A PHENOMENOLOGICAL STUDY ON DECISION-MAKING UNDER UNCERTAINTY IN REAL ESTATE INVESTMENTS IN SUB-SAHARAN AFRICA

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List of Abbreviations:

AfDB	African Development Bank
API	Africa Property Investment
CAPM	Capital Asset Pricing Model
CBD	Central Business District
CEE	Central and Eastern Europe
DFI	Development Funding Institutions
ECIC	Export Credit Insurance Corporation
EUT	Expected Utility Theory
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GIC	Government of Singapore's Investment Corporation
IFC	International Finance Corporation
IHS	Information Handling Services – Markit
IMF	International Monetary Fund
IRR	Internal Rate of Return
JLL	Jones Lang LaSalle
LIBOR	London Inter-bank Offered Rate
NPV	Net Present Value
PPP	Public Private Partnerships
REIT	Real Estate Investment Trust
RMB	Rand Merchant Bank
SJT	Social Judgement Theory
UK	United Kingdom
US	United States of America

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Declaration

The researcher declares that the work presented in this thesis, to the best of his knowledge, is original and his own work. Also, neither the thesis in its entirety nor any portion of it has been submitted for application for another academic degree or qualification in another university or institution. Other sources of data or information used in the study have been well acknowledged and referenced.

Abstract

Over a period of time, the researcher observed that real estate investment decisions were made under uncertainty in sub-Saharan Africa, and that this was due to unreliable and outdated economic and market data. The phenomenological study was an investigation of the investment decision phenomenon on how real estate investment decisions were made under uncertainty in sub-Saharan Africa. Firstly, through reflection on the phenomenon and research question, the researcher was able to place the phenomenon in the correct epistemological framework from which the methodology and methods were selected. Phenomenological research was chosen and an interpretive qualitative research methodology applied. The literature was reviewed widely, from Von Neumann and Morgenstein to Kahneman and Tversky. The focus of the literature review was on expected utility theory, decision making under uncertainty and behavioural finance. Interviews were applied as the primary method of data collection during which co-researchers gave descriptions of their experience of the phenomenon. The data was analysed, as described by Moustakas and other researchers, and conclusions were drawn. NVIVO software was also applied to enable an in-depth analysis of the data structures and essences. From the essences, a descriptive method was identified and a risk uncertainty matrix developed. The risk-uncertainty matrix could be applied universally in similar real estate investment environments as those in the data sample (namely, in conditions akin to those of sub-Saharan Africa).

The findings of the research, from the analysis of the descriptions given by the co-researchers, confirmed that there was a lack of credible economic and market data in practice. From the case studies analysis, it was evident that the decision process was subjective and depended, to a great extent, on the experience of the decision-maker and their intuition. Biases and heuristics were evident in the descriptions of the researcher and co-researchers' experiences. The research confirmed its original contribution to knowledge by identifying a descriptive matrix for decision-making under uncertainty in real estate investment in sub-Saharan Africa.

1. Rationale of the research

Through years of reflection on his own professional experience and observing the challenges other professionals face on an ongoing basis, the researcher identified the unreliability of economic and market data as a significant problem that compels investors to make investment decisions under uncertainty in sub-Saharan Africa. The research problem emerged from discomfort at having to accept that decisions are made at a point in time and cannot be verified until a later date, during the asset management phase. Unfortunately, as investment committees and decision-makers are obliged to make decisions based on available and unreliable statistics, this raises a cause for concern as to how decisions are made and whether they are rational and/or accurate.

The reality is that, in sub-Saharan Africa and other developing markets, there is often a lack of sufficient or reliable information available for investment decision-makers. This implies that often investment decisions are made under considerable uncertainty. Furthermore, real estate is frequently viewed as a medium to long-term investment with an investment horizon of between 7 and 10 years. This means that it is essential to have a firm understanding of the market and of economic data. The researcher observed that, in the sub-Saharan markets, the prediction of a future turn of events is difficult due to limited and unreliable data.

1.1 Statement of the problem

For some time now, the unreliability of economic and market data in sub-Saharan Africa and other developing countries has been identified as a significant problem by investors working in these markets. This culminated in an article by Javier Blas, Africa Editor for the Financial Times (2013), entitled, *Africa economic data: investors fear numbers fail to add up*. In this article, Blas observed that, in Ghana 2010, the government recalculated the size of the economy and took into account new growth industries, such as the telecommunications industry. In doing so, the process boosted its gross domestic industry by 62% overnight. Nigeria also rebased its economic data in 2014 which meant it became the largest African economy overnight, surpassing South Africa. In his article, Blas (2013) interviewed the International Monetary Fund who was in the process of organising a seminar to debate the problem and had noted that "the quality of sub Saharan basic economic data was so poor such that it can lead to serious misdiagnosis". In September 2018, Bloomberg News (2018) reported that Ghana's economy was almost a quarter (25%) bigger than in 2017 after the West African nation's statistical agency changed its base for measuring gross domestic product. Bloomberg News stated that, in 2014, Nigeria, Kenya and Tanzania revised their Gross Domestic Product (GDP) data, resulting in increases to the size of these economies, that ranged from 25% and 75%. Another West African country, Senegal, reported that its GDP remeasurement in 2018 showed that the economy was almost a third (33%) bigger after also rebasing its GDP measurement.

In January 2013, Cornell University published a book by Dr Mortens Jerven entitled, *Poor numbers. How we are misled by African Development statistics and what to do about it*. Jerven (2013) pointed out that many of the statistics on Africa, including those reported by the World Bank, were not actual measurements by the countries concerned but rather extrapolations and rough estimates made by international organisations.

Following these and other published articles, in 2013 the African Development Bank (AfBD) commissioned research into the problem to enable a better understanding of the extent of the problem. The findings of their research were published in June 2013 in a report entitled, *Situational Analysis of the reliability of economic statistics in Africa: Special Focus on GDP Measurement*. The report was a summary of the situation regarding national accounts statistics in Africa where data from 44 countries were collected and analysed. The findings of the research concluded that national accounts were reported timeously in comparison to other developing countries. However, they also acknowledged that African statistics face many other challenges and some areas of weakness need urgent attention.

In the research, all co-researchers had encountered the problems associated with out of date economic and market data and a lack of alternative sources. Thus, there were no reliable data available for use in their decision-making process. Similar to the researcher's experiences in practice, there is a lack of reliable and credible information which makes the problem prevalent and presents a challenge to decision-making processes in sub-Saharan markets.

1.2 Aim and objectives of the study

The primary purpose of the phenomenological study was to identify understanding (and essence) from the descriptions of investors' experiences of working in sub-Saharan Africa and to develop a descriptive meaning (theory) on how these professionals make decisions under uncertainty. The ultimate objective was to define a descriptive method for both these and similar situations, namely a generic descriptive method. In lieu of the researcher's professional experience, where business decisions are tightly controlled and monitored, the researcher was keen to find out how investors' biases and heuristics affect the decision-making process, which ultimately tests if the current decision-making methods are credible or if they follow the Kahneman and Tversky (1979, 1983) axioms of decision-making under uncertainty. The secondary aim supports the main aim of the research, namely to find understanding and meaning in the decision-making process, where decision-makers' biases are a factor.

The objectives of the study are:

1. To understand how investors come to make investment decisions under uncertain circumstances when economic and market statistics are not credible or cannot be relied upon;
2. To find and understand the factors that investors consider in the decision-making process (from the beginning of the decision-making process to the end);
3. To understand the key factors that determine decision making and an explanation as to why they are critical factors;

4. To observe emerging meanings from the interviewees, that is, observe whether there is evidence of common themes, biases and heuristics (as described by Kahneman, Slovic and Tversky (1982)); and;
5. To develop a descriptive method of decision-making for real estate investors under uncertainty through the analysis of case studies on the experiences of decision-makers.

The purpose of the research was to answer the research question, that is, how do real estate investors make investment decisions under uncertainty in sub-Saharan Africa?

1.3 The research interview questions

The approach the researcher followed in developing the research interview questions was based on the recommendations made by Creswell (2013) that phenomenological studies should not start with theory but develop or inductively emerge as the study progresses and unfolds. Hence, the tentative interview questions formed the initial basis for the researcher's reflection on his experience with the phenomenon. As can be noted, the questions were broad and general to allow the interviewees to construct their own meaning of the phenomenon under study. As described in the objectives, this research seeks an understanding of the phenomenon of decision-making under uncertainty in real estate investments.

Interview questions incorporated the advice and recommendations of Kvale and Brinkmann (2009). The questions were open-ended and allowed the interviewees to express themselves as freely as possible. Follow up questions were designed to obtain clarification from interviewees and reconfirm the critical points noted by the interviewer. The interview questions were guided by the research objections and are attached as Appendix C:

1.4 Significance of the study

1.4.1 From an investment practice point of view

The World Bank in its *2016 Global Economic Prospects* report, stated that it expected 2017 global real GDP growth to rise to 2.7% from 2.3% in 2016. The growth in advanced economies was expected to approach 1.8% in 2017 in comparison to 1.6% in 2016, while they suggested that emerging and developing economies would see growth accelerate to 4.2% from 3.4%. Furthermore, with rising political risk in developed regions, such as the US, Europe and Brexit in the UK, emerging markets are increasingly seen as relatively dependable investments. In the context of sub-Saharan Africa, private-equity funds offer investors access to assets with a strong growth potential and in a region where stock exchanges are still developing

Regarded as a high-risk for high-return investments, from 2012 the sub-Saharan real estate market started to welcome long-term investors from foreign countries. In 2016, Reuters reported that, despite political instability, concerns over the spread of Ebola and terrorist threats, international investors were being pulled into the sub-Saharan Africa real estate market by its forecasted 20% annual return. Investors were focused on industrial complexes, shopping malls and office blocks among others, in different countries across the region. According to fund managers, as the fast-growing population of sub Saharan Africa gained spending power and its population moved to the cities, demand for real estate grew. The Reuters report further noted that urbanisation and population growth would boost the number of people in cities globally by 2.5 billion over the next three decades, with much of that growth in sub Saharan Africa and Asia, a recent United Nations study said. David Morley, Head of Real Estate at the private equity firm Actis stated that "The desire of the increasing middle class to meet, socialize, shop and spend their leisure time in facilities or retail developments that are on a par with what you find around the world is not going to abate, it is going to continue". Actis has raised and invested nearly $500 million in two real estate funds, with markets that include Nigeria, Zambia and Mozambique. Morley is also targeting annual returns of 20 percent or more, which is around 5 to 10 percentage points more than returns seen in similar mainstream emerging or developed funds.

1.4.2 From an academic point of view

Locke *et al*. (1993, p 71-72) recommended that, for research to be credible, the proposal and research questions should be based on previous work in order to explain what the proposed study addresses in the gap or development of new theory. Decision-making processes have been studied for generations beginning with Expected Utility Theory, described in 1944 by Von Neumann and Morgenstein. Modern decision-making theories were originally developed in the 1970s and 1980s by Kahneman and Tversky (1979, 1992); thus, the work of Kahneman and Tversky forms an integral part of the phenomenological study. Recent research in mainstream finance by scholars such as Shefrin & Statman (1994, 2000) and Stracca (2004) support the work of Kahneman and Tversky. In doing so, they confirm the premise that behavioural aspects must also be considered in real estate investment decisions, and they envisage the emergence of theory from research. In 1999, Thaler (1999) proposed that behavioural finance was entering a new era when it would integrate with mainstream econometrics and financial analysis, and bring to fore the importance of further research in this field, such as this study.

This phenomenological study aims to offer an understanding of the phenomenon of decision-making experienced by the researcher and co-researchers in their professional work in real estate investment and under limited or unreliable economic and market statistics. As far as the researcher is aware, from scanning a large body of literature, the outcome of this research is the first of its kind, and therefore can be considered to offer useful insights, implications and new knowledge to academia and professional practice.

1.5 The conceptual framework of the study

As Leshem and Trafford (2007) explain, conceptual frameworks in academic research are important for enabling a researcher to understand the need to remain focused throughout the research process by addressing the research questions and, ultimately, by achieving the research objective. The conceptual framework develops from the premise that current theory (knowledge) and practice does not follow the rational analysis and correct decision-making models depicted by behavioural finance theory (such as Kahneman and Tversky's (1979) Prospect Theory). Furthermore, within uncertain contexts, human aspects (the underlying biases and heuristics) become prevalent, hence analysis models should appropriately consider these aspects when modelling a decision-making process.

The conceptual framework therefore guides the research to ensure it flows and follows logically. This incorporates: observations in practice of decision making under uncertainty; reviewing current theory on decision-making (previously dominated by the expected utility theory by von Neumann *et al.* (1944)); researching and investigating (case studies); analysing data; synthesising and discussing, and ensuring the synthesis supports the "hypothesis" that behavioural theory should be at the centre of modelling decision-making under uncertainty. The conceptual framework ensured that, throughout the study, the researcher remained focused on the research objectives, in terms of how investors make decisions under uncertainty in sub-Saharan Africa. The selection of literature and relevant research aimed to support the research question on how investors make investment decisions. A phenomenological methodology was chosen in order to engage fully with the phenomenon of how investors make decisions; this was to be through sharing experiences. In the conclusion of the research, the conceptual framework plays a key role in guiding the researcher to ensure the findings support the objectives of the research and that knowledge has been added to the current body of literature.

1.6 The structure of the thesis

Chapter 1 begins with the rationale for the research, including the research problem, significance of the research and its potential contribution to knowledge. Chapter 1 also presents the research questions and objectives. Chapter 1 ends with the interpretative framework of the thesis and the research process model. It sets the framework under which the research will follow. The framework outlines a legitimate and structured process to complete the research, data collection and analysis, and drawing of conclusions

Chapter 2 explores knowledge development through reflection. The chapter describes the process of reflecting on the research question, namely, how do real estate investors make decisions under uncertainty in sub-Saharan Africa. The process discussed in this chapter becomes clearer and relevant when reading the researcher's epoche within Chapter 5 in which the researcher's and co-researchers' experiences with the phenomenon are presented.

Chapter 3 covers the literature review for the thesis. The focus was on decision making from the axioms of von Nieman (1931) to Kahneman and Tversky (1979). Other models of decision making, like Brunswik's (1956) lens model, were explored. The literature review also considered decision-making in real estate investments, notably the theories of French and French (1979, 2001). Literature was reviewed on capital markets and investments as well as definitions and characteristics of uncertainty.

Chapter 4 of the thesis covers the research design and methodology. The chapter begins with a broad discussion of doctoral research, and what constitutes epistemology for valid and credible doctoral research that originates in practice. The methodology and research design develop from the ontology and nature of the research questions. It addresses the choice of appropriate research strategy and why a particular phenomenology was chosen for the study. It also describes the appropriate process and tools for collecting and analysing the data. The capital real investment markets (pioneer funds in sub-Saharan Africa who were investing between 2010 and 2016) are discussed from which the research sample is drawn. Interviews were the preferred data collection mechanism, supported by secondary literature on the cases and projects discussed within the interviews.

Chapter 5 begins with the epoche, namely the experience of the researcher with the phenomenon. It then covers the interviews (the main tool for collecting the data) and ends with the projects, which were referred to as miniature case studies that emerged from the interviews.

Chapter 6 covered the analysis of the data and the tools used for the analysis. The chapter ends with a presentation of the salient features and characteristics of the data analysis, whilst Nvivo was utilised as an analysis support tool. The analysis was cross-sectional, considering interview data and the manual analysis by using thematic techniques. Key findings of the thesis were that the decision-making process was driven by company policy and a top-down approach and that decisions were made through consensus rather than individually. In addition, the decision-making process was iterative and not a one-off process.

Chapter 7 presents the discussion of the results from the analysis of the data. The end of the chapter presents the "risk-uncertainty" matrix, which was essentially the focus of co-researchers in the decision-making process as observed by the researcher. The thesis built a strong case that investment decision-making is about understanding the risk associated with an investment opportunity and ensuring sufficient mechanisms to protect possible losses from the investment during the investment horizon.

Finally, Chapter 8 presents the conclusion to the thesis and how the research contributed to knowledge. It addresses the question of whether the research objectives and aim were achieved. Chapter 8 ends with future work that could follow from the thesis following the findings of this study.

Figure 1.1 illustrates the research process followed in the thesis.

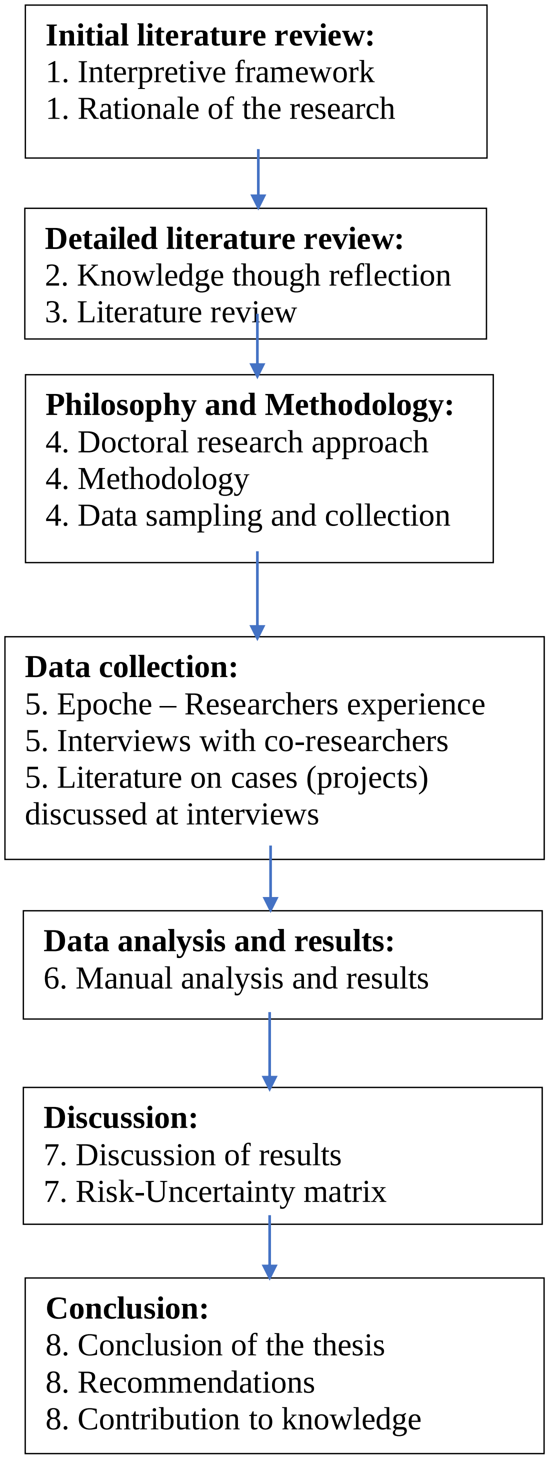


Figure 1.1: Research process model

1.7 Summary

The chapter presented the rationale of the thesis, the statement of the problem, the aim and the objectives of the research. It also presented the significance of the thesis, and why it is important to undertake this research. The chapter also presented the interpretive framework for the thesis and the structure of the thesis.

2 Knowledge through reflection

This section of the research report describes the process of reflecting on the research question stated above, namely how do real estate investors make decisions in sub-Saharan Africa under uncertainty. The process of reflection was based on the models described by Dewey (1933), Habermas (1972), Kolb (1979), Schon (1983), Moon (1999), Bothan & Vick (1998), and Mann & Clarke (2007). A greater focus was placed on the model developed by Kolb (1984) (Kolb's cycle) and the modified model developed by Atkins and Murphy (1993)) which formed the basis of reflection on the research problem.

2.1 Literature on models of reflection

Moon (1999) refers to Dewey and Habermas as the 'backbone' of the study of reflection. Moon (1999, p. 4) states that reflection lies "somewhere around the process of learning and representation of that learning". This supports the notion that reflection is more about how the learning happens in one's mind as one has experienced or as one learns. This highlights the theories presented by Schon (1983) on "reflection in action", which means that reflection in practice happens while one is in action. Moon (1999) defines reflection as a "form of advanced mental processing that includes a critical aspect as well as the process of 'meta-cognition' – thinking about the process of thinking".

Dewey (1933), and Hullfish & Smith (1961) stated that reflection should be undertaken for a purpose. This means that, when one is in the process of reflecting, one should make a conscious decision to learn from experience, either during or after the action. This is supported by Schon (1983) who identifies both "'reflection in action' and 'reflection on action' as different approaches that one reflects in practice.

Another element, as observed by Dewey (1933) and King & Kitchener (1994), is that reflection "involves complicated mental processing of issues for which there is no obvious solution”. This suggests that one cannot reflect on the obvious or on simple problems. There has to be a process that one goes through to find a solution which involves complicated mental processing or thinking. This led Moon (1999) to conclude that the common-sense meaning of reflection shows an overlap between the use of the words ‘reflection’ and ‘thinking’.

King and Kitchener (1994) developed the term, ‘reflective judgement’. This is the most advanced stage of their reflective judgement model, which maps the development of reflective thinking. They based their model on experimental work that spans more than ten years, incorporating 1700 subjects in 33 studies. The objective of these studies was to distinguish the process from the presentation of learning; however, despite numerous studies, this proved a difficult task.

After several studies on student nurse reflection, Holm and Stephenson (1994) observed that reflection was a complicated process, particularly when it supports changes of behaviour. Moreover, they stated that it appeared to be the capacity to reflect purposefully that needs to be “fostered or coached”. In comparison, Kitchener and Brenner (1990) observed that some of the criteria for wisdom were met in King and Kitchener’s model on reflective judgement. This strongly supports the notion that, in reflecting, one needs to cope with uncertain knowledge, which requires wisdom. Kitchener and Brenner (1990) concluded that “wisdom may be dependent on the development of the understandings of uncertainty that are displayed in the advanced stages in the reflective judgement model”.

It is important to discuss Dewey and Habermas’ work on reflection, which Moon (1999) referred to as the ‘backbone’ of studies on reflection. According to Moon (1999, p. 11), ”Dewey’s purpose was for the elucidation of educational processes and the more general understanding of human function, whereas Habermans used it to clarify and develop epistemological issues in the sociology of knowledge”. Dewey (1933) was concerned with the nature of reflection and how it occurred; moreover, he observed that reflection took place in a “state of doubt, uncertainty or difficulty”. Dewey (1999) considered that “reflective thinking was [the] persistent and careful consideration of any belief or supposed form of knowledge and includes a conscious and voluntary effort to establish belief upon a firm basis of evidence and rationality”.

Furthermore, Dewey (1910, p. 6) defined “reflective thinking as an active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends”.

Nevertheless, according to Moon (1999, p. 13), Habermas took a philosophical stance in that he understood reflection as “tool used in the development of particular forms of knowledge”. Habermas was more concerned with the nature of the knowledge that man selected to adopt or generate. He supported the notion that knowledge cannot be separated from the constitutive interests in the historic hermeneutic disciplines, which are concerned with understanding human behaviour and forms of communication.

2.2 Other models on reflection on research in action

The principles of action learning are potentially applicable to the development of methodologies and to answer the following research questions in practice: How does one learn while in professional practice? How does one learn or reflect while “in action”? These are similar questions to those asked by previous scholars, such as Schon (1983), Habermans (1972) and Moon (1999).

Botham and Vick (1998) described how research was carried out at the Revans Centre for Action Learning. The main feature of the Revans Centre was that it facilitated a focused learning approach that was linked to progressive research and offered opportunities for practitioners to work alongside academics. Botham and Vick (1998, p. 8) noted that this enables practitioners to develop an ability to identify what is likely to be the “most fertile questions to ask when nobody around them knows”. These become the subject and focus of practical research which otherwise may not have featured in a traditional academic environment. Botham and Vick (1998, p. 6) stated that the centre supported and encouraged serious forms of research and inquiry into different aspects of action learning with a specific focus on increasing knowledge and understanding. The relevance of Botham and Vick’s (1998) article is its emphasis that reflection on practice-based problems should receive proper attention and specialised centres, such as the Revans Centre, have emerged where close contact between academics and practice is fostered while new knowledge is simultaneously developed.

Mann and Clark (2007) built further on the work of Botham and Vick (1998) by posing three questions. The first - ‘What is this writing about?’ - provides a central frame (Botham & Vick, 1998) for researchers to look directly onto the surface of practice to examine what they have experienced, namely their action. However, Mann and Clark (2007, p. 156) stated that ‘writing-it-down’ is necessary but insufficient, so they posed a second question - ‘What is this writing really about?’ This takes the researcher’s view away from the surface through a refractive frame. It angles their vision outwards whilst also changing their perspective; thus, their view is changed when object is seen obliquely through the surface of the reflection. Mann and Clarke (2007, p. 156) state that, while necessary for broader learning, this second question is also insufficient. Therefore, a third is required - ‘What is this writing really, really about?’ This takes the researcher’s perspective in a further direction - upward - into what may be called a projective frame, where they are challenged to address how they might apply their learning within their next experience. From this, the search becomes deeper, less settled when more difficult questions are posed. Thus readers familiar with action learning recognise the sensation of going deeper by searching harder, which signifies the advent of Q in Revans’s learning equation (1982): Learning (L) = P + Q, where the value of P (programmed knowledge, or what can be taught by experts who know) is surpassed by what can be learnt from the rigorous questioning of shared ignorance (Q, or questioning insight).

2.3 Models of reflection in experimental learning in nursing

According to Moon (1999, p. 24), Kolb’s (1984) experimental learning cycle “created an explicit model that [is] cited widely in texts in the field of education and professional development”. The cycle, as shown in Figure 2.1, has been presented in various forms. Kolb's cycle of experiential learning is a circle in which ‘reflective observation’ is the process of bringing the ‘concrete experience’ of events or experiences to the state of ‘abstract conceptualisation'.

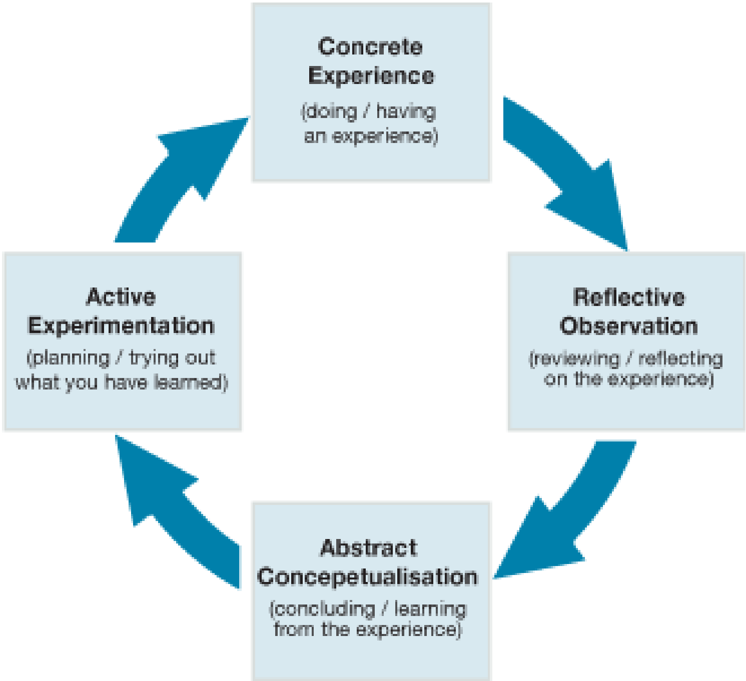


Figure 2.1: Kolb's experimental learning cycle

Moon (1999, p. 25) describes an essential feature of Kolb's cycle, namely "the learner changes from 'actor' to 'observer', from specific involvement to general analytic detachment, creating a new form of experience on which to reflect and conceptualise" at each cycle. Kolb's cycle also indicates that learners may vary in their abilities to function in the different sectors of the cycle, supporting the suggestions made by Holm and Stephenson (1994), which imply that learners may need to be coached to be effective in reflection.

Atkins and Murphy (1993) developed a model for reflection, which they called 'reflective processes'. This was based on previous studies undertaken by Steinaker & Bell (1979), Boyd & Fales (1983), Boud, Keogh & Walker (1985), Mezirow (1983) and Schon (1983). Atkins and Murphy (1993) noted that, in all the studies on reflection, the processes began with experience, whilst Steineker and Bell (1979) call the experience 'exposure'. The experience could either be a single event or continuous and varied exposure to a situation or problem. Nevertheless, Boyd & Fales, and Steinaker & Bell followed Dewey's suggestion that reflection always begins with a problem or a sense of discomfort in a learner. The next phase described by Boyd and Fales is 'clarification' on the issue for reflection. Moon (1996a), Harri-Augstein & Thomas (1991) and Burnard (1991) suggest that "in order to improve the outcome of learning, the learner needs to be aware of the current practice or situation or level of knowledge so that they can conceive better the learning that is required".

The next phase of the process is to return to the experience in order to 'review' and 'recollect'. Boud *et al.* (1985) stress the importance of personal emotion within this phase. While reviewing and recollecting the experience, the learner needs to interpret their understanding of the problem without blocking the reflective process. Steinaker and Bell (1997) describe how the "participant becomes emotionally identified with the experience, and may state, 'my experience'". The next phase of the process involves 'openness to new information', which denotes the acquisition of a broad perspective by gathering more information. Boyd and Fales (1983) believe this is the stage most available to intervention on the part of educators and counsellors. The next phase is 'processing the knowledge and ideas' to which Boud *et al.* pay much attention, and refer it to 're-evaluating experience'. The last phase of the processes is 'resolution', or achieving an outcome from the reflection, although some authors continue to other phases, for example 'transformation' and then 'possible action'. In 1994, Atkins and Murphy further developed their model to the "Nursing Standard" (shown in Figure 2.2).

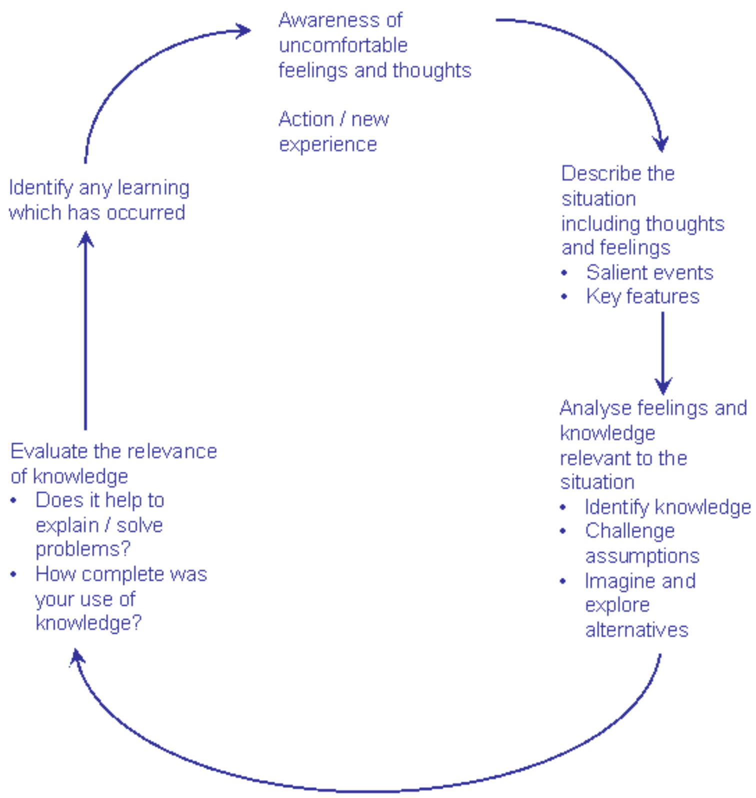


Figure 2.2: Atkins and Murphy model

2.4 Discussion of the models of reflection and their relevance to the research problem

The research question prompted the need to develop further understanding of how critical decisions are made in ‘life or death' professional areas such as medicine, and how judges weigh evidence to determine their decision. Further to this knowledge, there is a need to understand what constitutes an acceptable, excellent and precise decision in professional practice, and a measure of the standard in decision-making.

The next phase takes the learner’s personal experience into an abstract conceptualisation, where the learner removes themselves from the problem and considers the issue from a detached and objective perspective. This means engaging with existing knowledge and theory to better understand the nature of the observed problem and experience. It involves identifying gaps or links in existing knowledge which leads to learning and new knowledge. The next step would be to apply this new knowledge and learning to the problem and to go through another cycle of observation and reflection. In practice, several iterations of the cycle could be made to further develop new knowledge and learning, hence the term experimental learning.

From this reflective exercise and using the Kolb’s cycle, the objective approach emerges, which is essential for excluding personal bias and avoiding a narrow interpretation of the problem. In the ‘decision making problem’, the learner may be feeling and thinking that there is bias either from investment decision makers or in the way that decisions are made. However, when the learner detaches from the role of ‘actor’, they enable a better and more objective view of the problem. This means that, in this ‘detached’ mode, the learner has to revisit the problem ask the same questions, and seek clarification of the problem as an ‘observer’, rather than an ‘actor’.

In the Atkins and Murphy model, reflection starts with experience, when again the learner is part of the problem and experiences discomfort at why certain decisions are made and whether these are correct or appropriate. Other professionals may not see the need to resolve this problem, but for this study, the need to resolve the problem identified in practice is strong and real. The learner developed uncomfortable feelings from experience, which prompted the need to find a solution or to understand the problem. The next phase identifies the nature and classification of this problem. The problem in this study seems to be hermeneutic (social and humanitarian) in nature as well as empirical in that there is a formula for making the correct investment decisions based on modern finance theories and financial models. The problem is then how much weight is placed on each of the different factors that influence investment decisions, and whether there is a standard for various geographical regions, companies or levels of investment quantum. This involves reviewing the research problem and recollecting the researcher's first experience of it. Personal emotion features significantly at this stage, where the learner needs to understand (without blocking the reflective process) why he felt that way and why he felt this was a problem. This re-emphasises that reflection can be personal as it relates to the learner's place within the learning and the need to develop knowledge through reflection, which involves both emotions and learning. Thus, Steinaker and Ball (1979) confirmed that the "participant becomes emotionally identified with the experience".

The next stage in the Atkins and Murphy model is to process knowledge and ideas, and involves engagement with existing knowledge and theories, which help to determine why the learner observed certain things in a particular manner. This opens the opportunity for the learner to identify new information from their experience and to produce reflections (observations) that could edify existing knowledge and theories. Moreover, when recorded by the learner, it serves the purpose of academic learning. The last stage is 'resolution', which was described as achieving the reflection and learning objective. This could be extended to include 'transformation' whereby the learner changes the way he does things or takes 'possible action' following the outcome of the reflection. In the problem concerned, recommendations are generally made as to the acceptable standard for decision-making in real estate investments.

It was essential to go beyond these two models to capture the personal experience of the learner in this research. It was worth spending time describing the experience of the learner, as presented by the epoche in the research data section of the thesis. Over many years, the researcher has presented real estate investment opportunities to several different investment committees for decisions on whether or not to invest. The presentation format to these investment committees varies from one company to another. However, specific critical information is required by all committees, such as: An investment appraisal output indicating the Internal Rate of Return (IRR); the Net Present Value (NPV); different yields; the value of the land and existing real estate asset; the economic and market conditions from complete studies; country risk reports and outlooks (IHS or similar reports), and detail of the proposed scheme or acquisition. The learner would present this information to the investment committees before holding a verbal presentation and discussion. For purposes of this research and the experience of the researcher, the investment committee members were informed and competent to review the information in the packs, but the researcher experienced discomfort in using the information available to enable a decision about the future performance of the investment. Other than the economic and market outlook reports, most of the information the committees used were current economic and market conditions whereas the investment performance considered the future. Therefore, a key question bothered the researcher, namely:, What were the standard and quality measures that considered whether such decisions eventually supported the assumptions they made at the evaluation stage? In sub-Saharan Africa and many other developing countries, from where the researcher draws most of his experience, political decisions and policies are highly unpredictable. The question then persists as to how would an investment committee make a particular assumption on the envisaged policies, and thereby make a robust and correct decision. It is due to this background of uncertainty on the investment environment and the (questionable) process of decision-making under such high-risk conditions that caused discomfort and initiated interest to investigate the phenomenon of decision-making under uncertainty within this particular region.

2.5 Summary

This chapter linked practice based problems to academic research. From the researcher's experience and the literature covered, it presented knowledge development in practice through reflection and identified two models of reflection that the researcher explored in the literature. This chapter's relevance to the thesis is further exhibited in the epoche (in Chapter 5), which is the process in phenomenological research whereby the researcher elevates himself from the research data and presents his own experience of the phenomenon under study. The epoche was a reflective process, as the researcher interacted with the phenomenon. In the broader thesis, reflection is a key component of the process the researcher uses to identify gaps in theory and practice (knowledge). The research questions were developed though reflection, hence the process informed the researcher on the focus for the literature review, and the possible gaps in knowledge.

3 Literature review

3.1 Introduction to the literature review

The aim of this chapter is to present the literature reviewed that helps to position the research within the existing body of knowledge and theory. The literature helped to first ensure that the topic - decision-making under uncertainty in real estate investments in sub-Saharan Africa - had not been covered before by other researchers. The literature also covers broader academic theory on decision-making and real estate investments. The chapter ends with current methods in practice on how real estate investment decisions are (currently) made and identifies the gap in current knowledge and theory. Recent literature, notably Kahneman and Tversky's (1979, 1992) ground-breaking research on decision-making under uncertainty, sheds light on the possibilities of exploring real estate investment decisions using psychological and behavioural science approaches.

It is acknowledged from the researcher’s experience that the real estate investment decision process has both an analytical (technical rationality) stage as well as a behavioural (tactical) stage. The analytical stage involves the analysis of financial and economic data and is quantitative in nature. The behavioural stage plugs the gap in the analytical phase and is subjective in nature, hence qualitative. In different investment decisions, both stages are undertaken and an integral part of the investment decision process. In cases of uncertainty, where limited information and data are available to accurately complete a quantitative analysis, the weight of the decision process shifts more towards the subjective behavioural stage. As portrayed by Blas (2013) and Jerven (2013), in *sub-Saharan Africa investment markets, economic data and market information* are limited hence it is important to understand the impact of relying on subjective qualitative processes for investment decision-making.

3.2 Statement on the focus of the literature review

The research aims to develop a descriptive method for practice on how rational real estate investment decisions under uncertainty are made. For the purposes of the research, rational refers to the process followed by investment decision-makers that will maximise utility (return) for investments. The method should maximise utility or returns after following a structured, consistent and thorough decision-making process.

