality versus irrationality associated with investment decisions were presented. The first model illustrated that irrationality is based on perceptions and intuition, such as emotional and stimulation and rationality involves experience and predictions (Kahneman, 2003). The second model illustrated that the idea of rationality is influenced by two paths, namely that of fear which is inclined by unrestricted rationality or constrained optimisation. The second path is limited rationality that is controlled by satisfaction or fast and logical heuristics (Gigerenzer & Selten, 2001).

The participants highlighted that a rational investment decision-maker is someone who has a defined process, does comprehensive research and industry analysis, uses logic and separates emotions when making investment decisions. Further, a rational investment decision maker is someone who diversifies their investment portfolio. An irrational investment decision-maker

is someone who is emotional, does not do research or follow a comprehensive process, uses their ‘gut-feel' and reacts to market movements. Further, they do no diversify their investment opportunities. Based on the findings, a new model of rationality versus irrationality associated with investment decision-making has been proposed.

The fourth research question addressed investment decision-making processes. The research found that investment decisions follow a comprehensive process that derive investment decisions. The main factors in an investment decision- making process include (i) an analysis of internal capabilities, (ii) external market and industry research, (iii) peer comparisons, (iv) risk analysis, and (v) return forecasts.

According to the literature, investment decision-making is influenced by subjective perceptions (Samuelson & Zeckhauser, 1988; Feng & Seasholes, 2005; Chen *et al*, 2007; Fenton-O'Creevy et al, 2011; Sewel 2017); cognitive abilities (Hilton, 2001; Au *et al*, 2003; Ackert *et al*, 2003); and market conditions (Sharpe, 1964; Dyl, 1977; Busse & Hefeker, 2007). Kahneman and Tversky (1984) propose that decision-making follows either normative analysis, or the nature of logical and rational decision-making (MacCrimmon, 1968); or descriptive analysis, which is concerned with individuals preferences and beliefs (Bell, Raiffa, & Tversky, 1988).

The research found that there were biases and heuristics associated with investment decision-making processes. Not all of the participant's investment decision-making processes involved heuristics and biases but there were common biases and heuristics identified. The most common biases amongst these participants were the disposition-effect bias, trend-chasing bias, familiarity bias and confirmation bias.

The disposition-effect bias is selling winning stocks and holding onto losing shares (Chen et al, 2007). According to Sherman (2017) trend-chasing bias is the misconception that past performance and historical returns predict future performance. Familiarity bias is when known events are highly probable over unknown events (Fox & Levav, 2000). Confirmation bias is selectively choosing information that supports one' own opinion (Jonas et al, 2001). It is apparent that these biases are common in the investment industry due to the nature of the industry and the information that is available.

The heuristics included in the participants' processes involved group discussions with other parties before making an investment decision. It is important to note that diverse views and opinions from experts reduces human heuristics and biases associated with investment decision-making. However, individuals within a group are subject to personal heuristics and biases which influences investment decision-making. According to the literature, Sterman (1989) argues that group interaction dictates behavioural decision-making. Furthermore, Doyle (1998) contests that rational group decision making requires mutual beliefs and preferences.

6.3 FUTURE RECOMMENDATIONS

Upon the conclusion of the research, future recommendations for heuristics and biases associated with investment decision-making have been derived. The three theoretical models proposed can be researched using quantitative measures to test the relationships amongst the identified sub-themes. The three proposed theoretical models are (i) Theoretical Model on Local and Global Economic, Financial and Political Factors Associated with Investment Decision-Making; (ii) Theoretical Model on Heuristics and Biases Associated with Investment Decision-Making; and (iii) Theoretical Model on Rationality Versus Irrationality Associated with Investment Decision-making.

Four future research ideas have been derived from this research that can be explored further. The impact that inherent biases have on investment decision making; the ideologies associated with investment decision-making; gender biases and emotions associated with investment decision-making; and cultural biases associated with investment decision-making can be further explored. Lastly, the suggested future research should be conducted through qualitative methods.

- One of the participants stated that "all people are biased. You always have an inherent bias". Biases are human nature and therefore innate in the decisions made by investment decision-makers. The impact that inherent biases have on investment decision-making processes could be further explored.

- Some participants mentioned that investors' thinking has a significant impact on investment decisions. The ideologies associated with investment decision-making processes could be a topic of further exploration.

- One participant mentioned that working with men has taught her not to show emotion in public because the perception of women being emotional is considered weak and unprofessional. The impact of gender biases associated with investment decision-making processes could be further explored.

- Some participants made a crucial point about how South Africa's multi-cultural and historical events impact the investment industry. This is due to cultural biases that impact investment decision-making. The impact that cultural biases have on investment decision-making processes in a South African context could be a vital topic for future exploration.

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ANNEXURE A

Table 12: Sample

The following table summarises the investment decision-makers in the finance industry that are investing or specialise in investing in investments focused on the banking, financial services, asset management, construction, mining, defensive, health care and pharmaceutical sectors, in Johannesburg, Gauteng, South Africa.

Banking	Defensive
Financial Services	Credit
Asset Management	Retail
Construction	Industrial
Mining	

Table 13: Qualitative Codes

The qualitative codes used in the analysis of findings include the relative themes, the acronym for each theme, question associated with each theme and the respondent number.

