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**Assessing the impact of forms of entrepreneurial capital on Corporate Entrepreneurship in  
State-Owned Enterprises**

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By  
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25 May 2016

A dissertation submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, Johannesburg, in partial fulfillment of the requirements for the degree of Masters of Commerce in Business Science from the School of Economics and Business Sciences.

Johannesburg

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## **Abstract**

Increasing competition in industries has made it necessary for established companies to regenerate themselves and renew their ability to compete. This is the goal of Corporate Entrepreneurship (CE) activities, which involve extending the firm's domain of competence and corresponding opportunity set, through internally and externally resources. Recently, CE has evoked interest not only from academics, but also from business practitioners and policy makers. This interest stems from the recognition of the advantage that can be gained from corporate entrepreneurship activities (Entebang, Mansor, & Puah, (2006).

The prominence of State Owned Enterprises (SOEs) in the economy continues to grow. Their assets have been growing steadily since 2011 while SOEs play a critical role in the economic pursuit of advancing economic growth and developmental objectives of the country (Brown, 2014). This dissertation assesses the impact of forms of capital on corporate entrepreneurship in State Owned Enterprises in South Africa. The focus is on three forms of entrepreneurial capital which are; (1) economic capital, (2) human capital, and (3) social capital. Each form of capital is critical and has been discussed in the literature in order to orientate its utility in relation to entrepreneurship.

The study was carried out in three major SOEs, which are administered by the Department of Public Enterprises. The study was based on quantitative measures using a self-administrated questionnaire. It was found that some forms of capital have a significant impact on a company's entrepreneurial activities.

For instance, it was found that forms of entrepreneurial capital have significant influence on corporate entrepreneurship because they contributed positive toward the growth of the business. This study considered the nature or the quality of the company's workforce by means of employee human capital. Therefore, of all the managerial processes that can affect the pursuit of corporate entrepreneurial outcomes, Human capital is considered as one of the more vital. Furthermore, the recent loan guarantees from government to SOEs such as Eskom and South African Airways are a practical indication on the level of importance Economic capital is on corporate entrepreneurial activities. On Social capital and Corporate Entrepreneurship, Foil (1995) argued that it is the access to a diverse set of firm resources that significantly enhances corporate entrepreneurship activities, which points to the importance of Social capital at multiple levels within the organisations in pursuing corporate entrepreneurship. However, more research is required to investigate further how forms of capital impact established company's entrepreneurial activities.

**Keywords:** Corporate Entrepreneurship, State Owned Enterprises, Human capital, Economic capital and Social capital.

## Declaration

I, the undersigned, \_\_\_\_\_ (*full names, please print*), hereby declare that this research is my own, unaided work. It is being submitted in partial fulfillment of the requirements for the degree of Masters of Commerce (MCom) in Business Sciences at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

I further declare that:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.

SIGNED AT \_\_\_\_\_ ON THIS THE 24<sup>th</sup> DAY OF MAY, 2016.

\_\_\_\_\_

(Signature)

## **Acknowledgements**

My debts of gratitude for assistance in the execution of this study are numerous. Outstanding amongst them are Dr Robert Venter who supervised me throughout my dissertation. His guidance, patience and critical comments enabled me to produce a dissertation, which is my own, but is better than anything I could have produced without his assistance.

I am also deeply grateful to various other supporters from the School of Economics and Business Sciences, including, Professor Christopher Malikane, Dr Nobantu Mbeki for their ongoing support and advice. I also would like to thank Siyanda Mngadi for his unerring administrative assistance.

Many people educated me about public sector entrepreneurship, however most did not realise they were doing so. Timely and wise lessons were learnt from my relationships with and information provided by Tryphosa Ramano, Mathane Makgatho and Lerato Molefe, who are in the National Executive Committee of the Association of Black Securities and Investment Professionals.

Lastly, but more significantly, I thank my parents, and family, for the love and understanding as I had to see them briefly only twice during the academic year in order to enable myself to find the time necessary to complete my dissertation. A special word of thanks to my son Mongezi Mpanza, for understanding daddy's prolonged absence from home.

## **Abbreviations**

**CE:** Corporate Entrepreneurship

**CEAI:** Corporate Entrepreneurship Assessment Instrument

**CEO:** Chief Executive Officer

**DPE:** Department of Public Enterprises

**EHC:** Entrepreneurial Human Capital

**EO:** Entrepreneurial Orientation

**GEM:** Global Entrepreneurship Monitor

**IMF:** International Monetary Fund

**JSE:** Johannesburg Stock Exchange

**PFMA:** Public Finance Management Act No 1 of 1999

**SAFCOL:** South African Forest Company Limited

**SAX:** South African Express

**SEBS:** School of Economics and Business Sciences

**SOE:** State Owned Enterprises

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## **Chapter 1: Research background**

### **1.1. Introduction**

Corporate Entrepreneurship (CE) has long been recognised as a potentially viable means for promoting and sustaining corporate competitiveness (Covin & Miles 1999). “In order to be competitive in a marketplace, existing firms have a growing need to continually evolve and renew themselves in terms of practices, capabilities and activities (Barringer & Blueorn, 1999:426). Therefore, organisations need to be continuously innovative when competing not only locally but also in other sectors globally.

Corporate entrepreneurship is crucially important to the survival, profitability and the growth of a company (Zahra, 1996). According to Hamel (1999) big companies are now turning towards CE because they are not getting the continual innovation, growth and value creation that they once had. This is due to the fact that CE activities tend to stimulate creativity, and innovation, and also encourage a culture of calculated risk-taking throughout organizational operations which may reinforce the company's position in existing markets by entering new and lucrative growth fields (Zahra et al, 2009). Corporate entrepreneurship elements in fully established firms comprise of activities such as innovation, pro-activeness and risk-taking (Zahra, 1993). Empirically, several studies have been conducted on these issues, especially in the case of developed countries such as New Zealand and Australia.

Despite numerous kinds of studies on the issues of corporate entrepreneurship, there is still paucity of research on the impact of forms of capital on corporate entrepreneurship in state-owned enterprises is still new and lacking. Hence, this study seeks to add to the research on corporate entrepreneurship by examining the impact of forms of capital (economic, human and

social capital) on corporate entrepreneurship on South African State Owned Companies (SOCs), previously referred to as State Owned Enterprises (SOEs).

The competitive landscape in many industries today is marked by intense competition among existing players and the emergence of many focused competitors to target specific segments in the market. In addition, the macro environment is characterized by rapid technological progress in many fields. Enterprises with well-developed entrepreneurial capabilities are able to sustain and grow through innovations which are a critical competitive advantage in the 21<sup>st</sup> century (Scheepers, Hough & Bloom, 2008).

According to the Global Competitiveness Index (2013), South Africa was ranked the 53<sup>rd</sup> most competitive country out of 148 surveyed. The World Economic Forum's Global Competitiveness Index (2014), ranked South African second highest country in Africa after Mauritius (45th). This means for South Africa to be competitive in comparison to other countries on a global level, it needs to be more innovative to be able to sustain its international competitive advantage. Zhao (2005) broadly defines innovation as the incremental improvement of existing or development of new processes, product, services, skills, market and organisational structures including human capital. This indicates that the private sector is performing better than the public sector which is responsible for the building of the infrastructural requirements of the country.

Essentially, the aim of the study is to assess the impact of forms of capital on corporate entrepreneurship in state-owned enterprises. Based on the analysis of existing literature, CE is relatively under-researched in the SOE context and furthermore few studies have examined the relationship between forms of capital and corporate entrepreneurship. The dissertation adopts a theoretical framework of corporate entrepreneurship which composed the research proposition in



relation to the South African context. This framework was then examined in the context of business activities within three major SOEs which operate in different industries.

## **1.2. Research gap and Research questions**

Entrepreneurship within existing organisations (Miller, 1983: 770), often referred to as corporate entrepreneurship (Burgelman, 1983, 1349; Covin & Miles, 1999:47; Covin & Slevin, 1991; 7; Guth & Ginsberg, 1990; 5; Kuratko, Ireland, Covin, & Hornsby, 2005:75; Sharma & Chrisman, 1999:18), has been studied extensively within the private sector. Consensus is emerging on both antecedents and consequences of corporate entrepreneurship (Rauch, Wiklund, Lumpkin, & Frese, 2009; Zahra, Jennings, & Kuratko, 1999). However, we know little about forms of entrepreneurial capital in public sector organisations.

The existing research into corporate entrepreneurship is based upon experiences in the private sector. Corporate entrepreneurship in the public sector throughout the world focuses on entrepreneurial practices as part of a program to align public sector management practices with those of the private sector (Salder, 1999). Only since 1996 has attention focused on the differences between the public and the private sectors and the potential impact of these differences on the development of frameworks for the emergence of corporate entrepreneurship within the public sector (Boyett, 1996; Forster, Graham & Wanna, 1996; Graham & Harker, 1996; Borins, 1998). At the time of writing this dissertation, no research could be found addressing the impact of forms of capital within the public sector that stimulates corporate entrepreneurship.

The need for ongoing strategy renewal for Public Enterprises is essentially equivalent to private sector companies. The restructuring can be necessitated by various factors, such as the rapid

changes in technology and modernisation; global economic conditions; and changes of socio-economic and political imperatives (Mokwena, 2012).

There is limited research focusing on corporate entrepreneurship in SOEs on the South African context despite the growing recognition and the use of corporate entrepreneurship. Moreover, little or no empirical research exists on the impact of forms of capital on corporate entrepreneurship, which is surprising given that SOEs face many of the same challenges as private sector organisations do, such as making profits and competing in an open market.

There is a need to examine potential the different forms of capital, which according to Firkin (2001), entrepreneurial capital contains many resources that companies would require in the process of entrepreneurship. While it is often thought that the principal resource required for entrepreneurial activities is money, “the critical resources needed are typically non-financial” (Morris, 1998:32). Given the importance of entrepreneurship and the significant impact of business activities on a country’s economy, researchers, academics and policy makers may require a greater understanding of corporate entrepreneurship approach in SOEs. In addition, to better understand the core research question, the research formulated other questions that will facilitate and deepen the understanding of the study:

- What impact do forms of entrepreneurial capital have on corporate entrepreneurship in SOEs?
- What role does economic capital have on entrepreneurial activities that seek to grow an organisation?
- What role does human capital have on new innovative ideas that management establish for entrepreneurial activities in SOEs?

- Does social capital possessed by employees enhance the opportunities of an organisation venturing into a new industry?
- Would more experienced employees make an organisation be more productive on its production processes?

### **1.3. Objectives of the study**

The specific objectives of the study are, first, to examine the impact of forms of capital on corporate entrepreneurship in SOEs in order to identify the interaction between the two. This objective will be achieved through, (1) examining the impact of economic capital through government funding or financial institutions on corporate entrepreneurship, (2) assessing the impact made by human capital on new innovation and its contribution to pro-activeness on production processes, and (3) determining if social capital has a significant impact when venturing into new industries or markets. The second objective of the study is to strengthen the insight on corporate entrepreneurship in state-owned enterprises particularly in the South African context. The third objective of the study is to make recommendations based on the findings from the three SOEs and express possible implications of the results.

### **1.4. Significance of the study**

The study of Corporate Entrepreneurship in SOEs is relevant in the South African context and holds application value if noticed by policy makes. The study fills a gap as there have been very few studies testing the relationship between forms of entrepreneurial capital and corporate entrepreneurship in SOEs in South Africa.

The study provides insights on the degree of impact made by entrepreneurial capital in CE. As the study was carried out in SOEs, the study contains reliable context about the impact of forms of capital on corporate entrepreneurship. Corporate entrepreneurship is an essential component of organisational and economic development and wealth creation (Antoncic & Hirsch, 2004). Over the past three decades, researchers and business executives have been interested in corporate entrepreneurship due in part to its importance in revitalisation and performance of organisations (Schollhammer, 1981; Burgelman, 1983, 1985; Kanter, 1984; Pinchot, 1985; Rule & Irwin, 1988; Guth & Ginsberg, 1990; Zahra, 1991).

This study will make a significant contribution to the public enterprise policies and development plans in SOEs. Furthermore, the study will provide insight on whether forms of capital are a key aspect in revitalising large corporations' ability to innovate and compete effectively. According to Alpan, Bulut, Gunday, Ulusoy and Kilic (2010) human capital is an important driver of innovative performance especially when there is organising support. Traditionally, the study and practice of innovation has been a prominent private sector phenomenon and on the other hand, innovation in the public sector has not been cited as a critical determinant of growth, development and productivity (Kearney, Hirsch & Roche, 2008). Therefore, there may be many interested stakeholders concerned with the outcome of this research.

The potential impact and benefits of Corporate Entrepreneurship (innovation, risk taking, proactiveness, and entrepreneurial culture) have been studied and reported, including new business creation (Gartner, 1985), financial gains (Ireland, Hitt, Camp & Sexton, 2001), and competitive advantage (Zahra, 1991). Most importantly, government has also received attention as to how they might foster entrepreneurial activities in order to deliver economic prosperity (Shome, 2006). Recent studies in this area also include the Global Entrepreneurship Monitor (GEM)

reports (Herrington, 2009), which focused on the importance of fostering entrepreneurial activity from a micro and macro-economies perspective promotion public entrepreneurship (Kurakto & Audretsch, 2009). The study results could be used by SOEs' management to instill entrepreneurship in their environment. SOEs could also use the empirical research study to promote an entrepreneurial culture to employees. This could impact organisational performance and business sustainability.

### **1.5. Definitions**

Definitions adopted by researchers are often not uniform. This section defines key and controversial terms to establish positions taken in this paper:

- **“Commercialisation”** is the identification of enterprise markets and the re-engineering of the enterprise by the adoption of business oriented management practices (Dixon, Kouzmin & Korac-Kakabadse, 1996; Fellingham & Page, 1996:26).
- **“Corporate entrepreneurship”** is often used synonymously with intrapreneurship or corporate venture creation (Kuratko & Hodgetts, 1998; Knight, 1986). This dissertation ascribes a broader meaning of Corporate Entrepreneurship. It focuses on organisational or firm behaviour (Slevin & Covin, 1990) and includes the infusion of entrepreneurial thinking within a corporate culture or the undertaking of entrepreneurial behaviour by corporatised or other organisations. “Corporate entrepreneurship” is not limited to entrepreneurship by incorporated bodies. It is used in contrast to entrepreneurial behaviour by individuals. The term: “Corporate Entrepreneurship” arises from the literature (Jennings, 1994). The phenomenon is more accurately described as

“institutional” or “organisational entrepreneurship”. This paper uses the phrase to encompass entrepreneurship through organisations as opposed to entrepreneurship by individuals alone.

- **“Entrepreneur”** means the person who or entity which demonstrates a marked use of entrepreneurial behaviour in a particular task or environmental context (Gibb, 1988; Virtanen, 1997). This paper does not seek to add to the multi-disciplinary and multidimensional debate about the definition of “the entrepreneur”. This paper adopts a generic position set out in Chapter two. This position embraces the general notion of the entrepreneur as a person or entity that undertakes the process of transposing an innovative opportunity into some form of value.
- **“Entrepreneurial”** describes the behaviour which characterises the individual or entity as an entrepreneur (Virtanen, 1997).
- **“Entrepreneurship”** is the process combining the actor (the entrepreneur) and the behaviour in the relevant market (Virtanen, 1997). This paper adopts a broad perspective and regards entrepreneurship as a process involving the use of innovation to create value.
- **“Entrepreneurial orientation”** Covin, Green and Slevin (2006) described entrepreneurial orientation as the presence of a firm’s strategy - oriented towards innovation and growth through their capacity to assume relevant risks. Lumpkin and Dess (1996) define EO as the process, practices and decision-making activities that lead to new entry, innovation, risk taking, pro-activeness and entrepreneurial behaviour. EO leads to autonomy and competitive aggressiveness.
- **“Innovation and Creativity”**. Whilst there is a debate about the meaning of these words, for the purposes of this study it is sufficient to recognise “creativity” as the generation of

an idea and “innovation” as the application of the creative idea. Innovation is a core tool for entrepreneurs (Kuratko & Hodgetts, 1998).

- **“Intrapreneurship”** is a concept used to explain entrepreneurial activities in existing organisations (Agca, Topal, and Kaya 2009). They emphasise that, through intrapreneurship, companies also maintain and increase their sustainable competitive capabilities, which are fostered by different areas of organisational performance.
- **“Public Sector”** refers to the aggregation of those organisations that are owned by government or semi-government interests and are not part of the “public service”. The public sector includes organisations that are largely self-funded with a revenue flow independent of government budgetary allocations. Public sector organisations include State Owned Companies or State Owned Enterprises, government business or trading enterprises (irrespective of corporate status), universities, statutory authorities, area health boards, regulatory bodies of different types, registration boards, marketing boards, trusts, government subsidiary companies, local government councils and trading entities (Auditor-General, New South Wales, 1997). Whilst each of these represents a different form of public sector organisation, with different accountabilities, a generic function may be undertaken by two or more types of structure or one organisation may embrace one or more structures.
- **“State-Owned Enterprises”** (SOEs) means an organisation that is owned or controlled by Government but has a legal personality separated from Government and is principally engaged in commercial activities (Department of Public Enterprise, 2011).

### **1.6. Delimitations of the study**

This section identifies the delimitations beyond which the research dissertation does not purport to have any significance. Oscanoa (2011) maintained that it is highly impossible to cover an entire phenomenon in one study. The following delimitations are possessed by this study:

- One of the delimitations to this research concerns the nature of the companies being researched. This study is limited in the scope of assessing the impact of forms of capital on corporate entrepreneurship in SOEs in South Africa. This essentially means the study will be limited to State Owned Enterprises that are monitored by the Department of Public Enterprises (DPE). Therefore, the research does not address any issues on impact made by forms of capital on corporate entrepreneurship in privately owned firms. Moreover, this dissertation does not attempt to clarify.
- There is limited empirical research in CE, specifically in State-Owned Enterprise in South Africa.
- The public sector is undergoing rapid changes. The data upon which this dissertation is based was gathered in November 2014. Any changes to the sector or literature relevant to matters affected by changes which occurred or were published after that date are not taken into account.

### **1.7. Assumptions**

The study assumes that respondents have basic understanding of the construct Corporate Entrepreneurship and the SOEs operations. It assumes respondents have a meaningful understanding of the words entrepreneurial culture. The knowledge around entrepreneurial



behaviour by the organisation is assumed to be understood by executives, directors and senior management. The study also assumes that the potential respondents understand the company performance trends.

### **1.8.Brief outline of the dissertation**

Chapter one introduces the concept of corporate entrepreneurship and indicates the need for exploring the impact of form of capital on corporate entrepreneurship as well as what are the objectives of this study. Key terminologies used throughout the study are presented by different authors to enable diversified understanding of terms.

Chapter two provides an assessment of the relevant literature providing evidence on the constructs under investigation. The literature review contains three aspects of the research proposition. The first aspect presents the forms of capital. The literature outlines the different forms of capital, defines and analysis the critical insight of each forms of capital. The second aspect of the literature review explores the theoretical framework of corporate entrepreneurship. The fundamental objective is to gain a better understanding of the role of corporate entrepreneurship in state-owned enterprises. Lastly, the literature accounts for a brief description of SOEs, due to the study's focus on SOEs, as opposed to private firms.

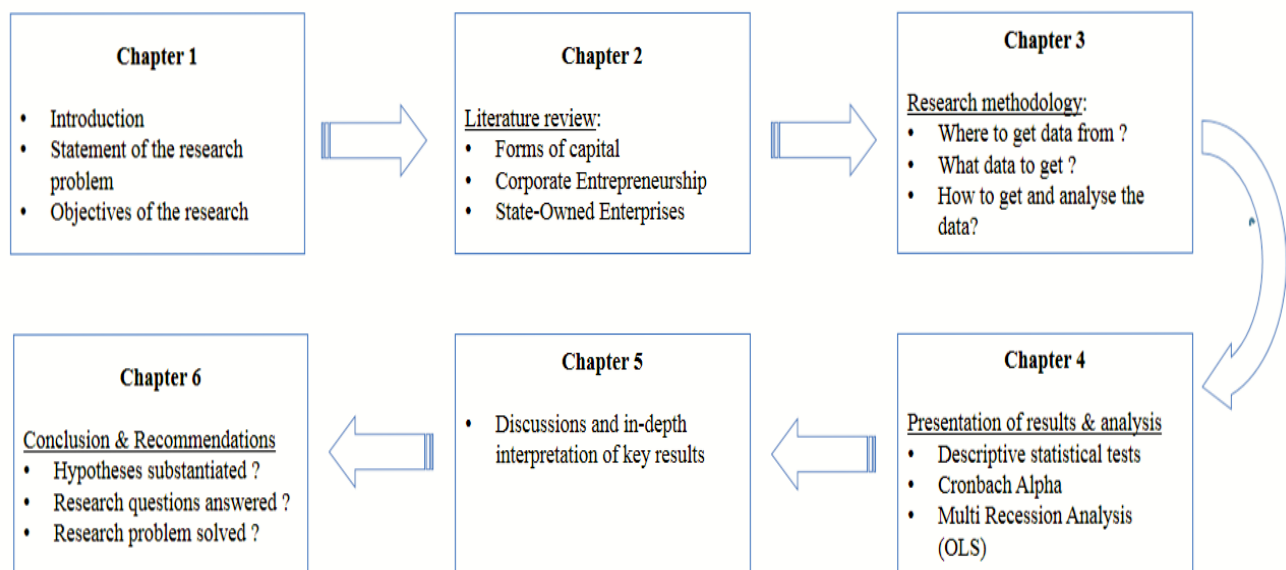
In chapter three the dissertation provides the research methodology and justifies the methods used in this study. The definition of the population, the sample size as well as the sampling method and instrument used are explained in detail.