The research problem came from practice by identifying a gap in the current methods in use. The literature review focused on the research question concerning: how real estate investors make decisions; decision-making processes by different professional investors (behaviour, style and preference); heuristics and biases; decisions under uncertainty, and studies on behavioural finance in real estate investments. The literature review also focused on behavioural aspects, such as how the intuition and experience of investment professionals influence the decision-making process.

3.3 A critical evaluation of current research, practice and scholarship

3.3.1. Scholars in decision-making theory

For most of the early part of the 20th Century, Expected Utility Theory dominated the analysis of decision making under risk. According to Keeny and Raifa (1976), Expected Utility was the normative model of rational choice and was widely applied in decision-making analysis. According to Friedman and Savage (1948), Expected Utility Theory was widely used as a descriptive model for economic behaviour in decision-making under risk. Furthermore, Von Neumann and Morgenstein (1944) observed that most reasonable people would wish to obey axioms of the theory.

After completing a number of studies on people’s behaviour based on Expected Utility Theory, Kahneman, Slovic and Tversky (1982) introduced a different approach to decision making under uncertainty. From their research and findings, their approach is now regarded as the leading theory on modern decision-making under uncertainty. Their book, *Judgement Under Uncertainty – Heuristics And Biases* gave a structured account of their work and findings, outlining five important biases and heuristics common to decision-making, namely: representation, causality and attribution, availability, covariation and control, and overconfidence. The representation heuristic signifies believing in the law of small numbers, whilst the causality and attribution heuristic refers to the popular induction that information is not necessarily informative and that people make judgements without taking into consideration all the information. An availability heuristic is the failure to make the correct judgements on frequency and probability, and covariation and control refer to incorrect decisions when people have to choose between data based assessment versus theory based assessment. The illusion of control refers to the fact that people interpret results as they think they should be, thus not necessarily correctly. Finally, the overconfidence heuristic refers to people relying more on their own experience and rationality rather than on information and facts.

Their ground-breaking research began in 1979 when Kahneman and Tversky introduced a concept of Prospect Theory, which superceded the classical Expected Utility Theory (EUT) of the 19th and 20th Centuries. Prospect Theory introduced the concept of value function and weighing function. The value function takes into consideration the wealth of the person making the decision and introduces the concept of relativity, that people's "perceptual apparatus is attuned to the evaluation of changes rather than to the evaluation of absolute magnitudes". The weighting function denotes the multiple of the decision weights, which are "inferred from choices between prospects", meaning they are subjective and not probability measures that the decision-maker considers possible outcomes.

Further work on their research introduced Cumulative Prospect Theory (Kahneman and Tversky, 1992), which extends Prospect Theory to decision making under uncertainty. Cumulative Prospect Theory employs cumulative, rather than separable decision, weights and therefore extends Prospect Theory in several ways.

Maital (2004) accurately summarises the salient points in Kahneman and Tversky's (1992) Prospect Theory and rationality. Maital (2004) states that there are two ways in which people make judgements and decisions under uncertainty, namely, mathematically and behaviourally. This supports the approach and premise of the research, which seeks to capture the optimum process in making real estate investment decisions under uncertainty; furthermore, it emphasises the behavioural aspects which are lacking in the classical real estate decision methods based on Expected Utility Theory.

The literature review would be incomplete without citing the work of Cohen (1979), another leading scholar in decision-making under uncertainty. His work (from 1979 to 1982) covers many different angles on the subject of decision-making under risk. His work focuses on the psychological aspects of the decision-maker, including the "psychology of prediction" (Cohen, 1979), "what has induction to do with causality?" (Cohen, 1980), and "intuition, induction and the middle way" (Cohen, 1982). Cohen has also published reviews of the book by Kahneman, Slovic and Tversky (1982). Furthermore, Cohen (1981) identified four categories of psychological research in human rationality, namely: conditions under which people suffer from genuine cognitive illusions; circumstances in which people exhibit mathematical or scientific ignorance (intelligence or education); fallacies whereby people apply the relevant normative criteria of human irrationality in an appropriate way, or where the normative criteria applied are not appropriate.

The researcher reviewed literature on other models on decision-making, like the 'Lens Model' of Social Judgement Theory (SJT) developed by Egon Brunswick in the 1950s (Brunswick, 1952, 1956). The Lens Model has further evolved to the present day and has become a widely used tool in decision analysis. The principle of the Lens Model is that a judge or decision-maker bases their judgement or decision on, amongst other things, the way in which they weigh or give importance to various criteria that form the basis of a given problem. Brunswick modelled the relationship between an "ecology"" (the worldview that a decision is based on), cues (emitting from those ecological aspects of the ecology that the judge takes into account when making a decision) and cue weights (namely the importance the judge gives to each cue). The model is called a Lens Model because of its similarity to the diagrammatic representation of a convex lens.

3.3.2 Behavioural finance and decision making

Another scholar of note to consider in decision-making under uncertainty includes Stracca (2004), who identified anomalies in the behavioural finance literature with a focus on those that might impact on market prices. Stracca (2004) grouped the anomalies into five distinct groups, namely: decision heuristics, emotional and visceral factors, choice bracketing, unknown preferences, and reference dependence. Stracca (2004) concluded that the "fertilisation" of finance and economics with psychological ideas had a huge potential and was gaining in popularity. Thaler's prediction of the "end of behavioural finance". supports Stracca's conclusion. In his article, Thaler (1999) predicted that behavioural finance was becoming an integral part of mainstream financial analysis and, in the future, would not be treated as a separate subject.

More recent articles by Shefrin and Statman (1994) entitled *Behavioural Capital Asset Pricing Theory* and Shefrin and Statman (2000) entitled *Behavioural Portfolio Theory* also support the idea that behavioural science has become more relevant to financial analysis. Since this fact has been acknowledged in mainstream financial analysis by several scholars, it is worthwhile asking the same question for real estate investment decisions. Hence, the purpose of the research was to investigate this phenomenon in real estate investment decision-making in sub-Saharan Africa. The focus would be on the behavioural attributes of decision-making under uncertainty, investigating the impact of heuristics and biases during the decision-making process. Moreover, the article by Nocetti (2006) entitled *Markowitz meets Kahneman: Portfolio selection under divided attention* introduced the concept of scarcity in the cognitive resources at play. The Theory of Cognitive Resources focuses on the influence of a leader's intelligence and experience on their reaction to stress. The theory concluded that stress was the enemy of rationality. A leader's experience and intelligence can lessen the influence of stress on their actions; therefore, intelligence is the main factor in low-stress situations, whilst experience counts for more during high-stress moments.

Recently, in his paper *Investment decision making and risk*, Virlics (2013) revisits the modern portfolio concept of classical objective discount factoring and argues that risk has a subjective nature that cannot be simply quantified. Virlics (2013) argues that a subjective nature depends, to a great extent, on the investor making the investment decision, and hence supporting the recent development of behavioural economics.

3.3.3 Investment appraisal for capital projects and real estate investments

Investment appraisal that leads to investments in real estate follows the capital project appraisal methods developed by Sharpe (1964) known as the capital asset pricing model for cases of risk (known probability). The practice is based on the premise of discounting the projected cash flow by a risk premium factor that is determined by the level of risk (known probability). Earlier research on the utility of choice involving risk was completed by Friedman and Savage (1948). For utility choices under uncertainty, elementary work has been concluded by Merton (1969). The focus of the research is on the latter case, namely, the case of uncertainty for which the gap in practice and knowledge has been identified.

Most recent literature on capital project appraisal applies different discount factors to net present value calculations. Weitzman (2010) introduced risk-adjusted gamma discounting. A risk-adjusted gamma discount factor is applied to uncertain future events that use the Ramsey optimal growth model. Espinoza (2014) introduced the concept of separating project risk from the time value of money as a step towards integrating the risk management and valuation of infrastructure investments. Espinoza (2014) questioned the use of heuristics to establish a risk premium that is added to the risk-free discount rate in the appraisal of the net present value of projects. However, he proposed the use of an alternative method that he called, 'decoupled net present value'. More recently, Finger (2016) introduced risk-adjusted discount rates in the assessment of uncertain returns for investment in short rotation coppice. Due to the high level of uncertainty in the returns of short rotation coppice as alternative land use activity, Finger (2010) argued that it is appropriate to use a project specific risk adjusted discount factor. This principle is similar to the funds and models developed and adapted for specific regions and projects; moreover, the funds calibrate the models for projects and specific markets.

3.4 Current methods for real estate investment decision-making

French and French (1997) introduced three types of model for decision-making in real estate investments. He proposed that, in real estate investments, decision models can be used in descriptive, normative or prescriptive analysis:

- descriptive analysis – models which purport to describe how we actually decide;
- normative analysis – models which suggest how we should decide;
- prescriptive analysis – models which use normative models to guide the decision-maker within other limiting cognitive parameters.

Psychologists and behavioural scientists found that people tend to decide ways that conflict with normative theories concerning how they should make decisions (Kahneman and Tversky, 1979). French and French (1997) concluded that decisions in real estate investments were made relative to current expectations and business constraints and, while a decision-maker may believe in the required optimum exposure levels dictated by an asset allocation model, the final decision may be influenced by factors outside the parameters of a mathematical model. French and French (1997) observed that risk means different things to different people, hence different models assume different interpretations of risk. Sah (2011) concluded that there was no universally agreed decision-making framework. In addition, Sah (2011) observed that current normative decision-making frameworks vary in terms of the decision stages involved in the entire decision-making process.

In their study, Farragher and Savage (2008) concluded that there was a need for global research on real estate investment decision-making strategies in order to develop a full understanding of the similarities and differences across investors in different countries. After completing research on the Australian Real Estate Investment Trusts (REIT), Parker (2014) proposed a prescriptive model that was supported by a four stage 20-step normative model, which aimed to contribute consistency and transparency to the decision-making processes. In Farragher and Savage's (2008) study, the investment stage concerned with forecasting expected returns was identified by a sample of institutional investors as the most important. In order to forecast expected returns, rational investment frameworks presently make use of financial, as well as mathematical, information. The investment stage is concerned with forecasting expected returns; therefore, it is biased towards financial information at the expense of non-financial.

In decision-making under uncertainty, French (1986) explained that Expected Utility (EU) models were the norm following the theories of the measurement of risk preference or theories of rational behaviour for risk decision making. In these models, the direct purpose of measuring the decision-maker's preference for prospects is emphasised, rather than the risk involved in the prospects. The decision-maker's attitudes towards risk are supposed to be described by their utility functions. French (1986) noted that, because of the complexity of the structure of decision problems, and the cognitive limitations of the decision-makers, reference measurement models (such as expected utility which is based on a few rational behavioural assumptions) have been shown to be insufficient to describe the real preferences of individuals.

Furthermore, in real estate development appraisal, Atherton, *et al*. (2008) observed that development appraisal was a quantification of future expectations. Appraisal models rely upon the appraiser having an understanding of the future returns regarding the future marketability of the completed development and future cost of development. In some cases, the appraiser has some degree of control and understanding of the potential diversity in the variables. However, other variables are dependent upon the vagaries of the market at the completion date. In order to address the risk of a different outcome to that expected, the developer will often carry out a sensitivity analysis on the development, which only gives different possible outcomes but does not address uncertainty in the unknown.

As described by French and French (2008), rational or normative decision-making frameworks are based on the notion that the individual investor is a utility maximiser, or profit-maximiser in the case of corporates. The investor is therefore assumed to be acting rationally when faced with an investment decision (Atherton *et al.,* 2008; MacCowan & Orr, 2008). Dhar and Goetzmann (2006) supported the belief of rationality based on the classical portfolio allocation theories, such as Markowitz's (1952) Modern Portfolio Theory and Sharpe's (1964) Capital Asset Pricing Model.

However, Jackson and Watkins (2011) state that there was a lack of conclusive evidence in current research to support the proficiency of classical portfolio theories in real estate investment decision-making. Jackson and Watkins (2011) observed that literature had various contradictions with several variants of rational real estate investment decision models. Jackson and Watkins (2011) concluded that many of the existing models were different variants of Roberts and Henneberry's (2007) model. Roberts and Henneberry (2007) analysed and combined existing real estate investment decision models and presented a ten-step normative decision-making framework that is widely accepted as the basis for current rational decision frameworks (Sah *et al*., 2010; Sah, 2011; Jackson and Watkins, 2011). However, Roberts and Henneberry (2007) advised that decision frameworks have to be adapted to suit each country and local conditions.

Parker (2013) conducted a similar study and investigated the use of investment decision frameworks in the real estate industry in Australia. Using a 20-step framework, the study concluded that the decision-making process is multi-step, linear, and sequential. Parker (2014) further proposed that a prescriptive model should be adopted by Australian REITs, which could have the potential to contribute consistency and transparency to the investment decision-making process.

Arising from the constructs of behavioural finance, a number of studies have emerged to address the efficiency of rational frameworks in real estate investment decision-making processes. In the midst of uncertainty, an investor is required to make a decision based on arbitrary judgment, which may not coincide with the assumption of rationality (French, 2001; MacCowan & Orr, 2008). Therefore, when faced with the prospect of forecasting expected returns in a real estate environment, there is a strong argument that reliance on purely rational information may not result in the optimal decision. Clayton *et al*. (2009) explained why investors often deviate from rational frameworks when faced with a real estate investment decision. Human error and choice in decision-making were the result of the factors of complexity, illiquidity, and information asymmetry in the property markets. Clayton *et al*. (2009) observed that investors often base their decisions on sentiment and not on property or market fundamentals. Jackson (2006) also argued that institutional investors' involvement in town planning decisions also exhibit the influences of human behaviour on their investment decision making. Sah (2011) conducted a study between experts and novices in order to analyse whether any behavioural aspects influenced their decision-making processes and found that experience had an impact such processes were but not conclusive.

Furthermore, Nsibande and Boshoff (2017) concluded that the considerable variation in the models highlights the complexities within which real estate investment decisions are taken. Nsibande and Boshoff (2017 also noted that, while a number of studies presented rational frameworks as a plausible approach to making investment decisions, the influence of behavioural finance was a challenge. As a result, they concluded that it was perhaps understandable why there was no universally agreed decision-making framework (Sah *et al.*, 2010). Moreover, further complexity was identified by Loizou and French (2012) in the appraisal of real estate developments due to greater uncertainty. Loizou *et al*. proposed the use of Monte Carlo simulation as a decision tool in the real estate development appraisal of projects.

It is important to note that, despite advances in recent research, no studies have explored the incorporation of the axioms of Kahneman and Tversky (1979, 1992) into real estate investment decision models. The research explores the possibility of incorporating these axioms into such methods in sub-Saharan Africa in parallel with developments in mainstream behavioural finance. Compared to mainstream finance, exemplified by He and Zhou (2011) who explored portfolio choice under Cumulative Prospect Theory for investors in the stock exchange, there is a lack of similar exploration of Cumulative Prospect Theory for real estate investment within the literature.

3.5 Literature on uncertainty and investment

Multiple and diverse definitions of uncertainty related to investment have occurred over time and the most recent were offered by Verbeeten (2006) and Al-Harthy (2010). Verbeeten (2010) defined “uncertainty as the gap between the information currently available and the information required to make the decision." Also, Al-Harthy (2010) recently defined "uncertainty as the range of an outcome, and risk is the probability of gain or loss associated with a particular outcome."

Over time, and within the definitions of uncertainty in the literature, different classifications of uncertainty have emerged. This was classified by Townsend (1969) as business uncertainties and project uncertainties. Later, in the 1980s it was viewed as market uncertainties and company uncertainties (Seidler & Carmichael, 1981), and static uncertainties and dynamic uncertainties (Fanning, 1983). However, in the 1990s, the literature focused on strategic, operational and financial uncertainties (Vojta, 1992); general, industry and firm uncertainties (Miller, 1992); direct and indirect uncertainties (Pringle & Cannoly, 1993); business and financial uncertainties (Baril, Benke & Buetow, 1996), and endogenous and exogenous uncertainties (Folta, 1998). Furthermore, in the 2000s, uncertainties were classified as market, industry and firm specific (Bulan, 2005), and as input, financial, social and market based (Verbeeten, 2006).

The thesis focuses on the lack of credible data available to real estate investment decision-makers in sub-Saharan Africa. This is partly due to the asymmetry of information as most real estate transactions are private within a region and information on such transactions is not widely published. Ortega (2017) identified seven characteristics of quality data, which are: accuracy and precision; legitimacy and validity; reliability and consistency; timeliness and relevance; completeness and comprehensiveness; availability and accessibility, and granularity and uniqueness. From the research and literature, it was clear that these characteristics of quality data were not synomous with the investment data available to most decision-makers in sub-Saharan Africa.

3.6 The sub-Saharan property market overview

There are several industry publications (journals) on the sub-Saharan property market, including *JLL Quarterly Market Overviews, Broll Quarterly Publications, Knight*

Frank Africa Review (bi-annual publication) as well as country and risk overview reports by IHS Markit, a global risk research and consultancy firm.

Table 3.1 shows a property and country market and risk analysis of Kenya, the country chosen for the epoche case study, where the researcher had experience of the phenomenon. The aforementioned company reports are used in the country analysis in Table 3.1.

3.6.1 Market Overview: Kenya

Table 3.1: Key Macro-economic Indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Real GDP (% change)	5.8	4.4	4.6	4.7	5.0	5.7	6.5	7.1	7.4
Nominal GDP (US$ bil.)	32.2	34.3	40.7	45.3	51.2	58.5	67.2	77.8	89.8
Nominal GDP Per Capita (US$)	787	817	943	1,021	1,124	1,251	1,401	1,582	1,782
Consumer Price Index (% change)	4.0	14.0	9.4	5.7	7.3	7.0	6.5	7.7	9.1
Policy Interest Rate (%)	3.60	8.72	12.58	8.93	10.19	8.80	8.20	8.43	10.77
Fiscal Balance (% of GDP)	-5.9	-5.2	-4.8	-4.2	-3.8	-3.3	-2.9	-2.7	-2.5
Population (mil.)	40.91	42.03	43.18	44.35	45.55	46.75	47.96	49.18	50.41
Current Account Balance (% of GDP)	-7.4	-11.2	-10.4	-8.5	-8.3	-9.0	-9.0	-5.9	-4.8
BOP Exports of Goods US$bn	5.2	5.8	6.2	6.1	6.7	6.8	7.6	10.4	12.0
BOP Imports of Goods US$bn	11.4	14.2	15.5	15.4	16.7	18.2	20.3	23.0	26.0
Exchange Rate (LCU/US$, end of period)	80.75	85.07	86.00	86.31	88.29	87.96	87.08	86.21	85.52

The economic growth outlook for 2014 and 2015 improved following the March 2013 elections, but is still constrained by relatively high interest rates, subdued external demand, and continued concerns about political stability. Medium and long-term GDP growth forecasts are based on the discoveries confirming the viability of commercial oil production of previous finds, which supported the Kenyan government’s efforts to secure overseas financing for key infrastructure projects, such as the standard-gauge railway linking the Kenyan port of Mombasa to Kampala and Kigali, the capitals of Uganda and Rwanda, respectively. IHS projected that economic growth would accelerate to 5.7% and 6.5% in 2014 and 2015, respectively.

Regional integration and transport projects will boost economic growth in the medium term. Kenya is at the centre of the East Africa region, both geographically and politically. It should thus be the prime beneficiary of the strong growth prospects of the wider region and key investment projects aimed at reducing the bottlenecks, primarily in energy and transportation.

3.6.2 Real Estate Markets in Kenya (Source: Knight Frank 2013 Report)

Office market

The office market in Kenya moved from a position of oversupply to one of stability over the last twelve months, as Nairobi reinforces its position as the regional commercial hub of sub-Saharan Africa. A significant proportion of the recent take-up has been due to large corporates setting up regional headquarters in Nairobi, rather than the traditional regional hub of Johannesburg. This was mainly due to the opening of new routes by Kenya Airways which enabled direct flights to Central Europe.

Retail market

Kenya has continued to see a proliferation of decentralised urban shopping malls, both within Nairobi and in secondary cities, such as Mombasa, Kisumu, Eldoret and Nakuru. Recent additions, such as Galleria Mall, The Junction Phase Two and Roysambu Mall in Nairobi and City Mall in Mombasa, have brought new entrants to the retail sector, such as KFC, with Game expected to open in the new Garden City Mall on Thika Road in Nairobi. Other malls are in progress in the Capital, including the Mall of Kenya at Tatu City and Two Rivers in Runda. Occupancy rates remain very high, with good rental growth across the sector.

Industrial market

Kenya has not traditionally experienced a high degree of speculative industrial development, with most occupiers tending to own theirs along the Mombasa Road in Nairobi. Rents are very low and take-up is slow, so it will be some time before this becomes an established sector in Kenya's property market. Some developers are looking at purpose-built speculative logistic parks ,which may see a migration of light industrial occupiers from the traditional industrial centre to new locations on the periphery of Nairobi, taking advantage of the new road infrastructure.

Residential market

A rapid increase in interest rates from 16% to 25% in the final quarter of 2011 led to a slowdown in residential development. This led to a drop in sales volumes, particularly in the mid-market, although house sales at the very top end of the market were largely unaffected. Rental values have continued to climb, partly as a result of the shift away from the mortgage market. As those rates are slowly falling and a relatively stable economy is establishing, a post-election recovery is expected in this sector.

3.6.3 Risk Indicators

Table 3.2: The IHS Economic and Country Risk Report for Kenya on 13 August 2014 scores Kenya's country risk as follows:

Risk	***Score***	***Description***
Political	3.75	High
Economic	3.00	Significant
Legal	3.00	Significant
Tax	2.50	Medium
Operational	3.75	High
Security	4.50	Extreme
Overall	**3.39**	**Significant**

Note: 1 = minimum risk, 5 = maximum risk.

Sovereign Risk Ratings	***Score***	***Description***
Medium-Term	55(B+)	High Payment Risk
Sovereign Risk Outlook	➡	Stable

Note: 0 = minimum risk, 100 = maximum risk.

The IHS country risk reports can be obtained from https://www.ihs.com/industry/economics-country-risk.html .

Political risks

A major shadow in the country, at least in the short term, is that both President Kenyatta and his deputy president, William Ruto, are facing a trial at the International Criminal Court in connection with their alleged involvement in the widespread violence that broke out in the aftermath of the 2007 election.

Economic risks

Kenya's economic performance has been unstable over the past decade, underlined by a lingering vulnerability to weather conditions and political instability. This is partly due to longstanding problems relating to infrastructure investment, slow structural reform, and corruption, which have constrained economic growth. Despite challenges, Kenya's medium-term outlook remains positive, with the country set to play a key role in the evolving East African Community, drawing on the expansion of economic links with China, India, and the Middle East.

Legal risks

Kenya has one of the most developed and independent legal systems in the East African region. The new constitution, which was ratified in August 2010 but has yet to be fully implemented, seeks to consolidate some of the best aspects of the existing legal system, while introducing greater transparency, including a Judicial Service Commission in recognition of the Kadhi (Muslim) courts, and establishing the Supreme Court as the highest court in the land.

Tax risks

Kenya's tax regime is considered among the highest in the region, despite successive cuts in both direct and indirect taxes, and the implementation of several investment incentive schemes in recent years. Despite Finance Minister Rotich's tax-neutral budget, which was presented in June 2014, further tax increases are likely throughout the year, particularly in the natural resource sectors. The country continues to meet its revenue target, which is currently around 24% of the GDP, which is among the best in the region.

Operational risks

The operational environment in Kenya continues to present a challenge to existing and potential investors, ranging from continued problems with the country's poor infrastructure and problems associated with the endemic and pervasive nature of corruption. Underdeveloped and poorly maintained infrastructure has often been cited as one of the principal reasons for Kenya’s continued struggle to fulfil its economic potential. As a result, the government has embarked on a series of major infrastructure projects, notably the Lamu Port, South Sudan, Ethiopia and Northern Corridor (to Uganda and Rwanda) as transport corridors. The country's well-documented corruption problem, which the government has been unable or unwilling to tackle, and with which the country is fast becoming synonymous, continues to undermine business confidence. Despite such problems, Kenya – and in particular its capital, Nairobi – remains the unofficial and unchallenged business and economic capital of the wider East Africa region, and the hub of the East African Community regional bloc.

Security risks

Kenya is currently struggling to cope with myriad security challenges, and crime is currently at the forefront of this, posing a serious threat to both individuals and businesses on a daily basis. There are also well-founded fears that Kenya could be susceptible to more terrorist attacks after it fell victim to three separate major attacks in August 1998, November 2002, and September 2013. These were linked to al-Qaeda, or its regional affiliates, such as the Somali-based al-Shabaab. The north-east of the country has seen an increase in the number of attacks and abductions, whilst the capital has also been hit by explosive attacks and an assault on the Westgate shopping mall, which led to 67 civilian deaths in September 2013.

Summary of the risks

Kenya is seen as a regional business and commercial hub, boasting the most dynamic economy in the East African region with an advanced private sector and the least aid-dependent economy. Despite some political, operational and security shortcomings that continue to pose a challenge for investment and business, the country remains a popular destination for multinational businesses and tourists, as well as international organisations that are looking for a regional presence.

3.6.4 *Risk Factors and Risk Treatment Plan ("Mitigants")*

Another approach to risk adopts the following framework, a copy of which was sourced from http://www.brighthubpm.com/risk-management/5141-risk-management-plan-examples/

Stages of risk management:

IDENTIFICATION ASSESSMENT MITIGATION MANAGEMENT

Risk Management Execution Process Steps:

Submit Risk → Assess Risk → Evaluate Risk → Mitigate Risk → Complete Risk

Risk Treatment Plan:

Technique	Description
Acceptance	This technique recognizes the risk and its uncontrollability. Acceptance is a "passive" technique that focuses on allowing whatever outcome to occur without trying to prevent that outcome. This technique is normally used for "low" or "very low" risks where a scope efficient means of reducing the risk is not apparent.
Avoidance	This technique uses an approach that avoids the possibility of a risk occurrence. Avoidance can be thought of as nullifying the risk by changing the contract parameters established between the Customer and Integrator. The following items represent ways of avoiding risk: 1. Work Scope Reduction 2. Changing the requirements and/or specifications 3. Changing the Statement of Work (SOW) 4. Changing the Technical Baseline 5. Developing and submitting Waivers and Deviations
Control	This technique is comprised of actions to be taken that reduce the risk

	likelihood or impact. Control-based actions occur at all points throughout the program's lifecycle and are typically the most common response. They typically identify an action or product that becomes part of the work plans, and which are monitored and reported as part of the regular performance analysis and progress reporting of the Program.
Investigation	This technique defers all actions until more work is done and/or facts are known. Investigation-based responses do not define any mitigation for reducing an individual risk. They are responses to risk where no clear solution is identified, and further research is required. Investigation may include root cause analysis. Investigative responses immediately and directly lead to a greater aggregated Program risk. This is because the probability quantifier for each risk includes the effect of the applied response, for which there is none, and the level of control quantifier indicates the level of influence to apply that response, which is low.
Reduction	Reduction is the active lowering of risk by a planned series of activities. Techniques include: • Rapid Prototyping • Early multi-discipline involvement • Consultant and/or specialist reviews • Simulation • Modelling • Trade Studies • Team Workshops • Advance design models • Reduce Dependencies • Customer involvement • Joint Applications development groups
Transference	Transference is the process of moving something from one place to another or from transference is the process of moving something from one place to another or from one party to another. In this, the risk can be transferred to the customer or to the contractor. Typically, transference includes the sub-contracting to specialist suppliers who are able to reduce the overall risk exposure. This technique is best utilized during the proposal process. Transfer can also include the use of third party guaranties, such as insurance backed performance bonds.

From the above framework, the result of the risk treatment plan ("mitigants") in the case study was as follows:

Legal Risks

- All countries of focus have vital legislation in place.
- Property rights are secure.
- Legal systems in the country are generally based on English Law.

Political Instability

- Kenya: The population is sensitised to terrorist threats. Additionally, the government has put measures in place to thwart terrorism.
- There is strong international support to counteract the terrorist threat.

Corruption

- The investment will not deal in areas that could expose it to corruption.
- Reputable partners will be selected.

Supply/Demand Volatility

- The market fundamentals are strong.
- Projects will be carefully analysed for bankability.
- Speculative developments will not be undertaken.

Lender Security

- Land titles will have to be acceptable to the investment and debt providers.
- Insurance, such as Export Credit Insurance Corporation (ECIC) or similar, will be used to mitigate political risk.

Risks during operations

- Our company will be actively involved in managing the investment's assets during the operational phase and will ensure that operational efficiency is closely managed.

Tax changes

- The investment will be structured to be tax efficient based on in-country advice.

3.7 *Discussion on how the existing body of knowledge influences the research*

The literature discussed above is from current researchers identified in the field of behavioural finance. Many other researchers have explored the field and applied the concepts to particular aspects of decision-making research. The purpose of the research is not to reinvent the wheel but to apply concepts already developed by the behavioural finance scholars and investigate whether there is evidence of its application to real estate investment decisions or if their observations and findings can be identified and verified in real estate investments from which a universal method can be developed for real estate investors under uncertainty.

Many scholars have followed this line of research, notably Gurevich, Kliger and Levy (2009), who investigated "decision making under uncertainty – a field study of cumulative prospect theory". In their research they tested Kahneman and Tversky's (1979, 1992) Prospect Theory in the financial market, using US stock option prices. They found that, in the practical results - in comparison to the laboratory results - the estimated functions (value and weighting) were closer to linearity and loss aversion was less pronounced. Brendle (2006) looked at the power utility aspects of decision-makers when they selected portfolios under incomplete information. Brendle (2006) used a stochastic approach to measure the impact of incomplete information and power utility on the selection of an optimal portfolio. Bosch-Domenech and Silvestre (2010) investigated the aversion of risk in the face of significant losses in Bernoulli versus Tversky and Kahneman (1979). In Prospect Theory, the thesis is that people display risk attraction in high probability losses, but in their investigation and analysis, Bosch-Domenech and Silvestre (2010) found that subjects tended to avoid fair risks ($30 to $90) and high-probability (80%) real loss, thus vindicating Bernoulli's view that risk aversion is the dominant attitude.

Other scholars include Bailey, Kumar and Ng (2011) who examined the effect of behavioural biases on the mutual fund choices of a large sample of discount brokerage investors in the United States. They found that behaviourally biased investors typically make poor decisions about fund style and expenses resulting in poor performances. Kester, Hultink and Lauche (2009) identified three genres of portfolio management decision-making, namely: formative-reactive, intuitive, and integrative. Each genre could be identified as a unique set of portfolio management practices. Kester *et al*. (2009) found that firms employing an integrative approach toward portfolio decision-making were most likely to be successful in the long run. Other scholars applying Modern Statistical Decision Theory, were Mao and Sarndal (1966) who reviewed Markowitz' Portfolio Selection Model in light of the newer theories in decision-making. Mao and Sarndal (2006) explored the subjective nature of investor's estimates regarding probability, which also brings about the subject of heuristics and biases in decision-making.

Another approach to the application is the development of new models, which build on the existing Prospect Theory described by Edwards (1996). In addition, Edwards mentioned other researchers who have successfully developed other models from Prospect Theory, such as Loomes and Sugden (1982).

Other researchers, who have developed models on Prospect Theory, include Schmidt and Zank (2009). They presented a paper that combines the loss attitude and linear utility by providing an axiomatic analysis of cumulative prospect theory in the framework for decisions under uncertainty. Another paper by Schmidt and Zank (2008) investigated risk aversion in Cumulative Prospect Theory. Their research found that strong risk aversion implies a convex weighting function for gains and a concave for losses; this further develops Kahneman and Tversky's (1992) Cumulative Prospect Theory. Other researchers, such as Abdellaoui, Bleichrodt and Kammoun (2013), completed experimental studies to determine whether financial professionals behave according to Prospect Theory.

Ultimately, the purpose of the identified literature was to find gaps in current knowledge (that support the identified gap in practice) from which the research questions were developed. The literature also detected the tone and direction of arguments upon which new knowledge could be developed. Without relevant literature, the question of new knowledge would not be answered; thus, new knowledge builds upon the existing knowledge identified in current literature.

3.8 The conclusion of the literature review

Decision-making processes have been studied for generations beginning with the Expected Utility Theory described by Von Neumann and Morgenstein (1944). Modern decision theories were developed in the 1960s and 1970s by Kahneman and Tversky (1979, 1992). The work of Kahneman and Tversky is central to the research as it explores concepts not yet considered in real estate investment decisions. Research by other scholars, like Shefrin & Statman (1994, 2000) and Stracca (2004), support the work of Kahneman and Tversky and will form the basis of the research premise Furthermore, Thaler's (1999) proposition that behavioural finance was entering a new era whereby it will integrate with mainstream econometrics and financial analysis forms the premise for this doctoral investigation.

Firstly, from observation in practice, decision-making methods in real estate in sub-Saharan Africa follow traditional normative theory based on the Rational Expected Utility Theory and the prominent Capital Asset Pricing model presented by Sharpe (1964). Meanwhile, based on Kahneman and Tversky's (1979, 1992) Prospect Theory and Cumulative Prospect Theory, the reality and expectation is that the decision-making process should follow the axioms of current theory. Secondly, current methods for investment decisions, as presented in the literature, shows that there is a gap in theory as the current methods ignore Kahneman and Tversky's axioms of decision-making under uncertainty. The research's contribution to knowledge is a description of a method, as observed and analysed from the research data, that follows the axioms of Kahneman and Tversky's approach. Sah *et al.* (2010) presents a strong case for the development of new methods in decision-making under uncertainty in real estate investments, alongside developments in behavioural finance theory presented by Thaler (1999), Shefrin and Statman (1994, 2000) and Stracca (2004), and using the axioms and propositions of Tversky and Kahneman's (1979, 1992) theories on decision-making under uncertainty.

3.9 Summary

The literature covered in the chapter was guided by the objectives and aim of the thesis, and the focus was on decision-making under uncertainty. A broad review of literature on decision-making was undertaken followed by investment decision literature. The sub-Saharan capital real estate markets were covered from which a sample of the research data was drawn (Chapter 6). The focus of the research was on equity funds from 2010 to 2016 that were pioneers in sub-Saharan Africa. There was also extensive coverage of current methods in decision-making in real estate investments, both under risk and uncertainty. Lastly, the chapter covered key concepts on uncertainty from the literature. Thus, the focus of the literature review remained true to the research objectives.

The literature review informed the researcher as to the nature of available knowledge on the subject under study. It informed the researcher as to the ontology, namely the nature of new knowledge that could be deduced from the study. Hence, it also informed the researcher of the appropriate design of the research and the appropriate methodology to discover new knowledge in the subject area, within the broader knowledge domain.

4 Research Methodology

4.1 The approach to the research

Every academic research project begins with a clear definition of the problem, and the reason for the research after a gap in knowledge or theory has been identified. In practice, research projects begin with the identification of a problem that needs a solution, either by addressing practice problems or by finding ways of carrying out professional work more efficiently. Research in practice is often referred to as Mode 2 research as it is driven by the desire to find practice solutions to practice problems. Research in Mode 2 is rich in relevance but limited in rigour as the solution derived from research is often specific to the practice problem. On the other hand, it is often argued that academic research lacks relevance to practice problems. The aim of this section of the thesis is to find an approach that will address both the essentials of the rigour required in academic research while addressing the problem of relevance required in practice research.

The hypothesis was based on a research structure generally pursued in phenomenological research. Firstly, it is assumed that, for the study to remain relevant to practice, the research problem and questions must be developed from practice. Secondly, the researcher must analyse and classify the nature of the research problem and questions. Thirdly, the research must follow a correct and tested methodology, with the relevant underlying epistemology and framework.

It is a proposition with a ‘bottom-up’ approach where the solution evolves from the nature and interpretation of the research problem. The research problem remains the focal point for the research to remain relevant. At the early stage, the biggest challenge was finding the correct epistemological framework on which to base the research design or find an appropriate mix of epistemologies.

The proposition emulates from the nature of the built environment and the output of professionals in the field. A simple example would be to look at a team of professionals in a home building project. This would include architects (which is a discipline on its own), alongside engineers, quantity surveyors, a contractor to undertake the construction and a project manager to supervise the overall delivery. In addition, there are legal contracts between the disciplines that define the relationship and responsibility of each party. Each of these disciplines has a set epistemology and paradigm that they follow to deliver their services in practice, as observed by Schon (1991) and Griffiths (1974).

Research problems or gaps in knowledge could arise in each discipline, for example, design failure or the non-performance of a contractor. Research problems or gaps in knowledge could also arise as a result of the failure to produce an interdisciplinary output, where more than one discipline is responsible for delivery of a service in the project. An example of this is cost saving in a home building project which could be a result of poor contractor performance, poor project management or a combination of the two. This complexity clearly indicates that the gaps in knowledge that prompt research projects will be varied and cannot follow a single line of enquiry. Moreover, Dainty (2008) found that most research in the built environment uses a quantitative and positivist framework indicating a lack of depth and diversity to the built environment research field.

Within doctoral (level) and professional (Mode 2) research, it would be expected that the research questions would be cross-disciplinary, hence a proposition is posed that scholars must develop a multi-disciplinary paradigm to adequately address the research problem. Dainty (2008) stated that the built environment is an applied field rather than a formal academic discipline. However, researchers who undertake such studies must be wary of the fact that a “lack of clarity surrounding epistemology can result in the application of inappropriate quality criteria and audience misunderstanding”, which could be problematic for inexperienced researchers (Dainty, 2008, p. 2). As the built environment is an applied field, practitioner research, as described by Kelemen and Bansal (2002), is relevant. However, Kelemen and Bansal (2002, p. 105) state that “sound management research is located in the nexus between practice and contributing disciplines”.

4.1.1 Literature on the nature of the built environment discipline

Griffiths (2004) draws attention to the difference in knowledge production for practice-oriented disciplines from traditional academic disciplines like natural science and social science and made two significant observations. Firstly, Griffith (2004, p. 711) observed that the built environment consists of "a very heterogeneous collection of fields of study and practice, including architecture, town planning, land and property management, building surveying, construction technology, landscape design, housing policy and management, transport planning and urban regeneration. In some institutions disciplines such as geography and environmental management are also included. As such, they constitute something of a microcosm of the university as a whole, comprising business-oriented fields (for example, property development), public policy-oriented fields (for example, housing; and planning), design-oriented fields (for example, architecture; and landscape design), technology-oriented fields (for example, construction), and traditional academic fields (for example, geography)".