Relative Theme	Publish	Related Question	Respondent	Specific Code
T1	Global and local economic, financial and political conditions.	Q1 Q2 Q3	P3-20.	T1GLEFP- Q1/2/3-P3-20
T2	Heuristics and biases	Q1 Q2 Q3 Q4	P3-20.	T2HB- Q1/2/3/4-P3-20
T3	Rational and Irrational investment decision-making	Q1	R3-20.	T3RIIDM- Q1-P3-20
T4	Individual Investment Decision-Making Processes	Q1 Q2	P3-20.	T4IIDMP-Q1/2-P3-20

PARTICIPANT INFORMATION SHEET



Date: December 2017 – January 2018

Dear Sir/Madam

My name is Sina Tracy Moyane and I am a Masters student in the Economic and Business Sciences Faculty at the University of the Witwatersrand Johannesburg. I am conducting research on the heuristics and biases associated with investment decision-making. Further, how local and global economic and financial conditions impact investment decisions-making.

The purpose of this interview is to explore the extent to which heuristics and biases have on investment decision-making processes. Further, the potential influence that local and global financial and economic conditions have on investment decision-making processes.

As part of this research, you are **invited** to take part in a single interview to take place at any preferred location. If there are any language barriers experienced throughout the interview, I will ask for further elaboration where necessary. With your permission, I would like record the interview using a digital device that will be stored on my personal laptop and disposed of accordingly. This interview will cover 2 main themes with 8 to 13 semi-structured sub questions and follow up questions per main theme and will take between 30 to 50 minutes to complete.

Your participation is completely voluntary and there are no direct benefits from participating in this interview. The research involves no risk, penalty, or loss whether or not you participate. You will remain anonymous throughout the interview as I will not be asking or mentioning your name or any identifying information throughout the interview. The information you give to me will be held securely and not disclosed to anyone else. I will refer

to you as ‘participant 1, 2, 3’ etc. in my final research report. If your experience any distress or discomfort, we will stop the interview or resume at a later stage.

If you have any further queries, complaints or concerns regarding the ethical procedures of this research, please feel free to contact the University Human Research Ethics Committee (non-medical) on the details listed below.

University Human Research Ethics Committee (non-medical)

Telephone number: +27(0)11 717 1408

Email address: hrec-medical.researchoffice@wits.ac.za/ Shaun.Schoeman@wits.ac.za

Thank you for considering participating. Should you have any questions about the research, please feel free to contact me on the details listed below. This study will be written up as a research report and a summary of the research will be gladly sent to you upon request.

Yours Sincerely,
Sina Tracy Moyane

Researcher Details

Name: Sina Tracy Moyane

Cell phone number: +27 71 852 0859

Email: sina.moyane@gmail.com

Supervisor Details

Name: Professor Chris Callaghan

Email:Chris.Callaghan@wits.ac.za

If you agree to participate in this interview, please can you kindly complete the consent form to follow which allows me permission to commence with the interview.

CONSENT FORM

Investment Decision-Making Process: Heuristics and Biases in South Africa Based Investment Firms

Sina Tracy Moyane

I …….. agree to participate in this research project. The purpose of the research has been explained to me in the information sheet and I understand the extent to which my participation will be used.

	PLEASE CIRCLE BELOW	
I agree that my participation will remain anonymous	YES	NO
I agree that my participation will remain confidential	YES	NO
I agree that the researcher, Sina Tracy Moyane, can interview me	YES	NO
I agree that the interview can be audio recorded	YES	NO
I agree that the information provided by me can used anonymously by other researchers following this study	YES	NO

…….. (Signature)
Indicate with an 'x' if you feel that your signature might identify you

…….. (Name of participant)

…….. (Date)

INTERVIEW QUESTIONS: OPEN ENDED AND SEMI-STRUCTURED.

Questions 1: The focus will be on local and global economic, financial and political conditions

1.1 What global and local factors influence the way in which you make investment decisions?

1.1.1 How do these global and local factors influence the way in which you make investment decisions?

1.1.2 Which of these factors are most important to your investment decision-making?

1.2 What recent global and local events, in your opinion, have influenced the way that you make investment decisions?

1.2.1 Which of these factors would you consider most important and why?

1.3 What is your opinion of South Africa's current economic, financial and political conditions?

1.3.1 How do these conditions directly and indirectly influence your investment decision-making?

1.3.2 Which of these factors are the most important to your investment decision-making and why?

Question 2: The focus will be on investment decision-making

2.1 How do you make your investment decisions and what processes do you follow to select investments into your portfolio?

2.2 What factors do you base your investment decisions on?

2.3 To what extent do external market conditions and internal factors influence your investment decisions?

2.4 What sort of research do you do when making investment decisions?

2.5 To what extent are your opinions, experience and personal views prevalent when making investment decisions?

2.5.1 Which of these are most important to you when making investment decisions?

2.6 Have you ever made any investment decisions that resulted in losses?

2.6.1 If so, how did you manage the aftermath of the loss in your professional capacity?

2.7 Have you ever made an investment decision under complex conditions?

2.7.1 If so, what factors influenced this?

2.8 Are you aware of your personal emotions on a given day?

2.8.1 If so, how do you manage these and separate it from your investment decision-making?

2.9 Considering the questions asked thus far, what would you consider rational and irrational investment decision-making relative to your field of expertise and experience?

TURNITIN REPORT

ANNEXURE B

ANNEXURE C