Chapter four provides a brief analysis of the empirical findings of the study through descriptive statistics representing the data collected. The various statistical test conducted will be put into graphics, table formats and summarised for the use of testing the hypotheses.

In chapter five the dissertation provides a detailed discussion of the research proposition in terms of the literature reviewed in chapter two. This chapter shows the depth of the study and the insight that was drawn from the empirical findings in light of the theory base. Chapter six will indicate that the objectives of the study have been met.

Lastly, chapter six provides a solid conclusion on how forms of capital and corporate entrepreneurship link and the entire study. This chapter further makes policy and future research recommendations based on the findings on forms of entrepreneurial capital in State-Owned Enterprises. A graphical representation of the dissertation is set out in **Figure 1**. The framework provides a summary of what each chapter contains.

**Figure 1: A graphical representation of the dissertation framework**



*Source: Developed for this dissertation (2015).*

## **1.9.Conclusion**

This chapter lays out the foundation for the dissertation. It introduces the research topic and why the study on “Assessing the impact of forms of capital on Corporate Entrepreneurship in State-Owned-Enterprises in South Africa” would be conducted. The research objectives were justified, and definitions were presented in this chapter. Thereafter, this chapter reflected on the significance of the study. A brief outline of how the dissertation would be presented was discussed. Lastly, the limitations of the study were outlined. The following chapter will present the literature review.

## **Chapter 2: Literature review - An overview of the relationship between entrepreneurial capital and Corporate Entrepreneurship**

### **2.1 Introduction**

This chapter examines the literature used to construct hypotheses and develop a framework of understanding the “research question” which, when examined, will provide a solution to the research problem. In order to investigate the research problem identified in chapter one, the section of literature review will examine three different aspects which are deemed relevant to this research:

The first aspect of the literature review will explore the evaluation of entrepreneurship. Then move on into introducing corporate entrepreneurship. In order to obtain an in-depth understanding of corporate entrepreneurship, it is first necessary to consider literature on entrepreneurship before proceeding to an examination of public sector corporate entrepreneurship. The fundamental objective is to gain a better understanding of the role of corporate entrepreneurship in state-owned enterprises.

The second section will introduce the forms of entrepreneurial capital. This section defines each form of capital, and provides an analysis on the core understanding of each forms of capital. The literature will briefly reflect on Bourdieu’s perspective of capital. Bourdieu (1986) reintroduced the notion of capital within the context of his theory of social practice. Firkin (2001) extended Bourdieu’s notion of capital in relation to the usage in the model of entrepreneurship. As a result, Firkin’s work is central on this discussion.

The third aspect of the literature will account for a description of state owned enterprises. It is perhaps crucial to draw a distinction between the privately owned companies and SOEs, for the purpose of the proposed study.

## **2.2 The evolution of entrepreneurship**

Before discussing existing definitions in the field of corporate entrepreneurship, the paper briefly turns some attention to literature on entrepreneurship. Various scholars have observed that the word 'entrepreneurship' is derived from the French verb *entreprendre*, which meant either 'to enter into' or 'to undertake a venture' (Vérin 1982; Jennings 1994). To Schumpeter (1934), an entrepreneur is a person who carries out new combinations, which may take the form of new products, processes, markets, organisational forms, or sources of supply. Entrepreneurship is, then, the process of carrying out new combinations. In contrast, Gartner states that "Entrepreneurship is the creation of organizations" (1988:26). In a more modern context, Bolton and Thompson (2000:35) have defined an entrepreneur as "a person who habitually creates and innovates to build something of recognized value around perceived opportunities". Hirsch (1990:55) defined that an entrepreneur is characterized as "someone who demonstrates initiative and creative thinking, is able to organize social and economic mechanisms to turn resources and situations to practical account, and accepts risk and failure". Additionally, entrepreneurs are also found in government, universities and other similar institutions (Herrington, 2009).

There have been significant debates surrounding the search for a definition of 'the entrepreneur'. Researchers have recognised entrepreneurship using the logic and methodology of their own disciplines (Jennings 1994; Fillion 1988, 1997; Virtanen 1997). No common theoretical framework exists to synthesize the different perspectives (Low & MacMillan 1988:61). Luke (2009) maintains that, theories vary in their acceptance of one definition with respect to the different emphasis on aspects of entrepreneurial interpretation. Entrepreneurship has become an abstract term associated with any individual or group that creates a new entities or combinations their existing organisation's (Lumpkin & Dess, 1996), in such a way that the three

entrepreneurial dimensions, risk assumption, innovativeness and proactivity that are developed in a new and independent business unit, which can be associated to corporate process. This is known as corporate entrepreneurship (Covin & Slevin, 1991).

The pioneers of entrepreneurship research were Cantillon (1755) and Say (1803) (Filion 1997). According to Cantillon & Say (1803), entrepreneurs are risk-takers. In Cantillon's (1755) views, entrepreneurs are driven by the profit between a known buying price and an uncertain selling price. Entrepreneurs are therefore people who seized opportunities with a view to making profits, and assumed the inherent risks (Barreto, 1989). Say (1803) linked entrepreneurs with innovation. Furthermore, Schumpeter (1954: 55) viewed entrepreneurs as change agents. Based on these principles, Filion (1997) concluded that entrepreneurs are products of their environment. A number of authors have shown that entrepreneurs reflect the characteristics of the period and the place in which they live (Filion 1991; Julien & Marchesnay 1996; McGuire 1976). Entrepreneurship can thus be viewed as chameleon-like: a regional and strategic phenomenon that alters according to its operating environment (Knight 1986; Russel 1995). Until the early 1970s, research into entrepreneurship focused on the actions or characteristics of individuals. Having defined and discussed the emergence of entrepreneurship, the components of entrepreneurship will be examined.

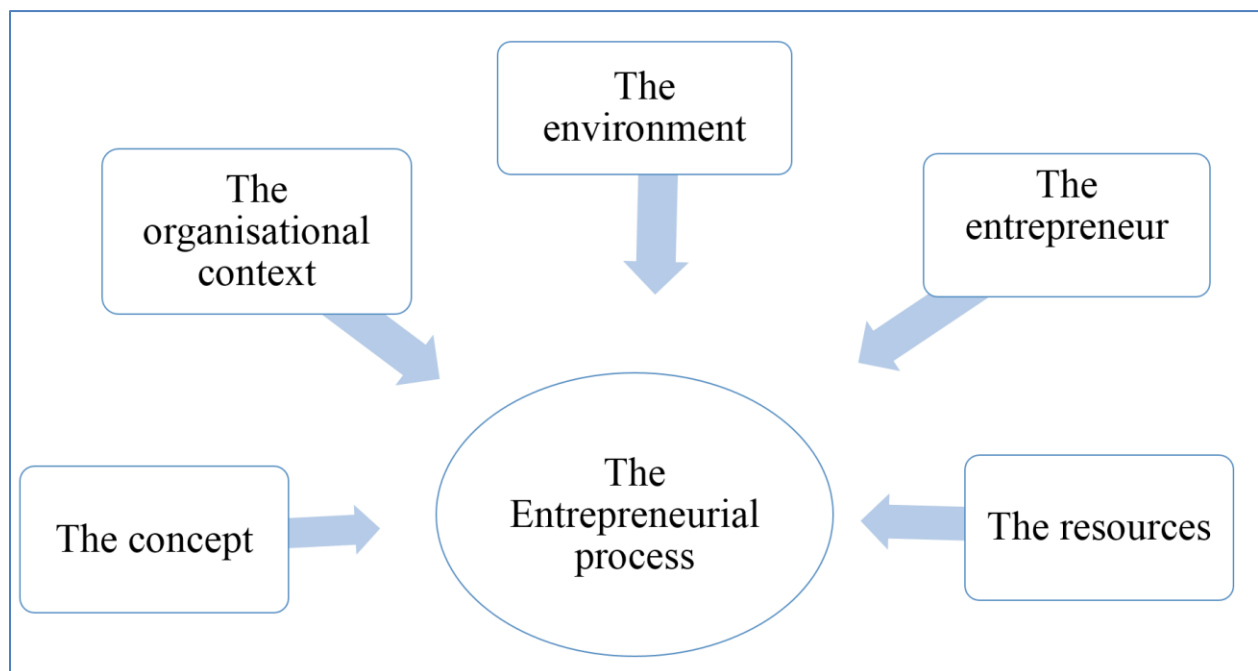
## **2.2 1 Components of entrepreneurship**

There are six components of entrepreneurship as depicted in **Figure 2**, which have been identified in an integrative entrepreneurship framework according to Morris, Kuratko and Schindehutte (2003). These are explained as the environment, the entrepreneurial process, the

entrepreneur, the resources, the concept and the organisational context. In this framework, the entrepreneurial process is at the center, ensuring that each of the components integrates with each other. The process followed by the entrepreneur will be determined by the types of entrepreneurs as well as the model that is employed by the individual in the organisational context.

The organisational context will vary in terms of life stage of the organisation and types of venture the organisation resides in. The concept will be influenced by the types of innovation applied by the organisation or the individual as well as the economic business model that needs to be adhered to. The resources will depend on the organisational strategies as well as the prioritising of the financial resources.

**Figure 2: An integrated Framework for Entrepreneurship**



*Source: Morris, Kuratko, and Schindehutte, (2003:34).*

## **2.2 2 Entrepreneurial actions**

Entrepreneurial actions are any newly fashioned set of actions through which companies seek to exploit entrepreneurial opportunities that rivals have not noticed or exploited. Entrepreneurial actions constitute a fundamental behavior of firms by which they move into new markets, seize new customers, and/or combine (existing) resources in new ways (Smith & Di Gregorio, 2002). Three key dimensions, namely (1) innovativeness (the seeking of creative solutions to problems or needs), (2) risk-taking (the willingness to commit significant levels of resources to pursue entrepreneurial opportunities with reasonable chance of failure), and (3) proactiveness (doing what is necessary to bring pursuit of an entrepreneurial opportunity to completion) - underlie entrepreneurial actions (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Morris & Kuratko, 2002). The relationship between entrepreneurial actions and performance in large organisations has been assessed.

More recently, Shane (2003) and McMullen and Shephard (2006), have emphasized the identification and exploitation of opportunity within an organisation. Researchers have subsequently recognised that organisation's themselves undertaking entrepreneurial activities (Miller & Friesen 1982; Jennings 1994; Burgelman 1983; Pinchot 1985; Zahra 1986; Cornwall & Perlman, 1990). This created the notion of corporate entrepreneurship. It concentrates on 'what' organisations do rather than 'how' they do it. It is a concept focused on the organisation rather than the individual and the development of cultures and institutional processes which the organisation embraces (Cornwall & Perlman 1990; Kuhn 1993; Jennings 1994). Having considered the broad domain of entrepreneurship, it is now possible to introduce the notion of corporate entrepreneurship which is central to this study.



### **2.3 Corporate entrepreneurship**

The concept of corporate entrepreneurship has evolved over the last four decades and the definitions have varied considerably over time. The early research in the 1970s focused on venture teams and how entrepreneurship inside existing organisation could be developed (Hill & Hlavack, 1972; Peterson & Berger, 1971; Hanan, 1976, cited in Kuratko, 2007).

In the 1980s, researchers conceptualised CE as embodying entrepreneurial behaviour requiring organisational sanctions and resources commitments for the purpose of developing types of value-creating innovation (Burgelman, 1984). CE was defined simply as a process of organisational renewal (Alterowitz, 1988; Kanter, 1985).

In the 1990s, researchers focused on CE as re-energising and enhancing the firm's ability to develop the skills through which innovations could be created (Jennings & Young, 1990; Merrifield, 1993; Zahra, 1991). Also in the 1990s, more comprehensive definition of CE began to take shape.

Corporate entrepreneurship is an evolving area of research. Today, there is no universally acceptable definition of corporate entrepreneurship (Gautam & Verma, 1997). Authors use many terms to refer to different aspects of corporate entrepreneurship: intrapreneurship (Kuratko et al., 1990), internal corporate entrepreneurship (Schollhammer, 1982), corporate ventures (Ellis & Taylor, 1987; MacMillan, 1986), venture management (Veciana, 1996), new ventures (Roberts, 1980) and, internal corporate venturing (Burgelman, 1984).

Furthermore, corporate entrepreneurship can also be defined as encompassing several other types of phenomena and processes: innovation, venturing, and strategic renewal (Guth & Ginsberg, 1990; Zahra, 1996). However, regardless of these labels mentioned above, corporate

entrepreneurship refers to the process of creating new business within established firms to improve organisational profitability and enhance a company's competitive position (Ronen, 1988) or the strategic renewal of existing business.

### **2.3.1 Defining Corporate entrepreneurship**

Corporate entrepreneurship (CE) generally refers to the development of new business ideas and opportunities within large and established corporations (Birkenshaw, 2003). In most cases, CE describes the total process whereby established enterprises act in innovative, risk-taking and proactive ways (Zahra 1993; Dess, Lumpkin & McGee 1999; Bouchard 2001). Furthermore, Zahra et al (1991) observed that, corporate entrepreneurship refers to formal and informal activities aimed at creating new business in established companies through product and process innovations and market developments. These activities may take place at the corporate, division (business), functional, or project levels, with the unifying objective of improving a company's competitive position and financial performance. Corporate entrepreneurship also entails the strategic renewal of an existing business (Zahra, 1991).

Corporate Entrepreneurship may be viewed broadly as consisting of two types of phenomena and processes: firstly, the birth of new business within existing organisations - whether through internal innovation or joint ventures/alliances; and, secondly, the transformation of organisations through strategic renewal, for example the creation of new wealth through a combination of resources (Dess, et al 1999).

Wiklund (1999) has studied the impact of corporate entrepreneurship on company performance and the findings showed a positive relationship. In Wiklund (1999), the survey results showed a

strong relationship over time, which meant that the corporate entrepreneurship is effective within the organisation over a certain period.

Corporate entrepreneurship has also been defined by researchers from several perspectives. Sharma and Chrisman (1999:11) for instance, defined corporate entrepreneurship as “a process whereby an individual or group of individuals in an established company attempts to create a new organisation or to instigate renewal or innovation within the current organisational structure”. On the other hand, Morris and Kuratko (2002) defined corporate entrepreneurship as “a term used to describe the entrepreneurial behaviour inside an established organisation”. In some circumstances, the term has also been referred as corporate venturing or intrapreneurship (Zahra, 1991; Hornsby, 2002).

Corporate entrepreneurship entails creating new business by redefining the firm's products (or services) or by developing markets. Redefinition of a firm's products involves revising the concept of the existing business by developing or introducing new products, services, or technologies according to (Rule & Irwin, 1988). Revising the business occurs through adding new business to a firm's portfolio through acquisitions and joint ventures, or internal developments, product introductions, and market development, or both. For instance, Boeing (1991) established a joint venture with two other companies to market the financial packages offers its customers.

Burgelman (1983:99) defines corporate entrepreneurship as “the process whereby the firms engage in diversification through internal development. Such diversification requires new resource combinations to extend the firm's activities in areas unrelated, or marginally related, to its current domain of competence”. Biggadike (1979), on the other hand, describes corporate

venturing as marketing a product or service that the parent company has not previously marketed and that requires the parent company to obtain new equipment or new people or new knowledge. Taking a different approach, Ellis and Taylor (1987:89) define corporate venturing as “a strategy of relatedness to present activities, to adopt the structure of an independent unit and to involve a process of assembling and configuring novel resources”.

Corporate entrepreneurship is an important predictor of company growth (Venter, 2008). Lumpkin and Dess (1996) also found that EO is a key element for organisational success and improved performance. Many organisations attribute their success to an Entrepreneurial Orientation (Lumpkin et al 2009). They stated that organisations that rely on an EO to create new value and growth must make an effort to foster entrepreneurial behaviour. The entrepreneurial behaviour allows teams to operate outside an organisation’s existing norms.

Entrepreneurial orientation, company rejuvenation and strategic renewal form part of corporate entrepreneurship (Miles et al 2009). Corporate entrepreneurship can be used to improve competitive advantage and to reposition the company in the market (Lumpkin & Dess 1996; Ireland et al 2009). Ireland et al (2009) stated that Entrepreneurial Orientation is an organisational state or quality that is defined in terms of several behavioural dimensions. Miller (1983), Covin and Slevin (1991) defined Entrepreneurial Orientation as the presence of organisational behaviour reflecting risk taking, pro-activeness and innovativeness. The company that embraces corporate entrepreneurship is said to be entrepreneurially- orientated. An EO keeps companies alert by exposing them to new technologies, making them aware of marketplace trends and helping them to evaluate new possibilities (Lumpkin et al 2009).

### 2.3.2 Independent and Corporate Entrepreneurship

Entrepreneurship and - its hierarchical sub-construct - corporate entrepreneurship can be seen as broad labels under which a hodgepodge of research is housed (Shane & Venkataraman, 2000). Following the lead of Collins and Moore (1970), entrepreneurial activities undertaken independently and those undertaken within the context of an organisation are differentiated as "independent entrepreneurship" and "corporate entrepreneurship". Thus:

- **Independent entrepreneurship** is the process whereby an individual or group of individuals who, acting independently of any association or existing organisation, creates a new organisation.
- **Corporate entrepreneurship** is the process whereby an individual or a group of individuals who, in association with an existing organisation, create a new organisation or instigate renewal or innovation within that organisation. Corporate Entrepreneurship (CE) has long been recognised as a potentially viable means for promoting and sustaining corporate competitiveness (Covin and Miles, 1999). Corporate Entrepreneurship is a term used to describe entrepreneurial behaviour inside established mid-sized and large organisations (Morris et al 2008). CE refers to a scenario where the entire company, rather than individuals, acts entrepreneurially (Covin and Miles, 1999).

#### 2.3.2.1 Strategic Renewal and Corporate Venturing

As mentioned earlier in the definition of corporate entrepreneurship, a number of authors (e.g., Guth & Ginsberg, 1990; Schendel, 1990; Zahra, 1995, 1996) have suggested that within the realm of existing organisations, entrepreneurship encompasses three types of phenomenon that

may or may not be interrelated: (i) the birth of new businesses within an existing corporation; (ii) the transformation of existing organisations through the renewal or reshaping of the key ideas on which they are built; and (iii) innovation. The first has been referred to as internal corporate venturing (Zajac, Golden & Shortell, 1991), intrapreneurship (Pinchot. 1985), corporate new venture division (Sandberg, 1992), internal innovation, internal venturing (Guth & Ginsberg. 1990), and the second has been called strategic renewal (Guth & Ginsberg, 1990), strategic change, revival, transformation (Schendel. 1990), strategic departure, new product development (Vesper. 1984), reorganisation, redefinition (Zahra, 1993), organisational renewal (Stopford & Baden-Fuller, 1994). In this discussion the terms strategic renewal and corporate venturing are used:

- **Strategic renewal** refers to the corporate entrepreneurial efforts that result in significant changes to an organisation's business or corporate level strategy or structure. These changes alter pre-existing relationships within the organisation or between the organization and its external environment and in most cases will involve some sort of innovation. Renewal activities reside within an existing organisation and are not rated as new businesses by the organisation.
- **Corporate venturing** refers to corporate entrepreneurial efforts that lead to the creation of new business organisations within the corporate organisation. They may follow from or lead to innovations that exploit new markets, or new product offerings, or both. These venturing efforts may or may not lead to the formation of new organisational units that are distinct from existing organisational units in a structural sense (e.g. a new division).

Consequently, both strategic renewal and corporate venturing suggest changes in either the strategy or structure of an existing corporation, which may involve innovation. The principal

difference between the two is that corporate venturing involves the creation of new businesses whereas strategic renewal leads to the reconfiguration of existing businesses within a corporate setting.