This statement clearly indicates that there is a difference in nature between the disciplines within the built environment. However, in projects where research problems may be identified, the nature of the problem could affect several disciplines. Hence there is a need for a multi-disciplinary research approach in order to adequately address the problem. The issues arise in defining the correct epistemology when the researcher may be compelled to mix different epistemologies and approaches; for example, having to choose or mix contradicting epistemologies like qualitative and quantitative research methods. Griffith's finding already alludes to the fact that traditional research epistemologies may not be sufficient to address built environment research problems.

Secondly, Griffiths (2004, p. 712) observed that the built environment consists of disciplines that, "are mostly applied fields, of a kind that has not featured very strongly in existing studies of the research-teaching nexus. In applied fields, the production and validation of knowledge appear to operate according to somewhat different principles than in more 'pure' disciplines, such as the natural sciences and humanities. There is, for example, a weaker attachment to academic 'discipline' identities, a greater emphasis on multi- or interdisciplinary ways of thinking, and greater emphasis on embedding knowledge in the context of problem solving, policy and professional practice".

From these findings, Griffiths (2004, p. 712) concluded that "conventional or generic ideas about the research-teaching nexus may have limited applicability". He identified the need to develop a "new" epistemology for the built environment that differs from the traditional academic methods of knowledge production. Griffiths (2004, p. 717) further stated that "applied knowledge production has different epistemological ambitions from those of empirical science, and its 'rigour' takes different forms."

Griffiths' conclusions were supported by Chynoweth (2009, p. 301) who stated that, even though the built environment is "now established as a recognised field of study by the international academic community, its identity has traditionally been defined in terms of the traditional construction and property professions from which it has emerged". Chynoweth (2009, p. 308) concluded that the built environment field is interdisciplinary and therefore cannot rely on methodologies that are suitable for each individual discipline.

Chynoweth further described the disciplinary models in order to explain the positioning of each built environment discipline. He noted, as observed earlier by Griffiths, the difference between pure knowledge and applied knowledge, and stated that "pure knowledge is based entirely on theory whilst applied knowledge involves the application of theoretical knowledge in a particular practical context" (Chynoweth, 2009). These conclusions are pushing built environment research towards the applied knowledge epistemologies that are closely aligned with Mode 2 research, as will be defined later this section. Chynoweth concluded that interdisciplinarity could be a "realistic aspiration" for the built environment.

Chynoweth developed his disciplinary model (2005) from Biglan's (1973) disciplinary model. Biglan (1973, p. 195) observed that, in most university organisations, academic departments are organised according to their subject matter. This immediately raises a dilemma for the built environment, which Chynoweth (2009) states is interdisciplinary in nature. This implies that, in most universities, the built environment will not fit into a traditional university structure, and Kuhn (1962) notes that this poses further difficulties for knowledge development in the built environment. Kuhn (1961) argued that "the physical sciences are characterised by the existence of paradigms that specify the appropriate problems for study and appropriate methods to be used while the social sciences and non-science areas do not have a clearly defined paradigm". Furthermore, Chynoweth's disciplinary model (2005) suggests that the built environment could also be classified as non-science.

4.1.2 The relevance of the Mode 2 approach to the research problem

Van Aken (2005, p. 19) presented a proposition that management research should focus on "the so-called field-tested and grounded technological rule as a possible product of Mode 2 research with the potential to improve the relevance of academic research in management". His article emphasises Mode 2 research as an appropriate method for knowledge production in management sciences (and the built environment) to increase the relevance of research to practice. Van Aken states that Tranfield and Starkey (1998) started the debate on the 'relevance gap' in the *British Academy of Management Journal*. Nowotny, Scott and Gibbons (2001) stated that Mode 1 knowledge production is purely academic and mono-disciplinary, while Mode 2 is multidisciplinary and aims to solve complex and relevant field problems. This supports earlier arguments that current academic knowledge production and epistemologies are ineffective in addressing practice related problems and could be deemed insufficient for knowledge production in the built environment. In addition, Mode 1 does not address the aforementioned issue of multidisciplinary. Hence, there seems to be a natural fit between knowledge production in Mode 2 and the built environment.

Van Arken (2005) describes design science as a highly relevant method to develop knowledge that can be used by professionals to design solutions in their practices. Van Arken further proposes a means to address the question of rigour that often arises in Mode 2 research, and proposes grounding technologies in generative mechanisms that produce a rigorous desired solution. Archer (1995, p. 153) stated that "without grounding, the use of technological rules degenerates to mere 'instrumentalism', that is, working with theoretically ungrounded rules of thumb". In conclusion, Van Arken

(2005) acknowledges that Mode 2 researchers are reluctant to produce general knowledge that could draw criticism to their research output as lacking in rigour (despite their significant relevance).

Kelemen and Bansal (2002) proposed that management research should place greater emphasis on the use of Mode 2 research whereby academics and practitioners work together to define the research problem and find an appropriate methodology to a particular context. Tranfield and Starkey (1998, cited in Kelemen and Bansal, 2002, p 105) stated that sound management research is located in the nexus between practice and contributing disciplines. They stated that this positioning requires researchers to adopt a transdisciplinary approach by attempting to go beyond any single discipline and utilise well established collaborative links with practitioners to ensure validity in the collection and codification of data.

4.1.3 The challenge of finding suitable epistemologies

To ensure credibility to the proposed approach, it is essential to consider the integration of disciplines and address both epistemological and ontological challenges. Aram and Salipante Jr (2003, p. 189) suggest that the most suitable,

> … epistemological foundation indicate[s] the potential for a philosophy of science and a process of inquiry that crosses epistemological lines by synthesising the particular and the general and by utilising experience and theory, the implicit and the explicit, and induction and deduction. This proposed epistemology point to characteristics of a bridging scholarship that is problem-initiated and rests on expanded standards of validity.

This statement consists of several points that need further deliberation. Firstly, it highlights the issue of combining epistemologies from each discipline in the built environment; however, this is a complex process that could be problematic for most researchers. Secondly, it brings about the concept of combining implicit and explicit, induction and deduction methodologies, which represents further complications.

Aram and Salipante refer to Gibbons, Limoges, Nowotny, Schartzman, Scott and Trow (1994) who suggest that Mode 2 research is transdisciplinary and problem-focused. This brings about debates on 'reliance and rigour' and whether these critical elements of academic research are addressed effectively in Mode 2 methodologies. Aram and Salipante (2003) describe the epistemology of knowing and emphasise the general theory that arises from traditional realism-positivism. This is inherited from the physical sciences where an established research paradigm exists. Mode 2 research is driven by application, and a specific and context driven solution, which may show weakness in the epistemological phenomenon described by earlier researchers. Aram and Salipante (2003) state that, in Mode 2, "knowledge is problem driven, trial and error, situation-specific, contingent, non-codified and atheoretical". Moreover, Gibbons *et al*. (1994) noted that Mode 2 processes are "highly personalised and not codified. It transfers to new situations only through future actions of project participants, as would largely appear to be the know-how generated from action research activity".

4.1.4 Possible research approach to the research problem

The greatest challenge for researchers in the built environment who pursue Mode 2 methods is how to define the epistemological framework of their research design in order to ensure both relevance and rigour. If researchers were to follow Biglan's disciplinary model that the built environment should fit into a specific discipline, epistemological and ontological issues could potentially be addressed more easily. However, a counter-argument is that, for research to be relevant, it must pursue a solution that solves a practice problem. Problems in practice are multi-dimensional in nature, which implies that multi-dimensional (covering different paradigms) methodologies are required to sufficiently address the research problems under scrutiny. Chynoweth's (2009, p. 308) conclusions tacitly imply that multi-dimensional approaches are necessary to effectively solve built environmental issues; he concluded that there was the lack of a "recognised theoretical disciplinary base for the built environment".

In the research, it was proposed that study of the built environment must involve multi-dimensional approaches in order to adequately address the research question.

Contrary to Biglan, where university departments categorise subjects into distinct research disciplines, practice problems in the built environment demand enquiry across several disciplines. The research acknowledges that most university construction management departments try to conform to the norm by developing a research paradigm and promoting positivist and quantitative methods to address most (and almost all) construction management research problems. Nevertheless, a clearly defined paradigm appears to be lacking that research in the built environment could follow (Dainty, 2008).

Griffiths (2004) acknowledged that the built environment is multi-dimensional. In its current form. The built environment has not demonstrated conviction and boldness in developing a multi-disciplinary approach and in developing its own (strong) epistemological and ontological framework for researchers in the field. Griffiths' statements of multi-disciplinarity imply a combination of different subjects, hence multiple paradigms should be applied. This would help to bridge the gap between Mode 1 and Mode 2 research and make academic research in the built environment more relevant to practice, which is essential for such disciplines (Dainty, 2008).

Chynoweth (2009, p 304) quoted Griffiths (2004) who described the built environment as "a range of practice-oriented subjects concerned with the design, development and management of buildings, spaces and places". Chynoweth (2009) described the steps required to develop a suitable epistemology for the built environment, proposing that the first step towards integration should involve a state of pluri-disciplinarity. He stated that this "requires the deliberate juxtaposition of different disciplines to enhance the relationships between them. Communication between disciplines is encouraged but not coordinated, and the nature of any integration is therefore, once again, largely a matter of chance" (Chynoweth, 2009, p. 306). Chynoweth (2009, p. 306) quoted Jantsh (1972) who suggested that "most claims to interdisciplinarity are at best pluri or cross-disciplinary in nature. True interdisciplinarity only occurs where a number of separate disciplines surrender their axiomatics and collectively define themselves by reference to a common strategic axiomatic". Chynoweth (2009, p 306) further stated that, "according to Jantsch, this takes place where the traditional disciplines of knowledge are brought together in structures which reflect “basic themes of society or need areas” rather than their own disciplinary identities”.

4.1.5 Methodological pluralism

Dainty (2008, p. 2), who proposed a methodology referred to as pluralism, observed that the built environment is a relatively new field and researchers draw their methodology and paradigm from the natural sciences as well as the social sciences.

Harty and Leiringer (2007) noted that research in construction management was focused on either an objective ‘engineering’ oriented or subjective approach which focused on understanding how different realities are constituted. Dainty (2008) analysed the most dominant methodology in the construction industry by reviewing the methodological positioning of articles published in volume 24 of the *Construction Management and Economics Journal* in 2006. He found that most of the articles were quantitative in their methodological positioning, meaning they adopted quantitative research methods based on a positivist research paradigm. This potentially presents a challenge for the researcher wishing to deviate from this (dominant) position in the construction management field. However, the question remains as to whether current researchers sufficiently address problems in the field within a single methodology. Therefore, Dainty et al. builds a case for methodological pluralism in an effort to consider a combination of different methods in a single research project. He defines methodological pluralism as the “use of multiple theoretical models and multiple methodological approaches” (Dainty *et al.*, 2008). This concept is embraced by Aram and Salipante (2003, p. 202) in what they refer to as a methodology that “transcends epistemological dichotomies”. Dainty emphasises that using one methodology and paradigm limits the view and perspective researchers may have on the subject. However, in conclusion, Dainty et al. acknowledges that there are many critics of combining methodologies.

4.1.6 Overcoming the epistemological challenges

The built environment research community is relatively new in comparison to those in the natural sciences; as such, it appears that it has not sufficiently developed a research paradigm to guide researchers in the field. In addition, due to the article’s interpretation of the term “interdisciplinary”, studies delve into complex research methods by trying to deal with the issue of relevance. The article suggests that researchers cannot avoid this complexity if they are to undertake credible research in the field, which requires a mix of epistemologies and ontologies. It is worth noting that researchers in the built environment must explore opportunities to combine quantitative and qualitative research methods if the need arises to develop a desired, relevant and appropriate solution. However, researchers must be conscious of the consequences of mixing these methodologies. The nature of the two methodologies means they are different in both paradigm and epistemological framework; hence, mixing the two in research can lead to confusion when presenting a clear epistemological framework of research knowledge (Dainty, 2008).

According to Plato, in classical epistemology true knowledge is never particular and never simply ‘about this or that’, but rather essential, general and fundamental (Knight & Turnbull, 2008). This is the case in the epistemology of natural sciences. In modern epistemology, Deschartes (1996) considered that valid knowledge should rest on secure foundations and that knowledge required a first principle upon which the whole edifice of knowledge could be derived and ultimately rest (Knight *et al.*, 2008, p. 69). This could present a challenge for researchers in the built environment who delve into unknown and untested territories and then try to position and present their research for academic assessment. Therefore, the epistemological basis upon which the researcher designs and frames their “new” knowledge could be the subject to scepticism and doubt.

Perhaps, the postmodern ideas by Richard Rorty that knowledge is “always relative to the interest at large in culture and so there is no such thing as timeless knowledge" (Knight et al., pp 71) could help in developing an epistemology for Mode 2 research. Other post-modern theorists, like Nietzche, support the notion that knowledge is not timeless and must be linked to realities and circumstances, which again strengthens the case for the future of Mode 2 research.

Aram and Salipante (2003) tried to address some of the epistemological challenges often encountered in Mode 2 research. They proposed a method that they referred to as the "externalisation-internalisation cycle" which involves four processes. First, the individual's knowledge is enlarged through increasing the depth and variety of direct experience. Second, a self-organising, cross-functional team is created in which individuals share experience and tacit knowledge in an environment of increasing trust. Third, shared tacit knowledge is articulated into a concept, largely through metaphorical thinking, and fourth, the concept is crystallised as concrete form, such as a new product design or prototype, again through interactions within the context of a diverse group". Aram and Salipante (2003, p. 197) quoted Dewey (1891, p 193) who stated that, "explicit reasoning occurs when the mind recognises the relationship between two experiences and explains the nature of the relationship, such that snow consists of water reduced in temperature and crystallised. Knowledge, either implicit or explicit, then, always involves some reasoned relation between the particular and the universal".

This is important in addressing the challenge of rigour in Mode 2 research. Moreover, this point could act as a catalyst in bridging the gap between Mode 2 studies and traditional academic research. The key is to convert tacit knowledge into explicit knowledge; this process is described by Nonaka (1994) as 'trial and error'. The process starts when a group has been able to articulate a new concept through successive rounds of perspective sharing. Then, through a process of trial and error, this explicit knowledge is translated by group members into tacit knowledge through 'internalisation' and 'learning by doing'. Nokata stated that the concepts shed light on the rigour versus relevance debate in management research. They suggest that context (relevance) and empirically grounded theory (rigour) are equally important and mutually supportive factors in the generation of knowledge. Moreover, Nokata (1994) stated that "knowledge is incomplete without discovering and working between implicit and explicit reasoning and utilising processes of induction or deduction". Aram and Salipante (2003, p. 199) stated that interest in knowing or discovery begins with an acknowledged problem, also acknowledging that knowledge is "neither realistic nor is it idealistic in the sense that ideas have an independent reality". This point further re-emphasises the notion that traditional research epistemologies cannot adequately address practice problems, which are removed from the confines of academic departments and epistemologies. Nevertheless, the process outlined by Nonaka (1994) could evolve into a finite research project where interviews and other data extraction methods (from a sample) could substitute the group engagement.

Aram and Salipante (2003, p. 201) described a method for addressing the epistemological challenges of 'bridging the gap' between theory (academic) and practice. They first stated that the research problem should be practice driven in order to sufficiently address issues of relevance. Secondly, they proposed that, to bridge scholarship research, the methodology should be epistemologically eclectic, which means that the researcher must mix and borrow from different epistemologies. Lastly, they recommended that researchers should produce pragmatic science, which is high in both rigour and relevance. The last point of pragmatic science is the biggest challenge and has demonstrated slow development in the built environment.

On the epistemological challenge noted from the literature generally and from conclusions drawn by Aram and Salipante (2003) specifically, there is a gap concerning the development of appropriate epistemological and ontological frameworks that sufficiently address research problems in the built environment. Indeed, Aram and Salipante Jr (2003) suggest that more work needs to be done in this field. The challenge lies with the researcher who needs to appropriately develop their research and ensure a framework that will result in a thesis that sufficiently addresses rigour. They must follow a methodical and credible process that will address all doubts amongst examiners and readers of their report, that ensure that conclusions result from a thorough and transparent process.

Another approach is an investigation of the phenomenology of practice (in the built environment) as described by Vagle (2010). Vagle (2010) begins with propositions made by Schon (1987) that reflective practice is the cornerstone of knowledge. Therefore, it follows that built environment researchers should develop a phenomenology of their practice to capture the essence of how knowledge is generated and emerges in practice. This phenomenology should satisfy academic standards as well as the reflective nature of practice. Schon (1987) began his work after noticing the emphasis on technical rationality in practice, whilst the reality is that reflecting on reflection-in-action is the dominant feature of practice. Thus, Schon favoured a constructive perspective to research in practice.

4.1.7 Conclusion on the discussion of the approach to the research

It is clear from the literature reviewed and the presiding discussion that the built environment is multi-disciplinary and an applied discipline. The discussion also suggests that a Mode 2 approach would be most appropriate for research in the built environment as it better addresses the issue of relevance between academic research and professional practice. However, the literature acknowledges the complexity associated with combining several epistemologies and methodologies, and the wilderness that researchers may find themselves in when undertaking such a project. The literature acknowledges that, unless they follow a pragmatic science approach, there could be questions and doubts raised as to the 'rigour' of their research project should they choose to strictly follow a Mode 2 approach.

The work of Vagle (2010) and van Manen (2007) on the phenomenology of practice has scope for further research to delve deeper into the epistemological issues around developing a new approach for the built environment. Therefore, a phenomenological approach was the preferred method chosen for the research. It seemed to address most of the Mode 2 issues discussed in this section of the study while remaining 'pure' and uncluttered in its proven process as a qualitative methodology. It also offers a solution to the question of relevance of most academic methods.

4.2 Research conceptual framework, design and methods

4.2.1 Different methodologies considered

The researcher began by considering all methodologies for the research. He looked for the most suitable methodology to adequately answer the research question. Due to the nature of the research question, qualitative approaches were deemed more appropriate to answer the research questions as the study focused on humanistic aspects. Ethnography, where a researcher pursued extensive fieldwork and allowed for direct observation of the subjects, was first considered. However, it was deemed unsuitable as it was not practical for the researcher to be in co-researchers' workplaces and observe them making the real estate investment decisions. Grounded research theory was also considered as it closely investigates elements of experience. However, this was deemed not suitable as it had a different objective to the research question and more time would have been required to complete the study. It must be noted that grounded research theory was perceived as close to the final research approach taken, namely phenomenology. A phenomenological approach was most appropriate as it involved a return to the co-researchers' experiences to obtain comprehensive descriptions of their experience and practice. Phenomenology allowed the researcher a basis for reflective structural analysis and a deeper understanding of the essences of the co-researchers' experiences.

4.2.2 Proposed qualitative framework

Cresswell (2013) described social constructivism as an interpretive framework in which inquiries or research inductively generate theory or patterns of meaning from negotiated social circumstances and situations that are negotiated through interactions with others. The meaning is re-affirmed through discussions and interactions with other people. The proposed phenomenological study will follow the definition of social constructivism offered by Creswell (2013), whilst the methodology will follow those described by Moustakis (1994) who was highly recommended by Creswell (2013) and Punch (2006) for his phenomenological studies.

Creswell (2013) described ontology in phenomenological qualitative research as embracing the idea of multiple realities as the researcher presents different views and perspectives. The epistemological assumption is that the researcher gets as close as possible to the participants being studied. Subjective evidence is assembled based on individual experiences and knowledge is gathered through the subjective experiences of the study participants.

The methodology in a phenomenological study is characterised as inductive, emerging and shaped by the researcher's experience in collecting and analysing the data. The logic is built from the ground up rather than drawn from the theory or perspectives of the researcher.

4.2.3 Characteristics of qualitative research, philosophical assumptions and interpretive framework

Creswell (2013, p 78) described a phenomenological perspective as the "emphasis on a phenomenon to be explored, phrased in terms of a single concept or idea". Creswell further described a phenomenon as any observable occurrence which is often (but not always) understood as "appearances" or "experience". The approach relies upon an individual, or a group of people (in a sample), who have experienced the phenomenon and can share their experience with the researcher. The study offers a subjective opinion and view, and a summarised observation and explanation of the experience of the individuals. Creswell (2013) noted that there should be an objective experience common to individuals that can also be generalised as common to other people. Creswell (2013, p 78) also noted that a phenomenological study "lies somewhere on a continuum between qualitative and quantitative research".

In addition, the researcher must 'bracket' himself out of the study by first discussing his personal experience of the phenomenon. The bracketing gives credibility to the analysis and report of the research findings and provides the researcher with the necessary focus because he is conscious of his subjective views of the phenomenon.

Creswell (2013, p. 104) described phenomenological studies as "understanding the essence of the experience, needing to describe the essence of the lived phenomenon, and drawing from philosophy, psychology and education" (literature) to explain the phenomenon. Phenomenological research follows the interpretive framework of social constructivism described by Creswell (2013). In social constructivism, Creswell (2013) described researchers following this interpretive framework as "individuals seeking understanding of the world in which they live and work who proceed to develop subjective meanings of their experiences". Creswell (2013) acknowledged that these meanings are varied and multiple hence the researcher must identify, through the appropriate analysis and interpretation of these multiple meanings, a few ideas and common features that shed light and bring forth an understanding of the phenomenon under study. Therefore, Creswell (2013, p. 25) proposed that, rather than starting with theory, researchers should "generate or inductively develop a theory or pattern of meaning".

4.2.4 Moustakas' approach to phenomenological research

Moustakas begins by defining empirical phenomenological research through an example offered by van Kaam (1966) "the experience of really feeling understood is a person co-experiencing what things mean to the subject". Moustakas (1994) emphasises experience to obtain comprehensive descriptions that provide "the basis for a reflective structural analysis that portrays the essences of the experience."

Moustakas then presents the conceptual framework for phenomenological research by referring to Husserl's (1944) philosophic system that was founded on subjective openness. He quotes Husserl (1944) who declared that "knowledge based on intuition and essence precedes empirical knowledge". Moustakas describes a process whereby researchers in phenomenology blend what is present with what is imagined as present from the vantage point of possible meanings that combine the real and ideal. He states that there is a relationship between what exists in conscious awareness and what exists in the world.

Moustakas then introduces the concept of intentionality, which indicates the orientation of the mind to its objects and of perceiving something. Moustakas then states that every intentionality comprises noema and noesis. The noema is not the real object but the phenomenon or object that appears in perception, whereas noesis is the real object. The perceived is noema while the "perfect self-evidence" is the noesis.

Moustakas (1994) describes the methodology of phenomenological research as consisting of four components: epoche, transcendental-phenomenological reduction, imaginative variation and synthesis. Epoche denotes abstaining from everyday ordinary ways of perceiving things, which means avoiding presupposition and judgement. This leaves open the possibility that what is understood as existing in everyday knowledge may actually be different in essence. Transcendental phenomenological reduction refers to the reduction of each experience into its singularity, in and for itself. This leads the researcher back to the source of the meaning and existence of the experienced world. Through the reduction, the researcher derives a textual description of the meanings and essences of the phenomenon.

Imaginative variation follows transcendental phenomenological reduction; indeed, Husserl emphasised a “free fantasy variation”, which is an essential element to the imaginative variation. Husserl (1931, p. 57) states that “the eidos, the pure essence’ can be exemplified intuitively in the data of experience, data of perception, memory and so forth, but just as readily also in the mere data of fancy”. Moreover, Moustakas (1994) states that the purpose of imaginative variation is to arrive at a “structural differentiation amongst the infinite multiplicities of actual and possible cognitions”.

Moustakas (1994, p. 100) described the final step in phenomenological research as synthesis, which is “the intuitive integration of the fundamental textural and structural descriptions into a unified statement of the essences of the experience of the phenomenon as a whole”. New knowledge that is identified and presented in the synthesis, is the knowledge of essence (as defined by Husserl, 1931) which is common amongst co-researchers and could be deemed universal.

4.2.5 Husserl’s (1944) approach to phenomenological research

In their book *Ideas: General introduction to pure phenomenology*, Husserl and Dermot (2012), introduced phenomenology as “the science of essential connections of vital experiences”. Husserl stated that “all natural knowledge begins with experience and remains with experience”. Husserl (1931) placed a lot of emphasis on the “science of essence” versus the “science of fact”, and referred to psychology as a science of experience rather than a science of fact, in the human sense. Husserl (1931) defined essence as a new type of object (the discovery) or the datum of essential intuition.

Husserl formed the basis of the approach described above that was followed by Moustakas; furthermore, his book constitutes a good reference point for the terminology and definitions used by Moustakas (1994). However, Husserl’s work was more philosophical and focused on the conceptual framework for phenomenological research; hence, it is referred to as pure phenomenology.

4.2.6 *Other approaches to phenomenological research*

Other researchers who presented useful insights into phenomenological research include Polkinghorne (1989) in *Phenomenological research methods*; Giorgi (1994) in *A phenomenological perspective on certain qualitative research methods*; van Manen (2007) in *Phenomenology of practice* and, most recently, Finlay (2013) in *Unfolding the phenomenological research process: Iterative process of seeing fresh*. According to Creswell (2008), Polkinghorne (1989) follows a less structured approach than the empirical phenomenological approach of Moustakas (1994). However, Polkinghorne's (1989) work was useful to the researcher in understanding the different approach, alongside its concepts, sections and aspects of phenomenological research.

Giorgi (1994) and van Manen (2007) are more recent researchers who have used a phenomenological approach. They have presented several reviews of phenomenological research projects and highlighted the pitfalls and shortcomings of the reviewed research reports. Both offered useful insights to the researcher beforehand and helped him to avoid making similar mistakes throughout the research and report writing of this study.

4.2.7 *Limitations of phenomenological research*

Dukes (1984) noted that, in bracketing, interference with the interpretation of the data by the researcher can lead to a number of complications when trying to establish and maintain pure bracketing, namely absolute objectivity. In the thesis, the researcher presented a full account of his own experience with the phenomenon, in order to separate his opinions from the co-researchers' (interviewees) responses. As with other qualitative research, Cresswell (2008) noted that phenomenological research is subjective by nature as it is based on the qualitative personal responses of subjects (interviewees). This was addressed by ensuring a convergence of ideas from the interviewees' responses.

Brink and Wood (1998, p. 246) noted that "there were no fixed steps to be followed and the study cannot be replicated" as it is led by the interviewees, and the nature and detail of their responses are not controlled by the researcher. Therefore, the researcher needs to pay attention, ensure he follows the discussion and focuses on the research objectives at all times, without interfering with the interviewees' responses.

All the reviewed research approaches had advantages and disadvantages but it was felt that the phenomenological approach as a research strategy was most suitable to address the aim and objectives of this research.

4.2.8 Relevant methodology frameworks for the research design and approach

For this research, we referred to several methodological frameworks to consider the choice of appropriate methods and approach. We began with Grix's (2004) Building Blocks Framework which starts by asking "what is out there to know" (the nature of the knowledge) described as ontology. For the research, the question is what method was used to make investment decisions under uncertainty in the sub-Saharan markets. We then proceeded to the epistemological question concerning the theory of knowledge, which considers the methods, validity, and scope. This lead to the choice of methodology, or "how we go about acquiring that knowledge". The next step concerned the choice of method/s for application, namely the precise procedures used to acquire the knowledge.

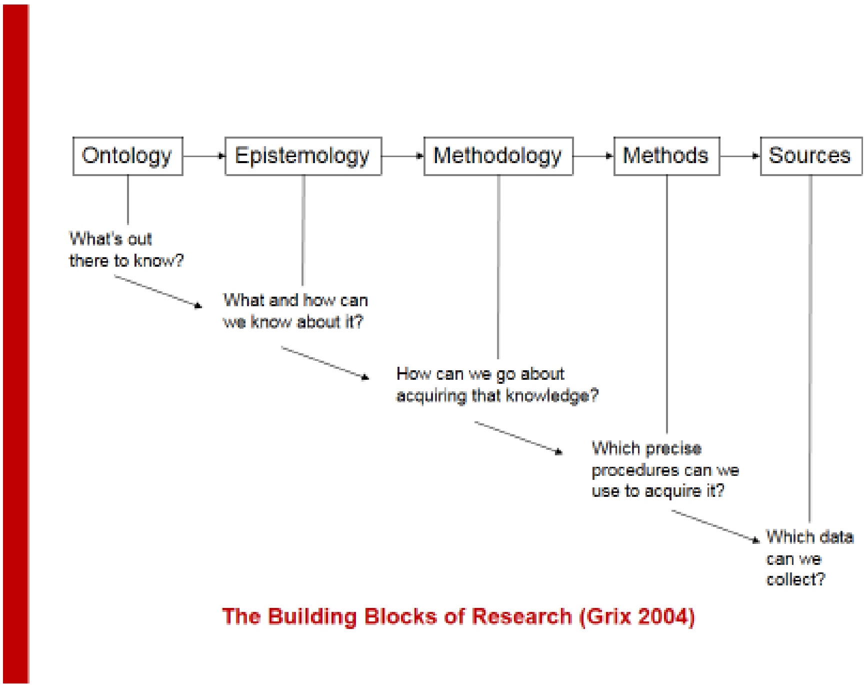


Figure 4.1: Grix's Building Blocks of Research

Another guiding framework for the choice of method was that of Habermas (1972). This framework guided the choice of qualitative method/s for the research. Phenomenological studies adopt interpretive research methods, which are relevant to practical research where the subjects' (co-researchers') experiences inform and help the researcher to obtain a broader (tacit to explicit) understanding of the subject and phenomenon.

HABERMAS (1972)

Type of Human Interest	Kind of Knowledge	Research Methods
Technical (prediction)	**Instrumental** (causal explanation)	**Positivistic Sciences** (empirical-analytical methods)
Practical (interpretation & understanding)	**Practical** (understanding)	**Interpretive Research** (hermeneutic methods)
Emancipatory (Criticism and liberation)	**Emancipation** (reflection)	**Critical Social Sciences** (critical theory methods)

Figure 4.2: Habermas' Research Framework

Another useful framework that informed the research in the choice of relevant methods was that of Saunders *et al*. (2007, p. 102), 'Research Onion'.

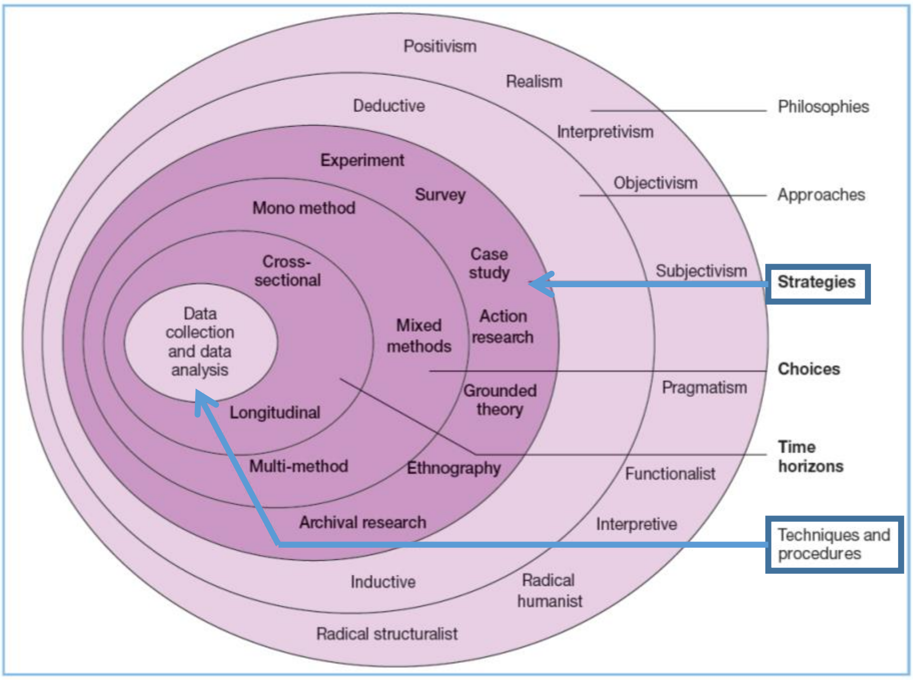


Figure 4.3: The ‘Research Onion’ (Saunders *et al*., 2007)

By focusing on the interpretative framework and searching for (new) knowledge, the researcher was guided by the following ‘knowledge' frameworks. It was noted that, in first determining the phenomena, the research objective, and then analysing the collected data, knowledge is the eventual result (output) which may lead to wisdom, (as shown in Ackoff ‘s (1989) framework).

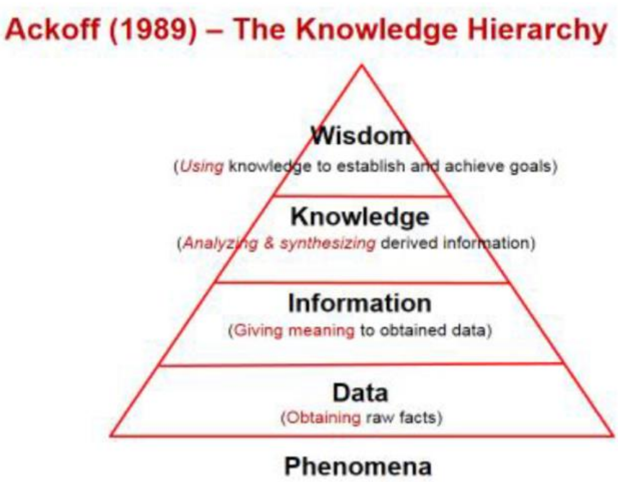


Figure 4.4: Ackoff’s Knowledge Hierarchy

Nonaka and Takeuchi (1995) defined knowledge as a dynamic human process of justifying personal beliefs towards a truth-justified true belief. Grey (1996) described knowledge as the full utilisation of information and data, coupled with the potential of people skills and competencies.

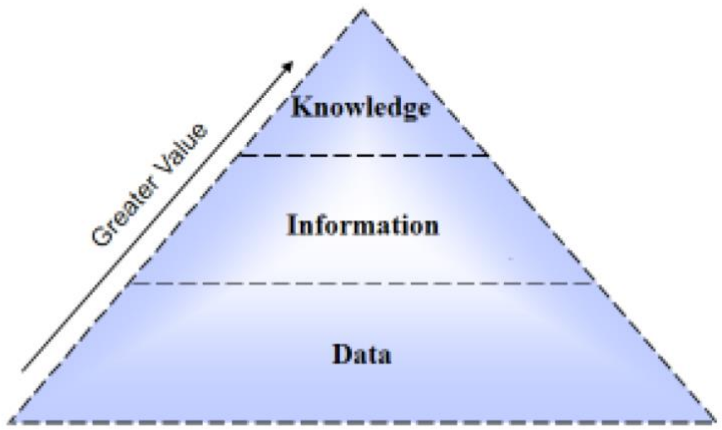


Figure 4.5: Nonaka and Takeuchi’s Framework

It is also important to explain how the (new) knowledge of this study will be interpreted and proven. Hence the following philosophical concepts were carefully considered. Firstly, ontology (in philosophy), which is the branch of metaphysics that considers the nature of being, is described as a set of concepts and categories in a subject area or domain that shows their properties and the relations between them. For this research, case studies will provide the data, which will offer the essence or facts of the phenomenon under study, namely the new knowledge sought. Secondly, epistemology (in philosophy), relates to the theory of knowledge; it particularly influences its methods, validity, and scope, and the distinction between justified belief and opinion. For this research, the methodology described supports a rational process and validates the findings of the study as credible and based on factual information that is thus truthful.

To ensure that the interpretive framework for the research is consistent, Grix (2004) emphasised that the ontology (beginning) is intertwined with the methodology and chosen methods. As such, the focus throughout the research process must be aligned and focused on fully answering research question(s) and objectives.

4.3 Research data collection

Holliday (2007) stressed the importance of detail in the description of social settings for qualitative research. He emphasised that "qualitative researchers can easily underestimate the need for detail in their description of the procedure, thus overlooking an important aspect of the demonstration of rigour. One area that requires such detail is the degree of engagement with the setting." (Holliday, 2007, p. 53)

For this research, it was essential to present miniature case studies to give sufficient detail of the background information and social settings of the projects and the decision-making processes so the audience could build a full understanding of how and why decisions were made in a particular way. In addition, industry journals, amongst other publications were reviewed to enable a firm understanding of the economic and market conditions under which the decisions were made.

4.3.1 The sub-Saharan Capital Market Overview: 2010 to 2016

A note: Information on this section has been sourced mostly from the Knight Frank *Africa Property Reports* from 2013, 2015, 2017

The persuasive long-term investment case for sub-Saharan Africa has drawn increased numbers of international investors to investigate opportunities within the region over recent years. Nevertheless, transactional activity has been restricted by the limited availability of investment grade stock and the opacity of the markets outside South Africa. Interest in the sector remains heightened, despite the weakening of some sub-Saharan economies over 2015 and 2016. Investors' appetites for sub-Saharan real estate was highlighted in 2016 by the announcement that the United Kingdom based emerging markets specialist, Actis, had raised US$500 million for its third African property fund, Actis Africa Real Estate Fund 3. At the time, this was the largest amount ever raised for a private real estate fund focused on sub-Saharan Africa outside South Africa, and included a commitment from the Government of Singapore's Investment Corporation (GIC).

A growing volume of capital was targeted at sub-Saharan Africa real estate investment and development. Actis' two previous funds, closed in 2006 and 2012, were involved with some of sub-Saharan Africa's most modern commercial property developments in countries such as Ghana, Kenya, Nigeria and Tanzania. In recent years, Actis has exited from many of its first wave of investments by selling its interests in assets, including the Accra Mall, Nairobi Business Park and Ikeja City Mall. When Actis launched its first sub-Saharan Africa fund over a decade ago, it was a pioneer entering a market that was largely untapped by global property funds. However, its third fund will enter a significantly more crowded marketplace as a series of property investment vehicles have emerged in recent years targeting sub-Saharan real estate. Many of these are South African controlled funds, albeit often registered or listed offshore in Mauritius.

A prominent example is RMB Westport, which was created in 2008 as a joint venture between Rand Merchant Bank and the Westport Property Group. Its current development projects include the Wings Office Complex in Lagos and Muxima Shopping Centre in Luanda. RMB Westport's second fund, which has a target to raise US$450 million, attracted commitments from both GIC and the UK investor Grosvenor. Other real estate investment vehicles launched in these two years included a pan-African joint venture created by Growthpoint and Investec, which had the target to raise US$500 million. Momentum Global Investment Management and Eris Property Group also formed a joint venture, namely the US$250 million Momentum Africa Real Estate Fund, which allocated capital to development projects in Ghana and Nigeria. Moreover, the Anglo-South African group, Old Mutual, signalled its intention to expand its African footprint by announcing a partnership with the Nigerian Sovereign Investment Authority in the second half of 2016. This venture aimed to raise US$500 million for a real estate fund, in addition to US$200 million.

A further noteworthy event during 2016 was the creation of Mara Delta, a pan-African real estate fund formed from the merger of Delta Africa and Mara Diversified Property Holdings. During 2016, Mara Delta was one of the most acquisitive buyers of real estate across the region, growing a portfolio which included assets in Kenya, Mauritius, Morocco, Mozambique and Zambia. The activities of South African investors in the rest of Africa are part of a wider trend that has seen them increasingly move into foreign markets to hedge against a weak Rand and a sluggish domestic economy. This has also led to South African investors directing significant volumes of capital to Central and Eastern Europe (CEE), attracted by the relatively high yields on offer in this region. During 2016, South African investors, including Hyprop, Redefine and Tower, acquired US$2.1billion of property in CEE markets. Significant demand for African real estate stems from Middle Eastern investors, who generally have a preference for large-scale development projects rather than direct property investment. There is also strong interest from Middle Eastern groups in Africa's growing hospitality real estate sector.

Among Asian investors, Chinese groups are most visible in Africa, although the Japanese government has also taken significant steps to encourage investment in Africa. Chinese institutions are heavily involved with the financing and construction of large infrastructure projects across Africa, but pure-play property investment involving Chinese firms is much less common. Notable large-scale urban development projects involving Chinese investors include Shanghai Zendai's Modderfontein New City, near Johannesburg. Additionally, China's state-owned AVIC made a substantial investment in the mixed-use Two Rivers development in Nairobi.

Recent transactional evidence indicates that yields within the 7-9% range are typical for investment-grade assets in the most attractive sub Saharan markets. While few other regions of the world offer such yields from prime assets, not all international investors will feel that these yields adequately compensate for the higher risk profile of African markets. Yield levels are supported by the strength of demand for the minimal number of institutional grade assets that come to the market, and this dynamic is likely to persist as recently-launched investment vehicles seek to grow their funds. Developments made by groups, such as Actis and RMB Westport, will add significantly to sub-Saharan Africa's investment stock over the following five years, increasing the availability of assets that met international institutional investors' requirements. However, global investors seeking to enter African markets may feel that it is prudent to initially follow the path taken by GIC and Grosvenor by investing in funds created by established investors within the region, rather than making direct property investments. When raising capital, the new wave of sub-Saharan property funds will seek to tap into the burgeoning demand from international investors seeking to gain exposure to sub-Saharan Africa.

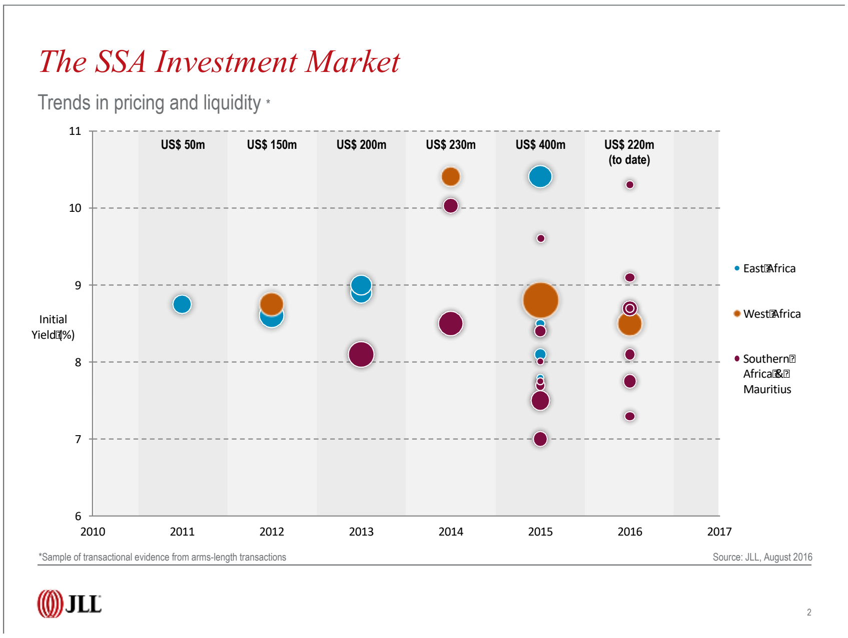


Figure 4.6: JLL sub-Saharan Investment Market

Table 4.1 details the funds closed and operational in sub-Saharan Africa during the period 2015 to 2016.

Table 4.1: Selected sub-Saharan Africa investment transactions, 2015-16

Selected Sub-Saharan Africa investment transactions, 2015-16

Date	Property	Location	Sector	Seller	Buyer	Estimated price (US$ million)	Reported yield
Q4 2015	Ikeja City Mall	Lagos, Nigeria	Retail	Actis/RMB Westport/Paragon	Hyprop (75%)/ Attacq (25%)	91.0	>8.00%
Q2 2015	Two Rivers Development (39% stake)	Nairobi, Kenya	Mixed Use	Centum	Aviation Industry Corporation of China (AVIC)	70.0	N/A
Q4 2015	East Park Mall, Acacia Office Park & Jacaranda Mall (50% stakes)	Lusaka & Ndola, Zambia	Retail/Office	Casilli Group	SA Corporate	49.6	8.68%
Q3 2015	Wings Oando Development (37.1% stake)	Lagos, Nigeria	Office	RMB Westport	Pivotal	49.0	N/A
Q2 2015	Vodacom Building	Maputo, Mozambique	Office	Sociedade De Construçoes Catemba	Delta (now Mara Delta)	46.0	6.63%
Q4 2016	Cosmopolitan Mall (50% stake)	Lusaka, Zambia	Retail	Rockcastle	Mara Delta	37.1	7.75%
Q4 2015	Bagatelle – Mall of Mauritius (34.9% stake)	Bagatelle, Mauritius	Retail	Atterbury	Ascencia	28.9	c.7.00%
Q4 2015	Makuba Mall & Kafubu Mall (50% stakes)	Kitwe & Ndola, Zambia	Retail	Rockcastle	Delta (now Mara Delta)	21.6	7.75%
Q4 2015	Greenspan Mall	Nairobi, Kenya	Mixed Use	Greenspan Mall Limited	Stanlib Kenya Fahari I-REIT	20.0	8.10%
Q1 2016	Barclays House	Ebene, Mauritius	Office	Jade Group	Delta (now Mara Delta)	13.4	8.30%

Source: Knight Frank Research/Real Capital Analytics/Company reports and financial statements

According to the Jones Lang LaSalle (JLL) sub-Saharan Africa Global Real estate Transparency Index - Global Foresight Series 2012, unlike its developing counterparts, China, India and Brazil, Africa is not a singular unit but has many sovereign states with different policies on a number of critical fundamental aspects. Development levels and attractive investment offerings differ markedly between and even within countries. Although there has been progress made to encourage intra-regional trade and investment, one country's success in a region does not necessarily influence the broader region. The Southern African region, for instance, has South Africa as an internationally preferred location for doing business and attracts significant foreign capital; however, neighbouring countries do not necessarily realise similar economic successes. Countries like Lesotho and Swaziland continue to suffer from a lack of investment and economic development, while Botswana and Namibia have managed to attract international investment with higher GDP per capita, and more sophisticated governance and regulatory structures.

Many African countries still rank at the lower end of important global rankings in a number of critical areas. The WEF World Competitiveness Report ranks only South Africa in the top 50 out of 142 countries leaving other African countries with low rankings in global competitiveness (World Economic Forum Global Competitiveness report, 2012). The World Bank's (2012) *Doing Business Report* ranks Mauritius and South Africa in the top 50 out 183, while Botswana, Ghana, Namibia and Zambia rank in the top half of the index. Angola, despite its many opportunities, ranks poorly in the 'ease of doing' business indicators. A similar pattern is seen in the Corruption Perceptions Index, which saw Angola ranked as the most corrupt country in Africa (Transparency International, 2012; World Bank, 2012).

These global rankings highlight some of the operating challenges that accompany the economic opportunities that sub-Saharan Africa presents. However, there are also a range of real estate transparency challenges and progress, within the sub-Saharan African region, which featured for the first time in the 2012 Global Real Estate Transparency Index conducted by Jones Lang LaSalle.

The JLL Global Real Estate Transparency Index quantifies real estate market transparency across 97 markets worldwide. In response to growing interest and activity from investors and corporate occupiers, the 2012 Index includes for the first time, the emerging sub-Saharan African real estate markets of Angola, Nigeria, Botswana, Zambia, Ghana, Kenya and Mauritius, alongside South Africa, which has featured since 2008. The 2012 Index revealed a region with a wide variation in real estate transparency, as befitting the markedly different levels of development and infrastructure in Africa. South Africa stands head and shoulders above the rest of the continent, while Botswana, Kenya and Mauritius show signs of emerging transparency. The majority of sub-Saharan countries, however, are characterised by low levels of transparency, which remains a significant challenge for corporations and investors looking to access substantial growth opportunities in the region.

South Africa is sub-Saharan Africa's most transparent market and the only country on the continent to sit in the 'Transparent' category. Ranked 21st globally in the Transparency Index, South Africa has seen some of the most significant improvements in transparency over the past two years, placing it alongside more established markets like Italy and Austria, and maturing markets, such as Malaysia and Poland. The country is ahead of all fellow BRICS members (Brazil, Russia, India, China, South Africa), which it joined in 2011.

The JLL report noted that the data quality is improving, with many real estate service providers and data companies making inroads across different real estate sectors and encouraging improvements in the quality of the market analysis. The entrance of international real estate service providers is likely to further influence the level and depth of information on market fundamentals. Within the East African region, Kenya ranks fourth in sub-Saharan Africa. With Nairobi as one of East Africa's most important business hubs, Kenya has historically been one of the sub-Sahara's more stable countries and is classified as 'Semi-Transparent'. With a more robust legal and contractual framework and a higher degree of real estate market maturity than many of its West African counterparts, Kenya is comparatively transparent on a regional level.

The three remaining sub-Saharan African countries are among the least transparent markets covered by our 2012 Index. Ghana, Angola and Nigeria are all classified as 'Opaque' in our transparency categorisation. Ghana scores slightly better than Angola and Nigeria but continues to face challenges regarding market data availability, infrastructure and the general maturity of its real estate markets. Nigeria and Angola, in particular, with their sizeable reserves of oil and other natural resources, are experiencing increasing attention from international companies and investors. Nigeria is also West Africa's largest consumer market and is drawing interest from a range of industrial sectors. However, real estate transparency in both countries, along with on-going security issues that threaten stability, continue to be a significant barrier to entry and a challenge for those seeking to move into these markets.

According to the JLL Transparency Index 2014, as of 2014 international investors were beginning to move into sub-Saharan Africa and, due to its high growth and the potential for significant returns, a number of real estate funds were created in recent years to focus on the commercial property market. Many of these funds were based in South Africa, but institutional investors from the United States, Europe and the Middle East showed interest in the sub-region's potential.

Table 4.2: Selected closed Funds - 2008 to 2016

Fund	Sector Focus	Geographical Focus	Comments
Novare Africa Property Fund II	Retail	Sub-Saharan Africa, excluding South Africa	Novare's second fund concentrating on commercial real estate in Africa is seeking to raise US$250m by the end of 2015. Novare's first African property fund has US$81m invested in mainly retail assets in Africa's consumer hubs.
Actis Africa Real Estate Fund II	Retail and Office	Kenya, Ghana, Nigeria and Zambia	The second Real Estate Fund from Actis has raised US$280m. It follows Actis' first US$162m Africa-focused Real Estate Fund in 2006.
RMB Westport	Retail and Office	West Africa	RMB Westport has raised US$250m for its fund directed at developing retail and office assets, with an emphasis on Nigeria and Ghana.
Stanlib	Retail	Nigeria, Kenya, Ghana and Uganda	Stanlib's Africa Direct Property Development Fund aims to raise US$150m in order to develop retail assets in key consumer hubs in East and West Africa.
Fusion Group	Retail and Office	East Africa	Fusion Group, a UK-based subsidiary of Fusion Capital, is raising US$100m for its Africa Real Estate Development Fund, focusing on commercial properties in East Africa.
Ivora Africa Property Fund	Office, Retail, Industrial and Tourism	Southern African Development Community (SADC)	Ivora Capital is looking to raise US$500m to purchase completed income-earning commercial properties with a focus on Southern Africa.
Sanlam	Retail and Office	Sub-Saharan Africa, excluding South Africa	Sanlam Ltd launched its Africa Core Real Estate Fund in 2013, raising US$100m in initial funds. It listed on the Mauritian Stock Exchange in the same year and is primarily interested in purchasing completed income-earning properties across Africa.
MMI Holdings Ltd and Eris Property Group	Retail, Office and Industrial	Sub-Saharan Africa, excluding South Africa	The Momentum Africa Real Estate Fund aims to raise US$250m to invest in developing commercial properties across Africa.

Note: Based on publicly available sources

4.3.2 Selection of sample

As previously mentioned, the sample for the research was drawn from industry publications of private equity funds and companies active in sub-Saharan Africa during the period January 2008 to December 2016. This is the period from which the interview data and discussion were based. There was sufficient background information on the countries and projects within which the investments took place.

For the research, it was important that the interviews and projects (referred to as "case studies") were contextualised to give the audience sufficient background information on the investment conditions (locally and globally) so that the research was credible and contextualised. The sample was chosen from private equity funds and companies reported in the publications of Knight Frank (2013, 2015, 2017), Broll Property Group (2017) and JLL (2014, 2015, 2016, 2017), which are all leading consulting firms that publish updates and analyses of real estate investments on the sub-Saharan market.

It was essential to have a bounded period from which the data was drawn for the research so that decisions made could be contextualized in the global sense; thus, the rationalization of the attractiveness of returns and economic conditions on sub-Saharan investments during this period could be compared with returns and economic conditions on other global markets. It was also crucial that the research monitored the global picture in light of the attractiveness of the sub-Saharan Africa markets during this period and against global markets. As investments were evaluated in the (global) market sense, it was essential to look at the global real estate investment markets (overall) during the defined period.

The research sample focused on the equity funds (or pioneers) that entered the market between 2008 and 2014. During this period, the sub-Saharan market was a new frontier with risk and uncertainty at its optimal point. The experience of these funds was unique and different from the latter funds (2015 – 2016) that have recently entered the sub-Saharan Africa markets.

4.3.3 Research interview questionnaires and ethical approval

The research questionnaires for the interviews were derived from the aim of the research and guided by the description in Kvale and Brinkmann (2009). The research questionnaires covered all the objectives of the study and were open-ended in nature, as expected in qualitative research. These types of questions were appropriate for the interviews as they gave the co-researchers an opportunity to open up and provide as much detail as they wished without the researcher interrupting them with structured questions.

The interview questionnaires, risk assessment, consent letter and interview guide were submitted for ethical approval in May 2016. Ethical approval (reference ST16/110) was obtained in August 2016 and is attached as Appendix B for reference. Important notes from the ethical approval panel were that the identities of the co-researchers and their companies should be kept confidential. In addition, all responses and information shared with the researcher would be kept safe and confidential to protect the identity and to safeguard the integrity of the companies' intellectual properties.

4.3.4 Setting up the interviews

The annual Africa Property Investment (API) Forum held every August in Johannesburg, South Africa presented an opportunity for the researcher to meet the representatives of investment companies in Africa on an informal platform. The event, of which the researcher’s company was a sponsor, was held over three days, and there was plenty of opportunity for the researcher to meet the investors in Africa (usually from outside South Africa). Since August 2013, the researcher had attended the event and informally introduced the research topic to representatives of companies who would eventually become the co-researchers. These were senior representatives of the companies (at executive or senior management level) who gave presentations at the conference and showcased projects. It was an excellent platform in which to meet the target sample, who were key industry individuals; thus, contact was made in person within the same space and over a few days.

The researcher then set up appointments following the 2016 conference to interview four participants of significant equity funds that were in the pioneer group of investors, as described above. The researcher was fortunate in that four companies in the pioneer group agreed to assist with the research and granted the researcher interviews. These interviewees were the leaders with early experience of investment when the market was unknown to the international investment community. One of the co-researchers was a representative of an international equity fund from London, United Kingdom, but was based in Johannesburg, South Africa. The second co-researcher was a representative of a South African international bank, and similarly based in Johannesburg, South Africa. The third co-researcher was a representative of a global fund manager, with head offices in London, United Kingdom, but based in

Cape Town, South Africa. The fourth co-researcher was a representative of a developer and investor in an international construction and property company based in Johannesburg, South Africa.

In all instances, the researcher visited the interviewees' offices in Johannesburg and Cape Town to undertake the interviews. The interviews were scheduled for an hour but lasted between forty-five minutes and seventy minutes. In addition to the interviews, the project material was shared to assist the researcher with background information on the case studies.

4.4 Summary

This chapter explored the research methodology undertaken in this thesis. It began with epistemology, ontology and research philosophy for practise based research. It followed arguments on Mode 2 research and why pragmatic approach represents a useful approach to answering the research question in this thesis. After discussing extensive knowledge in Mode 2 research, the phenomenological approach was deemed the most appropriate research strategy for the thesis.

Although a lot of ground was covered in this chapter, a simple flow chart of the process that the researcher followed was mapped, and is shown in Figure 4.7. The Research Onion in Figure 4.3 was adopted to define the process of the research philosophy stages used in this study. The selected approach, which covers all layers of the Research Onion, is summarized in the flowchart in Figure 4.7:

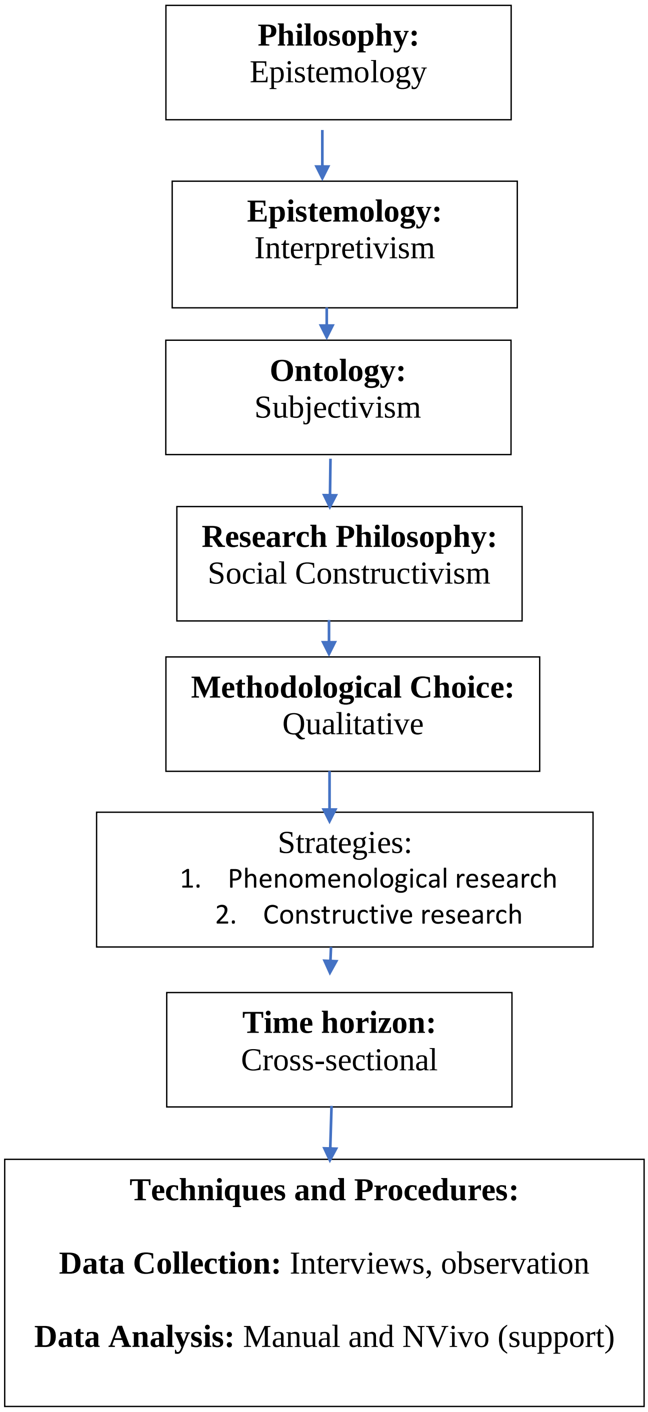


Figure 4.7: The research philosophy stages

5 Research Data

5.1 Case Study #1 - The Epoche

5.1.1 Introduction to the epoche

Creswell (2008) describes an epoche as the concept of the researcher setting his experiences of the experience aside, as much as practically possible, to take a fresh perspective on the phenomenon under review. Often general knowledge refers to the "suspension" of one's own opinion or perception of the phenomenon. Philosophically, it is "the theoretical moment where all judgments about the existence of the external world, and consequently all action in the world, are suspended. One's own consciousness is subject to immanent critique so that when such belief is recovered, it will have a firmer grounding in consciousness" (Moustakas, 1994).

Edmund Husserl popularized the term in philosophy and described in detail the notion of the 'phenomenological epoché' or 'bracketing' in his book entitled, *Ideas 1*. Husserl (1941) described the epoche as a "systematic procedure of 'phenomenological reduction', one is thought to be able to suspend judgment regarding the general or naive philosophical belief in the existence of the external world, and thus examine phenomena as they are originally given to consciousness." In comparison, Moustakas (1994) described the epoche as the "elimination of suppositions and raising of knowledge above every possible doubt".

Case #1 is a case study of the experience of the researcher at his place of work, a large global construction and property company based in South Africa.

5.1.2 The company objectives and risk approach

The current mandate for our company is to pursue property development opportunities that provide investment returns, fee income and construction margins for the Group. In line with this mandate, the company has, over the past few years, been actively seeking development opportunities in South Africa as well as selected countries in the rest of the continent. This expansionary objective is aligned with the Group's Africa strategy. Geographical areas of focus include Anglophone countries in West, East and Southern Africa. The attractiveness to Africa for real estate development is well known and supported by the Group. To that end, our company has been able to identify many potential projects that have a good probability for translating into real projects.

5.1.3 The company investment proposition

The company identified the following positive qualities prior to decisions to invest in the project in our case study.

Market attractiveness

- Fundamentals for investing in the real estate market across East Africa are sound, supported by robust economic growth, improving governance and socio-political stability, offering strong Foreign Direct Investment (FDI) inflows and diaspora remittances.
- The rise of urbanisation, compelling demographic trends and a young population, increasing growth in the lower-middle, middle and upper classes, multinationals establishing regional offices and increasing the number of international and regional tourism travellers, makes the regional market an attractive target.
- Deepening financial and capital markets, innovation in technology and telecommunications, the modernisation of traditional agriculture and horticulture industries, and increased government investment in infrastructure, services and particularly education, underpin long-term economic growth trends.

Compelling proposition

- Acquire, develop and reposition strategic real estate assets within East Africa, underpinned by long-term regional fundamentals.
- Target emerging urban and middle-class populations demanding a range of affordable, modern, larger scale and higher quality real estate products, including residential estates, commercial (industrial and office), retail and mixed-use products (including leisure) to predominantly address a significant regional supply-demand imbalance.

- Only target strategic projects where a unique compliment of skills can add substantial value and significantly enhance project returns.

Investment strategy

Positioning:

- East Africa coverage, with a focus on Kenya as the most developed regional real estate market.
- Build a diversified portfolio of real estate assets.
- Secure strategic land and real estate in prime locations, through acquisitions, joint ventures and strategic investments.
- Capitalise on development premium, drive yield growth and asset appreciation through the development and repositioning of projects and by the optimisation of the value-chain, delivery process and investment structure.
- Deliver liquidity over the medium-term, with incentives and service providers aligned with value creation plan and exit economics.

Structuring:

- Strategic land acquisitions and/or land value contributions.
- Pre-development capital for concept design/project positioning. Professional consultants, where possible, to be utilised on a risk basis.
- Development capital for project execution and product delivery.
- Leverage co-investment and debt finance at the construction stage.

Liquidity mechanisms:

- The investment (about seven years at the point of portfolio maturity).
- Sell-down to developers or institutional investors.
- List as holding company or post-conversion into a REIT.
- Exit individual projects to retail and institutional investors.
- Early stage developments generate attractive return profile.

5.1.4 *The case study: A response to a "Request for Proposals" to form a joint venture in the development of a property in Nairobi Central Business District, Kenya.*

Project scope and design parameters

This new mixed-use development in the heart of the Nairobi's central business district presents an ideal opportunity to rejuvenate a vital node within the city. The prominent location of the site on the corner of Kenyatta Avenue and Uhuru Highway creates a unique opportunity for the development of a landmark building that will redefine the city landscape.

Multiple uses have been combined into a single building, namely retail, offices and a five-star hotel. Key to the design was a high degree of flexibility in the planning by incorporating multiple circulation cores within the building envelope. The various components of the building can thus be accessed independently from the others. All parking for the development is located in the basement levels spanning the entire site. Access to the parking areas is on Loita Street, to avoid creating additional congestion on Uhuru Highway and Kenyatta Avenue. Delivery and service areas are located on either Loita or Market Streets, thus concealing them from the two main roads.

The retail component of the development is located on the podium of the building. Street facing shops wrap around the perimeter of the building along Kenyatta Avenue and Uhuru Highway, which will activate the surrounding urban environment by encouraging pedestrian activity and incorporating the ground level of the development within the existing street scape. An elegant double-volume colonnade along Kenyatta Avenue defines the street edge and creates an inviting entrance to the inner mall. A central atrium provides the focal point for all circulation in the internal mall space. A 'pop-up' exhibition space will occupy this space on the ground floor, allowing for temporary exhibitions and promotions to be set up in a highly visible, centralised area. Escalators in the atrium provide the main form of circulation within the mall, with adjacent elevators to cater for elderly and disabled shoppers. The ground floor level of the retail component is intended to be predominantly occupied by major supermarket anchor tenants, surrounded by smaller general-purpose shops. The second floor will focus on fashion and clothing stores, while the third floor will consist of a combination of lifestyle stores and restaurants. The main food court, with anchor restaurants, has been designed with outdoor use in mind and includes a large terrace, which will overlook Uhuru Highway and the adjacent parks. An additional terrace will service smaller restaurants on the south side of the site overlooking Kenyatta Avenue.

The office component of the development comprises the lower levels of the tower block with floor plates ranging between 1500 - 1200 sqm of leasable area. Access to the office elevator cores will be via the ground floor retail level. Floors are designed to be divided into multiple tenancies with secure, private access for each user.

Above the office component is the five-star hotel, comprising 360 keys, penthouse suites and apartments. The hotel entrance is located on the ground floor, with a grand porte cochere and drop-off area from Uhuru Highway. A direct shuttle elevator provides access to the hotel lobby from the designated hotel parking area in the basement. Guests are able to bypass all lower retail and office floors to access the hotel common area by means of a dedicated hotel elevator core. An additional lobby on the second retail level has been provided for direct access to the food court for guests. Conference facilities have been provided, as well as a restaurant, bar and lounge, which will service both the hotel and conference centre. Spa and gym facilities are provided, which will supplement the five-star experience that the hotel will offer. The hotel rooms range in area from $45m^2$ to $50m^2$ to conform to standard five-star hotel room requirements. Two luxury suites of approximately $60m^2$ are located on either side of each room level. The majority of the rooms overlook Uhuru Highway and will have an uninterrupted view of the neighbouring parks. Individual balconies leading from each of these rooms will provide small outdoor areas for guests to enjoy.

The proposal

The proposal began with a cover letter and consists of three sections: Mandatory Requirements; Technical Proposal, and the Business/Financial Proposal.

The client can take comfort that our company, in association with the world-class professional team, have provided a bid that not only substantially complies with the bid criteria but also exceeds expectations. The client can be reassured that the proposal not only presents a sustainable solution but demonstrates the capacity and expertise to undertake this prestigious project.

The Mandatory Requirements consists of all company details, financial standings, legal and business standings, and "returnable forms" (those that the company complete to comply with the mandatory requirements).

The Technical Proposal consists of the Master Plan and the development scheme provided by the architects. In this section, we attach the required curricula vitae of the professionals for both the professional firms and our company. Attached also to this section are the projects completed by the professional firms and our company in the last five years. We have also attached the Plant and Equipment required by our company-building subsidiary together with reference letters from their clients, professional firms and sub-contractors.

The Business/Financial Proposal follows the format in the bid document and presents the financial proposal on the proposed 80:20 shareholding in the JV development company. The Business/Financial section has attached a comprehensive feasibility study with a financial model output. It concludes with a business proposal of the profit sharing ratio of 25:75 for the client and our company, respectively and the conditions and terms under which this will be achieved. Our company is willing to offer the client a higher proportion of shareholding should there be the appetite. Attached to the Business/Financial Proposal is a funding proposal with a letter of support from RMB Bank, a leading financial institution in South Africa.

The feasibility of the project

From the preliminary design of the building by the professional team led by Lyt Architects, Farrow Laing quantity surveyors measured the drawings and calculated the costs of constructing the building, including material, labour, professionals, logistics, and other construction costs. They calculated an estimated construction cost of US$986 million; however, this construction cost estimate is based on preliminary designs. The bid process did not make provision for detailed geotechnical studies and the drilling of the site for this short period. This information is essential for a high-rise building of this size. We therefore propose that, on declaration of our company as the preferred bidder, detailed design development will be commissioned and a more accurate construction cost will be calculated, based on more design detail, geotechnical investigations, wind and seismic tests, and detailed engineering design. In order to achieve this, we have proposed an Early Works Contact.

From the market research, it has been established that the following rentals could be realised on the property:

$25 per sq metre for the office space

$50 per sq metre for the retail space

$350 per room per night for a “top end” 5-star hotel room

$140 per bay for the parking

An assumption is that the client is willing to underwrite all vacancies for the office and retail component until the property is fully let.

Central to the feasibility is the early works programme. The early works programme aims to maximize the construction timeline and ensure that sufficient traction is gained upon commencement of the preferred bidder negotiations. None of the work undertaken during that period can be deemed wasted costs as detailed design, ground and wind testing, and earthworks are necessary to start the project. The cost thereof is estimated at approximately 5% of the total project capex. It is anticipated that the client’s equity will be utilized to fund the programme.

Commercial

This proposal is based on the preliminary designs and assumptions. In order to generate design efficiencies and attain a bankable project, it is necessary to undertake detailed designs, requisite technical studies and market research. This was not possible during the bidding process due to time constraints. It is therefore imperative that the preferred bidder is allowed to undertake a full feasibility study during the preferred bidder stage. The benefits thereof will be for both our company and the client.

The quantity surveyors' report, together with the rental market information (shown in Tables 5.1 to 5.5), was used as base information and input to the Argus financial model.

Table 5.1: Rental/Market information (based on the Knight Frank report)

Nairobi prime rents and yields

	Prime rents	Prime yields
Offices	US$15 per sq m per month	9%
Retail	US$31 per sq m per month	10%
Industrial	US$4 per sq m per month	12%
Residential	US$4,400 per month*	6%

Source: Knight Frank LLP

*4 bedroom executive house – prime location

Table 5.2: The Argus financial model output 1

APPRAISAL SUMMARY GROUP FIVE

NSSF CBD Project
Hotel and mixed use commercial site

Summary Appraisal for Phase 1 Construction in 1 phase

Currency in R

REVENUE

Rental Area Summary

	Units	m²	Rate m²
‡ Retail Section	1	29,305.00	628.80
Hotel	374	42,598.21	
‡ Offices Section	1	58,529.00	304.20
‡ Basement Parking	2477	94,575.00	33.00
‡ Hotel Apartments	1	7,619.00	240.00
Totals	2,854	232,626.21	

Investment Valuation

Retail Section			
Market Rent	48,005,417	YP @	9.0000%
Hotel			
Average Revenue per room			
Average Revenue per room	121,667,922	YP @	9.0000%
Offices Section			
Market Rent	47,414,548	YP @	9.0000%
Basement Parking			
Market Rent	8,898,694	YP @	9.0000%
Hotel Apartments			
Market Rent	5,293,010	YP @	9.0000%

Operated Assets
Hotel
Average Revenue per room

Average Revenue per room	473,245,787

Income from Tenants

Retail Section	156,001,135
Offices Section	154,081,015
Basement Parking	28,917,702
Hotel Apartments	17,200,466

Table 5.3: The Argus financial model output 2

APPRAISAL SUMMARY			GROUP FIVE
NSSF CBD Project			
Hotel and mixed use commercial site			
‡ Retail Section	31,663.00 m²	3,834.00 pm²	144,512,311
‡ Retail Section (Parking Spaces)	1.00	7,493,429.00	8,920,337
‡ Hotel	43,961.00 m²	3,834.00 pm²	200,641,307
‡ Offices Section	66,850.00 m²	3,834.00 pm²	305,108,423
‡ Offices Section (Parking Spaces)	1.00	8,839,280.00	10,522,467
Basement Parking	94,575.00 m²	3,834.00 pm²	362,600,550
Totals	**244,668.00 m²**		**1,032,305,395**
Road/Site Works			9,151,695
PROFESSIONAL FEES			
Project Manager		2.00%	20,646,108
MARKETING & LETTING			
Marketing			100,000
Letting Agent Fee		4.50%	8,457,548
Additional Costs			
Dev. Management Fee		2.50%	16,971,414
Total Costs Before Interest and Fees			
Fees Included in Project Cost			
Fees paid for All Sources:			
Debt - Debt initiation fees (Single)			200,000
Total Fees paid for All Sources			
Total Costs Including Funded Fees			
Interest			
Interest paid to Debt Sources:			
Debt (9.00%)		343,942,100	
Total Interest paid to Debt Sources:			343,942,100
Total Interest Paid			
TOTAL COSTS			
PROFIT			
Equity NSSF			
Profit Amount		590,233,520	
			590,233,520
Equity Group Five			
Profit Amount		1,377,211,547	
			1,377,211,547

Table 5.4: The Argus financial model output 3

APPRAISAL SUMMARY		GROUP FIVE
NSSF CBD Project		
Hotel and mixed use commercial site		
Performance Measures		
Profit on Cost%	137.41%	
Profit on GDV%	76.56%	
Profit on NDV%	76.56%	
Development Yield% (on Rent)	16.15%	
Equivalent Yield% (Nominal)	9.00%	
Equivalent Yield% (True)	9.53%	
Ungeared IRR%	17.02%	
Geared IRR% (with Interest)	14.15%	
Equity IRR% (with Interest)	20.52%	
Return on Equity%	452.15%	
Rent Cover	16 yrs 6 mths	
After Tax Performance Measures		
Geared IRR% (with Interest)	10.37%	
Equity IRR% (with Interest)	15.87%	
Return on Equity%	284.85%	
‡ Inflation/Growth applied		
Growth on Capitalised Rent		**Ungrown**
Retail Section	Growth Set 1 at 9.00%	184,269,840
Offices Section	Growth Set 1 at 9.00%	182,001,778
Basement Parking	Growth Set 1 at 9.00%	34,157,830
Hotel Apartments	Growth Set 1 at 9.00%	20,317,333
Inflation on Construction Costs		**Uninflated**
Retail Section	Inflation Set 1 at 4.00%	128,889,371
Hotel	Inflation Set 1 at 4.00%	168,546,474
Offices Section	Inflation Set 1 at 4.00%	265,142,180

Table 5.5: The Argus financial model output 4

FINANCE SOURCE PERFORMANCE MEASURES GROUP FIVE

NSSF CBD Project
Hotel and mixed use commercial site

Source of Funds	Auto. Contribution	Timed Contribution	Total Contribution	Balance O/S at Project End	Interest	Fees	Preferred Return Paid	Clawback Provision	Profit	Total Int., Fees, Pref. Return & Profit
Equity NSSF	87,026,573	0	87,026,573	0	0	0	0	0	590,233,520	590,233,520
Equity Group Five	348,106,291	0	348,106,291	0	0	0	0	0	1,377,211,547	1,377,211,547
Debt	652,699,296	0	652,699,296	0	343,942,100	200,000	0	0	0	344,142,100
Balancing Account	0	0	0	0	0	0	0	0	0	0
	1,087,832,160	**0**	**1,087,832,160**	**0**	**343,942,100**	**200,000**	**0**		**1,967,445,068**	**2,311,587,167**

Table 5.6: The Argus financial model output 5

FINANCE SOURCE PERFORMANCE MEASURES

NSSF CBD Project
Hotel and mixed use commercial site

Source of Funds	Peak Financing	IRR %	ROE %	Equity Multiple	Tax on Profit	After Tax IRR %	After Tax ROE %	After Tax Equity Multiple
Equity NSSF	87,026,573	22.63%	678.22%	7.78x	177,070,056	19.00%	474.76%	5.75x
Equity Group Five	348,106,291	19.69%	395.63%	4.96x	550,884,619	14.64%	237.38%	3.37x
Debt	767,692,854	0.00%	0.00%	N/A	0	0.00%	0.00%	N/A
Balancing Account	0	0.00%	N/A	N/A	0	N/A	N/A	N/A
					727,954,675			

5.1.5 The doctorate research question: The quality and reliability of the economic and market data

The essence of the case study is to consider my experience of how assumptions that lead to decisions are made when underwriting the investment on such a large development. The total capex on this project is close to $1 billion. Assumptions on rentals were drawn from the Knight Frank reports of 2013, which were over 12 months old at the time of the development of the feasibility. Knight Frank publishes the *Africa Market Overview* every two years. The challenge was that no other reliable economic and market data was available to input into our feasibility model.