### **2.3.2.2 External and Internal Corporate Venturing**

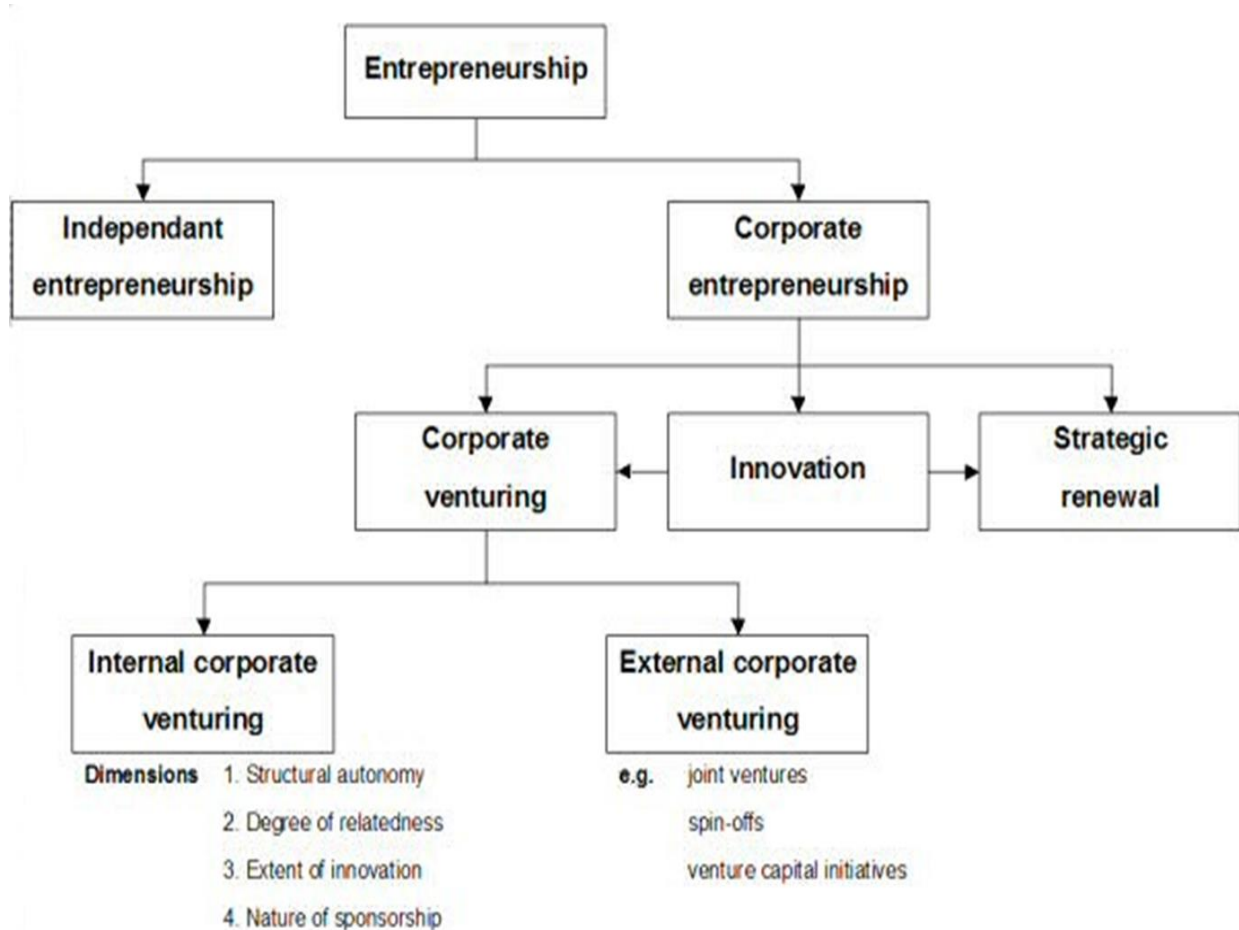
As noted above, corporate venturing may or may not lead to the formation of organisational entities that are distinct from the existing entities within an organisation. In fact, corporate ventures may or may not reside within the domain of the existing organisation (Von Hippel, 1987). Based on these options, corporate venturing can be classified either as external or internal:

- **External corporate venturing** refers to corporate venturing activities that result in the creation of semi-autonomous or autonomous organisational entities that reside outside the existing organisational domain. Some examples of external corporate ventures are those formed as a result of joint ventures, spin-offs, and venture capital initiatives. Although these may vary in their degree of separateness from the parent company, their common feature is that they reside outside the domain or boundaries of the existing organisation.
- **Internal corporate venturing** refers to the corporate venturing activities that result in the creation of organisational entities that reside within an existing organisational domain.

It should be clear that phenomena such as internal corporate venturing may take many forms. Indeed, a comparison of the definitions of Biggadike (1979), Burgelman (1983), Ellis and Taylor

(1987) emphasized this point. The relationship between the terms discussed above is diagrammatically presented in **Figure 3**.

**Figure 3: Hierarchy of Terminology in Corporate Entrepreneurship**



*Source: Burgelman (1983:43).*

Although it may seem beyond the scope of this dissertation to develop such a classification in full, each of the relevant dimensions is discussed briefly below:

- **Structural Autonomy** refers to the extent to which the internal corporate venturing activities of a corporation are embedded within its existing organisational units.



Perceived differently, this dimension addresses the crucial decision of where to locate the venture within an organisation. The options vary from totally embedding the venture within the ongoing operations of an existing division to creating a separate new-venture division isolated from the rest of the organization and reporting directly to top management (Block & MacMillan, 1993; Kanter, Richardson, North, & Morgan, 1991).

- **Degree of Relatedness to Existing Business** which is internal corporate venture may vary in the degree of relatedness of the new business to existing businesses in terms of product offerings, markets, core competencies and resources required. This construct may vary from being closely related to completely unrelated to the organization's present activities, leading to a variation in the challenge provided and the learning required for effectively managing the internal corporate venture (Block & MacMillan, 1993; Sorrentino & Williams, 1995).
- **Extent of Innovation** While the degree of relatedness to existing businesses refers to the degree of newness of the venture to the organisation, the extent of innovation refers to the degree of newness of a venture in the marketplace. This dimension may vary from ventures that are simply imitative entries to those innovative entries that are potentially “frame-breaking” (Stopford & Baden-FuUer, 1994). Although imitative ventures will require considerable learning on the part of an organisation, some lessons may be learned from experiences of pioneering competitors.
- **Nature of Sponsorship** is related to the degree of formal authorisation for the venture. Zahra (1993) has suggested that ventures may vary from being formal or induced (sponsored by an organisation) to informal or autonomous (entrepreneurial efforts based on employees' initiative without formal organisational sponsorship). This view has been

extended by Day (1994), whose research supported the existence of “top-down” bottom-up and dual-role champions” in entrepreneurial processes within internal corporate ventures.

According to Covin and Miles (1999), innovation is at the center of a network that encompasses the constructs of corporate entrepreneurship. Lumpkin et al (2009) have studied autonomy as the key characteristic of Entrepreneurial Orientation and they concluded that this element can help the organisation to foster corporate entrepreneurship. These authors have considered autonomy as a driver that encourages innovation, promotes the launching of entrepreneurial ventures and increases the competitiveness and effectiveness of the company. This study only focuses on three dimensions of corporate entrepreneurship, which are: innovation, risk taking, and pro-activeness:

- **Innovation:** Innovativeness reflects a firm's tendency to engage in, and support, new ideas, uniqueness, experimentation and creative processes that may result in new products, services, or technological processes (Clark 2010; Lumpkin and Dess 1996). Innovative firms have capabilities to monitor the market changes and respond quickly, thus capitalising on emerging opportunities (Wiklund, 1999). Zahra and Garvis (2000) define innovation as the firm's ability to create new products and successfully introduce them to the market. Innovation also revises the firm's knowledge base, allowing it to develop new competitive approaches, which can be exploited in new foreign markets to achieve growth and profitability (Zahra and Garvis, 2000). Innovation keeps firms ahead of their competitors, thereby gaining a competitive advantage that leads to improved financial results (Wiklund, 1999).
- **Risk taking:** Risk taking involves taking bold actions by venturing into the unknown, borrowing heavily and/or committing significant resources to ventures in uncertain

environments (Wang 2008; Lumpkin et al 2009; Rauch et al 2009). Zahra and Garvis (2000) define risk taking as a company's disposition to support innovative projects, even when the payoff from these activities is uncertain. Subsequently these activities can enhance the company's ability to recognise and exploit market opportunities ahead of its competitors. Autonomy within the entrepreneurial organisation allows individuals to act freely and be able to explore new ideas (Lumpkin et al 2009) that can create competitive advantage.

- **Pro-activeness:** Pro-activeness is an opportunity-seeking, forward-looking perspective characterised by the introduction of new products and services ahead of the competitors and acting in anticipation of future demand (Lumpkin and Dess 1996; Rauch et al 2009). Miller (1983) defines pro-activeness as an indication of a company's determination to pursue promising opportunities, rather than merely responding to competitors' moves. According to Lumpkin and Dess (1996), pro-activeness refers to how a firm relates to market opportunities in the process of new entry. They added that pro-activeness involves pursuing opportunities and the will to respond aggressively to competitors. Pro-active firms have a greater tendency to lead than to follow in the development of new procedures and technologies and the introduction of new products and services (Lumpkin and Dess 1996).

### **2.3.3 Role of managers in corporate entrepreneurship**

Managers at all organisational levels have critical strategic roles to fulfill for the organisation to be successful (Floyd & Lane, 2000; Ireland, Hitt & Vaidyanath, 2002). According to Floyd and Lane (2000), upper-, middle-, and lower-level managers have distinct responsibilities with

respect to each sub-process. Upper-level managers have ratifying, recognising, and directing roles corresponding to the competence definition, modification, and deployment sub-processes, respectively. These roles are associated with particular managerial behaviors. The specific managerial behaviors through which upper-level managers' ratifying, recognising, and directing roles are expressed, as described by Floyd and Lane (2000), are too numerous to fully review here. However, for instance, (a) upper-level managers articulate strategic intent, endorse and support others' entrepreneurial behavior as part of their ratifying role, (b) they set strategic direction, empower and enable others as part of their recognizing role, and (c) they plan and deploy resources as part of their directing role. Burgelman (1984) contends that in successful corporate entrepreneurship upper-level management's principal involvement takes place within the strategic and structural context determination processes.

In summary, upper-level managers have multiple and critical roles in CE activity. These managers are responsible for the articulation of an entrepreneurial strategic vision and instigating the emergence of a pro-entrepreneurship organisational architecture.

In examining the role of middle-level managers, research highlights the importance of middle-level managers' entrepreneurial behavior to the firm's attempt to create new businesses or reconfigure existing ones (Ginsberg & Hay, 1994; Kanter, 1985; Floyd & Wooldridge, 1992; Pearce, Kramer & Robbins, 1997). Middle-level managers' work as change agents and promoters of innovation is facilitated by their organisational centrality.

According to Floyd and Lane (2000), middle-level managers have championing roles corresponding to the competence definition sub-process; synthesizing and facilitating roles corresponding to the competence modification sub-process, and implementing roles

corresponding to the competence deployment sub-process. Middle-level managers' championing role is expressed through, for example, their nurturing and advocating of entrepreneurial initiatives.

In examining the role of lower-level managers, they are often the catalysts behind autonomous entrepreneurial initiatives. Floyd and Lane's (2000) acknowledged that, lower level managers have experimenting roles corresponding to the competence definition sub-process, adjusting roles corresponding to the competence modification sub-process, and conforming roles corresponding to the competence deployment sub-process. Lower level managers' experimenting role is expressed through, for example, the initiating of entrepreneurial projects. The adjusting role is expressed through, for example, lower level managers' responding to recognised and unplanned entrepreneurial challenges. Finally, the conforming role is expressed through, for example, lower-level managers' adaptation of operating policies and procedures to the strategic initiatives endorsed at higher organisational levels. Thus, organisations pursuing CE strategies exhibit a cascading yet integrated set of entrepreneurial behaviors and associated processes at the upper-, middle-, and lower-levels of management. Working jointly, upper-, middle-, and lower-level managers are responsible for verifying that some of today's resources and capabilities are used to form the core competencies through which future competitive success can be pursued.

### **2.3.3 Benefits of Corporate entrepreneurship**

CE can make a significant difference to a company's ability to compete (Zahra, Kuratko & Jennings, 1999). It can be used to improve competitive positioning and transform corporations, their markets, and industries when opportunities for value-creating innovations are developed

and exploited (Miller, 1983; Khandwalla, 1987; Naman & Slevin, 1993; Lumpkin & Dess, 1996). A key benefit of CE may be to push companies to employ a range of strategies, often in unique combinations (Dess, Lumpkin, & McGee, 1999). By doing so, companies build layers of advantage by combining distinctive bases for competitive superiority (Hamel & Prahalad, 1989). CE can improve a company's growth and profitability (Kanter, 1985; Brazeal, 1993; Zahra, 1991). The empirical evidence that CE improves performance by increasing the company's proactiveness and willingness to take risks by pioneering the development of new products, processes, and services as presented in Kuratko, Montagno, and Hornsby (1990), and Lumpkin and Dess (1996), has been termed 'compelling' by Zahra, Nielson, and Bogner (1999). A longitudinal study by Zahra and Covin (1995) provides evidence of a strong CE-Performance relationship. Their study examined the longitudinal impact of corporate entrepreneurship on a financial performance index composed of both growth and profitability indicators. In recent years, academic and practitioner interest has shifted more to the process of nurturing CE, since the debate has moved from whether or not CE benefits to the ways and means of maximising benefits.

#### **2.3.4 A framework for mapping corporate entrepreneurship**

Several studies have appeared to advance the development of a theory of corporate entrepreneurship. Zahra et al, (1991) developed a model of corporate entrepreneurship based on environmental, strategic and organisational variables and empirically tested the model. Furthermore, Russell and Russell (1992) have also developed and tested a model of intrapreneurship based on environmental, structural, strategic, and cultural variables. Moreover, Hornsby et al, (1993) has proved an interactive model of the decision to act intrapreneurially, which is focused on individual and organisational variables. Covin and Slevin (1991) analysed

strategic and structural variables and tested the relationship between intrapreneuring and firm performance. Their model surveys much of the literature on corporate entrepreneurship and includes the following variables: entrepreneurial posture, external (environmental and industry measures), internal (structural and cultural measures), and strategic (mission strategy and competitive tactics).

A complete model of corporate entrepreneurship must provide an explanation of how a flow of creative ideas are produced and how innovation-supporting behaviour become part of the development process in entrepreneurial organisations (Russell, et al 1995). Guth and Ginsberg (1990) present one model that portrays the theoretical connections that can be drawn from corporate entrepreneurship.

In their model, Guth and Ginsberg (1990) identified five classes into corporate entrepreneurship: (1) environment influences corporate entrepreneurship; (2) Strategic leaders influence corporate entrepreneurship; (3) organisation form/conduct influences corporate entrepreneurship; (4) organisational performance influences corporate entrepreneurship, and (5) Corporate entrepreneurship influences performance.

**1) Environment Influences Corporate Entrepreneurship:** In this category, Guth and Ginsberg (1990) included: (a) The impact of major environmental shifts, such as deregulation, can influence changes in strategy in a non-random way, with organisations (in the aggregate) moving away from one generic strategy towards other generic strategies; (b) The more dynamic and hostile the environment, the more firms will be entrepreneurial; and (c) Industry structure affects opportunities for successful new product development. Clearly, changes in industry competitive structures and the technologies underlying them affect corporate entrepreneurship.

Opportunities for new products and services stem from development of new technology and/or commercialisation of technologies developed by others. Both opportunities and problems stem from the potential of the firm and its competitors in an industry to find new combinations of resources that lead to competitive advantage.

**2) Strategic leaders Influence Corporate Entrepreneurship:** Guth and Ginsberg (1990) included, the following factors here: (a) The management style of top managers affects the level and performance of new corporate ventures; (b) Middle managers effectiveness at building coalitions among peers and higher-level managers in support of their entrepreneurial ideas affects the degree of success in their implementation; (c) Banks that are more innovative are managed by more highly educated teams, who are diverse with respect to their functional areas of expertise. Many would argue that entrepreneurial behaviour in organisations is critically dependent on the characteristics, values/beliefs, and visions of their strategic leaders. The role of both individual managers and management teams in corporate entrepreneurship warrants considerable further research. Since innovation is an uncertain, incremental process, strategic managers cannot apply traditional planning techniques to attempt to control entrepreneurial venturing (Quinn, 1985).

**3) Organisation Conduct/Form Influences Corporate Entrepreneurship:** Guth and Ginsberg (1990) refer to two factors: (a) Firms pursuing strategies of acquisitive growth have lower levels of R&D intensity than firms pursuing strategies of internal growth through innovation; (b) Creating new business venture units in larger organisations does not affect the level of sales from new products. Several researchers have noted a relationship between an organisation's formal strategy and innovation. Covin and Slevin (1991:13) state that mission strategies based upon building market share are more likely to incorporate entrepreneurial



ventures based on innovation. They also note that the “entrepreneurial posture” of a firm represents a “strategic philosophy concerning how the firm should operate”.

**4) Organisational Performance Influences Corporate Entrepreneurship:** In this category, Guth and Ginsberg (1990) included: (a) Successful firms make more radical and more frequent product and process innovations than unsuccessful firms; (b) Organisations which experience performance downturns tend to innovate new practices and change strategic directions only after prolonged decline leads to changes in top management. Innovation and radical change may be precipitated when firms have excess resources that allow them to seize upon opportunities that arise; they also may be induced by crises or severe external threats. More research is needed to shed light on questions concerning the conditions that moderate the influence of organisational performance on innovation and strategic renewal.

**5) Corporate Entrepreneurship Influences Performance:** Guth and Ginsberg (1990) refer, in this category to three factors: (a) Scale of entry in new product introductions affects performance; (b) Independent, venture-backed start-ups, on average, reach profitability twice as fast and end up twice as profitable as corporate start-ups; (c) Early entry in new-product markets does not affect performance. It is clear that new ventures often take several years to turn into contributors to overall corporate profit performance. Organisational re-creations may often have short-run negative performance consequences.

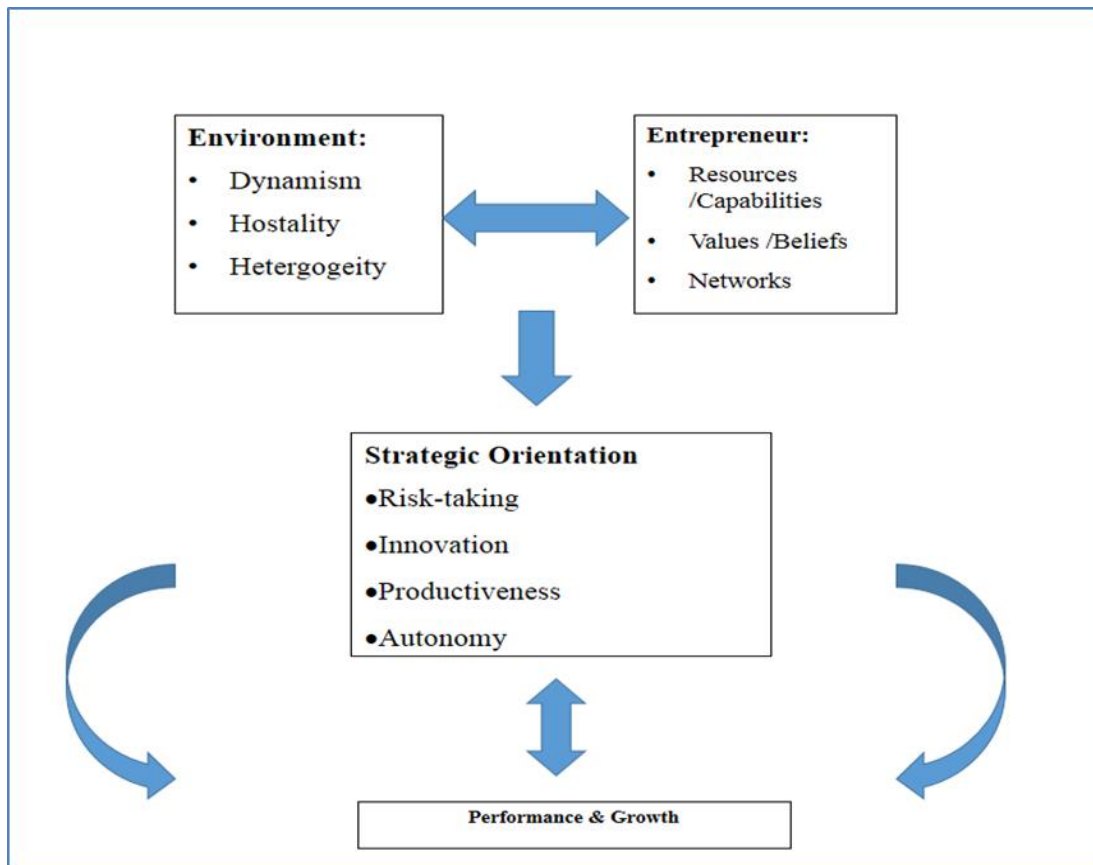
### **2.3.5 An integrating conceptual model of Corporate Entrepreneurship**

The foregoing discussion has exposed a number of gaps in the existing knowledge about corporate entrepreneurship (Gautma & Verma, 1997). On the conceptual front, they find that there is a lack of integrative models. Moreover, there is not much clarity on the most few

empirically - supported studies, but most of them concentrate on the individual characteristics of entrepreneurs. Not many have attempted to study macro-organisational behaviour. An analysis of the interplay between individual, organisational and environmental factors is crucial for understanding the entrepreneurial process. Studies on entrepreneurial behaviour at firm level will certainly be useful to better define the process and domain of corporate entrepreneurship.

The firm level analyses of entrepreneurship are important and the impact from the environment needs to be considered, in addition to more traditional studies, preoccupied with the entrepreneur. When conducting firm-level analyses of entrepreneurship, strategic issues play an important role. Three theoretical constructs are suggested, which may influence the degree or intensity of a firm's strategic-orientation (Ferreira et al, 2002). Each of these constructs, or sets of variables, have multiple components that vary in their potential positive or negative influence on strategic orientation. The firm's degree of strategic orientation, in turn, influences its growth and performance levels. Variables from different levels of analysis are integrated in **Figure 4**, variables relating to the entrepreneur, the firm and the environment.

**Figure 4: An integrating conceptual model of Corporate Entrepreneurship**



*Source: Frerreira et al, (2002:46).*

Miller and Friesen (1978) describe the adaptive behaviour of a firm using a biological metaphor. Just as organisms respond to the stimuli they receive, firms adapt through their strategy making to the stimuli they get from the environment. If organisms are able to adapt well to stimuli they will be healthy; if firms are able to select an appropriate strategy, they will be successful. This implies that in a particular environment some strategies will outperform others, i.e. some strategies are better suited to a specific environment than others. According to Frerreira (2002) changes in the conditions of the environment create both new opportunities and threats to firms. These changes may alter the congruence between the firm's strategy and environment and pressure on the firm to select a different strategic orientation. However, organisational responses

to an environment can vary, including not responding at all. Threats and opportunities in the environment can lead to responses with either an internal or external target. These responses could involve mergers as well as actions taken to influence politicians to change decisions (Frerreira, 2002).

Some suggestions have been made concerning suitable strategic choices under different environmental conditions (Dess & Beard, 1984; Miller, 1987; Russel, 1995; Zahra, 1991). These conditions could be viewed as types of precipitating events such as: Dynamism; Hostility; and Heterogeneity. Dynamism refers to the perceived insatiability of a firm's market because of continuing changes. Opportunities emerge from the dynamism of an industry where social, political, technological, and economic changes bring about new developments that can enrich a firm's niche. Corporate entrepreneurship helps to respond to these new competitive forces, either through innovations or imitating competitors' practices. As result firms that view their environment as dynamic will emphasise corporate entrepreneurship (Frerreira et al, 2002).

According to Frerreira, (2002) a hostile environment creates threats to a firm's mission, through increasing rivalry in the industry or depressing demand for a firm's products (or services), thereby threatening the very survival of the firm. Environmental hostility is also expected to stimulate to pursuit of corporate entrepreneurship. Faced with unfavorable environmental conditions, a firm may opt to differentiate its products through intensive marketing and advertising activities in order to sustain customer loyalty or increase penetration of existing segments. And, if hostility continues to intensify in the firm's principal markets, these firms consider novel business ideas to replace or supplement their additional business core through internal developments, internal joint venturing, or diversification (Frerreira, 2002).

Opportunities also emerge from the heterogeneity of the environment, where developments in one market create new pockets of demand for a firm's products in related areas. Heterogeneity indicates the existence of multiple segments, with varied characteristics and needs that are being served by the firm (Zahra et al, 1991). This dimension refers to the number of different organisationally relevant attributes or components of the environment. For instance, two firms may compete in the same industry and serve the same customer groups but will perceive the environment quite differently. One firm may perceive the environment as manageable; the other views it as complex and uncontrollable. These perceptual differences arise from the experience of firms with the external environment. According to Zahra et al, (1991) increased environmental heterogeneity is predicted to be associated with greater use of corporate entrepreneurship.

A review of the literature of corporate entrepreneurship reveals an ambiguity in terminology used. Although various authors agree on the features that are unique in corporate entrepreneurship, they often use different terms to express themselves. Having defined corporate entrepreneurship broadly and explored the notion of corporate entrepreneurship from various aspects, it is indeed now possible to discuss corporate entrepreneurship in relation to the public sector entrepreneurship and subsequently corporate entrepreneurship as the focus of this dissertation.

## **2.4 Entrepreneurship in Government**

Conventionally, the role of government has been viewed as one focused on policy and administration: implementing legislation and regulation, and ensuring that such rules are duly applied and enforced to provide a framework for a stable and progressive society (Moe, 1994; Hafsi & Luc, 2007). Implied in this definition is the role of government to also provide basic public services, which often extend further once functions such as standard services and law

enforcement are provided. Due to changes over time such as advancements in technology and liberation of financial markets, resources such as large-scale finance, capital assets and expansive networks have become increasingly accessible to private sector organisation (OECD, 2005). This has resulted in competition for public sector organisation in these industries, as well as the opportunity to privatise existing public sector organisations (Zahra, 1991; OECD, 2005).

- **Policy-** According to Luke (2009), there has been much focus on government to assist and support the private sector through the promotion of policies to foster economic development and growth. Such policies include legislation which is open and supportive to business developments (Swierczek & Quang, 2004), streamlined regulation requirements (Bharath, 2004), and increased assistance in accessing finance (Prince, 2003).
- **Privatisation-** As discussed in the Organisation for Economic Cooperation and Development (OECD) report (2003), and Zahra (2008), economic development through privatisation has also been widely promoted as effective government policy. A priority of policy-making and a contrast in skills based between politicians and businessmen (Moe, 1994; Morris & Kuratko, 2002) are common factors in case of privatisation. As Moore (1992) pointed, economic benefits resulting from privatisation include substantial revenue from the sale of government assets, reduction in national debt, elimination of losses sustained by unprofitable government organisations, and increased revenue from taxation of growing profits under private sector management. However, those in support of privatisation have also acknowledged a number of obstacles (Zahra & Hansen, 2000). Such obstacles include privatisation essentially being a costly and involved process, the loss of national resources through the sale of assets, uncertainties regarding the abilities

and intentions of any new private sector management, increase in unemployment due to subsequent downsizing, and elimination of industry subsidies to domestic private sector organisation operating within privatised industry (Zahra & Hansen, 2000).

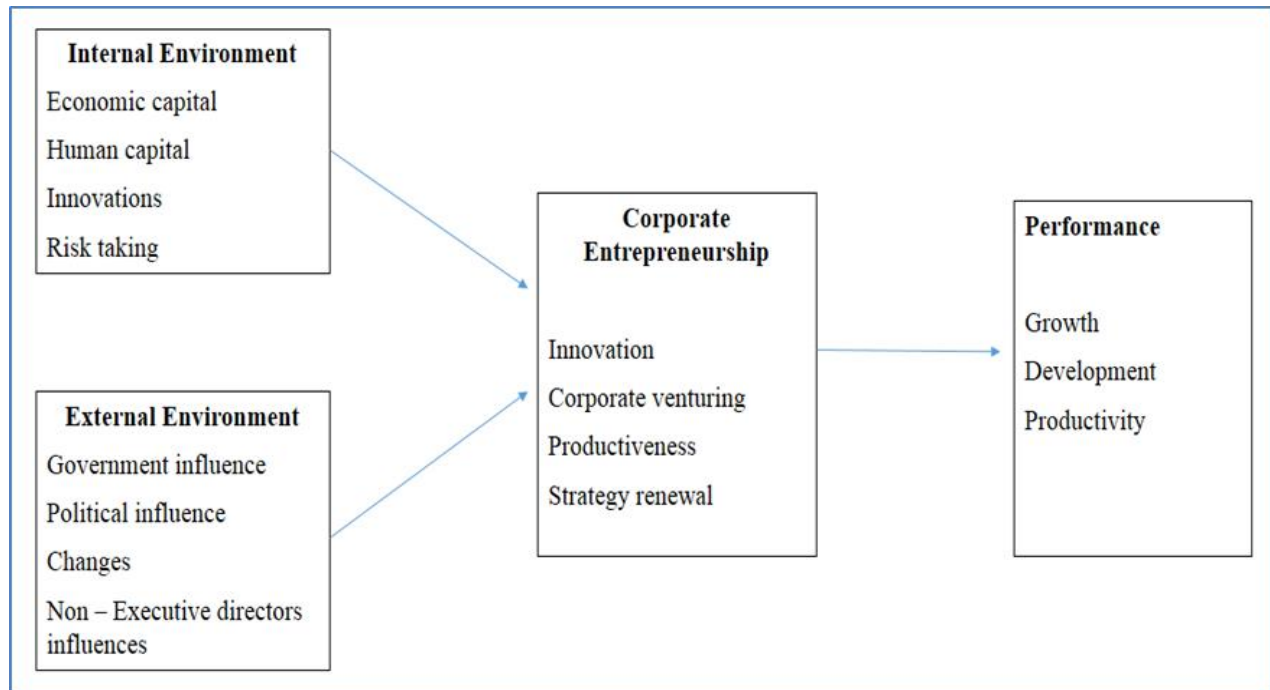
- **Practices** – In recent years, the notion of entrepreneurial government practice has gained increasing attention, suggesting a more direct approach to entrepreneurship activity (Luke, 2009). Such principles are not new, and can be traced back to the works of Woodrow Wilson (1887) cited in Luke (2009) who viewed public administration as a business. Doig (1983), among others, argues that these views remain equally relevant to modern day public administration. Therefore, government interest in employing private sector management techniques in order to move towards a more commercial and efficient form of public administration has been ignited (Luke, 2009).

## **2.5. Public Sector corporate entrepreneurship model**

The adoption of a corporate entrepreneurship model that can be applied to public sector organisations has a number of benefits over more traditional entrepreneurship models and theories that focus on organisations in the private sector. Considering the level and depth of analysis, an organisational level model of corporate entrepreneurship is appropriate since entrepreneurial effectiveness is arguably an organisational level phenomenon (Corporate entrepreneurial effectiveness can be measured in terms of organisational performance. Organisational performance is a function of the organization as well as individual level behavior (Covin & Slevin, 1991).

The model of Public Sector Corporate Entrepreneurship is depicted in **Figure 5**. A meaningful model of corporate entrepreneurship within the public sector needs several essential characteristics, including the following discussed below. The ultimate dependent variable in this model is performance (growth, development and productivity). As asserted by Covin and Slevin (1991:9) “Entrepreneurship is studied for a variety of reasons, but the overriding reason for current interest in the topic is the widespread belief that entrepreneurial activity stimulates general economic development as well as the economic performance of individual firms.”

**Figure 5: Public sector model for Corporate Entrepreneurship**



*Source: Public sector Corporate Entrepreneurship, (Covin & Slevin, 1991:69).*

The model depicted in **Figure 5** incorporates corporate entrepreneurship and its two antecedents (public sector organisation and external environment) and its direct and indirect impact on performance. Structure/formalisation, decision-making/control, rewards/motivation, risk taking and proactiveness can affect the ability of an organisation to engage in corporate entrepreneurial



activity. The external environment has been recognised as a fundamental determinant in influencing corporate entrepreneurship (Miller, 1983, Khandwalla, 1987, Covin & Slevin, 1991; Zahra et al, 1993; Zahra & Covin, 1995; Dess et al. 1997). Political, complexity, munificence and change, are dimensions of the external environment that can affect the organisation in its entrepreneurial endeavors.

### **2.5.1 Barriers to public sector innovation**

Mulgan and Albury (2003) in their study identified a number of key barriers to innovation that are particularly prevalent in the public sector. These include: delivery pressures and administrative; short-term budgets and planning horizons; poor rewards and incentives to innovate; culture of risk aversion; poor skills in active risk or change management; reluctance to close down failing programmes or organisations and technologies available. Mulgan and Albury (2003) identified key barriers to public sector innovation that focused on the characteristics of the public sector that inhibit innovative thinking, implying that the public sector is not conducive to innovation. Borins (2001) provides a more constructive approach and observes that thinking innovatively and designing an innovative program is only the beginning of what is required; he suggests that developing an innovative culture in the public sector is actually all about achieving and learning from successful cases of implementation and innovations. Borins (2001) provides empirical findings about obstacles in implementing innovation in the public sector from his study of over three hundred government reformers around the world. He categorised the obstacles to implementing innovation into three groups: The first group consists of barriers that arise from within the bureaucracy/organisation, such as hostile attitudes, turf fights, difficulty in coordinating organisations, logistical problems, difficulty in maintaining the enthusiasm of

program staff, difficulty in introducing new technology, union opposition, middle management resistance, and public sector opposition to entrepreneurial action. The second group of obstacles emanates from those that arise primarily in the political environment; these include: inadequate funding or resources, legislative or regulatory constraints and political opposition. One obstacle that is frequently emanating from both the bureaucratic and the political arena is inadequate resources, which is a result of funding decisions made at either the bureaucratic or political levels. The third group of obstacles is those existing in the external environment: public doubts about the effectiveness of the program, difficulty reaching the program's target group, opposition by those affected in the private sector, including entities that would experience increased competition, and general public opposition or skepticism.

Of the three sets of obstacles, Borins (2001) acknowledged that the largest number of obstacles arose from within the internal the organisation and in bureaucratic context. This reflects the fact that public sector innovations can impact operating procedures, power structure and dynamics, and occupational patterns.

### **2.5.1 Overcoming barriers to public sector innovation**

Previous studies have identified various ways of overcoming barriers to public sector innovation with various levels of success. Borins (2001) identified three main classes of tactical approaches: (1) persuasion-highlighting the benefits of an innovation, establishing demonstration projects and social marketing; (2) accommodation-consulting with affected parties, co-opting affected parties by engaging them in the governance of the innovation, training those whose work would be affected, compensating losers, and ensuring the program was culturally and linguistically

sensitive; and (3) others-finding additional resources, resolving logistical problems, preserving and exerting continuous effort, gaining political support and building alliances, having a clear vision and focusing on the most important aspects of the innovation, modifying technology, changing regulations, and providing recognition for program participants or supporters.

To be effective, innovation needs to be effectively managed, and should conform to the corporate strategy. It must also be integrated into the culture of the organisation, and be a fundamental aspect of the organisational behavior pattern. Innovation does not just happen, “rather it is a calculated outcome of strategic management and visionary leadership that provide the people, structures, values, and learning opportunities to make it an organisational way of life” (Tushman & Nadler 1986:92). Therefore, corporate entrepreneurship is envisioned to be a process that can facilitate the effort of an organisation to constantly innovate and effectively cope with changes that occur in both the internal and external environment.

Because of the fact that the focus of this study is on South African SOEs, as opposed to the private sector firms, it is crucial to draw a distinction between the two. The dissertation will now account for a brief back ground of South African SOEs.

## **2.6 South Africa’s SOEs’ environment – Brief background**

A company can be defined as a Parastatal or SOE when government owns a controlling share in it, making it a part of the state. State-Owned Enterprises (SOE Ltd): are enterprise registered as a company which is listed as a public entity in Schedule 2 or 3 of the Public Finance Management Act (the PFMA), or is owned by a municipality. An enterprise is classified as a State-Owned

Enterprise if it, (1) it is registered as a company, (2) it is listed as a public entity in Schedule 2 or 3 of the PFMA.

Over the last century the reasoning for state ownership of commercial enterprises has been unique to countries and industries and usually comprises a mix of social, economic and strategic interests. According to researchers, since the early 1980s the globalisation of markets, technological advancements and the deregulation of monopolistic markets have created a need for the privatisation and restructuring of the state-owned sector. Privatisation in South Africa's state-owned sector is an open-ended argument that has been fuming since the 1990s. Currently popular opinion goes against the privatisation of SOEs' but the financial and managerial problems that have been experienced at South Africa's major SOEs over recent years have led to passionate arguments both for and against the privatisation of these enterprises. SOEs have similarities to private firms. However, they do have significant differences that make them unique. An understanding of what drives success in SOEs requires a focus on those aspects that distinguish SOEs from private firms (Mathebula, 2011).

Generally, there is a wide acceptance in the literature on what constitutes a SOE. Ramamurti (1986:23) for instance, defines a SOE as "a legally autonomous entity that operates along commercial lines but is owned or partly owned by government". On the other hand, Yeaug (2005), defines SOE as a form of government businesses, which is expected to achieve economic and operational efficiency while simultaneously serving social objectives and being accountable to the public. SOEs as a result of being state or government owned have some distinguishing characteristics that are typical to them. The center on the nature of ownership (De Alessis, 1969; Aharoni, 1981; Zhang, 2006), the purpose of the enterprise (Ahoroni, 1982; Yeung, 2005; Tomasic & Rong Fu, 2006), and governance (Selh-Purdie, 2005; Trivedi, 2008 (cited in Daka,

2010); Lin, Cai & Zhou, 1998). **Table 1** below summarizes the differences between SOEs and private firms.

**Table 1: The differences between SOEs and Private firms**

|  | <b>SOE</b>   | <b>Private Sector</b>   |
|--|--|---|
| <b>Ownership</b><br>(De Alessis, 1969; Aharoni, 1981; Zhang, 2006)                                   | Non-transferable ownership   | Transferable  |
|  | The state appoints, motivates and discipline managers.   | Natural capitalist appoints, motivate and discipline managers                   |
|  | No principal, just layers often conflicting agents.  | More direct principal   |
|  | Minister is the principal shareholder on behalf of government & political party                                      | Individuals or institutions with one profit maximisation objective              |
| <b>Purpose</b><br>(Ahoroni, 1982; Yeung, 2005; Tomasic & Rong Fu, 2006)                              | Multiple goals imposed by government, including economic and operational efficiency, some non-commercial.            | Much more focused goals of profit maximisation. Clear goal-profit maximisation. |
|  | Lack of goals clarity and often conflicted instructions.   | More aligned and singular   |
|  | Goals arise from range of political process and participants.  | Goals arise from board and management, more aligned.                            |
|  | Not well monitored due to limited monitoring ability of political authorities perhaps due to information asymmetries | Better monitoring capacity  |
| <b>Governance</b><br>(Selh-Purdie, 2005; Trivedi, 2008 (cited in Daka, 2010); Lin, Cai & Zhou, 1998) | Multiple principals  | Only responsible to the board and shareholders.                                 |
|  | Has to take into account government policy, e.g., service delivery objectives  | Do not have additional government policy and legislation to comply with         |
|  | Often government appoints the CEO, not in board, rendering it less effective in sanctioning bad performance.         | Board appoints the CEO  |

*Source: Daka (2010:16)*

**Table 2**, below a profile of South African State Owned Enterprises is presented. The profile shows respectively in each industry the company operates, what product or services they offer, source of funding and number of employees' and revenues.

### 2.6.1 Profile of South African State Owned Enterprises

**Table 2: Profile of South African SOEs**

| Company                                  | Description of Product                | Government Funding (Current Assets)                            | Government funding: Guarantees Draw Down During the Year | DPE Funding Amount Transferred | Revenue   |
|--|---------------------------------------|--|--|--------------------------------|---|
| <b>Airports Company South Africa Ltd</b> | Airports operations                   | 31 March 2009<br>R989.0m                                       |  |                                | Total (2009):<br>R3,166m<br>Profits/Loss:<br>R443,9m (Net)    |
| <b>Alexkor Ltd</b>                       | Diamond mining                        | 31 March 2009<br>R295.0m                                       |  | R130.0m                        | Total (2009):<br>R127.5m<br>Profit/Loss: -R65.7 (Net)         |
| <b>Broadband Infraco (Pty) Ltd</b>       | Telephone Network infrastructure      | 31 March 2009<br>R222.0m                                       |  | R377.0m                        | Profit (2009):<br>R273.7m<br>Profit/Loss: R0.1m (Net)         |
| <b>Denel (Pty) Ltd</b>                   | Military aerospace & Landward defense | 31 March 2009<br>R 3.106m                                      | R 1.300m   | R259.5m                        | Total (2009):<br>R4.051.5m<br>Profit/Loss:<br>R543.9m(Net)    |
| <b>Eskom Holdings Ltd</b>                | Electricity                           | 31 March 2010<br>(Gov guarantees of R 176,000.0m over 5 years) |  |                                | Total (2010):<br>R71.209.0m<br>Profit/Loss:<br>R3620.0m(Net)  |
| <b>Transnet Ltd</b>                      | Transportation                        | 31 March 2010<br>R18.040.0m                                    | R844.3m  | R140.0m                        | Total (2010):<br>R35.61.0m<br>Profit/Loss:<br>R3.191.0m (Net) |
| <b>South African Airways Pty</b>         | National Airline                      | 31 March 2010<br>R20,123.0m                                    |  |                                | Total (2009): R20.123.m<br>Profit/Loss: -R790.1m(Net)         |
| <b>South Africa Forest Company</b>       | Forestry                              | 31 March 2010<br>R 691.1m                                      |  |                                | Total (2009):<br>R857.1m                                      |

|  |                                  |                         |  |  |  |
|--|----------------------------------|-------------------------|--|--|--|
| <b>Ltd</b>   |                                  |                         |  |  | Profit/Loss:<br>R701.9m(Net)                             |
| <b>South African Express Airways (Pty)Ltd</b>          | National Airline                 | 31 March 2010<br>R691.m |  |  | Total (2010):<br>R1.424.2m<br>Profit/Loss:235.4m         |
| <b>South Africa Broadcasting Corporation Pty (Ltd)</b> | Commercial Broadcasting Services |                         |  |  | Total (2009): R4.<br>7135.m<br>Profit/Loss: -<br>R790.1m |

*Source: Who Owns Whom (2011:21).*

### 2.6.2 SOEs and Corporate Governance

The OCED highlights that in several countries, SOEs still present a substantial part of Gross Domestic Product (GDP), employment and market capitalisation (OECD, 2005). Moreover, SOEs are often prevalent in utilities and infrastructure industries, such as energy, transport and telecommunications, whose performance is of great importance to broad segment of the population and to other part of the business sector. Consequently, the governance of the SOEs is critical to ensure their positive contribution to a country's economic efficiency and competitiveness (OECD, 2005). According to the OECD, good corporate governance of SOEs is an important prerequisite for economic growth.