The IHS reports are qualitative and do not give figures of risk factors that should be input to the financial model. The bank debt term sheet gives a ‘global’ risk factor, a premium, of 4 to 5% above LIBOR (on the debt) but does not break it down to the components of the different risk factors. It is a subjective measure based on the bank’s perspective on the risk of such a project. The premium is an all-in-one value that factors on the risk components of the project and market.

5.1.6 The subjective nature of the decision process in developing the feasibility

Due to the uncertainty on market conditions, the investors are making judgments based on unreliable and often outdated economic information. Investors make adjustments to the data based on their perspectives on how the data has changed over the period. This is a subjective measure that will differ from one investor to the next. The decision also depends on the familiarity with markets where the investment is made and how much information you can recall while making the investment decisions. This is the principle of divided attention under uncertainty made by investors. Every investor has limited cognitive resources, which means it thus weighs on the capability of the investor to make decisions under uncertainty.

5.1.7 *Researcher's personal experience and description of the decision-making process: "peeling an onion" theory*

For the researcher, decision-making begins with gathering data and information on both the project and investment market. This includes the project's technical and financial data. It incorporates drawings, area schedules, elevations, geotechnical reports, seismic reports (for high rise buildings), wind engineering reports, structural design reports, lifts studies, façade engineering reports, construction programme and construction plan, quantity and cost engineers reports, town planning schemes and building permits reports, spatial development plans (SDP) for the area where development is located, financial reports (interest rates and bond market reports), economic indicators and data on the country, I.HS Global country risk reports, legal firms' country reports, title deeds conditions and restrictions, World Bank and African Bank country reports, and any available economic and financial information on the target country. The researcher also assesses the experience and profiles of the professional team (Architects, Engineers, Quantity Surveyors, Project and Construction Managers, Financiers, Investors). Another strand of critical information the researcher reviews is the liquidity status of the country where the development is located. The researcher also reviews the country's balance of payments, the balance of trade, and the country credit ratings (Standard & Poor, Moodys, etc.).

Often, there is a site visit to assess the condition and suitability of the site and the proposed development. The site visit also includes a visit to the local authorities (Nairobi City Council) to confirm the town planning scheme and approved zoning for the site. At the local authority, the researcher also confirms the service level agreements and capacity of the local authority to carry out the new development. Often, due the enormous size of the developments, the researcher's company needs to form a strong link and contractual agreement with the local authority on how the services will be provided for the new development. Several meetings are held, and agreements are made with the local authorities at various stages of the development.

With all the information at hand, the researcher began to study and understand the development. The researcher had to use a lot of imagination to realise the concepts (drawings and construction plan). The researcher must imagine the challenges and plans to overcome the challenges. The risk was the unknown or known challenges and the anticipation of what could go wrong. For the researcher to be able to visualize the development and the construction progress on site, he drew on past experiences. The researcher checked if counter-terrorism measures were in place for the subject development in order to overcome past challenges, which could pose risks. The researcher checked the programme and logistic plans to ensure there are no risk elements. However, the researcher relied substantially on past experience and intuition; thus, the researcher makes decisions on the overall risks and components, which are primarily based on past experience and intuition.

The next (difficult) task was to transfer the qualitative (non-numeric) values of the risk, based on intuition, into probabilities and quantities; this is generally referred to as risk factors or risk weightings. This process was subjective and the researcher can attest that different investors will assign different weightings to the same risk components. Companies develop a set of parameters that guide and bind investors. At the granular level, these weightings were not scrutinized by the overall risk weighting for the project and country, which are extensively scrutinized during management reviews and presentations to the investment committees. This was the essence of decision-making under uncertainty; therefore, with no known probabilities, the investor relies, to a great extent, on past experience and intuition. In cases where no past experience exists, the investor relies more on intuition. Transferring the non-numeric values of risk into probabilistic values also involves a lot of mathematical knowledge. The investor must have ‘a good feel’ for numbers as the weighting has an overall bearing on the final feasibility output. A small deviation could make a huge difference to the final feasibility output. Again, experience plays a role in this process, whereby the investor consciously assigns a weighting that is within “reason” (based on past computation and model outputs) and able to achieve a “reasonable return” (again based on past experience). Two questions immediately arise in response to this:

Firstly, what is determined as reasonable, and can the decision-maker be trusted to apply past experience correctly, and secondly could this anchoring be incorrect and the wrong weighting continuously assigned?

Once probabilities of risk and numeric values are assigned to the risk factors, the numbers are input into financial models as factors for discounting. The risk values are used for the projections of growth and discount factors. The banks, which provide the debt, also consider the risk factors (in what is termed the risk premium) within the debt-lending rate. The debt-lending rate is given to the researcher to input within the financial model. The researcher uses Argus modelling although the output of other financial/feasibility models is similar. The key outputs are the Internal Rate of Return (IRR), Net Present Value (NPV), Initial Yield and pay-back-period. The company has policies that guide the researcher as to what values are acceptable to the company to make an investment; this is based on the company's appetite and financial position. Furthermore, these values change from time-to-time depending on the company's performance.

In describing the decision-making investment process, the difficult part is to first understand (to a great extent) the current opportunity (investment), drawing on past and similar opportunities and then transferring the measures and weighting (values) from past to current opportunities. Bearing in mind that no two opportunities are identical, adjustments must be made by the decision-maker to ensure that the underwriting process is transparent and credible. The first process can be referred to as "peeling an onion", in that, each time you investigate and uncover more information on the opportunity, you better understand the project's risk. Thus, you are in a better position to make reference to past opportunities and assign the correct weighting. When emphasises are placed on experience and proper research within the current opportunity, the decision process is less onerous.

In circumstances where a proper understanding of the dynamics of opportunity is not possible, namely the researcher cannot move from uncertainty to known probabilities, the researcher will avoid making a decision. The researcher will seek further information until he reaches a point where he can comfortably make reference to similar past opportunities whereby he can assign risk factors to the current opportunity. In cases where the researcher is compelled to make a decision, he will follow Kahneman and Tversky (risk aversion) S-curve and assign a higher risk factor to ensure he is comfortable with the possible result. This will mean that the discount factor applied to the model will be so large as to compensate for the uncertain elements. Therefore, the researcher will only invest in very lucrative opportunities where there is great uncertainty (incurring a higher risk premium). This leads to the generic investment principle of risk compensation first developed by Sharpe (1964). However, again the number to be assigned for the discount factor is subjective and depends on the technique of the investor, which is what this research seeks to understand. The key to the essence of decision-making in investments lies in understanding the required skill that enables the decision-maker to assign a correct weighting; however, if the weighting is assigned haphazardly, the investor could miss lucrative investment opportunities.

In addition, to build credibility to the "underwriting" projects process, such as the case study, the researcher's assumptions are noted, recorded and then incorporated into the committee's reports and their records. This ensures that both the researcher and the company build a database of assumptions and decisions for future reference.

An important point to note is that the researcher has, over the years, acquired experience from various projects and markets from which he draws and anchors his decisions. To a great extent, the researcher relies on this past experience and intuition, which can be referred to as "professional knowledge".

5.1.8 Heuristics and biases

One of the obvious biases the researcher experienced during the analysis and underwriting of the investment was home bias, which was observed by several researchers as "picking stocks" in foreign markets. Since the researcher was not familiar with the Kenyan real estate market, the researcher relied on published economic and market data that was out of date. This left the researcher uncomfortable in calculating the numbers so he tended towards conservative analyses to minimise possible losses from the investment. This exhibited the S-Curve, as observed by

Kahneman, namely that investors (decision-makers) tend to have steeper loss curves, to avoid taking risks that could possibly result in large losses.

Another heuristic experienced by the researcher was representation. Due to the time pressure (the researcher had only eight weeks to complete the proposal) there were significant constraints on both the time and information to make the decision; hence, a decision was made with limited and insufficient information resulting in “irrational” decision-making. Often, this means the researcher passes a lot of good opportunities due to the pressure to make decisions within the timeframe, and has to over-compensate for this uncertainty in the analysis and underwriting process.

Nevertheless, a point of note is that there is a safety measure for the decision the researcher made on this project. The project is presented to management committees who scrutinize and debate the merits of the assumptions made on the development of the feasibility. The group debate and, to a great extent, their decision compliments my individual and limited decision capability. However, the researcher presents the project to these committees and needs to be first convinced by his assumptions prior to a committee debate. In other words, the researcher makes the investment decision beforehand and, as a professional investor, my opinion and the process followed as a researcher in making investment decisions weighs on the final decisions.

The home bias resulted from the researcher favouring home or familiar markets and turning away from potentially good investments that could yield good returns. This is the result of the ‘premium’ hurdle rate that directly increases with unfamiliar markets.

5.1.9 Researcher’s view of knowledge and how knowledge was derived from the epoche

The researcher envisages that his doctorate research will be relevant to practice for the following reasons. Firstly, the research problem and questions must be developed from practice; secondly, the researcher must analyse and classify the nature of the research problem and questions, and thirdly, the research must follow an appropriate and tested methodology with a relevant underlying epistemology and framework. This is a proposition with a ‘bottom-up’ approach where the solution evolves from the nature and interpretation of the research problem. The research problem remains the focus point, in order for the research to remain relevant. In terms of the epoche, the goal was to understand how decision-making happens in a real case study through the description of the experience of the researcher.

The researcher first presented the background and his company parameters when dealing with risk and uncertainty, from which boundaries the researcher makes decisions. With this, it adds to knowledge as, in the corporate world, decision-making is bounded and works within defined parameters. Next, the epoche defines the data sources and other information to which the researcher is exposed when making his investment decision; this is principally the development of the feasibility study. Assumptions include adjustments to the data and relevant information, which has been identified as subjective and follows the theory of Kahneman and Tversky on biases and heuristics. A highly relevant point concerning knowledge development is the combination of subjective and objective measures in decision-making. This introduces the professional's experience when making decisions; it further leads to intuitive discussions and the introduction of other subjective matter leading to further biases and heuristics.

Figure 5.1a: Renderings of the Nairobi (Kenya) CBD development (epoche) case study discussed in Section 6.1.

Figure 5.1b: Renderings of the Nairobi (Kenya) CBD development (epoche) case study discussed in Section 6.1:

5.2 External Case Studies (Co-researchers)

The researcher approached four companies (mostly equity funds) with similar experience in investments within sub-Saharan Africa (outside South Africa). As described in detail in the methodology, a strategic approach was undertaken at the sampling stage as the co-researchers came from leading funds active in the region. The researcher manged to secure participation from leading decision-makers with extensive experience in working in the sub-Saharan Africa region, and who shared a substantial amount of information with the researcher.

The structure of the data in Section 6.2, follows directly from the interviews. The data from each interviewee ends with the case study described at the end of each interview. The interview is the core of the research data and analysis was undertaken on the responses from the interviews. The interviews enabled the collection of primary data for the research, hence the researcher captured them in detail for this section.

The term “case studies" used in this thesis relates to the specific projects and interviews which support the project’s data discussed. This aimed to maintain the terminology used in the epoche, in which the researchers’ experience was also recorded as a “case study”.

5.2.1 *CASE STUDY #2:*

The first interviewee was from a fund that is the leading real estate equity investor in sub-Saharan Africa. The fund is a global equity investor with a head office in London (United Kingdom) that operates in several emerging markets, including Africa, South East Asia and Latin America. The interviewee had a financial background with extensive experience in equity investment as well as real estate development. The researcher had the opportunity to develop an insight on the research topic from this company. The following is information available on the project and in the public domain, which provides background information on the Maginal Mall case study:

Figure 5.2: Rendering of Maginal Mall, Maputo

Company #1, an international private equity fund, focused on emerging markets, and in March, 2017 announced a US$96 million mall investment in Maputo city, Mozambique.

The Baia Mall, on Avenue Marginal, will have a total area of 30,000 m_2 and include a hotel, more than 100 shops and restaurants, a service area and more than 900 parking spaces. It is hoped that the project will ultimately create more than 2,500 jobs. The Baia Mall project is promoted by ATCM (Automobile & Touring Clube de Moçambique) in partnership with the private equity company, Company #1, and RPP Developments.

Company #1 has a portfolio of more than 200 projects in 44 countries around the world, totalling US$9 billion of invested capital. Since 2004, Company #1 has invested in 11 real estate projects in seven Sub-Saharan African countries, and has extensive experience in the development of commercial spaces in Africa, such as The Junction Shopping Mall in Nairobi.

In 2006, Company #1 invested in the construction of Nigeria's first shopping center, The Palms. This was followed in 2008 by the construction of Ghana's most up-to-date commercial and leisure space, the Accra Mall. In 2012, Company #1 invested in the construction of the largest commercial space in Kenya Garden City.

The Baia Mall will be Company #1's first investment in Mozambique. The director of Company #1 East Africa Real Estate stated that,

> … we have long seen Mozambique as a strategic market looking for good investment opportunities, since we believe in the country. The Baia Mall represents a large-scale, international-level project which responds to market needs. We will shortly announce more new investments in Mozambique.

Company #1's investments in Mozambique are under development in partnership with Source Capital, a private equity 'boutique' operating locally.

The mall will feature retail brands, such as Super Spar, Game and Woolworths. Negotiations are under way with major national and international brands wishing to enter the Mozambican market. At present, more than 50 percent of the commercial space is already leased in a process that is being managed by reference real estate brokerage companies, such as Foundation Capital, Broll and JLL. The construction of the shopping centre started in 2016, and involved more than 600 construction workers. The completion of the mall was scheduled for the end of 2017.

5.2.2 *CASE STUDY #3:*

The second interviewee was from the second largest real estate equity investor in sub-Saharan Africa, and similarly a fund. The fund was backed by a leading South African bank with its head office in Johannesburg, South Africa. The interviewee had extensive experience in real estate equity investment and had previously worked for the first interviewee company (the leading equity investor fund). The interviewee had both investment experience and development experience in sub-Saharan Africa.

The following section presents information available on the project in the public domain, which gives background information on the Accra Financial Centre case study, as discussed with Interviewee #2:

Figure 5.3a and b: Renderings of Accra Financial Centre, Ghana

Company #2, on their website stated that, “Accra Financial Centre (AFC) has been designed in line with international health and safety requirements and offers a wealth of additional value-adds for prospective tenants in financial services, banking and other industries”.

- Name: Accra Financial Center
- Location: Downtown Accra
- Use: Mixed Use (Office and Retail)
- Size: Office – 13,700sqm. Retail – 314sqm
- Developer: RMB Westport
- Parking: 369 bays
- Anchor Tenant (Office): Agricultural Development Bank

The Accra Financial Center is a mixed use development in downtown Accra that will be anchored by the Agricultural Development Bank. It is the second office development in Ghana for Company #2, with the first being Stanbic Heights in the Airport City, which is currently 85% let according to Company #2. This new development will offer 13,700sqm of A grade office space and 314sqm of retail space with 369 parking bays.

As noted with the $62.5m One Airport Square development by Actis, an emerging market private equity giant, Ghana's fast growing and politically stable economy is attracting investment in its domestic oil and gas, financial services and real estate sectors. It is quickly demonstrating that West African growth is not restricted to Nigeria. Given the many risks that international investors have to face in Nigeria, Ghana often acts as the gateway to Western Africa providing investors with a stable and, in some ways, less risky means of accustomising to a similar culture while investing in an emerging economy with lucrative opportunities. Notwithstanding, Ghana is still riddled with a host of economic and currency-related problems. Company #2 has not explicitly stated a timeline for the development, although they are promising energy efficient solutions and a host of A Grade facilities. It has also been stated that there will be plans for a 4,000sqm expansion to increase the office space on offer. This will presumably be dependent on the performance of the first phase of the development.

The building design takes advantage of a prominent street corner in Accra by accentuating the building's corner façade. The semi-basement lifts the building above pavement level creating longer views over the streets from the retail floors. Efficient office floors maximize rentable area and office wing depths allow for abundant natural lighting. The architecture is clean and modern with shading to southern windows and overhangs where needed to minimize solar gain. Careful landscaping is employed to demark entrances and create a buffer between the retail spaces and the street.

In 2017, the Africa Property Investment (API) Awards recognised innovation and outstanding achievement across the entire property industry in seven categories. The categories included: Best Retail Development, Best Mixed-Use Development, Best

Commercial High-rise Development, Best Architectural Design, Best Green Building in sub-Saharan Africa, Best Hotel Development and Best Housing Development. The Accra Financial Centre (Ghana) was voted the "Best Commercial High-rise Property Development".

5.2.3 CASE STUDY #4:

The third interviewee was from a leading South African construction company, with head offices in Johannesburg, and that operates in sub-Saharan Africa and Europe (the United Kingdom and Eastern Europe). The construction company has an "investments and concession" division that invests in real estate and PPP projects in sub-Saharan Africa and Eastern Europe. The interviewee has a financial background with extensive experience in real estate investments in sub-Saharan Africa.

The following information is available on the project in the public domain, providing background information on the Capital Place office park case study. In this case, the interviewee shared a lot of project information, hence there is more detail on the project investment and finance structure.

Figures 5.4: Rendering of Capital Place Office park

Capital Place was developed by Mobus Consortium and it was Accra's first office park development. It is located in the heart of Airport Residential Area, which is a central development area that is popular with developers in Accra. The project development cost was approximately US$23 million, and comprised of shareholder equity and senior debt.

Project Description

Stand 16 (0,8ha) in Airport City Accra, Ghana at the corner of Ridge Road and Patrice Lumumba Drive is the land earmarked for the Capital Place Office Complex. This is a new office park development that will encompass three stand-alone multi-storey office buildings with the capability to house single tenants or multi-tenant uses. Two of the buildings (B and C) have a joined basement which will allow for basement parking and areas allocated for services and infrastructure. The associated landscaping and external works include the entrance from the street, and public transport has been taken into account within the development.

The basement is located under office buildings B and C, linking the two buildings at this level. Two separate service cores serve the two office blocks from the basement. The water tanks and equipment are housed in a section behind the core of Block C and will provide non-potable and fire water to the entire office development. A total of 55 secured parking bays will be provided in the basement. Thus, the main parking for buildings B and C will be in the basement and the remainder of the parking will be on-grade and allocated to each building accordingly. The current ratio is 3.5/100 but the intention is to reach 4/100.

Block A is a three storey (Ground + 2) office block with a central circulation core allowing for multiple tenants to occupy the building. This building does not have access to the basement but will have dedicated shade net parking on the grade level. The main structure will be concrete with a 7.5m span between columns and a masonry block external wall that will be plastered and then painted. The roof will be a mix of concrete surface capable of housing the plant area and a soft roof to allow for a cost effective build. The internals of the building meet a white box specification in the tenant areas, which will consist of plastered walls, suspended ceilings with lighting to a lux level of 350 and concealed air conditioning units that will hold an ambient temperature. The main core areas (lobby, ablutions, etc) will be finished to an A grade standard. The main non-potable water for the building will be supplied via a 5000l JOJO tank (2-day supply) situated on the roof. All drinking water will be brought in by the respective tenants in bottled format.

Block B is a three-storey (Ground + 2) office block with a central circulation core allowing for multiple tenants to occupy the building. This main parking will be via the basement but it will have dedicated shade net parking on grade level. The main structure will be concrete with a 7.5m span between columns and a masonry block external wall that will be plastered and then painted. Like Block A, the roof will be a mix of concrete surface capable of housing the plant area and a soft roof to allow for a cost effective build. The internals of the building will follow white box specifications in the tenant areas which will consist of plastered walls, suspended ceilings with lighting to a lux level of 350, and concealed air conditioning units that will hold an ambient temperature. The main core areas (lobby, ablutions, etc) will be also finished to an A grade standard. The main non-potable water for the building will be supplied via a 5000l JoJo tank (2-day supply) situated on the roof. All drinking water will be brought in by the respective tenants in bottled format.

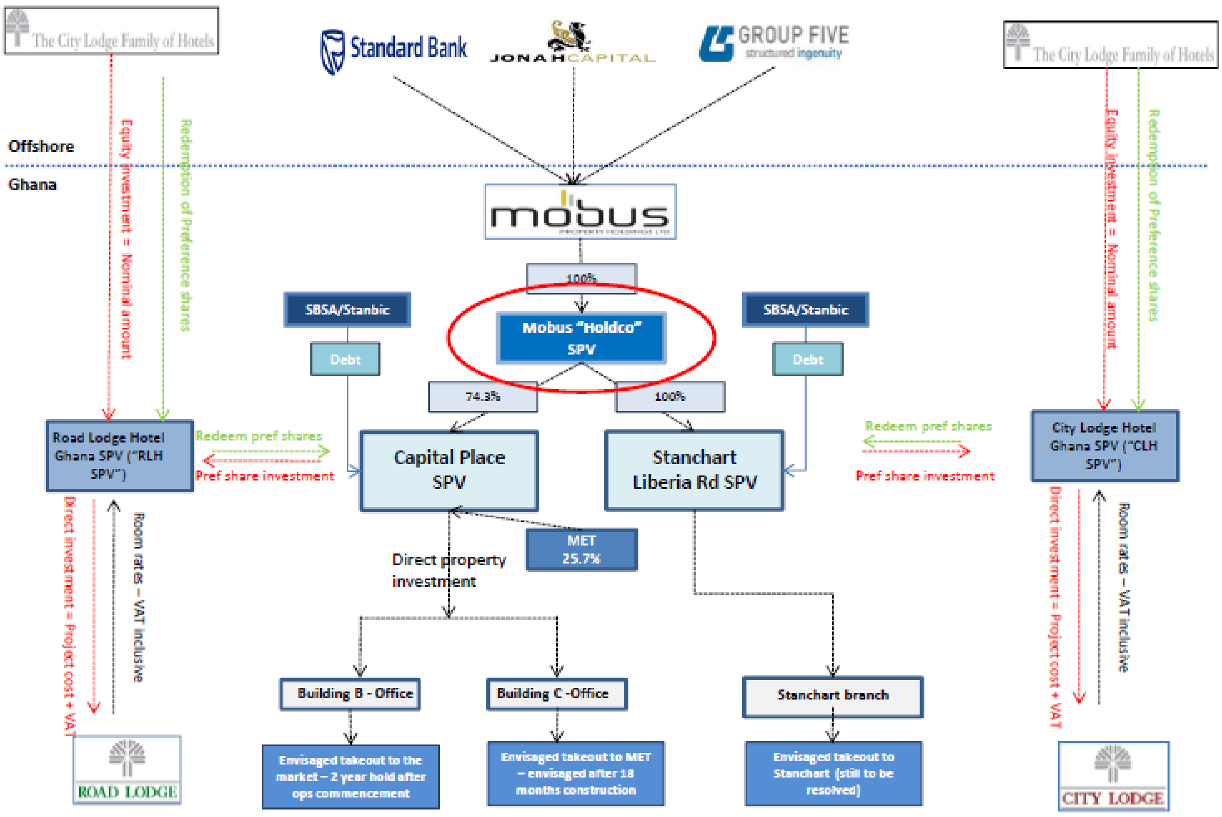
Block C is a four storey (Ground + 3) office block with a central circulation core allowing for multiple tenants to occupy the building. This main parking will be via the basement but will have dedicated shade net parking on the grade level. The main structure will be concrete with a 7.5m span between columns and a masonry block external wall that will be plastered and then painted. The roof will be a mix of concrete surface, and will be capable of housing the plant area and a soft roof to allow for a cost effective build. The internals of the building will follow a white box specification in the tenant areas which will consist of plastered walls, suspended ceilings with lighting to a lux level of 350, and concealed air conditioning units that will hold an ambient temperature. The main core areas (lobby, ablutions, etc) will be finished to an A grade standard. The main non-potable water for the building will be supplied via a 7000l JoJo tank (2-day supply) situated on the roof. All drinking water will be brought in by the respective tenants in bottled format.

The main infrastructure of the site links all three office blocks to the main systems. The power will be fed from the main transformer from the street to the transformer room in the basement. From there, it will be reticulated to the respective buildings' main distribution boards. The 500kVA generator will be placed in its own housing and will service the three office blocks with full standby capabilities. Fibre-optic connections will be implemented to the main server room in the basements of the buildings.

Funding structure

Shareholders in the developing company (Mobus Consortium) included SBSA, Company #3, Sir Sam Jonah (JC) and Metropolitan Insurance (MET). The investment secured development fees for Company #3 and construction work for Company #3. SBSA held 21.4% of the development, JC held 31.4%, and MET 25.7%, respectively. The senior debt facility of approximately $13.57m was provided by RMB Bank, a South African Bank.

Figure 5.5: Proposed CPD shareholding and funding structure



In terms of Capital Place development, it was proposed that the project will be implemented through a Ghanaian registered special purpose vehicle (HoldCo) in partnership with SBSA and JC. HolCo then owned 74.3% of the shares in the project's special purpose vehicle (Capital Place SPV) and the remainder will be owned by MET (25.7%). The Capital Place special purpose vehicle will be capitalised from Holdco through shareholder loans that were proportional to the respective shareholding.

The Capital Place SPV would develop the two commercial buildings and Road Lodge with a view to sell Building C to MET upon its completion. After approximately two years, it is envisaged that Building B would be sold to JC at a market related value. The long term land lease was owned by Sir Sam Jonah (JC) and will be transferred to the Capital Place special purpose vehicle as a portion of JC's equity. In order to avoid double transfer taxes it is envisaged that the land will be made available to the Capital Place SPV on a land availability basis. Once the respective buildings are complete, the lease will be subdivided and apportioned to the specific phases and sale agreements.

The senior debt facility of approximately $13.57m was provided by RMB Bank on a ring fenced non-recourse basis. The funding structure was investigated from an optimal tax and commercial perspective by Celia Becker Attorneys. The total shareholders' equity of $8.8m would be made up by the following contributions:

- Company #3 - 21.4% : $1.9m
- SBSA - 21.4% : $1.9m
- JC - 31.4% : $2.78m
- MET - 25.7% : $2.28m

In November, 2018, JLL reported that Capital Place had been acquired by Grit Real Estate Income Group at a yield of around 10%, indicating a positive outlook for the Accra Real Estate investment market.

5.2.4 CASE STUDY #5:

The fourth interviewee was from the largest insurance company in Africa with extensive experience in real estate investments in sub-Saharan Africa. The interviewee's background was in valuations, town planning and developments. The insurance company also had an extensive network of subsidiaries in sub-Saharan Africa and the experience of the interviewee was broadly based on the projects he had been involved with in various countries in the region. The insurance company had a slightly different approach as their investment horizon was longer term, which differed from the short term equity funds. However, the interviewee emphasised the fact that they worked closely with the equity funds and the investment principles they followed were similar. Often, long term investors, like insurance companies, take over ownership of the developments completed by equity funds, therefore it was important that the investment principles initially applied by the equity funds were credible.

The following information available on the project is in the public domain, giving background information to the Two Rivers Mall case study, discussed in this section:

Figure 5.6: Rendering of Two Rivers Mall, Kenya

In 2017, Nairobi (Kenya) became the official home of East and Central Africa's largest shopping mall with the launch of the Two Rivers Mall on Limuru Road, which is an imposing 65,000 square metre facility. The mall, opened in February, 2017, although the project was initially set to open in October 2015 due to construction delays the date was pushed to March 2016 then to September and later to February, 2017. The Two Rivers Mall consists of medium-density residential homes, office blocks, a shopping centre, and a three-star and a five-star hotel, of which the flagship is the 170-room City Lodge. The French retailer, Carrefour, which operates more than 12,000 outlets globally, will be the anchor tenant at the Two Rivers Mall – with the Turkish luxury fashion line LC Wakiki, Woolworths, Hugo Boss and Nike being some of the mall's tenants. The project is managed by Athena Properties Ltd., and will be compliant with international green standards, featuring luxurious residential apartments and low-rise office blocks; these will be built by the China National Aero-Technology International Engineering Corporation (CATIC) and local sub-contractors.

The Two Rivers Mall is part of a Sh25.1 billion mixed-use development that is being undertaken by Two Rivers Lifestyle Company Limited on a 102-acre parcel of land acquired from the Koinange family for Sh1 billion. The development, whose location is in the heart of the affluent Runda, Gigiri, Muthaiga and Nyali neighbourhoods, spans 65,000 square metres, which means it is larger than the 50,000 square metre Garden City Mall on Thika Road and is now Kenya's largest mall. The mall's owner, Two Rivers Lifestyle Company Ltd., comprises a coalition of several cash-rich investment firms that include Centum Group. The company's shareholding is split into two equal parts; Two Rivers Development Limited holds a 50 per cent stake and the balance is held by OMP Africa Investment Company. Two Rivers Development Limited is owned by three investors: Centum Group, which is majority owned by the billionaire Chris Kirubi (58 per cent), Avic (39 per cent), and ICDC (3 per cent). In April 2015, Centum announced that the Aviation Industry Corporation of China (AVIC), the main contractor for the project, had invested Sh6.4 billion in Two Rivers for a 38.9 per cent stake – valuing the project at about Sh16.6 billion. Centum also disclosed that the state-owned investment firm, ICDC, which also holds a 23 per cent stake in Centum, had made a Sh462.5 million equity investment while Co-operative Bank had contributed Sh7.2 billion in debt funding for the project.

5.3 How decision to end interviewing was made

It is important for the researcher to explain how the decision to end the interviews was made. Although phenomenological research is qualitative, the researcher remained objective when answering the research questions and collecting the data. The researcher remained objective when analysisng the interviews as he carried them out and the themes emerged very quickly from the interviewees. The co-researchers gravitated towards similar themes, meaning that additional interviews would not have added more themes or concepts to further answer the research questions. Moreover, the researcher observed throughout the project that it is very important to carefully select the interviewee sample. The selection of co-researchers made it easy for the researcher to extract the relevant research data as their experience and knowledge were extensive thus making it possible to answer the research questions quicker through the completed case studies. The researcher felt more interviews would not have added more concepts or themes that would have better answered the research questions. The other aspect considered was the level of experience and knowledge in the interviewee data sample. Other people who offered to work with the researcher lacked sufficient experience in these markets and could have deviated from the research questions. It was important for the researcher to ensure that the experiences shared by the co-researchers remained relevant, hence the quality and standard of the responses (experience shared) was maintained at a meaningful level, and sufficient to make a significant contribution to knowledge.

5.4 Summary

The chapter presented the research data from interviews with the co-researchers. Interviews represented the main tool used to collect the data. The chapter began with an account of the researcher’s experience (epoche) with the phenomenon under investigation, which was presented as a case study. The following interview data were also presented as miniature “case studies”. The transcripts of the interviews are attached as Appendix A.

6. Analysis of the research data

6.1 Data analysis approach

The analysis of the research data was principally driven by the description of the phenomenological research analysis given by Moustakas (1994). This was supported by descriptions of the of interview data analysis in phenomenological studies (Hycner, 1985). Other phenomenological research (Vagle, 2010; Van Aken, 2005; van Kaam, 1966; van Manen, 2007) also helped to guide the data analysis approach.

Two parts of the analysis were undertaken; the initial part was the thematic approach described by Braun and Clarke (2006). Firstly, the researcher familiarised himself with the data by listening to the recording several times. The next step was to transcribe and read the transcripts several times. Then, the coding of the transcripts was undertaken from which emerging themes were identified and recorded. The coding involved identifying and recording recurring patterns in the data. This meant the researcher returned to the data (as a whole) several times to satisfy himself that the themes were consistent throughout. Importantly, the themes must relate to the research questions and the aim of the research. The researcher must remain focused on answering the research questions.

The remedies for dealing with uncredible economic and market information were the investors who employed the following:

1. The investors used third parties to gather and verify the economic and market information
2. They also used local experts who undertook the analysis of the information and provided economic and risk analysis reports on the markets. These experts were familiar with the local market conditions and provided more reliable market information
3. The investors also relied on their partners who had experience in the local markets

4. The investors interviewed all had prior local experience and had built internal intelligence over time and from previous projects in the markets or associated business activities in the markets where the real estate investment was made.

Secondly, the main aim of the research was to develop a descriptive method of decision-making in real estate under uncertainty. Uncertainty was driven by the uncredible and outdated economic and market data, which was already confirmed in the first part of the co-researcher’s responses. This part of the analysis involved listening to the descriptions shared by the co-researchers about the process and the key drivers of the decision-making process. The researcher's aim was to fully understand the meaning or essence of the process and the emerging themes. The thematic analysis approach played an important part in consolidating the different responses to prevailing trends and themes. Thirdly, from the responses of the co-researchers, the last question aimed to identify biases, as described by Kahneman *et al.* (1982). Biases and heuristics were dominant in the responses of the co-researchers. This answered critical questions as to whether the use of Rational Economic Utility Theory was appropriate for modelling the decision-making process of investment decisions in real estate under uncertainty.

From the analysis, it was important that knowledge or new theory was developed to give credibility to the research at a doctorate level. The research followed the interpretive framework, known as the ‘Onion’ Model, and was described by Humphrey and Economou (2015) in *Peeling the onion - A textual model of critical analysis*. This model best describes how knowledge at different levels of academic study is presented, with the lowest form of knowledge at the descriptive level and the highest at the critical level. The analysis of the data begins with the description of the experience of investors as captured in the interviews. It is followed by analysis to identify themes and patterns in the descriptions. The next levels are persuasive and critical, which denote both critical analysis and discussion of the emerging themes, and synthesis of the meanings of the themes identified.

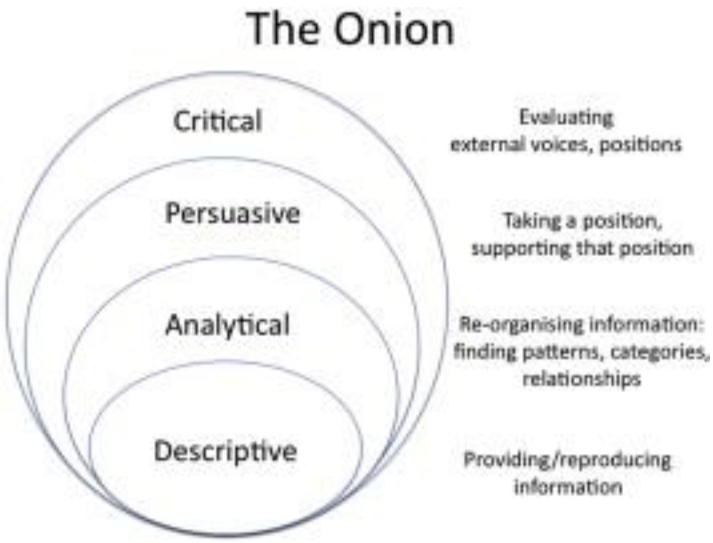


Figure 6.1: Humphrey and Economou model

The Humphrey and Economou (2015) model (Figure 6.1) supports the adapted Kolb model (Figure 6.2), which is the process the researcher followed in analysing the phenomenon (namely the research problem identified in practice). It was important that at this stage of the thesis, that the reflective process that the researcher went through is revisited to present a credible flow of development of knowledge (new theory), linking the earlier chapters (introduction and reflective thinking) to the analysis of the research data. It was important that this was achieved through reflective thinking and the shared experiences of the co-researchers, thus enabling the development of new knowledge through the critical analysis of the data.

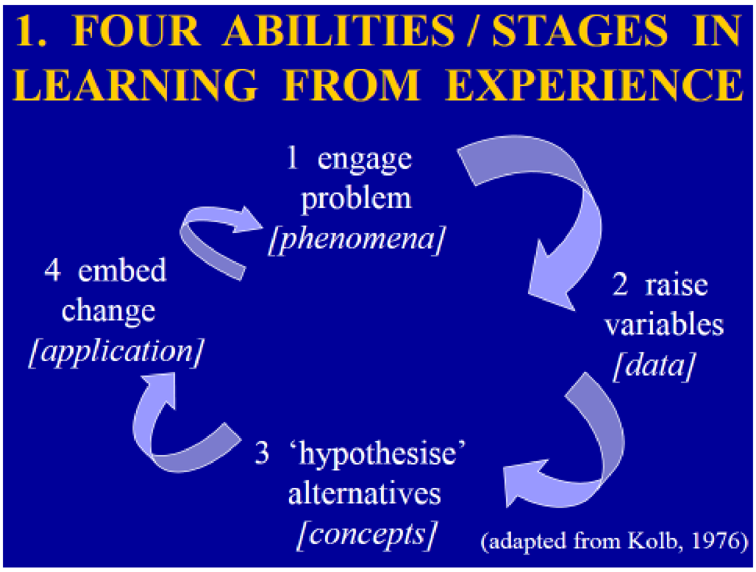


Figure 6.2: Kolb's stages in learning from experience

6.2 Critical analysis of the data – positioning the findings of the research

For the researcher, it was important that the analysis did not end with the description of the experiences of the co-researchers but instead went further to get to the meaning of the descriptions. The key to proper analysis is the essence of meaning, requiring a more in-depth analysis of the data. This lead to the second level, which adopted NVivo analysis. After downloading the software, the transcripts were loaded and analysed. This is a similar process to the thematic analysis, but the software allowed the researcher to develop a more structured analysis and to cover the whole data sample without many omissions. Simple analysis involved identifying and recording the most common words from the data, which was found to be "filter". This lead to the development of the key theme, namely the structured process that the co-researchers follow in their decision-making. Each company followed a structured decision-making process on whether to invest or not. This allowed scrutiny of the investment decision process and a future auditing of the process. The second dominant emerging theme was experienced with both the investment making process and the territory where the investment was made. Emphasis was repeatedly placed on the experience of the investment person and a thorough knowledge of the investment market. NVivo allowed for a greater level of deductive analysis although the researcher had to remain focused on the research questions to link the analysed data to the aim of the research. The researcher found that NVivo micro-analysed the data to fine codes and nodes. This was useful in cementing the themes already identified in the thematic analysis. The NVivo analysis gave specific reference to the thematic codes.

Most importantly, it remained the responsibility of the researcher to remain focused on the research questions. The description of the process lead to the development of a descriptive method for decision-making; thus, thematic analysis was both appropriate and useful. Another key emerging theme was "knowledge" of the local markets. Each of the co-researchers emphasised the importance of understanding the local market prior to making an investment decision. This "knowledge" was either derived from the individual or the Fund's previous experiences of the market. Hence, each Fund carefully selected the territory where the real investment was to be made and ensured they understood the local economic and market conditions before deciding to enter and invest in that market. Another emerging theme was that the governments in these markets were very unreliable, citing an example of the Mozambican government and the milling donor fund changes in tax laws that impacted the exchange controls. Each of the co-researchers referred to the unpredictability of the governments in these regions. However, this unpredictability can often be mitigated through credit insurance, like Export Credit Insurance Corporation (ECIC), but sometimes it is not possible, and hence the investor looks for higher returns in these markets to mitigate the risk that cannot be eliminated or diversified.