The dissertation has explored literature relating to entrepreneurship and corporate entrepreneurship. A brief background of public sector entrepreneurship was explored in South African SOEs. The literature review will now explore the forms of entrepreneurial capital (Economic, Human and Social Capital) as means of providing a theoretical understanding of their impact on entrepreneurial activities. Therefore, the following section will introduce the forms of entrepreneurial capital.

## **2.7 Introducing forms of Entrepreneurial capital and understanding its impact on corporate entrepreneurship**

The term “capital”, refers to accumulated wealth, especially used to produce more wealth (Merriam-Webster, 1999). It is usually identified with tangible, durable, and alienable objects, such as buildings and machines, whose accumulation can be estimated and whose worth can be assessed (Solow, 2000). In economic thought, the term ‘capital’ “originally meant an accumulated sum of money, which could be invested in the hope of a profitable return in the future” (Field, 2003:12).

Recently entrepreneurship researchers have realised and recognised the relevance and value of applying capital theory and using its associated concepts to examine and explore the contemporary process of entrepreneurship (Gorton, 2000; Erikson, 2002; Firkin, 2003; Shaw, Lam & Carter, 2008; De clerq & Voronov, 2009). Entrepreneurial capital emerged from (Bourdieu, 1986) notion of capital, which developed as a theoretically means of conceptualizing and describing the various financial and non-financial resources necessary for survival, sustainability and growth of ventures (Morris, 1998; Erikson 2002, Firkin, 2002). Bourdieu’s (1986) belief about capital can be seen as resources that are accumulated and are of value in certain situations (Spillane, Hallett & Diamond, 2003). He considers that the strength of capital worth of any field is evidenced by the level of autonomy that field can exercise. In particular, he credits the field of higher education as having strong autonomy demonstrating predominantly academic capital in that it generates its own value independently of political or economic situations.

As indicated earlier on the literature review, Bourdieu’s (1986) notion of capital was extended by Firkin (2001), who believed that the total capital that a person possesses could be acquired in



four forms of capital, namely, economic capital, cultural capital (often referred to as human capital), social capital and symbolic capital. This view is also demonstrated on figure five. However, for the purpose of this research, the study adopts three forms of capital, which are, economic, human and social capital, as antecedents to innovative activity at the corporate level. For instance, informal integration mechanisms related to social, human and economic capital provides important new insights on firms into how firms could manage their corporate entrepreneurship activities. Hence the first hypotheses:

*Hypothesis 1: There is a significant relationship between total forms of capital and corporate entrepreneurship in SOEs'.*

As other studies have been able to demonstrate, organisation-level entrepreneurship can be influenced not only by the nature of human resources but also by a large number of policies and practices. For instance, poorly designed compensation and performance appraisal systems constrain entrepreneurial behavior in established firms. Firkin (2001) provides the application of the different forms capital in relation to entrepreneurship. In general terms, capital is taken to represent material wealth that is owned, or can be used to generate further wealth (Bullock, 1988). Furthermore, Firkin (2001) broadly defined each form which allowed total capital to encompass a wide range and a number of resources including non-financial resources that might be used in entrepreneurial activities. According to Greene and Brown (1887), generating entrepreneurial capital is a key role for businesses since it is an identification and combination of resources that results in the uniqueness of the business. This aspect of the literature review seeks to present an analysis on the forms of capital and its utility in relation to entrepreneurial capital is presented here.

## **2.8 Defining the forms of capital**

### **2.8.1 Economic capital**

Economic capital refers to financial assets of any form that can be directly convertible into money (Bourdieu, 1986; Jary & Jary, 1995). Money in this context can be regarded to as economic capital if it will be invested in some activity that produces profits in return. Economic capital can also be referred to as equity, that corporate entrepreneurs invest in the business and the borrowing that will be made from government or any financial institution (Reynolds & white, 1997). According to Bourdieu (1986), economic capital is at the root of all types of capital. Bourdieu (1986) considers economic capital the most important resource in contemporary capitalist societies, and that he sees cultural processes as being intricately bound up with the reproduction of social elites. Furthermore, Shaw (2008) maintains that economic capital is the most significant form of capital in support of Bourdieu (1986). Firkin (2001), states that financial capital plays an important role considering its important impact in corporate venturing and sometimes implicated in the closure of the business. Economic capital can provide an important vehicle for enhancing entrepreneurial processes; it is widely acknowledged that all forms of capital are relevant in this respect and that it is unlikely that vast quantities of economic capital alone will be sufficient to achieve entrepreneurial success (Bourdieu, 1986; Maclean, Press & Harvey, 2006). Corporate entrepreneurs in SOEs can obtain economic capital in a variety of sources including - government funding from the National Treasury and financial support from development banks such as the International Monetary Fund (IMF), the World Bank, the Department of Public Enterprises (DPE), financial companies and private investors. Hence the following hypothesis:

*Hypothesis 2: There is a significant relationship between economic capital and innovation in SOEs'.*

### **2.8.2 Human capital**

One perspective associated with the consideration of returns on investment in education is human capital theory (Becker, 1975). In his work, human capital and education are defined as synonymous terms in relation to each other. In some cases, the term chosen is dependent only upon its source in the literature. For Becker (1975:9), investments in human capital include: schooling, on-the-job training, and searching for information about prices and outcomes. Human capital makes little distinction between formal education and vocational training. Some value is assigned to all forms of learning related to economic concepts such as the rate of return on investments of capital. “The rate of return on human capital such as education is supposed to be higher than that of investments in other forms, although it is usually deferred, in that time and other resources spent on education is foregone earnings” (Becker, 1993:93). Social capital is acknowledged, but as part of human capital. The closest that Bourdieu comes to human capital is in his explanation of economic capital. He views economic capital as existing in its narrowest sense, as purchasing power. However, he does acknowledge the convertibility of different forms of capital such as using economic capital to pay for good education (Bourdieu, 1986).

This study considers the nature or the quality of a firm’s workforce by means of employee human capital. A venture’s human capital acts as a surrogate indicator of its competence and credibility, affecting the ability to attract other types of resources needed for innovations, development and growth process (Florin et al., 2003; Pennings et al. 1998). Human capital theory maintains that knowledge provides individuals with cognitive abilities, leading to more pro-active and efficient potential activity (Mincer, 1974). The concept of human capital pertains

to individual's knowledge, skills and abilities that allow for change in action and contribute to pro-activeness (Coleman, 1988). Innovation requires the creation, transfer and integration of knowledge (Shadur & Snell, 2002). A highly qualified or educated pool of employees is likely to facilitate pro-activeness as education affects knowledge capabilities (Bartel & Lichtenberg, 1987). According to Zahra and Garvis (2000), proactive corporate entrepreneurship, such as first entry, can improve a firm's performance. The first entrants tend to exploit opportunities before their rivals and enjoy significant strategic advantage in the markets (Zahra and Garvis, 2000). Consequently, pro-activeness can be conducive to a company's performance improvement. This discussion leads to the following hypothesis:

*Hypothesis 3: There is a significant relationship between human capital and pro-activeness in SOEs.*

Pro-activeness involves pursuing opportunities and the will to respond aggressively to competitors. The acquisition and management of the human capital is a very important domain in the discovery and exploitation of entrepreneurial opportunities. Pro-activeness suggests an emphasis on initiating activities. It is closely related to innovativeness. For example, new product innovation is part of innovativeness but also forms part of pro-activeness by the firm (Lumpkin and Dess 1996). Education has been identified as a critical measure of an individual's human capital and has been conceived of as objectified, institutionalised and embodied cultural capital (Bourdieu, 1986). Human capital may be developed through formal training aimed at updating and renewing one's capabilities in order to do well in an organisation (Dakhli & De Clerqo, 2004).

In addition, experience has been identified by Capital theory as an important component of human capital (Bourdieu, 1986), and entrepreneurship research recognises experience in the form of prior experiences of entrepreneurship and employment as relevant to successful entrepreneurship (Boden & Nucci, 2000; Davidsson & Honig, 2003).

Lynskey (2004) states that endowed abilities, experience, trained skills, attitudes and behaviour are some recurring elements in many definitions of what is understood to be human capital. Various studies have shown a positive relationship between an entrepreneur's level of human capital as measured along the dimensions of age, education, work experience and other variables (Lynskey, 2004). Human capital can be differentiated into general human capital and specific human capital according to Becker (1975). General and specific human capitals are considered as follows:

According to Becker (1975) general human capital refers to the human capital that is transferable to other contexts. The human capital investment in training, for example, that can be transferred across from one field of work to another would be general human capital. Training that was specific to one field of work and that would entail no benefit in another field would be an example of specific human capital (Becker, 1975), whereby no return on this capital would be found in a different context.

Gimento, Folta., Cooper, and Woo, (1997:774) tested the conception that higher endowments of general human capital in entrepreneurs might be associated with higher requirements, or a higher threshold of continuance that they might have for their enterprise, which if not met might lead to entrepreneurial non-continuance. Gimento et al. (1997) found this to be only partially supported by their results.

Gimento et al. (1997:774) found that general management experience (related to managing managers) was related to an increased entrepreneurial survival threshold. Gimento et al. (1997) argue that this suggests, at the least, a degree of comparability between the value of certain forms of general human capital in entrepreneurship and employment. Gimento et al. (1997) also argue that the higher entrepreneurial threshold associated with entrepreneurs with higher levels of general human capital possibly reflects a situation where general human capital is more valued in more complex organisations such as those associated with employment.

A founding and an established firm's levels of financial resources, human or personnel resources, systems resources and business resources can have a significant impact on the firm's survival (Churchill & Lewis, 1983).

Firkin (2001) suggested that human capital is often limited in the meaning to ideas about formal qualifications, skills and work experience. When opportunities for new economic activity exist, individuals with more or higher quality human capital should be better at perceiving them (Davidsson & Honig, 2002). More importantly, according to the human capital theory, Davidsson and Honig (2003) states that once engaged in the entrepreneurial process, such individuals should also have superior ability in successfully exploiting opportunities. Previous researchers have made a distinction between different types of human capital (Florin & Schultze, 2000).

- **Firm-specific** human capital pertains to skills and knowledge that are valuable only within a specific firm. For instance, researchers have examined the impact of firm-related know-how within the founding team on the success rate of high-growth start-up firms (Sandberg, 1986). Although firm-specific skills may give firms an advantage over their

competitors, as these skills are not transferable to other firms (Grant, 1996), the limited amount of communication and inter-firm reaction attached to those skills makes this type of human capital only have a limited impact on the level of innovative activity within a region or the wider society.

- **Industry-specific** human capital pertains to knowledge derived from experience specific to an industry, and several researchers have examined the role of industry experience on the growth and economic performance of entrepreneurial ventures (Siegel, 1993) as well as society (Kenney & von Burg, 1999). Prior research has suggested that industry-specific human capital may play an important role in the generation of innovative activity within an industry if it is characterized by high quality knowledge exchange among the main players within that industry (Bianchi, 2001). The presence of industry-related know-how has seemed to be powerful in creating innovations for new products or processing ideas resulting from the combination of intimate communication among network partners on the one hand and tacit know-how present in existing technology on the other hand. The tacit nature of industry specific know-how makes this second type of human capital often only understandable for industry specialists and therefore offers a protective mechanism that may decrease the need for patent protection (David, 1975).

Therefore, the above discussion leads to the following hypothesis:

*Hypothesis 4: There is a significant relationship between human capital and innovation in SOEs.*

- **Entrepreneurial-specific** human capital refers to capital accumulated through learning-by-doing which is the key factor behind entrepreneurial dynamics (Toth, 2012). Capital includes a person's previous experience and family background in entrepreneurship

(Firkin, 2001). Entrepreneurial Human Capital (EHC) constitutes specialised, high-level entrepreneurship-specific skills and knowledge, such as in selling, negotiating, product development, risk judgment (Shane, 2003) and entrepreneurial social capital. Existing theories largely take the entrepreneurship-specific human capital of the entrepreneur as a fixed parameter and focus on other factors behind enterprise dynamics such as learning and credit-savings interactions (e.g. Jovanovic, 1982; Buera, 2009). A primary channel of acquiring EHC is learning-by-doing (e.g. running an enterprise).

- **Individual-specific** human capital refers to knowledge that is applicable to a broad range of firms and industries; it includes general managerial and entrepreneurial experience (Pennings, 1998), the level of academic education and vocational training (Hinz & Jungbauer-Gans, 1999), the individuals' age, and total household income (Kilkenny, 1999). Previous research has shown that one's overall level of human capital has an impact on economic success, both at the business level and the macro-level. For instance, Kilkenny (1999) discussed a human capital model for success and suggested that business success is positively related to one's level of training, overall business experience and total income. In addition, Prais (1995) examined how a country's education and training system may foster overall productivity. For instance, this author pointed to the need to have the correct balance of educational resources devoted to general academic issues and matters directly connected to professional life, as well as to stimulate vocational training in order to provide future employees with job-specific technical skills. The focus of this study may be on industry-related type of human capital since the study is on corporate entrepreneurship in SOEs.



### **2.8.3 Social capital**

Social capital is an established concept within the social sciences (Bourdieu, 1986; Coleman, 1988; Portes, 1988), which has recently been extensively researched within entrepreneurial domain. Social capital has received increased attention in the literature and has been studied at multiple levels, including individual (Burt, 1992), organisational (Nahapiet & Ghoshal, 1998) and societal (Sergeldin & Dasgupta, 2001). Bourdieu (1986:248) defined social capital as “the aggregate of the actual or potential resources which are linked to the possession of a durable network of more or less institutionalised relationships of mutual acquaintance or recognition- in other words, to membership of a group”. Unlike the economic view of human action that perceive individuals as resources that can be developed and that can shape environmental factors, social capital takes a sociological view of human action and perceives individuals as actors who are shaped by organisational factors (Dakhli & De Clerqo, 2004). How much social capital a person or organisation has depends on, according to Bourdieu (1986), the size of their networks and the volume of capital (in the three forms he identifies) that members of that network have. It is produced through people’s ongoing efforts at establishing and sustaining relationships with others in their family, neighbor-hoods, workplaces, sporting and social clubs, and so on, though these may not be conscious efforts at generating social capital per se. According to Lin (2001), a range of factors determine the value of social capital for an individual depending, firstly, on the circumstances of its usage, and then on the make-up of the social structures and networks the person is part of, their location relative to other members, and the nature of the relationships they share with them. Davidsson and Honig (2002:309) claimed that “Social capital may also reduce the risk taking associated with the entrepreneurial exploitation process, by providing and diffusing critical information and other essential resources”.

The central proposition in the social capital literature is that network of relationships constitutes to resources that can be used for good of the collective. Such networks result from the prevalence of norms such as trust, collaboration, and a sense of obligation (Coleman 1988; Portes, 1998) cited by Spillane et al (2003). Social capital at the organisational level has been defined as the value to an organisation in terms of the relationship formed by its members for the purpose of engaging in collective action (Hahapiet & Ghoshal, 1998; Freel, 2000). Bourdieu (1986) further elaborated that social capital provides each of its members with the backing of the collectively-owned capital, a credential which entitles them to credit, in a varied sense of the word. Serageldin and Dasgupta (2001), in their review of social capital, concurred with Coleman et al (1990) and emphasized the role social capital has in the creation of human capital.

In relation to entrepreneurship, social capital is used most commonly to describe “network-mediated benefits beyond the immediate family” (Portes, 1998:12). That is, the benefits and resources those accrued from the entrepreneur’s efforts at being part of and utilising a wide range of relationships (Aldrich & Zimmer, 1986; Birley, 1985). Brüderl and Preisendörfer (1998) usefully coin the idea of a social capital metaphor to capture the range of approaches to considering networks in business.

Fiol (1995) argued that it is the access to a diverse set of firm resources that significantly enhances corporate entrepreneurship activities, which points to the importance of social capital at multiple levels within the organizations in pursuing corporate entrepreneurship (Gilbert, 2006; Tushman and O’Reilly, 1996; Westerman et al., 2006). Corporate entrepreneurs must rely on their ingenuity and persistence to build influence and reduce risk taking. Risk taking involves taking bold actions by venturing into the unknown, borrowing heavily and/or committing

significant resources to ventures in uncertain environments (Wang 2008; Lumpkin et al 2009; Rauch et al 2009)0. Therefore, this discussion leads to the following hypothesis:

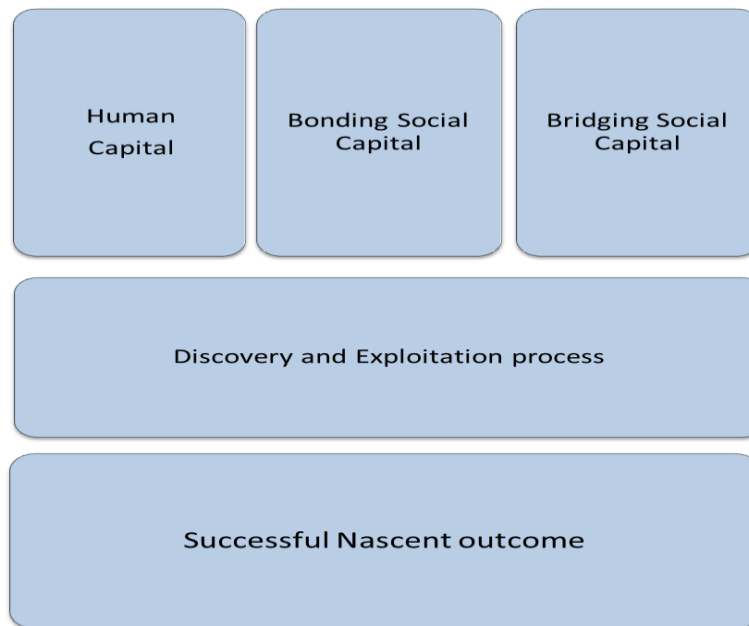
*Hypothesis 5: There is a significant relationship between social capital and risk taking in SOEs.*

There is a need to build social capital and use to when entering into new industries, which are defined as inventory of trust, gratitude or obligations that can be cashed in when the new project is in demand (Blue, 1994). Building this capital can be accomplished in a number of ways, including: sharing information; creating opportunities for people to demonstrate their skills and competence; and building and using influence of networks.

## **2.9 Social capital and human capital on entrepreneurial process model**

A major factor enhancing the strength of Social capital consists of trust, often a result of obligations, threat of censure and exchange (Coleman, 1988; Granovetter, 1985). This trust forms a bonding (or exclusive) glue that holds closely knit organisations together. A second aspect of social capital consists of ties that provide resources such as information, providing a bridging (inclusive) lubricant (Putnam, 2000). Ties that result in social capital can occur at both individual and organisational levels, although they are frequently attributed primarily to the individual agents involved. These ties may be either direct or indirect, however their intensity may vary, and the outcomes (in terms of bonding or bridging social capital) contingent on the type of network being analysed. In Granovetter's (1973) classic work, he highlights the importance of maintaining an extended network of weak ties in obtaining resources (information about potential business opportunities). **Figure 6** below depicts the various components of social and human capital relevant to the entrepreneurial process.

**Figure 6: Social capital, Human capital, and the nascent entrepreneur**



*Source: Granovetter (1985:85).*

According to Davidsson and Honig (2003), social capital is often operationalised through the identification of networks and network relationships, sometimes defined by the strength of ties, repetitive group activity such as the frequency of meetings and other formal interactions, as well as informal gatherings and other social activities, and social and family relationships. From an entrepreneurial perspective, social capital provides networks that facilitate the discovery of opportunities, as well as the identification, collection and allocation of scarce resources (Birley, 1985; Greene & Brown, 1997; Uzzi, 1999). Social capital may also assist with the entrepreneurial exploitation process, by providing and diffusing critical information and other essential resources. During the discovery process, social capital assists nascent entrepreneurs as individuals by exposing them to new and different ideas, and world views, in effect, providing them with a wider frame of reference both supportive and nurturing to the new potential idea or venture (Aldrich & Zimmer, 1986; Aldrich et al., 1998). There are a number of review papers on

the construct of social capital that focus on the sources of network-based advantages (Butt, 2002; Lin, 1999; Alder & Kwon, 1999).

### **2.10 Social capital as elements of networks: content, governance and social structure**

Aldrich and Zimmer (1986) argued that the entrepreneur is embedded in a social network that plays a critical role in the entrepreneurial process. In the broadest terms, social networks are defined by a set of actors (individuals or organisations) and a set of linkages between the actors according to (Brass, 1992). In the entrepreneurship network literature, there are three elements of networks emerging as critical to theoretical and empirical research: firstly, the nature of the content that is exchanged between actors; secondly, governance mechanisms in relationships; and lastly, the network structure created by the crosscutting relationships between actors. These three components emerge as key elements in models that seek to explain the process of network development during entrepreneurial activity and the impact of networks on entrepreneurial outcomes.

- **Network content** - Interpersonal and inter-organizational relationships are viewed as the media through which actors gain access to a variety of resources held by other actors. With the exception of work on the role of networks to access capital (Light, 1984; Zimmer and Aldrich, 1987; Bates, 1997), most research has focused on the entrepreneur's access to intangible resources. Network relations, for example, provide emotional support for entrepreneurial risk-taking (Bruderl & Preisendorfer, 1998) and this, in turn, is thought to enhance persistence to remain in business (Gimeno, 1997). A key benefit of networks for the entrepreneurial process is the access they provide to information and advice. Ties to venture capitalists and professional service organisations,

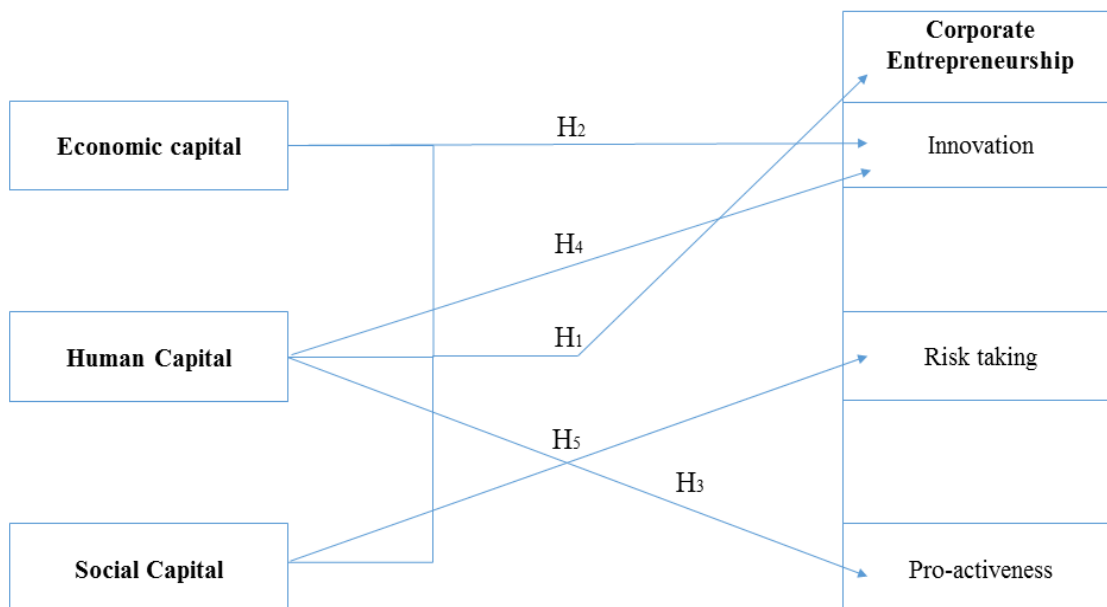
for example, are a means for tapping into key talent and market information (Freeman, 1999). A number of studies document that entrepreneurs consistently use networks to get ideas and gather information to recognise entrepreneurial opportunities, (Birley, 1985; Smeltzer, 1991; Singh, 1999; Hoang & Young, 2000).

- **Network governance** - The second construct that researchers have explored is the distinctive governance mechanisms that are thought to undergird and coordinate network exchange. Trust between partners is often cited as a critical element of network exchange that in turn enhances the quality of the resource flows (Larson, 1992; Lorenzoni & Lipparini, 1999). Other scholars have also defined network governance by the reliance on “implicit and open-ended contracts” that are supported by social mechanisms, such as power and influence (Brass, 1984; Thorelli, 1986; Krackhardt, 1990) and the threat of ostracism and loss of reputation (Portes & Sensenbrenner, 1993; Jones, 1997) rather than legal enforcement.
- **Network structure** - Network structure is defined as the pattern of direct and indirect ties between actors. A general proposition is that actors’ differential positioning within a network structure has an important impact on resource flows, and hence, on entrepreneurial outcomes. A defining characteristic of a network perspective within entrepreneurship research is a focus on the dynamics of social structures and their impact on entrepreneurial phenomena (Freeman & Baum, 1999).

The literature review has identified constructs that are deemed to influence Corporate Entrepreneurship (innovation, risk-taking and pro-activeness) in SOE. Now the research model depicted on **Figure 7** is aimed at explaining the impact of forms of capital on corporate entrepreneurship in State Owned Enterprises. The research model builds on three forms of

capital, namely (Economic capital, Human capital, and Social capital). These three forms of capital used at least one or two measuring variables each. For instance, Human capital will use experience and knowledge to assess its impact on product development and innovation. Human capital theory maintains that knowledge provides individuals with cognitive abilities, leading to more productive and efficient potential activity (Mincer, 1974). Social capital will use the network base resource such as political connection and membership of professional association to measure the extent of impact made on new venture creation or corporate venturing. Economic capital will use financial recourses to assess its role on new projects that the organisation plans to do (new venture creation). As such, the dissertation will elaborate on how these forms of capital could be utilised in relation to corporate entrepreneurship as the focuses of this study, leading to the model presented in **Figure 7**.

**Figure 7: The tested relationship model**



*Source: Developed for this dissertation (2015).*

The tested relationship will demonstrate the impact of forms of capital on corporate entrepreneurship. Established companies have an edge in innovation and fostering entrepreneurial behaviour, because they can afford engineers, staff (Human capital), modern facilities and the latest technology equipment (Barrett & Weinstein 1998; Morris et al 2008). Therefore, access to Economic capital offers firms the flexibility to invest in research and development and to become more innovative (Clark 2010). The availability of such forms of capital tends to trigger corporate entrepreneurship. Corporate entrepreneurship dimensions, such as innovation, risk taking and pro-activeness, have a positive influence on the company's growth prospects. Corporate entrepreneurship is the main driver of innovation, risk taking and pro-activeness and can be triggered by different activities and actions within, and outside, the organisation (Miller 1983; Dess et al. 1999). Innovation was found to be significantly important for the organisation to act entrepreneurially and to improve its performance.

## **2.11 Conclusion**

This chapter introduced the literature review on evaluation of entrepreneurship and demonstrated that Corporate Entrepreneurship is a product of entrepreneurship in general. The entrepreneurial actions as well as characteristics of managers within an organisation that are driving profitability through the integration of the components of innovation were explored. Thereafter this chapter shed some light on public entrepreneurship and introduced a brief discussion on the notion of South African SOEs'. The chapter also introduced literature and engaged on a critical discussion on the forms of entrepreneurial capital. Finally, the hypotheses are established within the context of the literature review.



## **Chapter 3: Research methods**

### **3.1 Introduction**

This chapter gives a detailed description of the research methods followed in order to test the proposition discussed in the literature review. This embodies both theoretical and practical perspectives, reviewing the literature on forms of capital and corporate entrepreneurship to understand the current developed and proposed framework and subsequently examining these frameworks in the context of state-owned enterprises in South Africa.

The chapter also describes and justifies the method used to collect and analyse the data obtained from research sample, it also provides overview of the research paradigm adopted of this study and perspectives from which the research was conducted, explain the limitations of the data collection methods that were used. The statistical methods and computer programs used to analyse the data collected are also discussed. Lastly, information is presented on reliability and validity, and the ethical consideration of the study.

### **3.2. Overview of paradigms and research approach**

This study develops a framework upon which the impact of forms of capital on corporate entrepreneurship can be examined. The central research problem of the study is concerned with how forms of capital foster corporate entrepreneurship in state-owned enterprises in order to identify value added by forms of capital on entrepreneurial processes of an organisation.

A paradigm is a basic belief system reflecting a broad frame of analysis (Guba & Lincoln, 1994:105), a loose collection of concepts and assumptions that orientate thinking and research (Perry, Alizadeh & Riege, 1997). Research theorists have not adopted a consistent classification

of research paradigms (Patton, 1990; Easterby-Smith et.al. 1991:27; Gummersson, 1991:153; Bryman, 1992; Hammersley, 1992; Robson, 1993; Creswell, 1994:4; Guba & Lincoln, 1994; Sinclair & Hogan, 1996:434; Hussey & Hussey, 1997:47).

Most researchers of business method accept the two polar points of a paradigmatic continuum as being represented by concepts embraced by the positivistic and phenomenological paradigms (Hussey & Hussey, 1997). Smith (1983:10) captured the differences between the paradigms when he observed that “in quantitative *positivist* research facts act to constrain our beliefs; while in *interpretative phenomenological* research beliefs determine what should count as facts”.

The debate about the research paradigm echoes the purpose of the research and only inferentially, the appropriate analytical tools. The choice of paradigm reflects the process of the research - its values and underpinning beliefs. The paradigm influences but does not dictate the data collection methodology and analysis. The selection of methodology for this study was guided by Patton’s view (1990:39) that the methodology adopted must be designed to complement, and be appropriate to, the nature of the study. The methodology used in this study is classified as exploratory with the aim to apply a subjective, arbitrary approach using a probability sampling method with South African SOEs. A quantitative research methodology is adopted. Quantitative research is a methodology which seeks to quantify data numerically and usually applies forms of statistical analysis to draw conclusion from the research (Malthotra & Peterson, 2006). Therefore, this study adopts positive paradigm. Kirkwood and Campbell-Hunt (2007:222) argues that “positivism employs an objectivistic view where the researcher observes a phenomenon without interacting with the entire organisation”. This leads to the benefits that results can be generalised and provide a broader view of organisations. The positivist paradigm is therefore derived from the natural sciences and treats research as independent observation of

events occurring within a system. This paradigm is greatly associated with quantitative research method, where the collection of data is strongly structured before-hand and typically incorporates tools to measure numbers indicating cause-and-effect relationships (Kirkwood & Campbell-hunt, 2007).

### **3.3. Research design**

The research design adopted for this study is cross-sectional. Cross-sectional research is used to examine one variable in different groups that are similar in all other characteristics (Anderson, 2004). For instance, three groups of SOEs' management were examined for the purpose of this study. In a simple cross-sectional study an epidemiologist might be attempting to determine whether there is a relationship between forms of entrepreneurial capital and corporate entrepreneurship because it is believed that forms of capital play a significant role in starting up a business.

### **3.4. Population**

Population (as denoted by  $N$ ) for research is an identifiable group of individuals under the study (Goodwin, 2012). Moreover, "population refers to all the elements (individuals, objects or substances) that meet certain criteria for inclusion in a given universe" (Bums & Grove, 2005:40). The population must include the entire group to which one wishes to extrapolate certain conclusions. For this study, the population is all senior managers in the eight SOEs in which the Government of the Republic of South Africa Department of Public Enterprises (DPE)

is the sole shareholder representative for the public with an oversight responsibility. There are eight (8) State Owned Enterprise jointly administered by the DPE, namely:

- **Alexkro SOC Ltd:** The core business activities of Alexkor include the mining of diamonds on land, in rivers, on beaches and in the sea along the north-west coast of South Africa.
- **Eskom Holdings SOC Ltd:** Eskom is the largest power supply company on the African continent. It generates 95% of the electricity used in South Africa and 45% of the electricity used in Africa.
- **Denel (Pty) Limited:** Formerly known as Armscor, Denel is the largest manufacturer of defense equipment in Africa. Its key focus areas are the military aerospace and landward defense environment. Denel is a key supplier to the Department of Defense in both the manufacturing and maintenance arenas.
- **South African Forest Company Ltd:** SAFCOL is charged with the management and development of the State's forestry interests and is mandated to grow its business in the forestry and forest products industry.
- **Broadband Infraco Pty Ltd:** A newly operational SOE, Infraco sells high capacity long distance transmission services to fixed and mobile network operators, internet service providers and other value added network service providers. The extra capacity can either be used for expanding the reach and capacities of the purchasers own networks or resold to their customers
- **South African Airways SOC Ltd;** One of the world's oldest airlines, SAA is currently being restructured to bring it back into profitability following significant losses in recent years.

- **Transnet SOC Ltd;** Transnet is the largest and most crucial part of the freight logistics chain that delivers goods to each and every South African. Transnet is fully owned by the South African government but operates as a corporate entity aimed at both supporting and contributing to the country's freight logistics network
- **South African Express Airways (Pty) Ltd:** SAX has since become one of the fastest growing regional airlines in Africa. With route networks covering major local and regional cities, South African Express plays a significant role in the country's hospitality, travel and tourism industry and is vital contributor to the country's socio-economic development.

As State Owned Entities, these entities are subjected to the provisions of the Public Finance Management Act No 1 of 1999 (PFMA).

### **3.5. Sampling procedure**

According to Blanche (2006), a sampling procedure is the technique used in research to select a subset of respondents from the population into the sample. For this dissertation a purposive sampling is adopted. Purposive sampling is a form of non-probability sampling in which decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the study, or capacity and willingness to participate in the research (Ghauri & Gronhaug, 2010: 121). Leedy and Ormrod (2010), note that in this sampling procedure, the researcher can state before-hand that each section of the population will be represented in the sample. Specifically, the organisations selected for this study were selected for their commonalities. As South African SOEs, the

fundamental similarities included their categorisation as large public sector enterprises within South Africa, each serving a national market and receiving government funded financial support. Moreover, the key commonality involves activities within each organisation are recognised as both entrepreneurial and achieving socio-economic objectives (Department of Public Enterprise, 2013). Therefore, this study used simple random sampling as the probability sampling technique.

LoBiondo-wood and Haber (1998) describes a sample as a portion or a subset of the research population selected to participate in a study, representing the research population. Furthermore, sample size (denoted by  $n$ ) is the number of observations used for calculating estimates of a given population according to Smith (2011). The purpose of taking samples is to decrease costs and time by letting investigators predict data about the entire population, without having to inspect each member of the population. For this study, the sample is represented by three SOEs (Transnet, Eskom and South African Airways) and consisting of all senior employees in managerial positions or executive positions. The sample consisted of 300 questionnaires distributed to the three SOEs, of which 206 questionnaires were returned and usable. The ultimate response rate was 62%. Initial contact was made via the Human Resources, Strategy and Corporate Affairs departments of each organisation to ensure an inclusive approach and to determine the most appropriate person in the organisation with whom to discuss participation for this study.

### **3.6. Data collection**

Polit and Hunger (1999) define data as information obtained during the course of a research process. The study is exploratory since there are few studies to which references can be made for

information. In this study, questionnaires were used to obtain relevant data in aims to test the hypothesis. The Corporate Entrepreneurship Assessment Instruments (CEAI) was incorporated for measuring constructs relate to corporate entrepreneurship measure variables.

### **3.6.1 The research instrument**

Primary data was collected using a format of a Likert scale type questionnaire, the Likert type scale comprises of five points. According to Anastasi (1990:35) the following implications of context with regard to testing conditions exist: firstly, that standardised procedures are to be followed “to the minutest detail”; secondly, that any unusual testing conditions, however minor, should be recorded, and thirdly, that testing conditions are taken into account when the interpretation of test results is undertaken.

The Corporate Entrepreneurship Assessment Instrument (CEAI) measures the nature of corporate entrepreneurship and the organisational factors that influence or encourage innovation within the corporate environment (Morris & Kuratko, 2002). This tool was developed by Kuratko, Hornsby and Montango as cited in Morris and Kuratko (2002). The other questions were derived from variables measuring the impact of forms of capital on corporate entrepreneurship. The questionnaire is broken down into two parts. Part one (1), consisted of demographics questions. The following demographical information is required:

- Gender;
- Race;
- Experience within current company;
- Function within the company;

- Highest qualification and;
- Occupation level.

Part two (2) consisted of questions related to how the forms of capital could have an impact on corporate entrepreneurship. This questionnaire also consisted of Corporate Entrepreneurship Assessment Instruments (CEAI) measuring constructs developed by Kuratko and Morris (2002), for questions related to corporate entrepreneurship. The questionnaire was self-administered, meaning they were distributed to the relevant personal in selected organisations and collected by the researcher once the questionnaires were completed. Ghauri and Gronhaug (2010) argue that secondary data are valuable not only to find information to solve our research problem but also to better understand and explain one's research problem. Therefore, in order to complement primary data collected, secondary data sources were greatly incorporate to gather the necessary theoretical data using, journal articles, pervious thesis within the same discipline.

The following questions were designed to measure these constructs:

- Questions 8, 10, 12, 13, 16, 19 and 34 were designed to measure the nature of corporate entrepreneurship in State Owned Enterprises. These questions measured the level of innovations against experience and knowledge. Furthermore, the questions measured whether networks play a role in corporate venturing.
- Questions 9, 22, 25, 27, 28, 29, and 35 were designed to measure the impact of economic capital on corporate entrepreneurship. These questions measured if it is possible to expand a business within financial support from relevant institution and the role of economic capital in entrepreneurial processes.



- Questions 11, 17, 18, 20, 23, 24, 30, 31 and 36 were designed to measure the impact of human capital on corporate entrepreneurs. These questions measured if skills, knowledge and experience contribute to innovations.
- Questions 7, 14, 15, 21, 26, 32, and 33 were designed to measure the impact of social capital on corporate entrepreneurship. These questions measured if networks play a significant role in gaining access to new markets and corporate venturing.

### **3.7. Data analysis**

Ghauri and Gronhaug (2010) defined data analysis as the process of systematically applying statistical and logical techniques to describe, summarise and compare data. This gives meaning to the raw data and also allows easy interpretation. Furthermore, data analysis is a process of reducing large amounts of collected data to make sense of them (LeCompte & Schensul, 1999). It also includes an application of reasoning to comprehend and construe the data that would have been completed and collected (Zikmund, 2003). Questionnaires filled by respondents were coded on Microsoft Windows Excel 2013 and thereafter entered into a statistical package IBM SPSS Statistics 22. The statistical methods that were used to analyse the data gathered included descriptive statistical techniques, pie charts, and frequency tables.

Due to a fairly average sample size non-parametric tests will be used instead of a parametric test. Cooper and Schinder (2003), indicates that non-parametric tests are used to test the propositions of nominal and ordinal data. For this a T-test, Cronbach Coefficient Alpha are also suggested to analyse the data collected. The following methods will be included in analyzing data:

### **3.7.1 Central tendency location**

The central tendency results are revealed in the form of the mean, medium, mode, standard deviation, variance, and range, minimum and maximum values. These constructs are defined by Albright (2006) as follows. Mean is the average of all the values of the variables. The Median is defined as the middle observation when data is arranged from the smallest to the largest. The mean and the median are summary measures used to describe the most “typical” value in a set of values. The Mode is the most frequently accruing answer or value. The Standard deviation is the tout square of the variance and is always measured in the original form. The Variance is the average of the squared deviations from the mean. The Range is the difference between the minimum and the maximum values, where the minimum represents the smallest value in the range and the maximum is the largest value in the range.

### **3.7.2 Multiple linear regressions & Pearson’s correlation test**

The Multiple Linear Regression analyses and Pearson Correlation Coefficient were used to establish meaning from the raw data Regression analysis is utilised to investigate the relationship between a range of variables, these including an error term, whereby a dependent variable is expressed as a combination of independent or explanatory variables, and “the unknown parameters in the model are estimated, using observed values of the dependent and explanatory variables” (Stoodley, Lewis & Stainton, 1980:35). Multiple linear regression analysis was the technique used to test the hypotheses

Multiple linear regression Ordinary Least Squares (OLS) attempts to make the findings to be more realistic; the model can control for other variables (Ghauri & Gronhaug, 2010:182). The OLS method of estimation can easily be extended to models involving two or more explanatory variables (Galpin & Krommenhoek, 2013). This illustrates the case of two or more explanatory variables,  $X_1$  and  $X_2$ , with  $Y$  the dependant variable. The equation of the model is given below:

$$Y_i = \alpha + \beta_1 + \beta_2 + \beta_3 + u_i$$

Where  $u_i \sim N(0, \sigma^2)$

We look for estimators  $\hat{\alpha}, \hat{\beta}_1, \hat{\beta}_2$

Dependent variable  $Y_i$ :

- Innovation
- Risk taking
- Pro-activeness

Independent variables  $\beta'$ s:

- Social capital,
- Human capital,
- Economic capital.