6.3 Summary of the salient themes from the analysis of the interviews

The essential principles of the investment decision process are:

1. Developed in-house intelligence that is confirmed through third parties (market research, economic research, government publications, statistics and econometrics)
2. Use of experienced and credible professionals, with local knowledge and intelligence
3. Iterative process, several revisions of feasibility and assumptions
4. The core project/investment team shares information on the assumptions who have their prior base case (this includes banks (debt), investors (International Finance Corporation (IFC), Development Funding Institutions (DFI), International Monetary Fund (IMF), etc.). The role players, both Fund managers and Fund investors, have base case assumptions on the markets they invest in
5. A “worse case” scenario, where there has been no prior base case (no known economic fundamentals), means that thorough research and scrutiny are applied. There are several iterations of feasibility and assumption, wider consultation and the crosscheck of assumptions with a wider audience. There is always an element of the unknown, where investors conclude with, “you do your homework and then invest and hope for the best."
6. Financial models continuously change, as the markets are erratic and shift rapidly within short periods. The governments are also unpredictable as one

investor quoted that the Government of Mozambique was accused of embezzling funds; hence, all international donors withdrew funding of government projects, which meant the local currencies crashed and a ripple effect was felt on the economies and value of other currencies. It is against such unpredictable markets that investment decisions are made, which are often difficult and unpredictable. Therefore, reliance on economic data is not practical.

7. At the end of the investment process, the investment decision has to be shared with external parties meaning the need for econometrics or quantitative analysis to justify or defend the investment process. It is critical for fund managers to have a financial model (based on quantitative economics) that supports their investment decisions.
8. At the end of this research, the principle applicable to these cases is that investors begin with uncertainty that could only be modelled through prior market information and further research of the markets. From this, they develop metrics that inform their assumptions and through an iterative process that involves multiple people and resources (consultants, banks, experts, available market and economic data, government publications, World Bank publications, specialist property companies (Broll, EY, JLL, etc.)). They revise their models until they reach a "level of comfort" and consensus that informs their decision-making on whether to invest. In extreme cases where a "level of comfort" is not achievable, investors do not invest in that opportunity.
9. Another critical characteristic of the process is the feature of several "gates" or "filters" that the investors go through to get a final "approved" investment decision. Basically, after the investor has made the decision that the opportunity is probable for positive investment, he still has first to convince two or three internal investment committees that the assumptions he has made are credible. In addition, the Fund has to present to external parties, namely the external investors of the Fund, and defend the decisions before an investment is made. This process ensures that the investment decision assumptions are tested to an even wider audience prior to an investment.

6.4 Concluding remarks on the analysis

Known information and market intelligence are guarded and not shared with competitors or external parties. The investors interviewed were very proud of their experience and success in these markets and could even boast of being leaders who dictate what the market metrics (yield, rentals, building costs) should be in their investments/projects. The investors operate in an era of great confidence or overconfidence in uncertainty (markets) where everything, including the investment decision, is left to uncertain dynamics which lie beyond the investors' control. Nevertheless, over time success has been achieved in these markets influencing an interest in understanding the process which has led to this research project.

Financial modelling was used as a method to justify or convince external parties of the credibility of their decision-making process rather than as a quantitative analytical tool for making investment decisions. The assumptions made in the financial modelling are subjective and not based on metrics (credible economic and market data). The assumptions are based on the experience of the investor and the consensus received from the project consultants and other role players, like debt providers, brokers, tenants, internal reviews, and other experts involved in the investment opportunity.

6.5 Summary

The chapter began with a research data analysis approach, drawing from literature on the analysis of practice based research and phenomenological studies. Emphasis was placed on an inductive approach to the data analysis whereby themes emerged from the data without presupposition. The analysis was cross sectional and Nvivo was used to support the thematic data analysis.

It is important to note that the data analysis began with the interview process and the researcher's engagement with the data from the onset. It is an iterative process that involves the researcher reading and thoroughly studying the data transcripts. The researcher does this several times and tries to find the key and emerging themes from the data. The researcher is central to the data analysis, rather than an analytic tool or programme. Thus, Dukes (1984) explained that “the task of a phenomenological researcher is to "see" the logic or meaning of an experience, for any subject, rather than to discover causal connections or patterns of correlation”

7. Discussion of the findings (emerging themes)

It was noted from the responses of the co-researchers that the investment decision was guided by analysing and understanding the risk associated with the investment opportunity against the expected return from the investment. The rational decision making process involved, to a great extent, understanding the risk factors affecting the investment opportunity. Hence, the researcher identified the essence of the decision-making process as analysing the risk associated with the investment opportunity and then pricing the cost (expected yield) of the opportunity. To a great extent, there was no credible economic data or existing yields to guide investors other than their previous experience and internal intelligence. This was gathered over the years on these markets and allowed them to understand the available data to a level that gave them confidence to price the investment opportunities.

Most of the co-researchers emphasised the importance of understanding the markets thoroughly and having prior experience of the markets. They confirmed that this was the most important qualification that allowed them to make reasonably rational investment decisions. Again, it was emphasised that uncertainty was not acceptable in the investment process and that the co-researchers tried, by all means, to move from uncertainty to certainty whereby they could price the risk associated with the investment opportunity. This was also important since the investment decision process often involved external parties who needed concrete quantitative analyses of the investment appraisal. The final investment decision was reduced to a simple decision of risk versus return on the investment opportunity.

The researcher then developed a risk–uncertainty framework that described the management of the risks associated with decision-making in these markets, where investment decisions were made under uncertainty.

7.1 Definitions of investment risk

The following are generic definitions of investment risk and are the standard classification of investment risk found in the literature.

Unsystematic risk

Unsystematic risk, commonly known as company or stock specific risk is sometimes referred to as residual risk. Unsystematic risk is the type of uncertainty that comes with the company or industry in which the investment is made. Unsystematic risk can be reduced through diversification. For example, news that is specific to a small number of stocks, such as a strike by the employees of an invested company or industry, is considered to be an unsystematic risk. By investing in other companies or industries in a portfolio, this type of risk can be reduced through the practice of diversification.

Systematic risk

Systematic risk, commonly known as market risk, is the uncertainty inherent in the entire market or entire market segment. Systematic risk is also referred to as volatility, and this type consists of the day-to-day fluctuations in an investment stock price. Volatility is a measure of risk because it refers to the behaviour of the investment stock that can move up and down from time-to-time. Market movement is the reason why investors can make money by selecting mispriced stocks; hence, the greater the mispriced investment stock, the more chance it will experience a dramatic change in the value of the stock in either direction.

Interest rates, recession and inflation all represent sources of systematic risk because they affect the entire market and cannot be avoided through diversification. Systematic risk can be mitigated through hedging. Systematic risk underlies all other investment risks. Therefore, if there is inflation, one can invest in securities in inflation-resistant economic sectors.

Beta is used as a measure of the volatility of a security or portfolio in comparison to the market as a whole. In other words, beta gives a sense of a stock's market risk compared to the greater market. Beta is also used to compare a stock's market risk to that of other stocks. Investment analysts use the Greek letter 'ß' to represent beta, which is used in the capital asset pricing model (CAPM). Beta is calculated using regression analysis, and one can think of beta as the tendency of a security's returns to respond to swings in the market. A beta of 1 indicates that a security's price will move with the market, whilst a beta of less than 1 means that the security will be less volatile than the market, and a beta of greater than 1 indicates that the security's price will be more volatile than the market. For example, if a stock's beta is 1.2, it is theoretically 20% more volatile than the market.

Systematic risk, unsystematic risk and the capital asset pricing model

Sharpe's (1964) Capital Asset Pricing Model (CAPM) assumes that investors hold diversified portfolios to minimise risk. If the CAPM correctly describes market behaviour, the measure of a security's risk is its market-related, or systematic, risk. The CAPM provides insight into the market's pricing of securities and the determination of expected returns. The model relates to a firm's cost of equity capital and the cost of equity for the market as a whole.

7.2 Systematic and unsystematic risk

When some companies a portfolio experience unanticipated adverse conditions, like an unannounced strike, the immediate adverse condition may be offset by the unexpected good fortune of other firms in the portfolio. However, stock prices and returns tend to move in tandem, and not all variability can be eliminated through diversification. A security's total risk can be divided into a portion that is peculiar to a specific firm; furthermore, it can be diversified away (called unsystematic risk) and that portion is market-related and non-diversifiable (called systematic risk):

Total risk = Unsystematic risk (diversifiable risk, firm-specific) + Systematic risk (non-diversifiable risk, market-related)

Markowitz (1952) and Sharpe's (1964) Modern Portfolio Theory states that, as a number of securities are added to a portfolio, the total risk is reduced. Subach (2012) found that unsystematic risk is minimised in portfolios of 35 (+/-5) securities drawn from industries that are not closely related. Subach (2012) also found that holding 20 to 25 securities is a good rule of thumb, as most people cannot afford to hold 30 to 40 securities.

7.3 Capital Asset Pricing Model (CAPM)

Sharpe's (1964) CAPM describes market behaviour as the relevant measure of a security's risk, as its market-related, or systematic risk, is measured by β. If a stock's return has a strong positive relationship with the return on the market, a high beta, it will be priced to yield a high-expected return. Unsystematic risk can be eliminated through diversification, and does not increase a security's expected return. The market cares only about systematic risk.

Subach (2012) summarises the determination of expected return through the CAPM as follows:

- Risk is defined as variability in return.
- One can reduce risk by holding a diversified portfolio.
- Security risk can be divided into systematic and unsystematic risk.
- Risk that can be eliminated by diversification is unsystematic. It is unique to the company and not related to other firms.
- The remaining risk in a diversified portfolio is systematic, and associated with the movement of other securities and the market as a whole.
- Investors hold diversified portfolios to minimise risk. Holding a diversified portfolio allows one to only be exposed to systematic risk. The investor is rewarded by a higher expected return for only holding systematic, market-related risk. There is no reward related to unsystematic risk because it can be eliminated through diversification. Accordingly, relevant risk is systematic, market-related risk and is measured by β.

- The risk, or expected return trade-off with the CAPM, is the Security Market Line defined by Markowitz (1952).
- According to Sharpe (1964), securities are priced by $R_S = R_F$ + Risk premium or $R_S = R_F = \beta(R_M - R_F$
- The Security Market Line will then give us an estimate of the expected return on any security, R_S

7.4 Risk approaches in practice

The following is the analysis of a company risk approach and mitigation mechanism that is used to assess and manage risk in practice. The company begins with the analysis of the factors based on the IHS Global Insight measures and approach. For example, the IHS Economic and Country Risk Report for different countries around the world scores country risk, as shown in Table 7.1:

Table 7.1: ***Risk Factors and Risk Treatment Plan ("Mitigants")***

Risk	*Score*	*Description*
Political	3.75	High
Economic	3.00	Significant
Legal	3.00	Significant
Tax	2.50	Medium
Operational	3.75	High
Security	4.50	Extreme
Overall	3.39	Significant

Note: 1 = minimum risk, 5 = maximum risk.

Sovereign Risk Ratings	*Score*	*Description*
Medium-Term	55(B+)	High Payment Risk
Sovereign Risk Outlook	⇨	Stable

Note: 0 = minimum risk, 100 = maximum risk.

Another approach to risk followed by the company has adopted the following framework.

Stages of risk management:

IDENTIFICATION ASSESSMENT MITIGATION MANAGEMENT

Risk Management Execution Process Steps:

Submit Risk → Assess Risk → Evaluate Risk → Mitigate Risk → Complete Risk

Risk Treatment Plan:

Technique	Description
Acceptance	This technique recognises the risk and its uncontrollability. Acceptance is a "passive" technique that focuses on allowing whatever outcome to occur without trying to prevent that outcome. This technique is normally used for "low" or "very low" risks where a scope-efficient means of reducing the risk is not apparent.
Avoidance	This technique uses an approach that avoids the possibility of risk occurrences. Avoidance can be thought of as nullifying the risk by changing the contract parameters established between the customer and integrator. The following items represent ways of avoiding risks: • Work Scope Reduction • Changing the requirements or specifications • Changing the Statement of Work (SOW) • Changing the Technical Baseline • Developing and submitting Waivers and Deviations
Control	This technique is made up of actions that are to be taken that reduce the risk likelihood or impact. Control-based actions occur at all points throughout the program's lifecycle and are typically the most common response. They typically identify an action or product that becomes part of the work plans, and which are monitored and reported as part of the regular performance analysis and progress reporting of the Program.

Investigation	This technique defers all actions until more work is done or facts are known. Investigation-based responses do not define any mitigation to reduce an individual risk. They are responses to risk where no clear solution is identified, and further research is required. Investigations may include root cause analysis. Investigative responses immediately and directly lead to a greater aggregated Program risk. This is because the probability quantifier for each risk includes the effect of the applied response, for which there is none, and the control quantifier level indicates the level of influence to apply that response, which is low.
Reduction	Reduction is the active lowering of risk by a planned series of activities. Techniques include: • Rapid Prototyping • Early multi-discipline involvement • Consultant or specialist reviews • Simulation • Modelling • Trade Studies • Team Workshops • Advance design models • Reduce Dependencies • Customer involvement • Joint Applications development groups
Transference	Transference is the process of moving something from one place to another or from one party to another. In this, the risk can be transferred to the customer or the contractor. Typically, transference includes the sub-contracting to specialist suppliers who can reduce the overall risk exposure. This technique is best utilised during the proposal process. Transfer can also include the use of third party guarantees, such as insurance backed performance bonds.

The above framework illustrates the result of a risk treatment plan ("mitigants"). The following is an example of how the framework is applied in a case:

- **Legal risks**

  All countries of focus have vital legislation in place.

  Property rights are secure.

  Legal systems in country are generally based on English Law.

- **Political Instability**

  The population is sensitised to terrorist threats. Additionally, the government has put measures in place to thwart terrorism.

There is strong international support to counteract the terrorist threat.

- **Corruption**

  The investment will not deal in areas that could expose it to corruption;

  Reputable partners will be selected.

- **Supply/Demand volatility**

  The market fundamentals are strong.

  Projects will be carefully analysed for bankability.

  Speculative developments will not be undertaken.

- **Lender Security**

  Land titles will have to be acceptable to the investment and debt providers.

  Insurance, such as Export Credit Insurance Corporation (ECIC) or similar, will be used to mitigate political risk.

- **Risks during operations**

  The company will be actively involved in managing the investment's assets during the operational phase and will ensure that operational efficiency is strictly managed.

- **Tax changes**

  The investment will be structured to be tax efficient based on in-country advice.

7.5 Proposed risk-uncertainty matrix

From the observation in practice and the analysis of real estate investors' experiences in sub-Saharan Africa the following classification of risk and uncertainty emerged:

1. Known risk – This type of risk is managed with internal mitigation measures with internal company resources and through diversification
2. Known unknown risk – This type of risk can be transferred through diversification. Internal resources cannot mitigate. External resources like insurance can cover this type of risk.
3. Known uncertainty – This type of risk is non-diversifiable as this is market risk and affects all stocks. This is the price of the return in an investment and cannot be diversified.

4. Unknown uncertainty – “Force majeure” risk affects the whole market and industries on a global scale and cannot be predicted, like the Ebola outbreak in West Africa in 2014 and the global financial crisis in 2008. In most cases, this type of risk can only be covered by governments through national disaster relief funds but has limited reprieve for investment funds.

It can be seen that the first two risk classifications relate to unsystematic risk profiles and the last two relate to systematic risk profile.

The risk classification framework became clear when reviewing the decision-making process based on available market and economic data during the decision-making process (in real estate investment in sub-Saharan Africa).

Table 7.2: Proposed risk-uncertainty matrix

Nature of data available during the investment decision process	Credible, reliable and available market and economic data sources	incredible and unreliable but available market and economic data	Incredible and unreliable scarcely available data (outdated and with gaps)	Unavailable data and unknown factors
Can factors be defined and weighted	Yes and clearly	Factors can be defined but the weighting is not precisely measured	Factors can be defined but not possible to assign weights on them	Factors cannot be defined at all (unknown)
Classification of risk	Known risk	Known unknown risk	Known uncertainty	Unknown uncertainty
Examples of investment markets	Developed real estate markets (United Kingdom, United States of America, Australia, Canada, Japan, Hong Kong) with stable economic policies	Undeveloped real estate markets with data available but outdated (transparency index low) with semi-stable economic policies. Western Europe, South Africa, Chile)	Political change and changes in economic policies. Eastern Europe, South America (Argentina, Brazil, Some Eastern European countries)	Ebola outbreak in West Africa in 2014. Global financial crisis in 2008. These are more prevalent in typical "frontier investment markets". Most of Africa, Southern Asia and some Latin American countries, Most Middle East countries.
Nature of investment decision	Quantitative (reliance on financial models and econometrics)	Partly quantitative (Some reliance on a financial model but qualitative measures required)	Qualitative in nature, dependent on non-quantitative measures to a great extent	Purely non-quantitative ("gut feel" and "diving in" approach)
Rationality and reliability of investment decision	Rational and reliable	Rational but unreliable	Partly rational but unreliable	Irrational and unreliable

7.6 Discussion of the biases and heuristics identified in the decision making process

Having identified the different types of risk experienced in these markets, it was also observed that the Funds had an objective approach to the risk and how they mitigated it in the investment decision process.

The Funds developed a set of parameters and rules for investors on how to deal with each of the different risks. These mitigating factors were workshopped internally and a consensus was reached on the level of risk or uncertainty the Fund would accept and how these risks could be priced. They developed a fund model and an underwriting (deal) model for each of the investment opportunities. These models were bespoke and adapted to the local economic conditions factoring the level of risk that could be appraised. To ensure the output of the financial appraisal was standardised, the investment analysts used these bespoke financial models for the Fund and the markets where the investment was made. These financial models were calibrated to suit the local conditions and the level of risk the Fund would accept. This is negotiated with the investment decision-makers and Fund investors, and signed off as a guide in the underwriting process. In addition, often the fund managers had a stake in the Fund, called a “skin in the game”; hence, they had an interest in ensuring the Fund was a success.

The Fund models, as well as the investment opportunity appraisal models, were developed to treat tax laws correctly. As tax laws vary from country to country, their treatment needs to be correctly incorporated into the model to ensure the appraisal process and the evaluation of the investment outcome was calculated correctly. Therefore, these models were specific to a territory and adapted to the changes in the tax laws of the particular territory. The models also had to adapt to forex and exchange laws applicable to the particular markets.

Firstly, this approach to investment appraisal was internal and biased towards the internal risk measures and calibrations; thus it was not universal. The investment decision-makers who followed these measures, were guided by the fund’s risk standards and were not independently making decisions on risks. Secondly, the economic information used in the investment decision was internal, as explained above, and not universal to the market. This made investment decisions specific to the Fund and Fund's investors meaning it was a negotiated agreement on whether all parties accepted the risk versus return. This was a narrow view and scope in the risk measurement and treatment that only served the Fund's objectives.

One of the prevalent biases the co-researchers explicitly expressed that was observed during the analysis of the interviewee's responses, was home bias. The home bias was also observed by several other researchers on "picking stocks" in foreign markets, namely; Bosch-Domenech & Silvestre (2010), and Schmidt & Zank (2008). Since the co-researchers were not familiar with the African real estate markets (outside South Africa), the co-researchers relied on published economic and market data that were often out of date and, to a great extent, on their local partners and experts. This gave the co-researcher great discomfort in their decision-making process. The co-researcher again exhibited the S-Curve, as observed by Kahneman *et al.* (1982), that investors (decision-makers) tend to have steeper loss curves, namely that they avoid taking risks that could possibly result in significant losses.

Another heuristic the co-researchers experienced was representation. Due to time pressures, the co-researchers have limited time to make an investment decision before losing out on opportunities. There were significant constraints on the time and information to make the decisions, which were made within limited time and, in some cases, with insufficient information. This could result in what could be termed "irrational" decision-making. Often, this meant the co-researchers could miss a lot of excellent opportunities, due to the pressure to make decisions, and needing to over-compensate for uncertainty in the feasibility and analysis processes.

Another dominant heuristic observed from the analysis of the data was anchoring. In almost all the funds that the co-researchers were working for, the fund investors set the target yields and returns (IRR) and their feasibility and investment analysis that work towards this pre-set target for yields. This type of behaviour is a heuristic, as described by Kahneman *et al.* (1982). Often, it meant that the co-researchers worked towards a result which was pre-determined by the Fund and its investors and resulted in a bias towards the desired result, rather than maintaining an open mind about the possible outcome.

7.7 Summary

The chapter began with a general discussion on the emerging themes (findings) of the research, following the analysis of the research data (the interviews). The preceding sections of the chapter identified risk-uncertainty theory, which directly relates to the findings of the research. The chapter then focused on risk and uncertainty principles, as discovered in the research and finally proposed a risk-uncertainty matrix. Following the discussion chapter the thesis conclusion is presented that confirms whether the research objectives were met.

8. Conclusion, contribution to knowledge and future work

8.1 Conclusion

In conclusion, it can be noted that the thesis provided a complete account of the research objectives, methodology and approach. The thesis also provided an account of the research data and analysis that answered the research objectives and addressed the aim of the research. The thesis ends with the conceptual conclusions of the method on how decisions are made under uncertainty in sub-Saharan Africa.

The purpose of the research was to answer the research question on how investors make decisions under uncertainty in sub-Saharan Africa. The research involved a structured process to develop research questions that supported the research objective. Then the researcher identified the most suitable methodology to answer the research questions. The research, being humanistic in nature, gravitated towards qualitative methodologies. The research went further to find the most suitable qualitative research methodology to sufficiently answer the research questions. In answering the research questions, the researcher emphasised the importance of a structured approach to ensure the findings were credible and followed a structured and tested methodology. The findings and conclusions of the research were also credible as the structured methodology enabled the researcher to hold meaningful discussions and draw credible conclusions to the research.

The next important step was the interviews and the selection of interviewees (co-researchers). Firstly, the researcher ensured the data sample of companies approached were relevant, in that they had sufficient information to enable the researcher to answer the research question, and thus meet the research objectives. The researcher conducted a thorough investigation to find the most relevant co-researchers. This process took the required time and effort, and the researcher was able to find suitable interviewees with the knowledge and experience to answer all the interview questions. More importantly, the interviewees were willing to share in great detail their experience of making decisions under uncertainty in sub-Saharan Africa.

Secondly, having collected research data from the interviews, the researcher ensured that a thorough analysis was applied. The analysis of the phenomenological interview data was tested to ensure the researcher remained objective when answering the research question and knowledge (theory) was found that could be supported and placed within the existing body of literature. In all parts of the research, the literature formed the basis of the development of arguments and guided decisions made by the researcher. Thirdly, and most importantly, from the analysis and emerging themes of the data, a risk-uncertainty matrix was developed by the researcher indicating the depth of analysis undertaken.

The findings of the research will make a significant contribution to knowledge. The first aspect of this contribution is the amount of data collected included in the thesis. This information (research data) is extensive and no other studies have collected this amount of information on decision-making in sub-Saharan Africa. The second aspect is the approach. No other approach to decision-making has followed a practice-based approach, with extensive descriptions of how decisions were made. This has added to academic knowledge. The research achieved an amalgamation of practice and academia by bringing a wealth of knowledge from practice to the academic realm. The third aspect of the research were the findings and a "new" matrix that was developed from the data analysis. This will also make a contribution to existing risk-uncertainty frameworks and knowledge.

It is important to note that the research achieved its objective by answering the question as to how investment decisions were made under uncertainty in sub-Saharan Africa. Firstly, it confirmed that there was a lack of credible market and economic data in sub-Saharan Africa. All the co-researchers confirmed this and eventually this appeared as a pre-requisite for participation in the research. Secondly, each of the co-researchers gave a detailed description of the investment decision process from their companies and their own experiences. From these descriptions, themes emerged that gave the researcher an understanding of the essence of the phenomenon of decision-making under uncertainty. Informed by literature, the researcher was able to draw conclusions and discuss the most probable method of decision-making under uncertainty. The risk-uncertainty matrix describes the effort made by investment decision-makers when moving from uncertainty to risk, that enabled them to price the investment opportunity. Investors were driven by returns, hence they needed to know from the initial (uncertain) position that the final return will (possibly) be acceptable to them, taking into account the priced risk.

Another significant finding and contribution to knowledge that came from the research was the bias and heuristic aspect of decision-making in practice. In practice, decision-makers were guided by company policy and constraints (restrictive measures); hence, decision-makers were biased towards the parameters pre-set by the companies. Decision-makers were also pushed, or work towards, achieving specific returns targets (IRR and yields), hence their decision-making process was anchored to these company parameters and can be deemed as not independently made. This is important as it is a clear distinction from the general population where personal preference takes precedence over group (or company) preference and guidance. Hence, this research presented a different restricted view (based on practice) that was different from the research findings of other researchers who are often open or unrestricted (population sample). As such, investment decisions were accepted as credible or priceable because the investment decision-makers followed a structured (company) procedure. It remains to be proven if, under different company rules or parameters, the process of pricing these investment opportunities would hold. The question of rigour in the investment decisions persisted for the researcher, but the methods that each company followed seemed transparent and credible. However, the researcher's objective was to find and understand the methods they followed rather than to question their investment decisions.

8.2 Recommendations

This study recommends that the research is more relevant to practice and its application would be most suitable to similar practice circumstances. It is essential that, in applying knowledge from this research, a careful review of the background information on the case studies is undertaken. This aims to ensure a firm understanding of the similarity of the case where knowledge is applied to the circumstances in which this research was carried out. This greatly supports the study's contribution to knowledge as there are situations outside practice where the knowledge developed is applicable.

The research presented a practice-based addition to decision-making under uncertainty knowledge. It presented a case of practice based decision-making, where the behavioural biases and heuristics, as observed by Kahneman *et al.* (1982), are bound by the parameters pre-set by the companies that the decision makers work within. It extends Wakker's (2010) proposition that uncertainty is ambiguous and that decision-makers prefer to work under risk where pricing is possible.

The research supports the conclusions of other scholars including Stracca (2004) who identified anomalies in the behavioural finance literature with a focus on those that might impact on market price. The research also supports Thaler's (1999) prediction that behavioural finance was becoming an integral part of mainstream financial analysis. The study identified that the humanistic elements of investment decision making became significant under uncertainty, which supports the findings of Shefrin and Statman (1994) on Behavioural Capital Asset Pricing Theory and Shefrin and Statman (2000) on Behavioural Portfolio Theory.

8.3 Contribution to knowledge

A key finding of the research, its contribution to knowledge, was that investment decision-makers were conscious of the ambiguity of working under uncertainty and that they made an effort to superficially change the conditions under which the decision is made in conditions of risk. It should also be noted that not all cases involving decisions were possible and that investment practitioners abandoned certain investment opportunities where the above point could not be attained.

Another important theory that was confirmed in the research was that companies and people made investment decisions based on current wealth, which was the anchoring principle observed and stated by Kahneman *et al.* (1982). The funds have greater exposure to risk and could take on more projects under uncertain or ambiguous conditions as they look for a higher return on their investment. On the other hand, the insurance company is more risk averse and tends to take on investment opportunities with less risk or lower levels of uncertainty. This was evident in the interviews that the boundaries were aligned to the risk appetite of the company which varied between companies.

One of the other key findings in analysing the heuristics involved in the research was how the limited public data, equivalent to availability heuristics identified by Kahneman *et al*. (1982), played a role in the pricing of investment opportunities. A key feature of making credible investment decisions in an efficient market hypothesis is that investors are informed. On the other hand, real estate markets are not efficient and this is particularly the case for the sub-Saharan African markets. Hence, the "informed local investor" can make a better investment decision, with the advantage of access to local information that is not shared widely on the open market. The challenge is to justify “theoretical correctness”, as defined in Nakata (knowledge pyramid), by presenting market information that can be verified against expert local knowledge (tacit knowledge) that cannot be explicitly presented. The research findings within the companies support those of both Nonaka and Takeuchi (1995) and Ackoff (1989) whose framework indicates that knowledge is eventually the result of data analysis which may lead to wisdom. However, outside the companies, the research findings pose a challenge to the assumption that explicit information enables a rank higher in credibility or acceptability to the level of Nonaka & Takeuchi (1995) and Ackoff‘s (1989) knowledge and wisdom frameworks. The research findings present an alternative hypothesis that tacit knowledge (protected company intellectual intelligence and property within the company) can offer credible knowledge (ranking towards wisdom and knowledge) that can be applied to (company or individual) situations to present solutions and support business and personal decisions.

One other finding from the research was that the primary investors (funds) rely, to a great extent, on tacit knowledge (protected intellectual capital within their companies) of the markets in sub-Saharan Africa. For them, investment decision information (market and economic data) does not have to be explicit to the open investment market. The funds interviewed all had extensive prior experience in these markets, which was attained from either other business ventures that their companies were involved with in sub-Saharan Africa or from experience in similar developing markets with similar conditions

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Another important finding from the research was that funds work on a premise that the investment opportunities, as presented by the inefficiency of the markets in sub-Saharan Africa, suppose the efficient market hypothesis holds and that the markets would adjust (in time) to market yields (and other investment dynamics). Thus, by the time the secondary investors acquire the investment opportunities, the market prices have been adjusted. Hence, the primary (Fund) investors were able to earn a premium return on the market price adjustment offered by the secondary investors (long-term investors like insurance companies). However, this was not guaranteed in these sub-Saharan African markets. Therefore, the primary investors (Funds) set the (required) hurdle return as a pricing mechanism to protect their initial investment in these opportunities. The researcher noted from the study that these primary investors (Funds) needed to make investment decisions under these uncertain conditions to benefit from market adjustment, to basically be "carried" by efficient market hypothesis, and hence "achieve" the benefit of the premium.

8.4 Future Work

The researcher identified several future studies that could further develop the research. Further research could test the decision-making approach in practice (companies) with the general population, with no pre-set restrictions or boundaries by companies. The principle of pre-setting the boundaries is similar to anchoring, as observed by Kahneman *et al.* (1982). It confirms the fact that investment decisions are made in relation to the base case (current wealth) rather than absolute wealth. Companies set the parameters that the company is prepared to risk (lose money) in relation to the possibility of gain. The principles of the research findings can be extended to the general population to consider the above.

Another important direction that could further develop this research could involve a quantitative study, where the research questions are adapted to a "Likert scale" questionnaire, based on the findings of the research. An observation made by the researcher, from the thesis development and the qualitative methodology followed, was that the qualitative methodology was rich in generating concepts from the shared experiences but did not provide the researcher with sufficient opportunity to test these concepts with the general population. Therefore, it remains knowledge specific to the practice situations and its application is limited to similar cases to the research situations. However, it must be emphasised that the knowledge generated in the research was credible in that uniformity and consensus was achieved amongst the co-researchers who have sufficient experience and knowledge of the subject.

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Appendices

Appendix A: Transcripts from the interviews

CASE STUDY #2:

The first interviewee was from a fund that is the leading real estate equity investor in sub Saharan Africa. The fund is a global equity investor with its head office in London (united Kingdom) and was operating in several emerging markets, including; Africa, South East Asia and Latin America. The interviewee had financial background with extensive experience in equity investment as well as real estate developments. The researcher had the opportunity to get insight on the research topic from this company.

CN: This is the interview between Charles, doctorate student and Interviewee #1 from Company #1 recorded on the 7th of September 2016. So we start now. First of all, I want to thank you, Louis, for giving me this opportunity to interview you and to be part of my studies. I understand your time is constrained, so we'll try and keep to an hour and that I will be recording the interview.

INT: Sure.

CN: And also, I may not be making full eye contact because I'll be making some notes as we go along. So, we'll start straightaway with the questions and, as I explained to you, there's two parts. The first part of the interview is basically very generic, asking questions which are brought to your generic number of projects. You may draw from different projects, experiences and decisions on those. And then the second part, I just want you to be a little bit more focused whereby you're thinking of a particular instance or a particular project and then you share your professional decision making on a project and what information was available and we'll make it more professional and very much focused on the particular project.

INT: Okay.

CN: So I'm registered. So, could you describe in detail how you make investment decisions? So when something comes through to Actis or your company or to you, what is the process you go through and what are the things you consider in general for investment decisions?

INT: So we start top-down. So the first thing we have is, we have a mandate for the fund. The fund has constraints around what it can do and it has a strategy that is predetermined. So, for instance, we won't look at a deal in Egypt because we're a sub-Saharan fund. So if we get an opportunity in Egypt, it's immediately off the table. So the first thing is, is it one of our target markets. The second thing is, is it the correct size of equity cheque for us.

CN: Okay. So it's basically by only fund parameters?

INT: The first test is fund parameters.

CN: Okay.

INT: The second test is: generally speaking, we know the markets that we are targeting and we know the kind of things that we want to do in those markets. So we see the extent to which it's on strategy.

CN: So it's targeted markets, different countries?

INT: It's targeted markets, targeted cities.

CN: Cities, okay.

INT: And part of our strategy is a city focused strategy and in those cities we have predetermined what kind of assets – sub-asset classes – so industrial or commercial, retail, residential – that we are interested in looking at. So, as soon as an opportunity comes, we already have a bit of a pre-screening framework —

CN: A filter of some kind?

INT: — a filter of some kind which we put the opportunity through.

CN: Okay. And with that filter obviously you've built background parameters to say – you've kind-of test in terms of risk and in terms of appetite and in terms of all the dynamics to be able to come up with this strategy?

INT: Yes.

CN: So it's a developed company strategy that has all the analyses – market analyses, the competitor analyses – done in the background before the opportunity comes through to you?

INT: To a large extent. So that makes it much easier for us to filter. Sometimes we get opportunities which don't sit within the scope of what we have envisioned. So I've just talked to you about commercial, retail, industrial and residential but, for instance, education. Now education is a sub-asset class which is not really existent in Africa outside of South Africa. No one's really doing anything with it. We haven't seen too many opportunities about it, so we never thought about it very hard.

CN: Okay.

INT: So if we got an education opportunity, we will have to spend more time assessing it because it sits outside the parameters of our initial filter.

CN: Okay.

INT: Similarly, if we got an opportunity in one of our key target asset classes like retail, in a jurisdiction like Senegal which we don't know too well and isn't one of our target markets, we would have to spend more time thinking about that.

CN: Okay.

INT: So it's a filter that is designed to make us more efficient; it's not designed to be prescriptive. If we feel there is an opportunity that sits outside of our filter which is worth us looking at, then we have the ability to do so.

CN: Okay. So now let's move on. Let's say now we've got this opportunity, it's gone through the filters and you say it's in the correct target market —

INT: It looks like it's a good opportunity.

CN: — yes.

INT: The first thing that we do is, we take it to a screening forum. So we have a three-stage investment process.

CN: Okay, three stage. Okay.

INT: The first is screening where we take the opportunity in whatever form we've got it and we say to the broader team "Does this look like something that we should be allocating our time and resources to". And if they say yes, we proceed, we ask for a bit of a budget, usually some travel or some initial due diligence —

CN: To do some site inspections and —

INT: — to do a site inspection, to do usually a little bit of legal work around who owns the land because at this point in time most of the opportunities we get are in relation to land rather than —

CN: Developments?

INT: — yes, land developments rather than existing buildings.

CN: Okay.

INT: So we would just do some initial due diligence and we will do some site visits and we will engage in some kind of exclusivity, so some legal-type agreement. That is us in our screening phase.

CN: The second phase now?

INT: So now that that opportunity has been screened, we will do a lot more work to build up. So what do we think we can do here on this opportunity. We will do a little bit of work around what we think can happen. We will speak to QSs in the market or construction guys in the market, see what they think we can build, what kind of costing we can build up. We will speak to some of the main users. So if it's office, we'll see if we can connect to some of the office people, find out from the likes of a Knight Frank what the office rentals are looking like but to be honest, in the key markets that we operate in, we have most of that domain knowledge.

CN: Okay. The market rentals, yields?

INT: We have all of that. We'll double check and see if anyone's got anything more up to date than we do but to be honest, we —

CN: How do you build that up? Do you have an internal research —

INT: You see, because we are the market.

CN: Okay.

INT: Because in Ghana we built the first shopping centres, in Nigeria we built the first shopping centres, in Kenya we built the first shopping centres. So no one knows more about those shopping centre rentals than we do —

CN: And the rentals (indiscernible - 0:06:30.9) for this type of assets that you bring onto the market. So this is a different type, it's something that doesn't exist? There's no existing stock?

INT: Exactly.

CN: So you are actually demanding it?

INT: So we make the market.

CN: Okay, that's very interesting. Okay. That's all interesting. So that's all the company things that your company does. What I'm more interested [in] is, from you side, you as an investment officer, whether you are preparing an investment paper for review or you are making investment decisions, what are these key things that kind-of tickle you to say "This looks okay"? What are the signs that make you say "This looks fine" [or] "This doesn't look fine"? Because obviously you've got the parameters' guidance but obviously as the individual making decisions, what [are] those things we look for, tick boxes to say — is it tick box or —

INT: So the biggest one is location. It overrides everything else. If you are in the right location we will look very, very hard to make something work on that location. And location is important – most of the markets, we know what the locations are where you would want to do something and it's all about the catchment area around it.

CN: Catchment area around the location, okay.

INT: From a retail point of view, the catchment but then from an office point of view, the location in terms of: is it a user-friendly office.

CN: Access and everything.

INT: It's access, it's congestion, it's ease of use. It's a number of different things. So for each – industrial, the same thing. For industrial, much more focus on you can be somewhere. It's also very much location because industrial is all about breaking bulk. So you need to be able to have big trucks come in; so you need very good access. When it's office, you're not looking at trucks, so you don't need to be on a highway but you need to be in a central node, some kind of central business district or establishing a new kind-of business district which is difficult.

CN: So you're saying to me whatever comes through, we always think about the end game, to say what the end product will look like and what services it'll offer?

INT: Absolutely but that's always what you have to – it is the job of the development professional to understand what product will work on that piece of land, if any.

CN: Okay. (indiscernible - 0:08:45.7) is still going to come: do you have enough catchment; if it's offices, are people going to want to work in that office area; is it a good location. So it's looking at location.

INT: Exactly right. So a good example of that is: we bought a piece of land in Zambia very close to the airport but it is definitely going to work as a retail centre but not within the timeframe that we had. It's going to take too long for the —

CN: Investments to come to fruition?

INT: Investment will come but it will take too long for it to really start humming as a good centre.

CN: Okay.

INT: So we ended up selling that to someone who can sit on that piece of land for longer than we can.

CN: Okay, that's fine. Okay. Now, you have covered a lot of stuff, very interesting stuff. Thank you very much. And then, final to this, the factors now, the other issues that's in Africa. Obviously the key thing, which is the focus of my thesis, is the economic data and the market data. You have explained to me in terms of market data, that you define the market – you actually go out and define the market. But in terms of economic data, what do you rely on?

INT: So we'll always use a third party to do the work around the catchment area particularly in retail. We will always use the likes of a Fernridge or a Lightstone or someone to try and get us – because that informs the size particularly on retail. So, I'll speak a little bit interchangeably but the main focus is on retail. You will get them to verify how big a shopping centre they think —

CN: Can sustain?

INT: — can be sustained in that area. So you've got to consider the supply dynamics, the other shopping centres that might be coming up or that might be competing and the demand dynamics, i.e. how much money is there in that catchment area, how much money is in (inaudible - cross-talking) —

CN: So what you're saying is, you're relying on external experts that will define market studies, economic studies? Whatever factor you feel you're not comfortable to make the investment decision, you'll go out and —

INT: Absolutely.

CN: — you'll find the expert person to help you and give you an informed profession decision?

INT: Absolutely right. So we will use experts to look at the legal side of things. We can even use experts to look at our partners. So we will do due diligence on the partners that we might be dealing with to understand are they politically exposed, are they stressed or de-stressed in terms of financially, are they in or out with the current political crowd, is there anything that we should be aware of. So even on the people we work with, we do our homework.

So we do our homework on the market; we do our homework on the legals and we do the homework on our partners.

CN: Okay. And then obviously find out if the land is (indiscernible - 0:11:17.9), he's got the rights.

INT: Well, that's the legal.

CN: Okay. That's the legal. Okay, that's fine. That's very good stuff. So the way your decision – you've explained to me, if I may summarise, is to say you've got a filter which narrows down the opportunity to say it passes your investment strategy. Then once you've got that you then go to the next stage which is stage B where you do a little bit of research and site visits. Then what is the final stage at the end, if you can say how do you then finally say "Yes, I'm putting our money into this investment decision". It's the final stage (inaudible - cross-talking) —

INT: The very final thing that we do is we sign the construction contract or we buy the land. So usually at stage two – so stage one is we're just screening. At stage two we will sometimes buy the land. So we will have convinced ourselves that the —

CN: The potential.

INT: — the potential is there. We've done a little bit of work with professionals on risk. So we will use a QS to cost. We will try get some market data. We'll pay a little bit of money for it to understand what the rentals are. So we will have an initial feasibility. If that initial feasibility stacks up, we will purchase the land. Once we've purchased the land, we will do a very much more detailed feasibility on —

CN: Detailed designs?

INT: Detailed designs. We will go all the way to the construction contract and at the point where we sign the construction contract, that is our final yes/no decision on whether or not we're going to build this piece of land. Up until then we are largely on risk with all our professionals. So we haven't spent very much money at all but when we sign the construction contract, when we actually break ground, we are now committing to that project (indiscernible - 0:13:07.6).

CN: Okay, that's fine.

INT: To get to that point we need a pre-let position.

CN: Pre-let. Okay, pre-let condition. So you make sure your market is covered. Now can you just explain to me in terms of the risk, from your experience in Africa, what are the risks that are the big items that give you sleepless nights, if I may put it —

INT: Liquidity is the biggest issue in the market at the moment.

CN: Okay. In terms of people who'll afford your rental?

INT: No. No. So Nigeria and Mozambique, there is no dollar liquidity. So they are struggling to convert naira in Nigeria into dollars and they're struggling in Mozambique, for instance, to convert meticais into dollars because both of those countries have had incredibly tough economic times at the moment.

They are fiscally in a bad shape. Their trade balances are out of kilter and it means that financing is very, very difficult to find because of this dollar liquidity risk.

CN: Okay. Now in terms of economics, markets, what other risk do you encounter in your experience in working in Africa?

INT: Market risks?

CN: Ja, markets risks, in terms pick up for your projects.

INT: So the biggest issue is this liquidity issue followed by, and because of it, a lot of the tenants push back and they want to go onto local currency because if there's a liquidity problem, what is effectively happening is your exchange rate is running away. If your exchange rate is running away, then for the tenants, their rental levels in local currency are escalating a lot and so they start pushing back on having dollar linked or dollar based rental levels. So that becomes a huge problem for us. Usually tied to that is at some stage, like they did in Zambia, the government will try to intervene and they will start changing regulations to try to stabilise their currency. Nine times out of ten they will pick the wrong policy like Zambia did and they will do away with things like dollar linked rentals and if you don't have dollar linked rentals, we can't put our dollars into that market.

CN: Okay. Who's going to get the dollars out, okay.

INT: Well, you can't get your dollars out because there's the liquidity issue but also you can't price. If we cannot fund in dollars – if we cannot get income in dollars, we cannot fund in dollars.

CN: Okay. Can you now explain to me another experience – your experience whereby you've gone into a market and you've not been able to find data that can assist you making decisions? What will be your default position in that case? You'll go to an area; you'll employ a local person and they can't get you all the confirmation or markets doesn't seem to be – the reports, they seem to have holes. You are in a situation whereby you realise this looks good to you but the information that you have at hand doesn't seem to satisfy your professional —

INT: So it happens all the time. All of the markets we operate in are very data light. So a lot of the stuff we do is based on – we approach things in two ways. The first is ground-up. So we will do that data analysis using professionals to try build up what they think the capacity of the market is from a demand side. Secondly, we will also come top-down and we will work out what our building costs are and then we will work out what our initial yield target is because we have that as a driver for the investment decision and that spits out a rental level that we need to achieve.

CN: So it gives you comfort if your top-down and your (indiscernible - 0:16:48.8) gives you comfort?

INT: Exactly right. And we will test those rental levels with the market. So, for instance, in the Mozambique context where there is very little formal retail offering at the moment, so the rentals that are on offer are not comparable. So we have had to come up with what we need as a rental to make the scheme work. We then go —

CN: And test?

INT: — we go to Shoprite, we go to Mr Price and we say "Look, these are the rentals". If they say yes, then we know our building costs are okay. If they say no, we say "What rental will you use".

"This is the rental." We will go back and we will try rework the building costs to give us that initial yield. So we're guided by our initial yield in terms of – which is basically our return requirement and establishing rental levels in markets where there is no data.

CN: So what we're basically saying is a bespoke model. So you in every market you're never going to have enough information to tick all the boxes. So we've got to look at different approaches to the same thing and holistically then make a decision.

INT: Yes. So we use different data points. That's absolutely right but very fundamentally what we are doing is, we are not asking the market what they want, we are telling the market what we need.

CN: Okay. In terms of your targets?

INT: In terms of our targets. So it's contradictory to what you are saying because in a sophisticated market like South Africa, the market dictates the rental levels. In these new frontier markets, we are able to dictate our rental needs.

CN: Okay, fantastic. Now I think we've said enough, Louis. Thank you very much for your insight; it's very useful.

I think now I want to move onto the next part and I just want to give you moment. What happens, I'm going to fill out that form (indiscernible - 0:18:33.3) whereby we're going to say: think of one particular project from start to finish that you were involved in, in Africa, outside South Africa whereby what happened, you know, like a story. You tell me your story as you want and I'm not going to interfere. You explain to me how you got it and you give me as much detail as you can and how the investment decision on that particular project was made and at the end of the day it was – and now [you] believe it was a yes, that you'll proceed and do the investment.

INT: Okay.

CN: So if you can just explain to me like a story [that] you are telling. So I'll make a note or what that project is (inaudible - noise) the first one.

INT: The what?

CN: The country will be?

INT: Let's talk about Mozambique because it's the most active one at the moment.

CN: Mozambique, okay. And it's a retail?

INT: It's retail.

CN: Retail, okay. So Maputo or somewhere?

INT: It's in Maputo. It's called Marginal Mall.

CN: Okay. Marginal Mall. So if we just explain from the start, how it all came to you, the partners, and you don't have to mention their names, and how you filtered through all the process, the timeframe in detail. Just tell me a story. That's what I'm interested in.

INT: So we were looking for new markets to expand into. Our historical markets are West and East Africa. It was me tasked with looking at establishing a strategy for Lusophone Africa. Lusophone Africa is Portuguese-speaking, basically Mozambique and Angola.

CN: Okay.

INT: So we started doing our groundwork on Angola and Mozambique in terms of what asset classes are most attractive to be working in; what asset classes is it better to be targeting; which areas would we like to be targeting and coming up with a strategy for both countries.

So during that strategy we focused on specifically Maputo and we started building up a retail thesis around Maputo in terms of what land was available; where we thought the better catchment areas were and then through that we started focusing in a much more narrow way around where the opportunities might be.

That was a three-year process minimum. But before that my boss had been at Standard Bank and he had been working on Maputo transactions. So we knew a lot of the people; we knew a lot of the land; we'd been looking at these deals, a number of these pieces of land for a very long time but we'd felt that Maputo had shifted in its economic fundamentals. So I'm not sure if you're aware but there's a lot of gas available in Mozambique which means that GDP growth in Mozambique should be very high and fast over the next few years.

So we got comfortable with the macro story. We targeted a few pieces of land. One of the pieces of land, the people who owned it, they said "Ja. Look, we're interested. Let's do something together". We'd built up that relationship over a period of years. Not months, years. And that's how we started getting involved.

It has been a very difficult ride. Mozambique has very different laws to Western laws. The Portuguese system is very different and Mozambique is even more different still. So you can't acquire land; you have to acquire buildings on the land which makes buying land very difficult.

So we've had a long process in getting everything sorted. A lot of the law there is very fudgeable. It's not quite clear; it's open to interpretation. So getting the right professional team behind us in terms of lawyers has been very crucial.

As we started pushing the button on Mozambique and on this particular project, it was revealed that the government had stolen 1.5 billion dollars which meant that the DFIs, the big donors stopped funding into Mozambique which sent that currency into crisis and it meant that the banks were very reticent to provide debt funding to us. So we have to relook at all of our debt funding again because the banks were so scared. We finally got them to get to a position where we think that they will fund but we've had to give very big concessions.

At the same time we managed to hit our prelease target easily but a lot of the South Africans have now got very nervous about Mozambique because of this whole issue with bad press and the government and are the DFIs going to fund. So we're currently building because we started but we are building in a very, very difficult time in Mozambique's history which is making life incredibly difficult for us.

But location, location, location. We have the best location in Maputo. We did all our homework around that. We secured the right site. Also, our thesis there isn't predicated on strong GDP growth; it's predicated on substitution. Substitution of Mozambicans shopping in Nelspruit and substitution of formal retail for informal retail. So Mozambique is predominantly an informal retail market and we will make it formal. So we're not trying to capture more dollars. We're simply trying to capture the dollars that are in existence in our shopping centre. It's a regional dominant shopping centre. So it is relatively immune to competition.

So it's progressing okay but if we had been doing this two years ago it would be flying and if we were doing this in two years' time it will be flying.

CN: (indiscernible - 0:24:12.3)

INT: But the timing is difficult. Luckily for us it takes two years to build a shopping centre. So we are relatively confident that the situation in Mozambique will stabilise over, to be honest, the next three months but certainly in the next six months. So life should get a bit easier for us.

But that just gives you an indication on, even though we did all our homework two years ago, all the indicators were completely right, we did not bargain on the fact that the Mozambique government would steal so much money.

CN: You have given me very good insights. I just want to come to the last part of my thesis basically just about (indiscernible - 0:24:46.6). I've understood and

I want to confirm with you that basically your investment strategy is more: you want to take control and you want to get comfort through understanding in terms of your parameters and in terms of your targets, you've said you defined markets. Is that predominantly how you approach? You can summarise it, you know, in your experience in your company, that you basically want to control and take control of the dynamics, you know, kind-of mould your own investment dynamics?

INT: We have to because of the markets in which we operate. So because they are frontier markets, because, to be quite frank, we know more than anyone else, it means that we have to be in a controlling position. For starters, we set the strategy upfront because we're a fund. So for each fund we set a different strategy and we go to the market and we say: this is the strategy that we want to execute on, give us your money. So they do but it's to a predetermined strategy.

We then have to implement that strategy on the ground and in order to implement it correctly, you have to be the ones who are making —

CN: Driving it.

INT: — to be driving it. Controlling it —

CN: So driving the rents, driving the (inaudible - cross-talking) —

INT: Yes. I'm very scared about —

CN: Controlling.

INT: — control.

CN: Control is not driving.

INT: But it's more driving and it's more – we put together bespoke teams. So we have a very different model to some of our competitors who come with their own construction company behind it or their own DM or their own PM. We don't have any of that. We are real estate financers.

CN: Okay. So basically it's bespoke for most of your projects?

INT: Every project in every country is a bespoke team; the best team that we can put together for that project.

CN: And so with different dynamics and as the dynamics come through you get external help for things you're not comfortable [with], for things that you already have information, intelligence would be the business. You use that information for things where you need to drive and make demands. You engage with the retailers and say "This is what we need, can you support it" and that's how we do it.

INT: And, to be honest, a lot of the market reports that we do aren't for us, they're for the bank. The banks need to see something around market research. Usually we have a good feel for what we think can be sustained in that market.

CN: Okay, for the debt. Basically it's (indiscernible - 0:26:58.0).

INT: So the debt providers are very good at providing a rigorous, thought-out process for the development. So you'll see a lot of guys who don't develop with debt, they can get things very wrong. They're building on gut and that's not a good thing.

CN: But they assist you now with your own investment decisions. So as you're working through the investment decision process, you are now engaging with the debt providers —

INT: Yes.

CN: — and you work the process parallel, whatever they unveil to you, you share intelligence.

INT: We do but with everyone including the retailers or the office owners. So they will be telling us "Look, this is what we need in the market. This is the kind of specification we want". That informs our costing. "This is the kind of rental that we can provide." That informs our revenue. So between the two then we have to try come up with the return that we need.

CN: Okay.

INT: But you're absolutely right and why the banks – banks tend to follow sponsors who have the most rigorous investment procedures because they like it, they know that we've gone through the thought and we've gone through the effort. It's not only about the property side, it's about the financing side and the structuring around the finance, how we're going to get money out, how are we going to get money in, who's going to run the company. All of those things are – there's a lot more to property development than bricks and mortar.

CN: Okay. (indiscernible - 0:28:18.9) my thesis now. (indiscernible - 0:28:20.5) this is basically, is to say that you're basically using information from different sources and from top-up, bottom-up, from your partners, from your retailers who also do their own investigations and bring on board the intelligence and market information. And the combination of all information assists you to give you comfort that this is the correct investment decisions.

So, if for example – okay, I'm going to summarise – even (indiscernible - 0:28:48.0) banker highlights something and say they're not comfortable with something, the economic growth, you then look further into it and, you know —

INT: We have to prove to them. And the same, if the tenant has done their research and they say "We can't do rentals like this" then we have to go back and look at everything again.

CN: And there was feasibility back again.

INT: Exactly.

CN: So you autocorrect?

INT: It's iterative. It's a very iterative investment decision-making process. You get some information, you go to the next stage, you get more information, you progress to the next stage. Sometimes you have to go relook at your assumptions and correct them. Sometimes you have to do more cost engineering to get the cost down to allow for rental levels to reduce. So it's very iterative but what you need in an iterative process is, you need to have defined what your fixed variables are and in our case it's pretty much returns. So we have to get to those return levels and therefore if rentals are under pressure, we have to reduce costs. If costs are rising, we have to increase rentals.

CN: And through the iterative process you're always checking if you're getting your returns because at the end of the day when you report to your principal, it has to have met the (indiscernible - 0:29:55.0).

INT: Exactly right and a lot of guys don't – they do their feasibility; they don't revisit it. We are updating our feasibility on a monthly basis, if not weekly. As soon as information comes back, we look at the feasibility, we see what it's doing to our returns.

CN: Okay. So in summary, your investment decision is not an event, it's a series of events.

INT: Absolutely.

CN: As you progress through, you basically manage your costs through the investment process to say you're going to put so much money, you go through a next stage, put so much money and as you see more promise, you invest a lot more time and a lot more money —

INT: Exactly.

CN: — until at the end everything seems to make promise that's —

INT: At the end you fix your budget, you fix your pricing with your contractor and pull the trigger on the investment.

CN: Then you are kind-of comfortable at this stage —

INT: Exactly.

CN: — and the debt is in place.

INT: The debt is there more or less. It's agreed; so it's signed. The tenants have signed; so you've got pre-let; you've met pre-let hurdles; you've got debt in place; you've got land in place; it's clean and clear; you either own it or you're about to; and you've got costing in place and it's more or less fixed. So you fixed the variables to the extent that you possibly can.

CN: And that’s a series of events?

INT: And that's a series of events and they interlink. So you fix the one and then you need to change it, so you fix it again and then you get to the position, you pull the trigger and off you go and you close your eyes and you hope —

CN: (inaudible - cross-talking) make an investment and then you spill the champagne.

INT: Ja.

CN: Okay. Thank you very much, L…... I want to thank L….. for his time for my doctorate to say I'm rather grateful for him and I wish him the best of luck in his job. And I will share – I want to record it, I will share the findings of my research with him and I —

INT: Excellent.

CN: — hope it to be useful to his professional career.

INT: Yes.

CN: Thank you very much.

INT: Thanks Charles.

CN: Okay.

(Interview ends)

CASE STUDY #3:

The second interviewee was from the second largest real estate equity investor in sub Saharan Africa, also a fund. The fund was backed by a leading South African bank with its head office in Johannesburg, South Africa. The interviewee had extensive experience in real estate equity investment and previous worked for the first interviewee company (leading equity investor fund). The interviewee had both investment experience and development experience in sub Saharan Africa.

CN: We start this interview with Company #2, Interviewee #2. Thank you very much, Mr Interviewee #2 for giving us the opportunity to undertake this research. We start now with the questions.

INT: Okay.

CN: So basically what I'm trying to understand your investment decision making process, if your investment decision process is formalised or structured within Company #2? Do you have a set criteria or a process flow that you follow in making investment decisions?

INT: Ja, we've got a very formal process. It starts right in the beginning where you get an opportunity. Then you present this opportunity to a screening committee. Now the screening committee will give you the fatal flaws, they'll say we need more information on this, whether we intend to go ahead with it or it's a clear no or a clear yes. It gives you direction.

CN: ???? Is there any parameters that the company says – to say —

INT: So, don't forget —

CN: — other countries – I know you are Company #2 so you've targeted countries.

INT: Yes.

CN: ???

INT: So our fund – we've got our fund – I'll talk about Fund I at the moment. We've just finished Fund I – is, we had a sub-Sahara specialising in Nigeria, Ghana and Angola (inaudible - cross-talking).

CN: Angola

INT: Then further we specialised in shopping centres, offices and warehouses. That's our speciality.

CN: And towns, do you a strategy as to what towns —

INT: Ja. Typically we will start in capital cities and that's where our focus is. We might do secondary cities.

CN: Okay, that's fine. And ??? fund parameters, so when you go through the initial screening, obviously you have gone through and made sure it meets the fund parameters. Is there a dynamic or at that very early moment, you're already making investment decisions as an investment (inaudible - cross-talking) —

INT: So what we have to do, to raise the funds we had to get a 25 percent IRR to investors. So that's what we've promised investors. So anything you'll do is guided by IRR. So you must be able to bring projects that you think will have a very good chance of obtaining those levels. So before we even start we've got a hurdle that we've got to climb and that will be the 25 percent IRR. So you're going to have to find and you're going to have to prove that you can reach a 25 percent IRR.

CN: Okay. So initially – every early on you're already making investment decisions. So before it even goes to screening. And then after the screening process, what is the next stage?

INT: So then you engage with the landowner who – and we do things slightly differently – is that we model these projects. So we know exactly what should be on the land before professionals get involved. We model the projects, so we know exactly how much we should pay for the land. Then we start – typically every project goes into an SPV. The landowner takes equity typically. So when we understand how much the land is worth, then we close the transaction legally in some form either through a binding heads of terms or something so we can know that we've fixed the land price.

CN: Okay. Now the focus of my research is now at that moment when you are doing that initial – we've passed screening, we are now doing some kind of analysis to see if this makes investment sense. I'm more concerned about the data that you use. There's massive data obviously in terms of what your likely to get (indiscernible - 0:03:33.7) and it's obviously economic outlook which helps you with the previous economic performance of the country or the town but also helps you (indiscernible - 0:03:43.2) focus . Now generally, because it's the first (indiscernible - 0:03:49.2) questionnaire, is that how do you generally handle these ambiguous markets or economic data?

INT: So the first step is, if you're not on the ground, don't invest, firstly. So we're very clear that, I mean, for me personally, I do one week Ghana, one week Jo'burg, one week Ghana. So you know what the economic cycles are and each cycle gives a different opportunity and it depends where you are in the cycle.

And don't forget, we personally – I was responsible for the first shopping centre in Nigeria, the first one in Ghana. So we're doing second and third generation projects. So when you're doing a first generation project, the problem of data is completely different to a second or a third. So third generation projects which we are —

CN: It's a new product because the product is not there.

INT: — on the economics of a project because you know what the guys are paying on rental in the last project so you therefore can assume what they're going to pay on the next project. Then by having boots on the ground you'll understand, are the rentals getting weaker or are they getting stronger. If they are getting weaker, you have to alter your product. So you don't put in a product that can withstand a high so then – then you'll have a vacant shopping centre. So what you've got to do is understand where you are in the market, in the economic cycle and where you are actually building your investment. So you're building that into an outlying area, you don't do an A grade —

CN: (indiscernible - 0:05:15.8)

INT: A lot of investors have made that mistake in Ghana but if you're going outlying, you alter your product and therefore by altering the product you can lower the rentals because – wherever you go. So we can use the data of our previous projects.

CN: So you're building your own intelligence. Your own data intelligence?

INT: Yes. And we don’t share that intelligence.

CN: Okay, because it's an in-house?

INT: Yes. And because we've had the privilege of doing the first shopping centres in all these countries, so we know what that data is. A lot of the time we worry about newcomers to the markets because they don't know that data.

CN: Okay. So your focus tends to be country specific?

INT: Yes.

CN: And understand to the maximum the economics, the markets to build your own intelligence?

INT: Yes.

CN: You have your own internal (inaudible - cross-talking) —

INT: Ja. And you have to go to the community to understand the community as well. You cannot just —

CN: (inaudible - cross-talking) their needs, okay.

INT: Ja, their needs. They've very different. If you design a shopping centre in Kumasi, it's different to a shopping centre you do in (Tema? 0:06:11.3).

CN: Cultural —

INT: Cultural differences. They were different to the one that's in Nigeria —

CN: (inaudible - cross-talking) Shopping habits and —

INT: Ja. And it's also about the culture of the people.

CN: Okay. Basically you're saying to counteract the challenge of this incredible data, you actually build your own database?

INT: Yes.

CN: (inaudible - cross-talking)

INT: (inaudible - cross-talking) But what you do, you've got to give yourself the best chance of success. So if you've got good data and you ignore socioeconomic things, your success won't be as good but if you've got socioeconomic intelligence and you've got data intelligence, you've got the best chance of success.

CN: Okay. Now I want to ask further on the data, (indiscernible - 0:06:51.3) external market studies like your FernBridge, Demacon and —

INT: Sometimes we do. So what actually happens is – it's quite amusing because we asked them to do it and they can end up asking us anyway.

CN: For the information?

INT: Because we've got the information. But we do use Fernridge, we do for more demographics, not for rental levels. (indiscernible - 0:07:09.6) demographic studies. Those demographic studies – and we use Gintar, those guys (indiscernible - 0:07:15.1) Gintar . Those demographic studies give us just – they're affirmations. The affirmations of – that we really know. So we've got a gut feeling of what should be right and don't forget, we live in a society where people want to be justified.

CN: Okay.

INT: So what you've got to do, if I say I want to do a 15 000m² and then the demographic is 15 000, you're happy. In other words, it's been justified.

CN: It's supporting (inaudible - cross-talking) —

INT: (inaudible - cross-talking) because there's such lack of information out there on what things are happening is that a lot of those times you have to actually – by having that in-depth socioeconomic knowledge, you know what is right. Then you bring other people to justify. So that's why we're slightly unique, where other people will send the demographics first.

CN: They rely on —

INT: They rely on it. We don't rely on it but we're just crosschecking.

CN: So now the focus in terms of (indiscernible - 0:08:11.4) is basically is to focus on that information, then how you process it as an investment committee or as an investment decision maker.

INT: Ja. So (indiscernible - 0:08:17.3) rely very much on your internal knowledge and intelligence and then you get secondary and maybe third party, fourth party information, then build onto what you already know. But you'll be very lucky if you've got second or third. There's countries where you haven't got second or third parties to give information. So (indiscernible - 0:08:39.9) demographics. You might have leasing agents that you will give you —

CN: Brokers.

INT: Brokers and that but they're normally brokering your building anyway; so it's our information anyway. So we know what that information is and that's the information – they are not telling others which tenant is struggling, which one is doing well because we know that. So you alter your tenant mix for the next investment.

CN: So now I'm telling you as an individual investment decision maker, are you comfortable with just relying on the data that you build because normally these knowns like if you go to First World countries, the information (indiscernible - 0:09:12.8) and everyone accepts it. So if, for example, you present your investors outside Company #2, a project, and you now say "We believe this is what the data is like," are you comfortable or confident when you do these presentations that this is a credible decision-making process.

INT: So I'll reverse it. The reason why people are getting invested in us – and I think we're probably the most successful fund in Africa because we started afterwards – don't forget, I was development director for Actis before, so I've got all of that information. So why people invest with us and why they've given us so much money because there is no data and they trust us. They trust us because we're telling them – and one of our things when we've raised money, we're telling them (indiscernible - 0:10:01.5) there's no data points.

So in Johannesburg you can get cap rates (indiscernible - 0:10:06.4). What are the cap rates in Africa; they don't know. There's only bee two shopping centres sold in the whole of West Africa. It's the (indiscernible - 0:10:12.7) which we're involved with – which I was involved with (indiscernible - 0:10:15.2) Shopping Centre I was involved with. So we know what the capital —

CN: So you have defined the market?

INT: Yes.

CN: So we've created this market. You know what the rentals are.

INT: Ja.

CN: (indiscernible - 0:10:25.4) and you're confident. What builds that, is it success? (indiscernible - 0:10:33.1). So we've built credibility and success (inaudible - cross-talking) —

INT: Ja. So we've got the track record out there. So we've done all of the shopping centres in West Africa basically. Not all of them but most of the successful ones. We've never been over time and all have been under budget. So from that track record is why investors invest us, because the competitors aren't doing what we are doing.

CN: They haven't done it?

INT: No, they (inaudible - cross-talking) —

CN: They may have gut feel but it's not been tested?

INT: No.

CN: Now if I can take you back and probably because I'm trying to get (indiscernible - 0:11:02.9). So now if I can take you back one step before, before you had credibility, before you were successful, what gave you comfort that you're doing the right thing with the (indiscernible - 0:11:11.7) data? Are you spending a lot of time, a lot of research, delving data, intelligence?

INT: Ja. So I can take you through the first two shopping centre that I did. The first one in Nigeria —

CN: Okay. That will be the second part of our (inaudible - cross-talking) —

INT: — no-no, the second one was the Accra Mall in Accra.

CN: Okay.

INT: So there weren't in any other shopping centres in the whole country.

CN: (indiscernible - audio quality)

INT: No (indiscernible - 0:11:33.7), nothing. No other product. And what a lot of people forget is that on a fund like ours and an IRR fund, you rely on debt. So you've got to step back. Where are you getting debt from?

(interview ends)

CASE STUDY #4:

The third interviewee was from a leading South African construction company, with its head offices in Johannesburg and operating in sub Saharan Africa and Europe (United Kingdom and Eastern Europe). The construction company had an "investments and concession" division that invested in real estate and PPP projects in sub Saharan Africa and Eastern Europe. The interviewee had financial background with extensive experience in real estate investments in sub Saharan Africa.

CN: Okay, Mr Interviewee #3, thank you for granting me the opportunity to do my interview for my doctorate research. Then I say to you, recorded here as well, is that I will analyse whatever I discuss with you and after analysing, I'll come back to you, you will check it and make sure you are happy with the content. And also, the information that you share with me we recorded, your name, company name, projects' names will not appear in the report and I will ensure that that is the case.

And then also, the benefit for you is that you will get a copy of what other people that I'll interview have said and you'll a copy of the final thesis which will have a theory which is very useful for decision making. So this is going to be very useful.

And also, the way you will see this because it's a doctorate research, it's not necessarily that you are – the co-researcher, so you are part of the research process. You will come back to me with comments and, you know, the final (thesis 0:01:04.5). So at any time feel free to say "I thought about this, Charles, that we discussed, what about we have a further discussion". So you are actually part of the research project and you'll be acknowledged accordingly in the final report.

INT: Okay.

CN: So just as I explained to you, what I'm looking at for my doctorate research is a phenomenological study which basically looks at the human aspects of behaviour in terms of decision making in real estate in sub-Saharan Africa. So what I'm looking at is that from my initial literature review it's come up that the information that's used for investment decisions is suspect, if I may put it that way, that it's subject to credibility checks.

So what I'm putting to you as some kind of hypothesis is that you often come across situations where you have information that you are to use to make investment decisions and while you have that information and in your conscious or subconscious, you still proceed and make that final decision. So you stand accused and the first thing I want to do is to confirm with you if in your career or in the recent times that you have been in a situation whereby you can't make investment decisions under uncertainty. Is that the case?

INT: That is true.

CN: It's true. Okay, that's fine. So at least you're the right person to interview. Now what basically I think is – there's two aspects of my questionnaire — the first aspect is very general, you can draw from different projects and I'm going to ask generic questions. Then the last part, I want you to focus more on a specific project. So we say a project in Ghana that you had to make decisions and you take me through the whole process, the loops and how you eventually made a decision, whether it was positive or negative. But it's going to be very much focused on the particular project in the particular country. But the first part is very generic.

So I will start with my questions while you're thinking about the second part.

INT: Okay.

CN: So how do you make investment decisions as Company #3? What's the process?

INT: So I think what we will consider is, from an investment basis, the first thing is whether it's a short-term investment or whether it's a longer term investment. So it's kind-of the duration. So from that perspective we would then kind-of gather what information is needed from a short-term perspective versus a long-term perspective.

So we would, for instance, look at macroeconomic information from a country. The macroeconomic information is – it depends which countries, you know, for a lot of sub-Saharan countries that information is kind-of available. However, it's obviously based on forecasted information as well. So you can go to – like the World Bank would have information and the IMF would have information. Then also, there's a lot of companies that actually have like analysts that kind-of predict how the macroeconomic environment of a country is going to look like.

So macroeconomic information, we do consider the relationships that a country's got. Like for instance, are they part of the New York Convention, do they subscribe to international organisations, you know, where in those international organisations certain principles or agreements are in place which countries would follow. We do use that to see if there's like specific risk to a country, you know, as a result of organisations that they don't subscribe to and there's certainly reasons to why a country doesn't subscribe to those international organisations. So that would be a consideration.

Then we'll consider obviously rules and regulations in the country.

CN: (inaudible - cross-talking) risk?

INT: Ja. So it's kind-of legal risk, you know, the availability of laws in the country, so the extent to what country has actually got laws in place. We'll look at —

CN: Including tax laws?

INT: — tax laws. We'll look at employment regulations. We'll look at – it depends on what type of project there is but if it's specifically real estate you look, for instance, at land ownership. You would look at bilateral investment agreements that might be available. You would look at the extent of – because you do find organisations that will actually underwrite the risk of doing business in certain countries, like the ECIC. So you kind-of would look at how they perceive that —

CN: The risk in the country.

INT: — the risk in the country and the ability to actually underwrite your investment.

CN: Okay. So in general what you do is, you basically have a whole list of things you look at which are the risk elements and —

INT: Ja.

CN: — you then tie in that information. Now the focus of the thesis is the information. How credible is this information that you obviously use in making your investment decisions? Are you comfortable with it as an individual, as an investment (inaudible - cross-talking)?

INT: Sub Saharan Africa, it's a bit more difficult because you don't always know how up to date the information is that you've got access to. So you it's not like you – when you access the information – that you're always 100 percent sure that information is 100 percent up to date. The processes for our laws are established and all countries are not equal. Specifically look at the Francophone Africa countries. For example, the way law is made is maybe in a lesser rigid environment than what you would find in a country like South Africa or developed countries. So one of the big concerns is always how credible is information because how up to date is the information. You know, the law might be there but they actually pass a law but nobody knows about it because it's not necessarily available to public in general [that] you would find in developed countries.

CN: Okay. Having said that now, only just delving with law, would you say at Company #3 that your process is structured or basically the investment decision-making process is up to the investment decision makers to kind-of analyse or go through a process to make an investment decision?

INT: So I would definitely say so because obviously you need to assess the risk and put a number to the risk, if you understand what I mean, —

CN: From uncertainty to certainty.

INT: — so for uncertainty to certainty.

CN: So that you can price it.

INT: Ja. So you kind-of go through a process and say either this we can mitigate by putting the following controls and procedures in place —

CN: Or you say "We can take for whatever price".

INT: — or we take it at whatever price at a specific return.

CN: Is that a uniform structured process at Company #3 in your opinion or you reckon individual preferences or individual processes in people's minds result in the final investment decision?

INT: I definitely think that each and every individual would add to the process of the decision making. People would have different views of, for example, how the risk could be mitigated, should the risk be accepted, shouldn't the risk be costed or how should the risk be treated. Ja.

CN: Okay. So now just to take it a bit further – I'm putting you on the spot here, this is a doctorate research so it must be in depth – is there bias? Like you may find that certain investment committee members are biased towards certain projects or certain countries whereby at the end of the day the decision making is made but they seem to be biased towards certain preferences?

INT: Ja, I do believe. I definitely do believe that people are probably more biased and maybe it's because they're more comfortable with what they know about a country. Maybe what information that they're —

CN: Comfortable with.

INT: — comfortable with, with people that they spoke to that are operating in [those] countries, you know, previous experiences, people that physically operate and been kind-of working in that environment and know it. Not all individuals will have access to exactly the same information, if you understand. You'll do like presentations on information but how people interpret it will be based on everybody's own experience whether they'll perceive it to be a risk or not a risk.

CN: Okay. The next part of it – and focus always on the information – how do you cleanse the information? How do you recycle it? How do you check, put cross and balances to make sure that at the end of the day when you make your investment decision, you at least have comfort as an individual that you base your investment decisions on rational principles?

INT: So how we do try to mitigate a lot of the risks or perceived risks is, we do make use of consultants as well in countries. So in the country that we operate in, we'll go and search on credible consultants and we would kind-of put information to them and requesting the accuracy thereof or based on their experience or based on practically how certain risks are addressed in the country, you know, their experience that they've had, the interpretation thereof. So we do rely on in-country —

CN: Okay. Multiple resources.

INT: — multiple resources of information as well. And where we, for instance, find that it's a project that maybe we're not comfortable with the expertise within a country, we might actually go maybe to more developed countries' expertise and kind-of use the interpretation thereof. However, we always do tend to go to in-country, especially you get like the practical, on-the-ground knowledge of how it is addressed.

CN: Okay. Because this is a phenomenological study it's based on human aspects. Can you explain to me the investment decision process, is it a one-off or it's a series of events that happens within you to come a decision where you say: I believe now this project is viable or not viable or the risk can be managed?

INT: It's definitely a continual process. You gather information, you would have other discussions and there's maybe additional information or maybe there's – it's like a continual assessment of the investment risk. Or you might be uncomfortable about a certain aspect, for example exchange control or exchange control fluctuations, you know, that aspect and you try to gather more or additional information.

So it's definitely not a once-off decision. It's like you build information to that. And if you look at the investment committee as a whole, obviously not everybody that sits on that investment committee has necessarily been involved throughout the process. So for certain people sitting on an investment committee, it might be "This is information I have and I need to make a decision based on it and therefore I do have questions. I can ask the people that's been involved in the process and building the knowledge to clarify or provide additional information or additional background".

CN: So at the end of the day or in summary, just to rehash what you are saying, it's a process.

INT: Ja.

CN: You start getting information. Whatever you're not comfortable with, you have (indiscernible - 0:14:19.2). Then as you get along you get other people to provide additional information until you get comfort. So is the decision making for you at a point whereby you have comfort that whatever risk is there you understand and you can mitigate or you can price? Where is the point that you say "I think this project now is at a point whereby it's acceptable in terms of investment"?

INT: Well, hopefully before it goes to the investment committee. It's probably kind-of a combination of it because when you understand or investigate a country, you kind-of get a feel for —

CN: What's going on in the country.

INT: — ja, what's going on and whether it's a risk country or not a risk country, if you understand what I mean. So if you compare, for instance, Botswana and

Mauritius to a country like the DRC, just based on the processes and the structures that's in place within a country, you might already get a lot more comfort than you'll get, for instance, going to other countries where the structures are not as rigid. So it's: at what point do you actually come to making that decision, tjoh.

CN: Different for different countries?

INT: It's different for different countries and also it depends on what the project is, as I said, it's short term or long term, whether it's – ja, it depends on the type of project and also the investment value that you put to it, you know, the process that you follow for a million dollar investment might not be the same than for a $200 million investment.

CN: Okay. Now the next thing – I had to put you on the spot because I had to try and get some juice out of you. The other thing I want to ask is like you've said in Africa with this information there is constant rebasing of GDP data within Nigeria, Ghana and there's constant changes in exchange control laws and everything and that is pretty much unpredictable. How sure can you be at any point that you've made a decision in Africa, that it was the correct decision based on what you've seen in the past few years, if I can put it that way?

INT: Yoh. Definitely everything keeps on changing and probably what's one of your biggest risks is how small the economies are. So the economies are exceptionally volatile and the countries have to adjust to the volatility within their economies. Most of the sub Saharan African countries do not have mature economies. It's very commodity driven, very volatile [and], as I say, small. So the smallest effect on international —

CN: Price of oil, for instance.