The analysis of the data also allowed the researcher to look into other concepts and values that indicated the impact of forms of capital on corporate entrepreneurship as the overall fit of the model indicated by the adjusted  $R^2$ .

The Pearson's correlation test is the most used measure of association for investigating the relationships between interval and ratio-scales variables (Diamantopoulus & Schleglimich, 2000).

The correlation rules for analysis were interpreted as follows: if the probability value (Sig. Value)  $p \leq 0.05$ , then there is statistically significant correlation. The Pearson correlation coefficient ( $r$ ) values starts from -1 to + 1 and if it is (-) it means a negative correlation or alternative stated if one variable increases other will decrease. If the Pearson correlation coefficient ( $r$ ) is (+) it means a positive relationship between the variables or otherwise stated if one variable increases other variables will also increase. The positive or negative indicated the direction of the relationship between the two variables. Thus, if the strength of the relationship is illustrated in the correlation test it can be portrayed as follow:

$r = .10$  to  $.29$  or  $-.10$  to  $-.29$  small (moderate) correlation

$r = .30$  to  $.49$  or  $-.30$  to  $-.49$  medium correlation

$r = .50$  to  $1.0$  or  $-.50$  to  $-1.0$  large (strong) correlation

### **3.7.3. The T-Test**

According to Defusco (2001), a t-test is the best technique to use when comparing the means of the dependent groups of subjects. The formula for the independent groups is the difference between the sample's means divided by the standard error in the difference of the means. The p-level in the test stands for the probability of error when accepting the propositions or hypothesis. This test concludes that if there is any significant difference in opinions of gender participants

towards the main research variables means to investigate whether males and females have the same opinions or significantly different opinions.

The interpretation rules of the t-test is when the p value is less than or equal  $p \leq 0.05$ , statistically there is significance difference between group's opinions. If p value is greater than  $p > 0.05$ , statistically there is NO significant difference between group opinions. The p indicates the probability value of the results.

### **3.8. Validity and Reliability**

According to (Ghauri & Gronhaug, 2010) reliability refers to the stability of a measure and that a valid measure is also reliable, but a reliable measure does not need to be valid.

Adnonis (2003) and Crates (2007) states that the CEAI is a useful, reliable and valid measurement instrument, an indication that results of the instrument can also be relied upon. In addition, the use of multiple indicators and Cronbach's alpha score test for validity are some of the steps that were taken into consideration in order to determine reliability of the measure.

The most common measure of internal consistency of a questionnaire is Cronbach's alpha (Galpin & Krommenhoek, 2013). Furthermore, Streiner (2003) recognised that scales should have a high degree of internal consistency reflected by Cronbach's alpha. Cronbach is based on a set of items (Streiner, 2003) inter-item correlation is an appropriate statistic testing internal consistency. Multiple indicators of the latent construct (corporate entrepreneurship) and multiple indicators (Economics, Human and Social Capital) are causes of the latent construct. There are three measures of assessing the impact of forms of capital on corporate entrepreneurship. For instance, if the funding from government, which is economic capital, will strengthen the

companies' capacity in venturing into new markets; if human capital will have a positive impact on new innovations within the company; and if the social capital of executives would enable the company to secure business deals through corporate venturing in the industry. **Table 3** below is the Cronbach alpha's score of CEAI.

**Table 3: The Cronbach alpha test for CEAI**

| Construct                 | N Valid | N Excluded | N Valid % | Cronbach's alpha | Items in Construct |
|---------------------------|---------|------------|-----------|------------------|--------------------|
| Management support        | 93      | 0          | 100%      | 0,893            | 19                 |
| Work discretion           | 93      | 0          | 100%      | 0,864            | 10                 |
| Reward and recognition    | 92      | 1          | 98,8%     | 0,820            | 6                  |
| Time availability         | 92      | 1          | 97,8%     | 0,650            | 6                  |
| Organisational Boundaries | 91      | 2          | 97,8%     | 0,711            | 7                  |

*Source: Kuratko et al (2001:44).*

**Table 3** indicates management support and work discretion summary of the question validity indicated 100% validity. Rewards and recognition, time availability and organisational boundaries are all 97, 8 % and higher. Reliability analysis of most constructs reveals a high internal consistency and reliability. Organisational boundaries have an adequate consistency and reliability. In this regard, Kuratko (2001) proved the CEAI to be used in this study is consistent and reliable.

According to Anastasi (1990), validity is the degree to which the test actually measures what it purports to measure, a direct check on how well the measure fulfills its function. Anastasi (1990: 29) argues that a more accurate way to define validity is “the extent to which we know what the test measures”. A test of validity is whether the measure of a concept really measures that concept, according to Bryman (2004).

The following conceptions of validity are considered to ensure validity: content-related validation; internal consistency; convergent and discriminant validation; and face validity.

- **Content-related** validation relates to the systematic examination of the test content to ensure that it covers a representative sample of the behaviour domain being measured (Anastasi, 1990). According to Murphy and Davidshofer (2005:160), the core procedure for assessing content validity consists of the following steps: describing the content domain, determining the areas of the content domain that are measured by each test item and comparing the “structure of the test with the structure of the content domain”. However, “no single statistic can be used to measure content validity” (ibid.). Content validity was built into the scales through the derivation of these scales from theory relating to economic capital, human capital and social and this particular domain was sampled.
- **Construct validity** “assesses whether a measure relates to other observed variables in a way that is consistent with theoretically derived predictions” (Bollen, 1989:188); in other words, it “involves ruling out alternative interpretations of how two variables are referred to in hypothetical terms” (Cook & Campbell, 1976:226). For instance, the researcher would delete variables which reduce the construct validity according to the Cronbach alpha’s scores.

- **Face validity** refers to what the test appears superficially to measure, and for face validity to exist for an instrument, it would need to appear valid to respondents, to “administrative personnel who decide on its use”, and to “other technically untrained observers” (Anastasi, 1990). According to Bryman (2004) the process of assessing face validity is an intuitive process. Attempts were made to maintain face validity in terms of appearing to be what was claimed to be, and cover letters and consent forms were also used for this process.
- The last validity type - **Convergent validity and discriminant validity** – covers two aspects, Convergent validity refers to the correlation of variables that theoretically should correlate with each other, and discriminant validity refers to the lack of correlation between variables that theoretically should not correlate with each other (Anastasi, 1990:156). To attain these types of validity we use the factor analysis test, which refers to the correlation of variables that theoretically should correlate with each other.

### 3.8 Hypotheses

The following hypothesis will be tested through the above stated statistical tests:

**Null Hypothesis ( $H_0$ ):** There is no significant relationship between total forms of capital and corporate entrepreneurship in SOE.

**Alternative Hypothesis ( $H_a$ ):** There is a significant relationship between total forms of capital and corporate entrepreneurship in SOEs.



**Null Hypothesis ( $H_0$ ):** There is no significant relationship between economic capital and innovation in SOEs’.

**Alternative Hypothesis ( $H_a$ ):** There is a significant relationship between economic capital and innovation in SOEs’.

**Null Hypothesis ( $H_0$ ):** There is no significant relationship between human capital and pro-activeness in SOEs.

**Alternative Hypothesis ( $H_a$ ):** There is a significant relationship between human capital and pro-activeness in SOEs.

**Null Hypothesis ( $H_0$ ):** There is no significant relationship between human capital and innovation in SOEs.

**Alternative Hypothesis ( $H_a$ ):** There is a significant relationship between human capital and innovation in SOEs.

**Null Hypothesis ( $H_0$ ):** There is no significant relationship between social capital and risk taking in SOEs.

**Alternative Hypothesis ( $H_a$ ):** There is a significant relationship between social capital and risk taking in SOEs.

### **3.9 Ethical consideration**

Ethical consideration refers to the protection of the participants' rights, obtaining informed consent and the institutional review process of the ethical approval (Klopper, 2008). Protection of human rights of the respondents entailed the right to privacy, the right to self-determination, the right to fair treatment, right to autonomy and confidentiality, the right to protection from discomfort and harm as well as acting in good faith by explaining to respondents all information that is relevant (Howie, 2010). Sensitive questions were not asked due to ethical-related issues. The researcher obtained voluntary informed consent from the respondents where a consent form was used and also explained the purpose of the research. Participants responded purely voluntarily and anonymously to protect their identity. Most importantly, the researcher obtained the necessary Ethics clearance certificate (Refer to appendix A) from the Senate Ethics Committee at the University of the Witwatersrand for relevant authorities. The importance of ethical consideration is to guide research and the researcher from infringing on respondents' rights or compromising some ethical standards which may have a negative effect on the respondents (Wassenaar, 2006). The cover letter and consent form utilised are illustrated in Appendix B.

### **3.10 Conclusion**

This chapter discussed in detail how the research methodology is structured. The exploratory study conducted in State-Owned Enterprises was done through non-probability sampling method and data collection was self-administered by the researcher. In chapter four, the empirical findings are depicted and will be discussed more in detail on chapter five to support the research proposition.

## **Chapter 4: Presentation of empirical results**

### **4.1 Introduction**

This chapter will set out the results of the empirical research in graphs and tables formats. The aim of the study was to primarily assess the impact of forms of capital on corporate entrepreneurship in State Owned Enterprises. Brief commentary will be given on each result that shows the statistical differences in descriptive information but allowing for more qualitative and in-depth interpretation in chapter five. Comprehensive documentation of statistics results is allocated in the Appendix D.

### **4.2. Analysis of data collection**

#### **4.2.1. Reliability analysis**

Please refer to Appendix C

In terms of the specific testing of internal reliability, the following scores were obtained in terms of the testing of the Cronbach's alphas for the constructs. Refer to **Table 4** below.

**Table 4: The Cronbach alphas for constructs**

| <b>Constructs</b>          | <b>Cronbach's Alpha scores</b> | <b>Standardized Items</b> | <b>N of Items</b> |
|----------------------------|--------------------------------|---------------------------|-------------------|
| Entire model               | .728                           | .742                      | 30                |
| Corporate Entrepreneurship | .544                           | .424                      | 4                 |
| Social capital             | .626                           | .639                      | 4                 |
| Economic capital           | .726                           | .684                      | 4                 |
| Human capital              | .721                           | .725                      | 7                 |

This indicates that the internal reliability of the instrument for the constructs was reasonable. A Cronbach's alpha of 0.60 as a minimum level is acceptable (Azrilah, Azlinah, NoorHabibah, Sohaimi, Azami, Hamza and Mohd, 2008; Berthoud, 2000). A Cronbach's alpha score indicates a high internal consistency and reliability, because they fall between 0.7 and 1. However, the corporate entrepreneurship (0.54) construct falls between .0.4 and 0.7. Therefore, this indicates a medium internal consistency and reliability (Ho Yo, 2001). Despite the entire model construct, in the other constructs some items needed to be deleted to improve the reliability. For instance, (1) for the Corporate Entrepreneurship construct, questions 8, 19 and 34 were deleted on the full Cronbach alpha. (2) For the Social capital construct, questions 7, 21, 32 and 33 were deleted. (3) For the Economic capital construct, questions 22, 25, 27 and 35 were deleted. (4) For the Human Capital construct, only question 11 was deleted.

#### 4.3.Descriptive frequency results

Please refer to Appendix D.

**Table 5: Measures of Central tendency**

| Statistics |         |        |      |            |          |                       |                  |
|------------|---------|--------|------|------------|----------|-----------------------|------------------|
|            |         | Gender | Race | Experience | Function | Highest qualification | Occupation level |
| N          | Valid   | 206    | 206  | 206        | 206      | 206                   | 206              |
|            | Missing | 0      | 0    | 0          | 0        | 0                     | 0                |
| Mean       |         | 1.46   | 1.67 | 2.88       | 2.51     | 3.99                  | 3.89             |
| Median     |         | 1.00   | 1.00 | 3.00       | 3.00     | 4.00                  | 4.00             |
| Mode       |         | 1      | 1    | 4          | 3        | 5                     | 4                |
| Range      |         | 1      | 3    | 3          | 3        | 5                     | 4                |
| Minimum    |         | 1      | 1    | 1          | 1        | 1                     | 2                |
| Maximum    |         | 2      | 4    | 4          | 4        | 6                     | 6                |

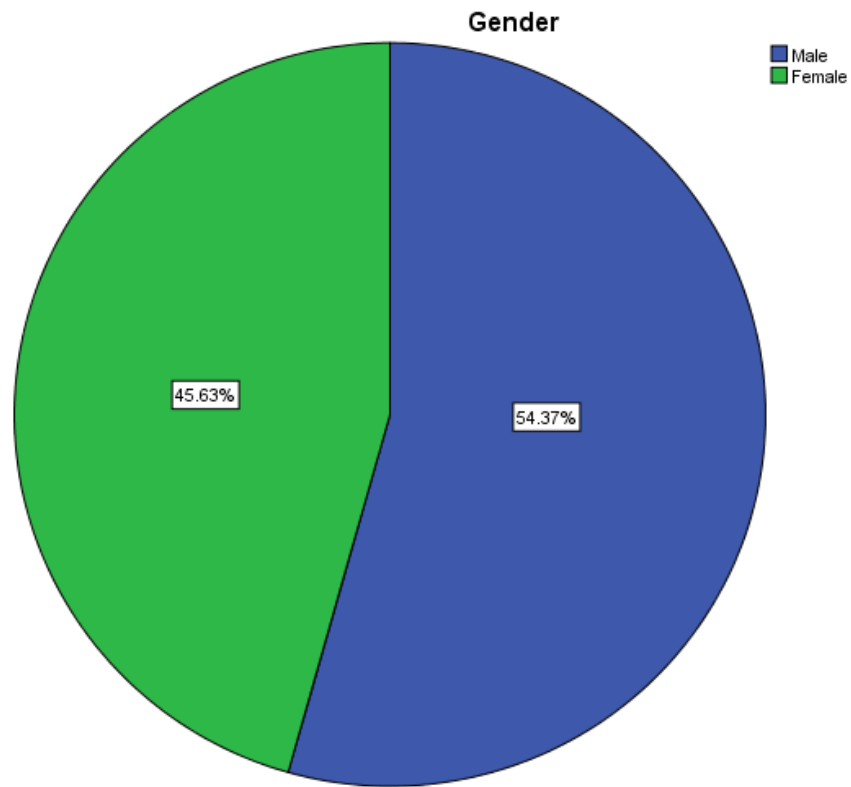
This section of the results presents the demographics profile of the sample in order to act as a frame of reference for the rest of the results interpretation. The demographics profile is divided into questions that ascertained demographics information that might have an influence on the impact of forms of capital on corporate entrepreneurship in State Owned Enterprises. This included the following demographics questions; gender, race, years of experience, highest qualification, and occupation level.

**Table 6: Frequency of gender**

| Gender |              |           |         |               |                    |
|--------|--------------|-----------|---------|---------------|--------------------|
|        |              | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid  | Male         | 112       | 54.4    | 54.4          | 54.4               |
|        | Female       | 94        | 45.6    | 45.6          | 100.0              |
|        | <b>Total</b> | 206       | 100.0   | 100.0         |                    |

**Table 6** illustrates the frequency distribution of question one, in which respondents indicated their gender. There were two options available: Male or Female. A proportion of 54.4% were male while the other 45.6% were female. According to the Commission of Employment Equity 2013-2014 report, the estimated total population of senior managers in SOEs is 2360. Therefore, about 54% of males and 46% females of senior managers in SOEs are represented in the sample.

**Figure 8: Respondents by classification variable: Gender**



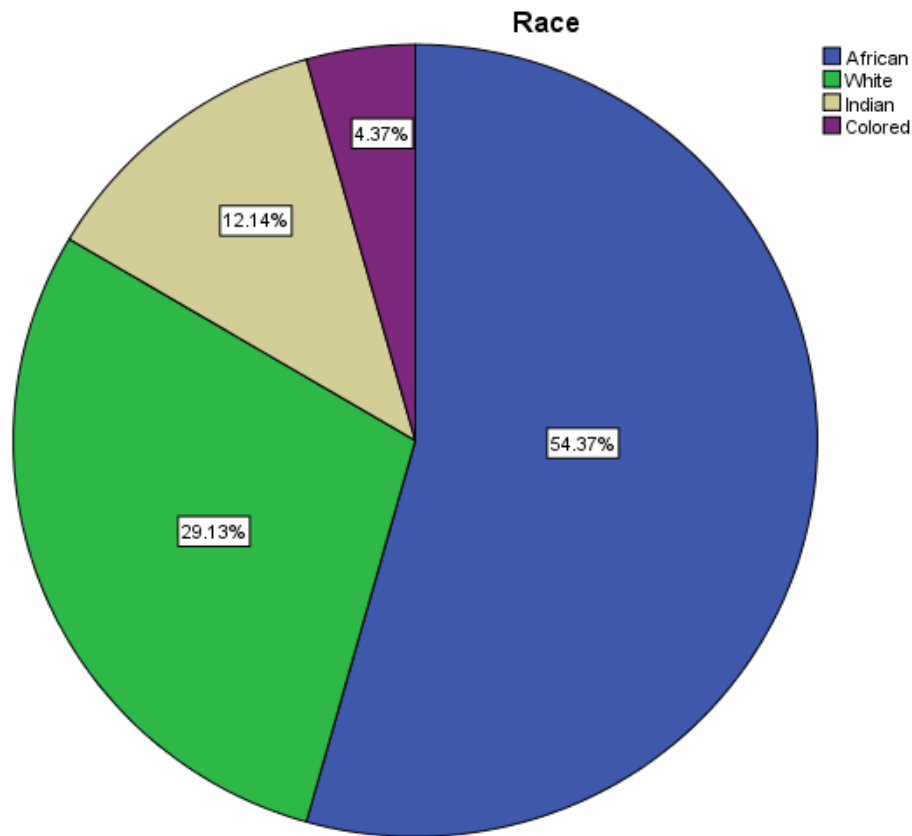
The results in **Figure 8** show that respondents in question one of the study are 54% males as depicted colour by blue and 46% represents females as depicted by colour green of the total population of the sample.

**Table 7: Frequency of race**

| Race  |              |           |         |               |                    |
|-------|--------------|-----------|---------|---------------|--------------------|
|       |              | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | African      | 112       | 54.4    | 54.4          | 54.4               |
|       | White        | 60        | 29.1    | 29.1          | 83.5               |
|       | Indian       | 25        | 12.1    | 12.1          | 95.6               |
|       | Colored      | 9         | 4.4     | 4.4           | 100.0              |
|       | <b>Total</b> | 206       | 100.0   | 100.0         |                    |

**Table 7** illustrates the frequency distribution of race from the respondents. Africans were the majority with 112, followed by Whites with 60 respondents. 25 Indians and 9 coloreds also participated in the study.

**Figure 9: Respondents by classification variable: Race**



**Figure 9** depicts the race groups of respondents in this study. The majority of the respondents are African with 54% of the total respondents followed by Whites with 29%. Indians and Coloreds who participated in the study occupied 12% and 4%, respectively. According to the Commission of Employment Equity 2013-2014 report, the population of senior management in SOEs comprises of 1065 Africans, 832 Whites, 223 Indians and 163 coloreds.