INT: — price of oil, price of gold, copper, diamonds, it's got a direct, immediate effect on the country. So again, if you make the decision it will obviously be one of the things that we do consider, is the potential for rebasing, the potential for a change in what the economy basket is made up of. So when you make that decision it's based on that background and information that you have at the time. Obviously you accept the fact that it's —

CN: May change.

INT: — especially in the long-term investment. If you take a 20-year view on an investment and you're looking at a small economy, then you need to look at other mechanisms like, for instance, ECIC cover or investment protection because a lot of the African countries do offer investment protection for foreign countries – so it invests into that or into their country.

But ja, it's what is available to mitigate your risk. So it will be either a combination of insurance. It might be that based on the value of the investment, you know, actually the insurance that you get from the investment agency within the country. It might be the constitution in the country. It might be as a result of bilateral agreements that that country has with other countries which we also assess, is kind-of from where do you make the investment and what's the relationship with that country.

CN: Okay. At the moment, what do you reckon would be the biggest risk in investing in sub-Saharan Africa currently? … Liquidity?

INT: Ja. So if you look at it, for me there's two main risks. So the two risks are firstly liquidity which is linked to kind-of exchange fluctuation and exchange control regulations because countries would generally, to protect their economy want their currencies and inflation within the country, would impose more strict or less strict exchange control mechanisms to manage the investment that goes into a country as well as the returns that goes out.

Then directly linked with that, you know, if liquidity is a problem in the country, the only way they can get additional income is taxes.

CN: So we are always exposed to that more?

INT: So uncertainty in terms of how taxation rules would be amended and we see that regularly in sub-Saharan Africa where taxation rules are actually regularly amended to manage their own collection because obviously the tax authority is just a mechanism of government to manage the economy. You need so much money to do the work and you can either get it from foreigners or you can get it from tax in the country.

CN: So now you've given me a lot (indiscernible - 0:21:00.5).

INT: Hopefully.

CN: Will you say that it's possible to make a real estate investment decision, a rational one under these circumstances in Africa?

INT: With absolute, hundred percent certainty to say that that investment would never be affected, it's not possible in sub-Saharan Africa purely because of —

CN: Uncertainty.

INT: — uncertainty within – [volatility] of economies, I mean, you can just have a look how often governments change and —

CN: And policy.

INT: — policy. If government changes, policy changes. Some policies change to keep people in government. So with a hundred percent certainty there's —

CN: (indiscernible - 0:21:49.6)

INT: — but I think it will be true for any investment that you make; not only necessarily for real estate or specific to sub-Saharan Africa. So definitely not hundred percent. So it's kind-of getting to that comfortable level.

CN: Can I push you a bit further there? Are you then not – investors making decisions because the money is there, you have to make a decision or you reckon somewhere in the dark there is some light to say "Yes, we are comfortable that this is the correct or it's a rational decision"? What's your measure on that?

INT: So the kind of investment decisions I'm involved in, the money is not just necessarily regularly available. So it's not like there's an endless pot for investment. You're definitely not making the decision just purely because you think you have to and the money is available.

CN: Okay.

INT: It is all about the balance between risk, reward. So one of the returns – you know, if the investment returns are high, obviously you can take more risk. So it is that (inaudible - cross-talking).

CN: So it's purely a professional investment decision to say: yes, with the information we have at hand and with the measures and with the returns, it's the correct decision to make? You're comfortable making the decision?

INT: Ja.

CN: Okay. That's fine.

INT: No, definitely —

CN: I'm not going to tell your boss about it.

INT: It's based on information. It's based on return. So if you've got low margins, often you're going to take less risk. So ja.

CN: Okay, that's fine. Now I'm going to go easy on you. Wim, I want you to move away from all the generic stuff and look specifically at a project anywhere in Africa. You can just name a real estate project – it has to be real estate, hey – and where you've had to make an investment decision. Explain to me, give me a bit of background as to what information you had at hand and what was the process.

INT: Just in terms of real estate investment, does that include the construction of real estate or is it clearly where we're like the owner of the property?

CN: You involve construction because it involves construction. So it involves construction projects but on buildings where you've had to put in money for the company to say: yes, we'll invest and what is the risk. And explain to me the information you had at hand. I'm going to do less intervention now. I'm going to give you the onus to just explain everything like a case study.

INT: Just in terms of that real estate investment, obviously there was a lot of projects, in terms execution of projects is fairly limited, hey.

CN: No, it can be one. Just give me one experience because I want to develop some kind of a case study to make sure that you've had a much more in-depth discussion or description because at the end of the day I need to describe how you approached the thing and I just want to look for descriptions on this part. … Even with Capital Place.

INT: Ja. (indiscernible - 0:25:08.9) where we physically executed and constructed. So it must actually be a good example in terms of Capital Place.

CN: Okay. How the investment decision was made. I'm more concerned about the investment decision.

INT: So that's now a bit far back. That was in – when did we start that investment, in 2012?

CN: 2012 (indiscernible - 0:25:36.2).

INT: Roughly in 2012, I think. And also if I just kind-of consider Capital Place at that stage compared to what we're currently doing, the process is not exactly the same because obviously the world markets also changed; —

CN: And Ghana's economy has changed.

INT: — Ghana's economy changed. Ghana's regulatory environment changed. The risk associated with countries has changed a lot. If you take 2012, liquidity wasn't necessarily a problem, whereas internationally it is a problem.

So if you take, for instance, the Ghana decision, the process that was followed, definitely there was a – in terms of a country analysis. So the country was assessed. The property investment decision at that stage was also on the back of previous experience that Group Five had.

CN: In Ghana?

INT: In Ghana because Group Five has been operating in Ghana basically for 20-25, probably close to 30 years now. So there's definitely been a lot of experience especially on the guys that work on the mining projects. So in terms of country experience, there was a lot of knowledge —

CN: Information and knowledge.

INT: — on what is available from the country. So kind-of a layer that had to be put on that was especially with regards to property ownership, the risk associated with property ownership. Initially we also looked at potentially selling units within the structure and not necessarily making a rental income from that project. So we did start to consider what are the actual processes and how long does it take and what is the risk as a result of the delay in transfer. So it's associated with that.

Ghana, when we looked at Capital Place for instance, didn't have strict exchange control regulations. So we invested in dollars. The investment amount – you know, originally we did try to see if we could get ECIC cover for the investment within Ghana. We then kind-of compared the cost of that cover with the investment value. So we kind-of decided that based on the amount of eventual equity that we've put into the project, what was required to seed, the cost of the cover wasn't necessarily justifiable. So we didn't proceed with insurance cover on the investment.

Ghana [does] have like an investment commission. So our investment within Ghana was registered with the investment commission, so you do get some protection of that in terms of the laws that they have, you're kind-of guaranteed to be able to repatriate your returns on the project. So, as I mentioned before, Ghana, when we did that investment did not have exchange control regulations. So you could kind-of freely transfer US dollars. So, for instance, the project was funded through an international bank which was a dollar based funding —

CN: And there was equity obviously coming from companies.

INT: — and equity coming from foreign investors as well as local investors but the foreign investors made US dollar investments into Ghana. So the Ghanaian cedi became very volatile and Ghana imposed exchange control regulations that were exceptionally strict at one stage, that put a lot of pressure on the loan funding and the ability to service the loan —

CN: In dollars.

INT: — in dollars. When we initially looked at the project we did realise that the tenants for the building would be probably international tenants. So we did link, for instance, our income to a US dollar rate. So we at least kind-of initially received dollars, had some small cedi exposure in terms of cost and then obviously the loan was your biggest liability which also had to be repaid in dollars.

So then when the exchange control regulations came in, then you had to start to charge in cedi and you had to receive cedi. So obviously the risk is more —

CN: Has changed.

INT: — has changed, so the assessment of risk. So if you look at that project specifically, at one stage it was kind-of seen as a big risk for the ability of the company to actually service the loan with a foreign lender. So there was additional equity that had to go in to kind-of —

CN: Cover the debt.

INT: — cover the – more kind-of, there was additional costs because the project was delayed —

CN: And that obviously (indiscernible - 0:31:09.2).

INT: — ja. And so the service guys became more expensive. However, Ghana's exchange control regulations relaxed now, so it's much better to be able to do that.

CN: Okay. Just go on. Go on and tell (indiscernible - 0:31:23.9).

INT: Ja. So definitely a lot of work was done about the country. As I said, a lot of information was available. There was a lot additional research done on specific laws, so transport, property, land ownership, that type of information. Then also with regards to tax information, there was additional research done especially on the taxes applicable to your actual rental income.

CN: VT?

INT: Revolving tax.

CN: VT on rentals?

INT: Ja, revolving tax, like they've actually got a rental tax and they've got a withholding tax on rents. And then what happened as well is – not what happened, we actually knew it, just so that you know, it wasn't stuff we didn't know – that if you're a property developer, for instance, you can't claim any VAT when you construct a property. However, when you dispose of property – they actually changed the law – so now when you dispose of property you have to charge VAT whereas previously it wasn't the case.

So definitely because of regulations the risk associated with that project has gone through ups and downs over the duration of the project.

CN: Okay. So the reason why I always ask this question at the end, then I ask the additional questions. The initial questions is: now, having gone through the investment decision and having had this project on the ground for a few years, you get to go back and think about your investment decisions at the time, not necessarily having to report to someone, would you have said that the investment decision that was made was correct based on what has happened in the last few years on the real estate investment?

INT: So the risks that were identified was balanced with the return that you had to receive. So when the investment decision was made, there were certain risks identified and it was included in the cost and the project still had good returns. So definitely in terms of the decision that was made it was the correct one. Having said that, there were definitely changes in regulations that affected that return.

So, if you look at the initial IRRs on the project and you kind-of compare it to —

CN: What you expected before?

INT: — ja, and you compare it now to if you would dispose of that property, I am sure that you probably wouldn't achieve that IRR.

CN: Okay. But in a very intellectual way, would you have then said, now where we are, it was the correct decision because the things that have happened, you would not have foreseen them?

INT: Ja, you couldn't have foreseen them. Ja, I think we made the right decision.

CN: Okay.

INT: And also, if you kind-of look at where you now are based on when the project started on the type of investment, the period is also too shot. So you need a longer period to kind-of test the outcome.

CN: Okay, that's fine. Okay, Mr Interviewee #3, thank you very much. So what I'll do is, I'll transcribe this, put it onto paper, then write it up, do a little bit of analysis. Then for what I'll include in my report, I will share that with you. You'll be free to comment, whichever way, positive or negative. That obviously will go into the final thesis and I hope to share the final thesis with you and hopefully I will have passed the thesis by then.

(Interview ends)

CASE STUDY #5:

The fourth interviewee was from the largest insurance company in Africa with extensive experience in real estate investments in sub Saharan Africa. The interviewee’s background was valuations, town planning and developments. The insurance company also had an extensive network of subsidiaries in sub Saharan Africa and the experience of the interviewee was broad based on the projects he had been involved in in various countries in sub Saharan Africa. The insurance company had a slightly different approach as their investment horizon was longer term, different from the short term equity funds. However, the interviewee emphasised the fact that they worked closely with the equity funds and the investment principles they followed were similar. Often the long term investors, like insurance companies, take over ownership of the developments completed by the equity funds and it was important that the investment principles initially applied by the equity funds was credible.

CN: This is a recording of the fourth interview, okay. Today is the 4th of November, 2016. I'm sitting here at the Company #4 with Mr Interviewee #4. He has taken time to assist me with my research. First of all, I wish to thank him for his time, very valuable time for these people are very busy. Hopefully I can share my research with him and he can share his experience. I think the most important thing about this research is that it's sharing experiences and it's on the presumption that people are experienced and they have knowledge that we can tacitly move on to generate theoretical knowledge. So, once again, thank you N…...

INT: Pleasure. Ja.

CN: I'm going to shoot and ask. As I explained to you, the first part is very generic questions that you can draw from multiple projects. Then the second part is very much in depth. It's more like a case study whereby I'm doing to delve in and ask specific questions and try to get into your mind.

INT: It's fine.

CN: I want to find out from you, the thesis is basically based on the assumption that the quality of data that is available – economic data, market data, property data – on the African continent is not good quality or it's either outdated or it's drawn from unreliable sources. I want to understand, have you, having worked in Africa, been exposed to a market where there is very suspect or information that you have to use that you are not comfortable with?

INT: Absolutely. And it varies from country to country but one of the biggest problems in say a country like Nigeria is the lack of market deals that are going on. So, in other words, you find very little information on, for instance, the yields that people are buying buildings at or what they're renting buildings for. If you look, for instance, at logistics, we're bidding on a logistics property there at the moment and we can find no evidence, either rental evidence or yield evidence of any other buildings of a similar nature being traded in Nigeria. So you're out on your own in trying to do (inaudible - cross-talking) —

CN: Now it's a direct question that follows on that, is that now having to experience this, have you then had to make an investment decision that you're going to bring onto Company #4 and say "I found an opportunity and I believe the committee or yourself, it's a deal that you should invest in"? Have you ever been exposed to that?

INT: Absolutely. Where we've tried to mitigate this lack of market information is that we, a long time ago took a decision that if we go into these particular countries as an investor we're going to use the co-investment model. So we will then partner with a local investor which we hope is going to —

CN: Understands markets.

INT: — yeah, he will understand the nuances in the market a little better than we do. He will understand some of the players in the market and the trends in the market. So, for instance, in Nigeria we've partnered with the Nigerian Sovereign Wealth Fund and we have an exclusive partnership with them and we do it on a 50/50 basis. So that we hope is going to mitigate a lack of market information that's available.

CN: Okay. Now having found yourself in the situation which is not such a compatible situation (indiscernible - 0:04:22.6), how do you then as Old Mutual approach investment in these markets where you know in your gut feeling that the information in these deals are fluid and then you can't pin them down? What's your approach? Is it a structured approach whereby you do market analyses, you do property analyses, economic analyses; or it's very much reliant on multiple sources? What's your approach? You can just spell it out for me, your approach.

INT: Okay. It will be a multiple-source approach, again reliance on the partner. But I spend a lot of time in these particular countries and before we actually made an investment outside of South Africa, we had spent two years investigating the particular markets that we wanted to invest in. So we, to a degree don't become market leaders but we become part of the market and trying to understand that market.

So there's no way we would go into a country and invest the first project that we see. We want to spend time in the country and then you have to go to meet and work with those market participants. So, for instance, you would engage with the Knight Franks of this world, the Jones Lang’s of this world, the Broll’s of this world who are active in those markets. So that's one source of information.

CN: So it's multiple sources of information whereby you build your own intelligence?

INT: Correct.

CN: Your own market intelligence, (indiscernible - 0:06:12.8) market data, in terms of your economic data.

INT: (inaudible - cross-talking)

CN: It's not what is given.

INT: Oh no, no-no. Because these markets are so inefficient, you actually have to get the feel for those markets and that's one of the reasons I think that we wouldn't send a (young teen? 0:06:33.1) into those markets. If you look at the type of people that we send into the new markets, it's older people like me who've been in the industry a long time and hopefully I can use some of my prior experience and adapt it to that particular market.

CN: Okay. So in a sense, what you are basically saying, you're building a thesis whereby, at Company #4, the company, you build your own IP?

INT: Absolutely.

CN: And you have your own market, you feed in from multiple sources of – like your Knight Frank, your market brokers and all that builds up your market and that's what you use for your investment decisions?

INT: Yeah. What is also, I think, a driver and a big source for us in the markets that we go into is that Company #4 as an insurance company is operating in 14 different African countries. So we have targeted our approach to those countries where Company #4 operates as an insurance company. So that gives me another very valuable source of —

CN: Of market information?

INT: — correct.

CN: Economics and —

INT: The whole – and it’s not just property information but it's about the markets as a whole.

CN: And that's all built internally? So it's internal IP —

INT: That's all internal, yeah.

CN: — be that you can determine too and you can use that for investment (decisions? 0:08:03.7).

INT: That's right.

CN: Okay. That sounds (indiscernible - 0:08:06.6) robust.

INT: We also use market research —

CN: Companies externally, third parties.

INT: — companies who do a lot of market —

CN: Like Fernridge?

INT: – we use Fernridge for specific property things but we use a group called NKC. I don't know if you know of them. They —

CN: Economics? Economics, ja.

INT: Yeah.

CN: Economics and research.

INT: That's right. They provide us with a lot of that. So the whole of Company #4, those people who are operating in other African economies will have access to that information and it's on a country basis, sector basis, you can get whatever information they have available. So we don't have to necessarily go out, for instance, and look at their office of statistics of information. We can say to the providers: give us a view on some issue in a particular country.

CN: Then research and come up with a number?

INT: And they will come back to us having already sifted (inaudible - cross-talking) —

CN: Okay. And that information is used in your investment decisions. That's what presented to investment committees —

INT: Yeah.

CN: And the investment committees are a widely acceptable measure or standard within Company #4 —

INT: Correct.

CN: — in terms of making investment decisions.

INT: The problem we have is, that you can't take your investment committee to the countries every time you want to make an investment. Some of those members have not been and will not go to a Nigeria or a Ghana or a Kenya. So you have to be able to demonstrate to the committee that you have sourced information from a whole number of different sources to back the particular investment case that you're making.

CN: Okay. (indiscernible - 0:10:03.1) with my other people that I've interviewed, they say the way they kind-of purify this information, they rely on the funders, investors, the local markets, the property brokers and kind-of crosschecks.

INT: Absolutely.

CN: At the end of the day it's a process that's iterative. So, as they go along with the deal, (inaudible - cross-talking) —

INT: (inaudible - cross-talking) part of the investment decision —

CN: — a one-off decision or it's a series of iterative —

INT: It's a multiple decision. So what will happen is, we have our base investment case where – that was distilled out of the two years of me and a small team travelling all over Africa and we then identified for the committee two of three countries which we felt were where we should focus our attention because it's a big continent (inaudible - cross-talking) —

CN: Okay. So you selected countries, so your investment strategy countries and countries – is it specific towns?

INT: Generally the major metropolitan —

CN: The capital towns.

INT: — areas. So in Nigeria you're talking primarily Lagos and Abuja; in Kenya it would be Nairobi and Mombasa; in Uganda [it's] Kampala; in Ghana [it's] Accra. So it tends to be a little bit more city focused because that feeds into our investment strategy which is to pick – if you've got a country like Kenya where the economy is growing at about 6.5 percent per annum, you've got rapid urbanisation also taking place, so a city like Nairobi is actually growing at 10 or 11 per cent per annum which for us is a sweet spot. Absolutely.

CN: Okay. So you've basically mapped out a little bit of investment strategy. So you've identified specific countries, specific towns. And then what will happen when you get an opportunity is, it'll come through to you, it's in its particular selected country, preferred country, then you go through your own chaps to say: does it meet your criteria. Do you have a sector preference?

INT: We look at three sectors primarily. If you look at our South African fund, 80 percent of it is big retail sectors. So that is a focus in Africa but with a big difference. Here we would look at what we call a regionally dominant centre and that would tend to be anything from 60 000 to 100 000m² of retail space.

In a lot of the other countries in Africa, a regional dominant centre could be 10 000m² or 15 000m². So you've got to go through a scale shift and there isn't, for instance, the depth of tenants available in those countries to occupy your centres.

CN: Okay. Now I want to come to risk. I want to shift the market now. We've built that enough in terms of the information and how you purify it and how you approach it. In terms of risk, now you've done this work, as an individual you now have to move and think "I have to get this through [our] committee.

INT: Correct.

CN: What element of risk – how do you approach the risk elements of it to say: I know I've used this information, I'm (cautious - 0:13:43.0) about it. How do you personally approach the risk question saying: what's the risk in those markets that you're in based on this unreliable information?

INT: Measuring risk is probably the biggest issue that we have. How do you compare the risk in say, South Africa with the risk in Kenya, with the risk in Nigeria? How do you do that? We haven't got a scientific way of doing that. What we take as the basis for the risk is to look at the sovereign risk and primarily the end of the market that we operate in is a dollar denominated market.

CN: So (indiscernible - 0:14:36.3) rentals?

INT: We tend to buy properties that are occupied by multinational companies, so the rentals are dollar denominated. Nigeria is a little bit of a problem at the moment but that we think is a short-term issue. So you say to yourself, if I'm looking at Kenya: what is the sovereign risk for government debt in Kenya at the moment; and say the five-year sovereign risk there is 11 per cent – I'm not sure if it is at the moment, I think —

CN: [It's] 10.5.

INT: — (inaudible - cross-talking) down to 10.5, correct. So if we take our money, we can put into your government debt and we'll get a 10.5 return. So now what do we need on top of that for the fact that we are looking at property and it's quite interesting. We tend to put for most countries maybe another four percent premium on top of that to get our hurdle rate.

Now it's very interesting. If you speak to a number of valuers in Kenya – and I've had big arguments with people like Knight Frank in Kenya – when they're doing a DCF calculation, they're discounting at a rate that is below the sovereign risk rate. Not the premium; the sovereign risk rate. So I say to them – because I'm a valuer with the RICS. In fact actually I'm an assessor; so I actually do a lot of the assessments as whether the guys are good enough for membership and I do that across Africa.

And the guys, they're discounting – we had a series of valuations where they were discounting at a rate of 8 to 9 per cent and I'm saying "But the sovereign risk in Kenya is 11, you've got to add a premium onto that, not a discount". So you get these —

CN: But is that not the gist of my thesis then, to say that now – you see, these people are there, they're in the local country, they understand the local conditions and their risk appetite or their risk measure is likely different from Company #4 which is based in South Africa, Cape Town but when you look at —

INT: But it's as from the rest of the world, you know – as you say, it's a local market issue. Kenya has been through a period of probably 10 years of solid growth in their property market. It's hitting a wall at the moment and I don't know how they are going to react to the fact that rentals aren't going up anymore. In fact rentals are coming down. There's going to be a sea change in the way they look at risk, I think, in Kenya because the market (inaudible - cross-talking) —

CN: Themselves, in country?

INT: — themselves, ja.

CN: Now I want to talk to you about two countries. I want to ask specifically for your case study, if we can discuss the Kenyan opportunity, —

INT: Two Rivers.

CN: — Two Rivers (indiscernible - 0:17:59.5) case study but I want to touch on Zimbabwe. I've been to Zimbabwe. I know what the property market is. I know Company #4 as an insurance company and as a property company has invested in Zimbabwe.

INT: Hugely invested.

CN: So I just want to see what your approach is in terms of the risk, the market changes, —

INT: It's very simple.

CN: — the liquidity and —

INT: The property that is owned in Zimbabwe – you now, if you look at what's happened in Zimbabwe over the last 10 years with the hyperinflation and what have you, there's only been two places that a life insurance company could safely put money. One is on the stock exchange and one is in property. I don't actually have anything to do with the Zimbabwe portfolio. That is a managed portfolio which has got its own team in Zimbabwe; a local Zimbabwean team.

So they, at an asset allocation level, said "What we're going to do is, we're going to put 50 percent into the stock market and 50 percent into property" and that's what they've done. So they have a huge property portfolio in

Zimbabwe. Unfortunately, when there is a regime change in Zimbabwe in the future and you may get a more normal market developing there, that portfolio is going to be overvalued because everybody has been chasing these selective assets and the market has bid them up to a level that is no longer comparable to other countries in Africa. So there are values that you wouldn't find in Nigeria, you wouldn't find in Kenya, you wouldn't find in Zambia, South Africa. They're just overvalued. So that's a problem that's coming.

CN: So it's a specific investment strategy?

INT: It's a specific —

CN: It's not a normal investment stuff that you'll do —

INT: (inaudible - cross-talking)

CN: — in Kenya or in Nigeria?

INT: Not at all, no. It's a very specific —

CN: Okay. That makes sense.

INT: — reaction to a very specific set of circumstances.

CN: Okay. That's fine. Now I want to move onto the case study which I'm going to delve in more deeper —

INT: That's fine.

CN: — and sometime you will get a thesis. So I'll ask some difficult, uncomfortable questions.

INT: No, that's fine.

CN: But you can just explain to me the Two Rivers Mall deal in general in terms of where it came from, how you approached it, how you've underwritten it. As an Old Mutual company you understand the term underwritten, how it's been written to say: yes, we are investing in the deal? At this moment I won't ask a lot of questions; I will just make a few notes as you talk.

INT: All right. Kenya was one of the first countries we visited in Africa, again because of the very strong Company #4 presence there, it's a big business. And just coincidentally, as we started to look at investing on behalf of the South African policyholders outside into other countries on the continent, we had a specific request from Company #4 in Kenya to please assist them. They have quite a big investment portfolio.

CN: Pension funds.

INT: Pension funds but at that stage they had no exposure to property and a number of their clients were saying "We need property exposure". So it just happened to coincide. So we spent a lot of time in Kenya, hoped we'd started to understand the market and in particular Nairobi and how Nairobi was developing and growing as a city. I'm also a town planner by training. So I did economics and planning, so I've got a little bit of an understanding of how cities develop. It became apparent to us that there were two axes of development. One was a northeast axis —

CN: The Two Rivers Mall —

INT: — along the highway – Thika Highway and then to the northwest out on Limuru Road and the northern bypass and up through the forest areas to the northwest. It seemed to be that the one side – the northwest side seemed a little bit more, I would term like the northern suburbs of Johannesburg and the northeast was the more sort-of industrial type development is taking place there. Rightly or wrongly, that (inaudible - cross-talking) —

CN: In general (indiscernible - 0:23:15.8).

INT: — view. Also, in Nairobi in particular the retail market is probably one of the more sophisticated retail markets outside of SA. Far more formalised than in Nigeria or Ghana or a number of these other countries. They've had retail shopping centres there for quite some time, 20-30 years. So it is a well established market.

So we looked around to see what was available in the retail market and there weren't a lot of opportunities to buy existing centres. We looked at Two Rivers right in the beginning when it was just a bare field where they were just starting the infrastructure and decided "No, we'll leave it".

CN: The risk was a bit higher then, you felt, to – in terms of getting all the (inaudible - cross-talking) —

INT: Correct. Then what happened was that Company #4 in Kenya bought into UAP, the insurance company —

CN: Which owned the development —

INT: — and part of that – part of the shares of UAP that they bought were from Centum and Dr Chris Kirubi who is the major shareholder in Centum and Centum owned the Two Rivers development. So they actually then approached us some time later and said "Don't you want to come and have a look at Two Rivers".

CN: And see if you can invest.

INT: By then it had developed. The infrastructure was in. A lot of the construction was underway and what have you. So we spent about six months —

CN: Due diligence.

INT: — analysing, looking at it and negotiating with the centre people. In fact after about nine months we did the deal. It met a lot of our criteria.

CN: (indiscernible - 0:25:38.5)

INT: — in terms of, that it was – we felt would be a regionally dominant centre. If you look at it, it is the biggest – and this is not always best – but it is the biggest retail offering on the continent – well, no, sub Saharan Africa outside of SA. It's 66 000m² of retail space which is big. It's actually too big. We went into the deal knowing that it was going to be too big and that there would be a struggle to fill spaces but our view was – you know, we are long-term investors, we're not there for three or five years; we're there for 10 or 20 years.

CN: Okay. Using pension money.

INT: Ja. It's a long-term return.

CN: Okay. So in terms of your long-term business strategy, it does meet criteria because maybe you're looking about 15-16 years for Kenya whereas an Actis, for example, or a Westport we be looking for a 5 to 7 years because they've got short-term investors?

INT: Correct.

CN: Okay, that's fine. So the investment strategy also assists you in finding more opportunities because long-term your returns are slightly less.

INT: Mm.

CN: Okay, that's fine. So what I'm going to do – I didn't want to keep an hour or something.

INT: I've got lots of time. It's fine because you were early, so don't rush it. I'm quite happy.

CN: But so far I wish to thank you, you've shared lots of insights into my thesis. I want to come onto factors now, generic factors. Like if you look at the Tatu thing, what are things that you identify as critical issues for making an investment decision, to look at the economy, the structure, the location, all those general things?

INT: The whole gamut. So you start from the macro and you say – and this was part of our strategy, as I said, we identify the country and for us, for different reasons the two key countries for us are Kenya and Nigeria.

CN: (indiscernible - 0:27:48.5)

INT: Ja. They're not the only ones. We will look elsewhere but it's a small team that I've got and we've got limited human and capital —

CN: If I say to you, is it your approach to big market in terms of strategy? Looking at larger economies, larger investments, hence you have (indiscernible - 0:28:16.0) knowledge because you've got the financial muscle. Is it part of the strategy or it's —

INT: Not really, no. It just so happens that that is the case in that we do tend to look at larger investments but there are a number of people doing that. In Kenya you've got —

CN: Actis now doing that.

INT: Actis, Stanlib, Sanlam have been there, Mara Delta are there. So it's not like we're the only player in the market; there are other people. I know, for instance, RMB Westport are now wanting to go into East Africa as well as West Africa. So there's competition but where we think – you know, we do have a little bit of advantage, for instance, is the fact that Company #4 Kenya is there. We can tap off their knowledge base and what have you.

CN: Okay. And you can be able to price better and get a better offer on the table, you reckon? Because the other guys like private equity and private equity funds tends to be —

INT: It's a different model.

CN: A different model because it's based on more uncertainty; hence requirement for a higher return.

INT: But it's also different, I think, from a risk profile. Private equity will actually have a higher risk profile than we will have. They will go in normally at an earlier date and will take development risk. With Two Rivers, we didn't actually take a lot of development risk. The way our deal was structured – and still is – that is carried by the partner —

CN: Up to a certain point.

INT: Ja.

CN: But obviously now (inaudible - cross-talking) —

INT: Once the centre opens then we carry the risk jointly but we paid them a price to go in there for taking that risk. Are we prepared to do that? So we will accept a lower return —

CN: But lower risk.

INT: — but lower risk.

CN: Okay, that's fine. That makes sense.

INT: And that's the model.

CN: But also you've got the advantage though because at the end of the day it's money, is multiples. So even though you're getting a lower return but because you have a longer period, you know, term, your multiple will be the same.

INT: Absolutely.

CN: Or even better than the short-term private equity investment.

INT: Ja.

CN: Okay.

INT: Particularly with big retail shopping centres, they don't reach maturity for five years. So that first five-year period, it's a higher risk and they take time to settle.

CN: So am I saying now you as Company #4 are creating a secondary market in the African market?

INT: Absolutely.

CN: So what happens in five years, Actis go into Nigeria, they do the upfront private equity investment targets, then you come on board, (indiscernible - 0:31:20.3) and then you're picking up all those assets?

INT: Groups like Actis and RMB Westport love us because they see us as the take-off. So when their private equity fund has done it's, whatever, time horizons, three, five, seven years, they come to talk to us and say —

CN: Even 15 years.

INT: — ja – "We ready to sell now. This asset is a stable asset. You've got a stable income stream. This is the price we want". So the argument we then have, of course, is that they want too much for the property but it becomes a price negotiation.

CN: Now the counterargument for that, I want to just bring something onto the fore – now you think of longer term investments, now Africa, not just the market, the politics, the economics, what happened in Ghana, what's happening in Nigeria, every three-four years to get these shocks.

INT: Elections and what have you.

CN: Ja. Now how do you deal with that uncertainty because it's a huge uncertainty for you to say "I'm taking a 10-year" – you can't even take a 10-year view in South Africa.

INT: It's something that we are very mindful of but I think what has changed in Africa is, for instance, the risk – probably the biggest risk that we could face would be one of nationalisation or something like that, —

CN: Political risk, yes.

INT: — where a government comes in and says "We're going to nationalise that industry and take all those assets and pay you peanuts" and what have you. That's not —

CN: Happening anymore.

INT: — ja. Africa has got through that and as a continent, quite frankly, I see South Africa in many ways more risky than Kenya or a Ghana or a Zambia because the political parties here and the players here haven't actually gone through that maturing process. They're having – in a lot of these countries that have been independent for 20 years —

CN: They've done —

INT: — ja, exactly. So I don't necessarily see it as being more risky. Some of our guys on the investment committees who have not travelled as much, —

CN: They see it the way I'm seeing it.

INT: — ja.

CN: It's an unknown, anything could happen.

INT: Absolutely and so they want a big risk premium over and above what we could invest in here.

CN: And actually, if you look at the long-term, okay, that's a different strategy. Okay, that's fine. And then I just wanted to find out more on the factors. We have talked political factors, economic factors, market property factors; what other factors do you consider in an investment outside South Africa?

INT: As I said, partnership. Finding the right partner that you believe you can work with, you have similar investment horizons, objectives, goals, who obviously you feel comfortable with in terms of any sort of trust relationship, who have the same sort of governance issues that we have here and that we apply here.

CN: Okay. Then we'll share the experiences and they can give you the approach. So they'll bring some intelligence for you.

INT: Ja, absolutely, and they operate in a very similar way. You can go into a lot of these countries and there are very successful property entrepreneurs but who have operated in a very different way to the way we would operate. They take much bigger risks, they cut corners, they —

CN: (indiscernible - 0:35:29.3)

INT: — not always done within the regulations and you could partner with these people and you could probably make a lot of money but we have not only returns to worry about but reputation. We have, we hope, a very good reputation throughout the continent for being straight dealers. That's incredibly important. It's a very strong brand and we have to protect that brand.

So we tend to, as I say, partner with people we believe have very similar value systems such as the sovereign wealth fund in Nigeria.

CN: Okay. Then the last question now is more on a personal issue. Are you going to – as you explained to me, you're doing all these mathematical issues, stuff where you can have evidence to say: I can go to anybody in the company and build a case to say this is a good opportunity and they've done all the number crunching and everything.

INT: Ja

CN: But having done all that, there's instances where still there's a lot of uncertainty. How do you deal with that personally to say: "I'm bringing you (indiscernible - 0:36:56.0) portion of intuition" whereby you say "Based on my experiences and on my gut feel, now I'm going to draw on experience" – well, you never say this but, you know, but "In terms of what I see on the ground, having visited the country, the numbers don't" – you know, an area where the numbers don't support your case.

INT: We wouldn't take anything to our investment committee where the numbers don't really support us. But – I think you said it – sometimes it's support rather than the base case. As I said, the partners are very important. So we place a lot of store on who we are doing business with and at the end of the day you have to – I hate to use the word 'gut feel' —

CN: Intuition, yes.

INT: — intuition does play a role both in choosing your partner and saying: I've sat across the table from Joe and we've had a drink together and we discussed this and we interacted and you form an opinion. And you say: I believe they're the right people to do business with. So that also comes with a bit experience and judgement. So you move then from there into the actual underlying investments that you want to make and you say [that] it ticks the boxes, it's in the right sector, it's in the right location, it's been developed correctly – so, in other words, the team that's developed the property, the architect, the contractor are reputable people who have got good reputations in the market, so you're not going to find that your concrete pillar —

CN: (indiscernible - 0:39:15.4)

INT: — or they've saved half the rebar because of cost and what have you. So everything has to support your investment case in order for it to get through, certainly our investment —

CN: But if you had to compare now (indiscernible - 0:39:37.5) someone sitting in London, he's got all this reliable economic data analysis from everywhere and you've got this peculiar situation whereby you've put stuff together in a puzzle and you've used your experience, how confident are you when you say "This is a go," that it's the correct decision?

INT: It is more difficult, there's no doubt about [it], when you don't have that confidence in the market, that you fully understand the market and you've got the data to back you up. So at the end of the day I think you have to be a little bit braver and trust your instincts.

CN: How do you counteract that? Is it that you've asked for a premium? How do you counteract because (indiscernible - 0:40:33.9) —

INT: I think the premium comes automatically. At the moment for us, if we're investing in other countries —

CN: You are getting the premium?

INT: — we are getting the premium and part of that premium, for instance, would be that it's also a currency hedge. You don't invest for a currency hedge but it's always in the back of people's minds that you're investing in dollars, or if you go into Europe you're investing in Euros, which just gives you a little bit of a different take on your portfolio.

CN: And you're (indiscernible - 0:41:13.6)?

INT: Correct.

CN: So your (indiscernible - 0:41:15.4) is basically compensated by saying —

INT: It's the risk-reward. It's a very simple sort-of calculation that. If you're taking more risk, you need more reward; and if you're getting more reward, you'll take a bit more risk.

CN: And you'll have to deal with uncertainty.

INT: Ja.

CN: Because everything comes with a price. I think it's a nice way of ending.

INT: Ja. I hope that sort-of helps you.

CN: That's very helpful, Interviewee #4. I want to say thank you very much. I think I get to the gist of what I wanted and then we'll do the paperwork.

(Interview ends)

Appendix B: Ethical approval

University of Salford
MANCHESTER

Research, Innovation and Academic Engagement Ethical Approval Panel

Research Centres Support Team
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12 August 2016

Dear Charlie,

<u>RE: ETHICS APPLICATION ST16/110</u> – A phenomenological study on decision making under uncertainty in real estate investments in Sub-Saharan Africa

Based on the information you provided, I am pleased to inform you that your application ST 16/110 has been approved.

If there are any changes to the project and/ or its methodology, please inform the Panel as soon as possible by contacting S&T-ResearchEthics@salford.ac.uk

Yours sincerely,

Prof Mohammed Arif
Chair of the Science & Technology Research Ethics Panel
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Appendix C: Interview Questionnaire - Questions asked at interview

The questions were guided by the research objections.

1. Could you describe in as much detail as possible how come to make investment decisions based on a specific case or project where you had to make a decision under uncertainty
   a. Follow on questions on points not described fully will be:
   - 'could you expand on that point.'

2. Describe why there was uncertainty in your decision making for the specific case/project

3. What are the factors that you considered to be important in your decision making in that case/project when making the investment decision
   b. Follow on question:
   - 'You mentioned that....how did you approach that’

4. Describe how you considered these factors to be important. Why?
   c. Follow on question:
   - ‘Please explain further’

5. Given a different case would you have considered other factors?

6. Describe how you determine which factors are relevant to certain cases
   d. Follow on question:
   - 'Do you have further examples of where other factors would be relevant?'

7. Describe in detail (step by step) the process you followed in making investment decisions under uncertainty (from the beginning to the end). First, describe the generic process and then more specifically to a case or project,

describing in detail the circumstances under which these decision are make and why there was uncertainty.

8. Based on the case or project, could you share with me the project information or evidence that support your process that you followed in the decision making. Examples would be economic studies, market studies, economic and financial models that you used or any other information that you used in the investment decision process