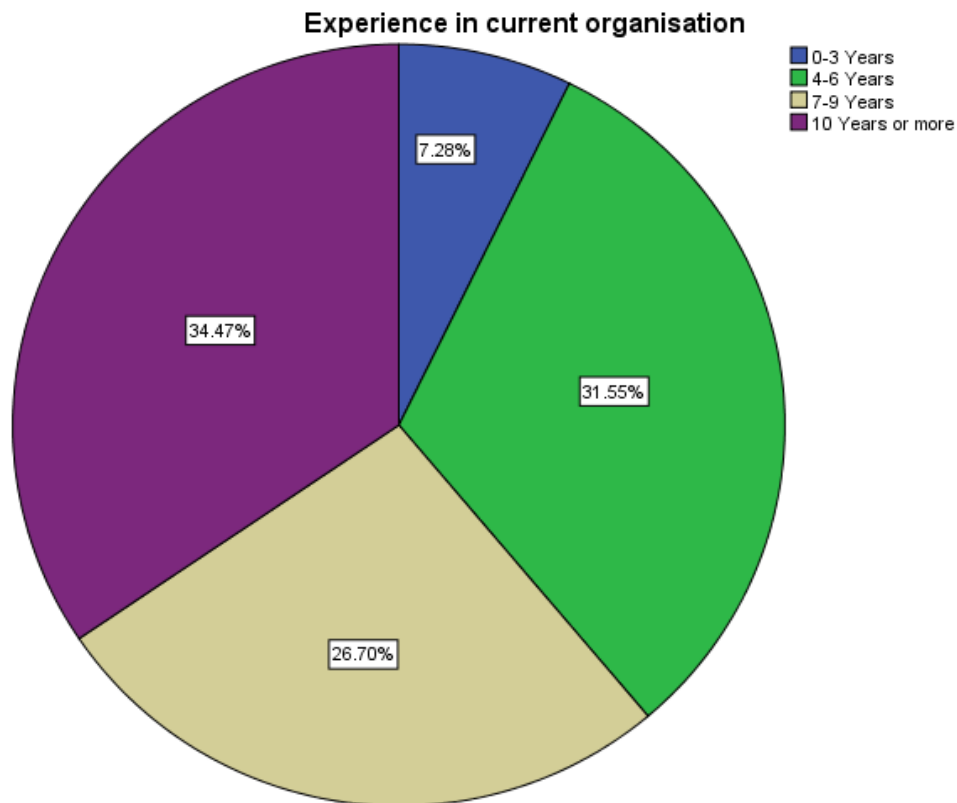
**Table 8: Frequency of experience**

| Experience in current organisation |                  |           |         |               |                    |
|------------------------------------|------------------|-----------|---------|---------------|--------------------|
|                                    |                  | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid                              | 0-3 Years        | 15        | 7.3     | 7.3           | 7.3                |
|                                    | 4-6 Years        | 65        | 31.6    | 31.6          | 38.8               |
|                                    | 7-9 Years        | 55        | 26.7    | 26.7          | 65.5               |
|                                    | 10 Years or more | 71        | 34.5    | 34.5          | 100.0              |
|                                    | <b>Total</b>     | 206       | 100.0   | 100.0         |                    |

As depicted on **Table 8**, 71 out of 206 of the respondents have 10 years or more of experience in the current organisation. The dominance of more experienced respondents is not surprising considering the targeted nature of the sample which is management in SOEs. The second highest response rate was respondents with 4 to 6 years of experiences. The third highest response was respondents with 7 to 9 years of experiences. The lowest response rate came from 0 to 3 years of experiences.



**Figure 10: Respondents by classification variable: Experience**



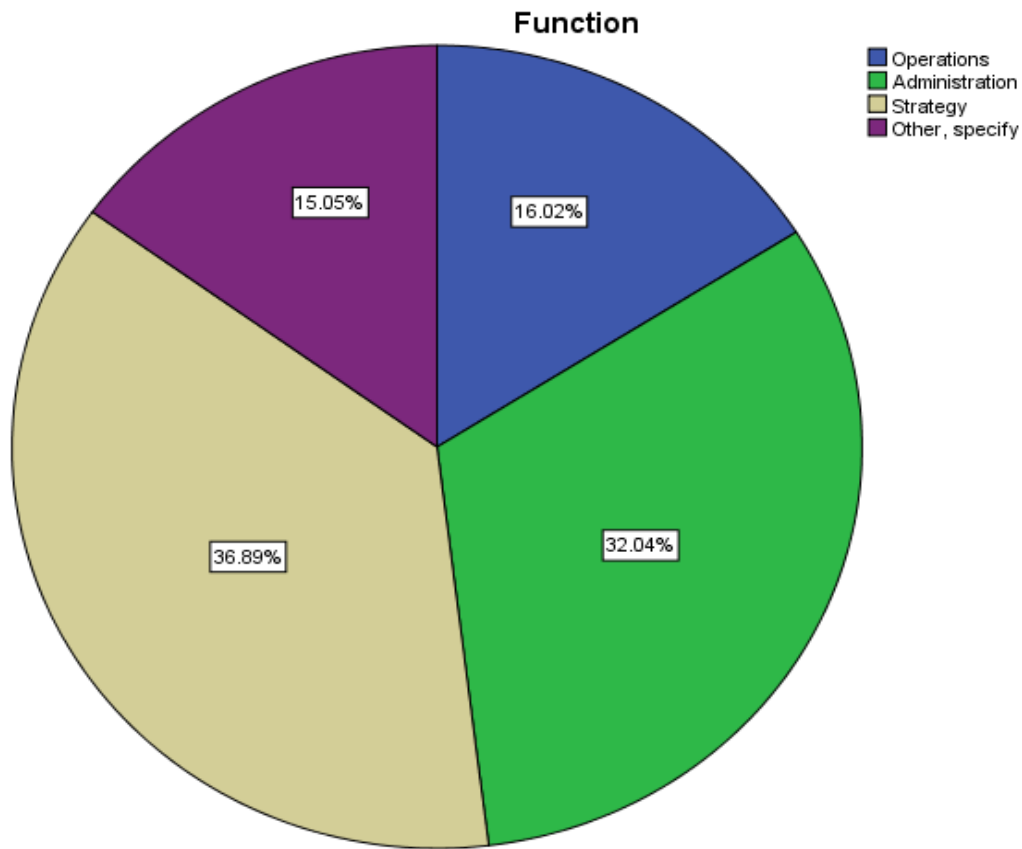
The results in **Figure 10** show the dispersion of respondents in this study according to years of experience at their company, with 34% of the respondents being at the organisation for 10 years and more. 32% of the respondents have 4 to 6 years of experience and 27% of the respondents have 7 to 9 years of experience. This indicates that the participants have adequate human capital (knowledge and experience) of a State Owned Enterprise and their organisations.

**Table 9: Frequency of functions**

| Function |                |           |         |               |                    |
|----------|----------------|-----------|---------|---------------|--------------------|
|          |                | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid    | Operations     | 33        | 16.0    | 16.0          | 16.0               |
|          | Administration | 66        | 32.0    | 32.0          | 48.1               |
|          | Strategy       | 76        | 36.9    | 36.9          | 85.0               |
|          | Other, specify | 31        | 15.0    | 15.0          | 100.0              |
|          | <b>Total</b>   | 206       | 100.0   | 100.0         |                    |

**Table 9** relates to question four, which asked the respondents to indicate the function that best describe their role in the organisation. There were four options (operations, administration, strategy and other). From the analysis of the above frequency table, it can be noted that the majority of respondents were from the strategy and administrative division with 76 and 66 respondents. The reminder of the sampled population is made up of respondents in the operations and other divisions such as Finance and Supply Chain Management.

**Figure 11: Respondents by classification variable: Function**



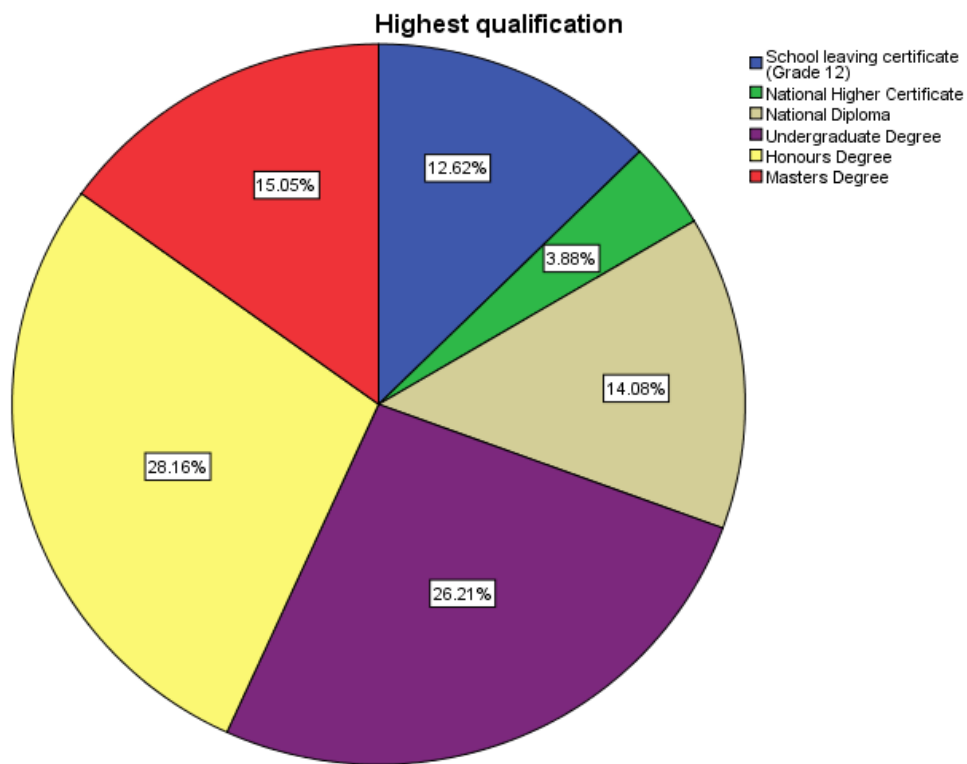
**Figure 11** shows the functional role of the respondents in this study. According to the pie chart, the majority of the respondents are in the strategic management level or aspect with 37%. 32% of the respondents play an administrative role in the company, 16% in operations while 15% are in other divisions such as funding.

**Table 10: Frequency of highest qualification**

| Highest qualification |                                       |           |         |               |                    |
|-----------------------|---------------------------------------|-----------|---------|---------------|--------------------|
|                       |                                       | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid                 | School leaving certificate (Grade 12) | 26        | 12.6    | 12.6          | 12.6               |
|                       | National Higher Certificate           | 8         | 3.9     | 3.9           | 16.5               |
|                       | National Diploma                      | 29        | 14.1    | 14.1          | 30.6               |
|                       | Undergraduate Degree                  | 54        | 26.2    | 26.2          | 56.8               |
|                       | Honors Degree                         | 58        | 28.2    | 28.2          | 85.0               |
|                       | Master's Degree                       | 31        | 15.0    | 15.0          | 100.0              |
|                       | <b>Total</b>                          | 206       | 100.0   | 100.0         |                    |

**Table 10** relates to question five of the measuring instrument. Question five required participants to indicate their highest qualification. The highest response came from participants who hold honours degree, followed by degree graduates.

**Figure 12: Respondents by classification variable: highest qualification (Education)**



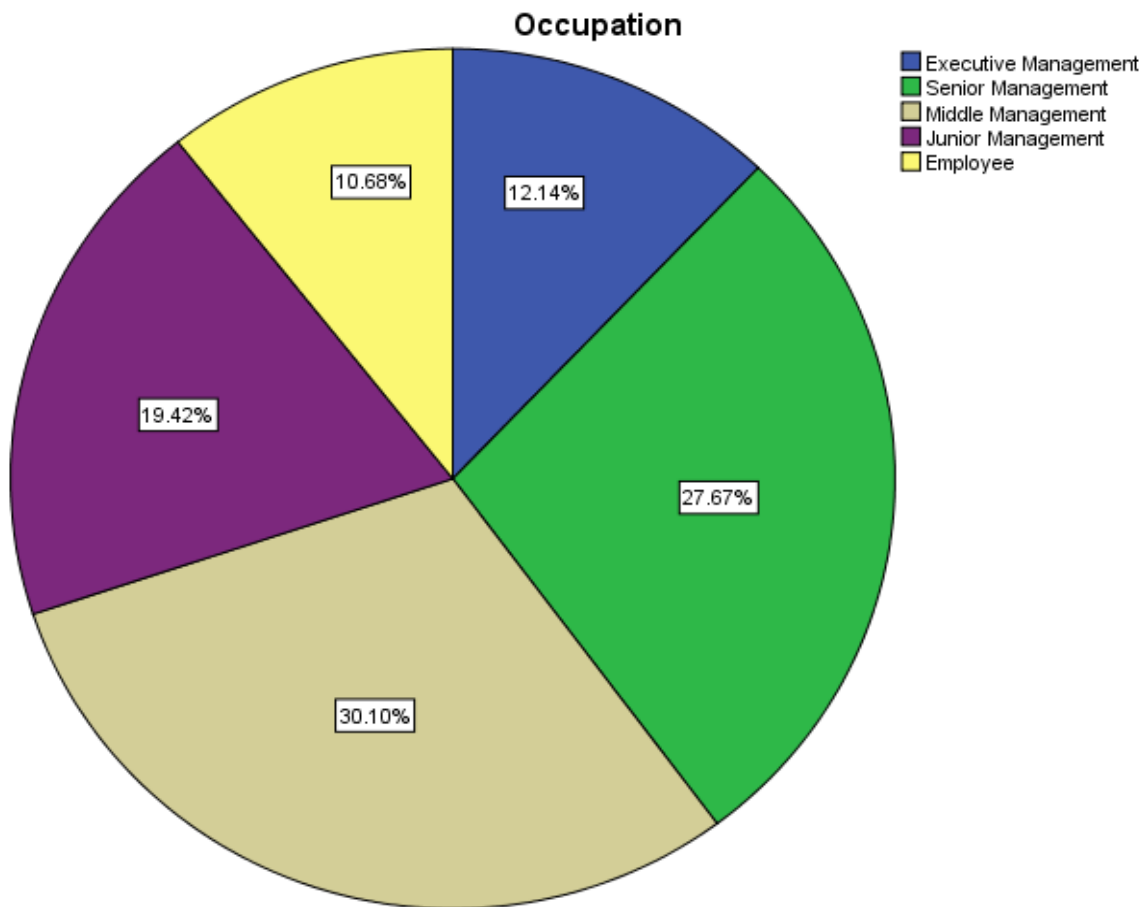
**Figure 12** relates to the education level of the respondents showed in percentages. 28% of the respondents hold or are currently doing their honours degree and 15% have a master's degree. The figure indicates that 26% of the respondents have a degree. More importantly, this figure also indicates that 69% of the respondents have at-least an undergraduate degree.

**Table 11: Frequency of management level**

| Occupation |                      |           |         |               |                    |
|------------|----------------------|-----------|---------|---------------|--------------------|
|            |                      | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid      | Executive Management | 22        | 12.1    | 12.1          | 12.1               |
|            | Senior Management    | 57        | 27.7    | 27.7          | 39.8               |
|            | Middle Management    | 62        | 30.1    | 30.1          | 69.9               |
|            | Junior Management    | 40        | 19.4    | 19.4          | 89.3               |
|            | Employee             | 25        | 10.7    | 10.7          | 100.0              |
|            | Total                | 206       | 100.0   | 100.0         |                    |

**Table 11** relates to question seven, which asked participants to indicate from the management levels provided as to which one best described their position in the company. The highest response rate was from the middle management level with 62 respondents. The second highest response rate came from senior management with 57 respondents. Junior management had the third highest respondent's rate with 40 respondents. Executive management and first line employees has the lowest response rate.

**Figure 13: Respondent by classification variable: Occupation (Management level)**



**Figure 13** shows the majority of the respondents are in middle management level, with 30% and 28% are in senior management. At these two levels, managers can institute change and drive entrepreneurial activities using human and social capital. The upper management level (executive management) accounted for 12% of the respondents, which is responsible for ensuring that there is substantial economic capital to run the company.

## **4.5. Factor analysis**

Please refer to appendix E

Researchers conduct factor analysis in order to test if a relationship exists between the observed variable and its underlying construct (Shay & Suhr, 2006). The researcher uses knowledge of relevant theory to the research topic as well as empirical research to postulate their relationship pattern and then tests the hypothesis statistically (Shay & Suhr, 2006). In essence, factor analysis is used to find factors among observed variables. In other words, if data contains many variables, factor analysis can be used to reduce the number of variables. Factor analysis groups variables with similar characteristics together. This output contained in the factor analysis shows the component matrix before rotation. This matrix contains loading of each variance onto each factor. By defaults SPSS display all loadings; however, we requested that all loading less than 0.4 be suppressed in the output and so there are blank spaces for many of the loadings. This matrix is not particularly important for interpretation.

### **4.5.1 The Correlation matrix**

The first output from the analysis is the correlation coefficient. A correlation matrix is simply a rectangular array of numbers which gives the correlation coefficients between a single variable and every other variable in the investigation (Galpin & Krommenhoek, 2013). The correlation coefficient between a variable and itself is always one; hence the principal diagonal of the correlation matrix contains 1s. The correlation coefficients below the principal diagonal are the same. The determinant of the correlation matrix is shown at the foot of the table below.



**Table 12: Assessing Correlation Matrix of forms of capital on Corporate Entrepreneurship**

| Items | H     | CE    | S     | E    | CE    | S    | CE   | H    | CE   | E    | CE   | S    |
|-------|-------|-------|-------|------|-------|------|------|------|------|------|------|------|
| H     | 1000  |       |       |      |       |      |      |      |      |      |      |      |
| CE    | .345  | 1000  |       |      |       |      |      |      |      |      |      |      |
| S     | .329  | .436  | 1000  |      |       |      |      |      |      |      |      |      |
| E     | -.058 | .319  | -.189 | 1000 |       |      |      |      |      |      |      |      |
| CE    | .448  | .358  | .548  | .647 | 1000  |      |      |      |      |      |      |      |
| S     | .357  | .344  | .189  | .398 | -.014 | 1000 |      |      |      |      |      |      |
| CE    | .330  | .589  | .289  | .367 | .232  | .244 | 1000 |      |      |      |      |      |
| H     | .454  | .514  | .301  | .398 | .309  | .621 | .586 | 1000 |      |      |      |      |
| CE    | -.115 | .642  | .304  | .192 | .411  | .435 | .414 | .398 | 1000 |      |      |      |
| E     | -.017 | -.098 | .328  | .109 | .001  | .009 | .304 | .401 | .412 | 1000 |      |      |
| CE    | .444  | .589  | .421  | .529 | .604  | .222 | .631 | .234 | .303 | .307 | 1000 |      |
| S     | .544  | .499  | .509  | .511 | -.323 | .345 | .656 | .516 | .406 | .408 | .498 | 1000 |

Note. Pearson's  $r$  Correlational values are reported

Generally, correlations exceeding .30 provides enough evidence to indicate that there is enough commonality to justify comprising factors (Tabachnick & Fidell, 2001). If inter-correlations are unexpectedly low, it may be a result of low variance. Samples that are too homogenous are likely to exhibit low variance; consequently, the correlation will be low potentially failing to reveal a factor, or common relationship, that does exist (Fabrigar et al., 1999). Therefore, with an exception of few factors, the correlation is enough evidence to suggest a relationship between forms of capital and corporate entrepreneurship.

#### 4.5.2 Kaiser-Meyer-Olkin and Bartlett's test

The Kaiser-Meyer-Olkin Test of Sampling Adequacy (KMO) is a measure of the shared variance in the items. Kaiser, Meyer, and Olkin suggest the following guideline for assessing the measure (Friel, 2005).

**Table 13: Interpretation Guidelines for the Kaiser-Meyer-Olin test**

| KMO Value    | Degree of Common Variance |
|--------------|---------------------------|
| 0.90 to 1.00 | Marvelous                 |
| 0.80 to 0.89 | Meritorious               |
| 0.70 to 0.79 | Middling                  |
| 0.60 to 0.69 | Mediocre                  |
| 0.50 to 0.59 | Miserable                 |
| 0.00 to 0.49 | Don't Factor              |

**Table 14: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test:**

| KMO and Bartlett's Test                          |                    |             |
|--|--------------------|-------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | <b>.657</b> |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 2046.258    |
|  | df                 | 435         |
|  | Sig.               | <b>.000</b> |

The KMO measures the sampling adequacy should be greater than 0.50 for a satisfactory factor analysis to precede. If any pair of variables has a value less than this, consider dropping one of them from the analysis. Looking at the table above, the KMO measure is 0.657, this implies that the sample was adequate to conduct factor analysis. A common rule suggests that a researcher has at least 5-10 participants per variable. The final variables used for factor analysis were 30

hence a minimum of  $5 \times 30 = 150$  responses was required and the sample in this study was 206 which is greater than 150.

**Bartlett's test** is another indication of the strength of the relationship among variables. This tests the null hypothesis that the correlation matrix is an identity matrix. An identity matrix is a matrix in which all of the diagonal elements are 1 and all of the diagonal elements are 0.

From the KMO and Bartlett's Test, it is reflected that the Bartlett's test of Sphericity is significant. That is, its associated probability is less than 0.05. In fact, it is actually 0.000; that is, the significance level is small enough to reject the null hypothesis. This means that the correlation matrix is not an identity matrix. Furthermore, this implies that factor analysis is indeed appropriate since there are some relationships between the variables.

#### **4.5.3 Total Variance Explained**

The next item shows all the factors extractable from the analysis along with their eigenvalues, the percent of variance attributable to each factor, and the cumulative variance of the factor and the previous factors. Notice that the first factor accounts for 15.484% of the variance, the second 9.453, the third 7.396, the fourth 5.845, the fifth factor 5.498. All other factors from factor eleven are not significant.

When referring to the variance explained with regard to this table, the researcher refers to the amount of variance in the total collection of variables/items which is explained by the component(s). For instance, component 11 explains 3.955% of the variance in the items;

specifically, in the items' variance-covariance matrix. We could conclude that, 67.502% of the variance in our items was explained by the 11 extracted components.

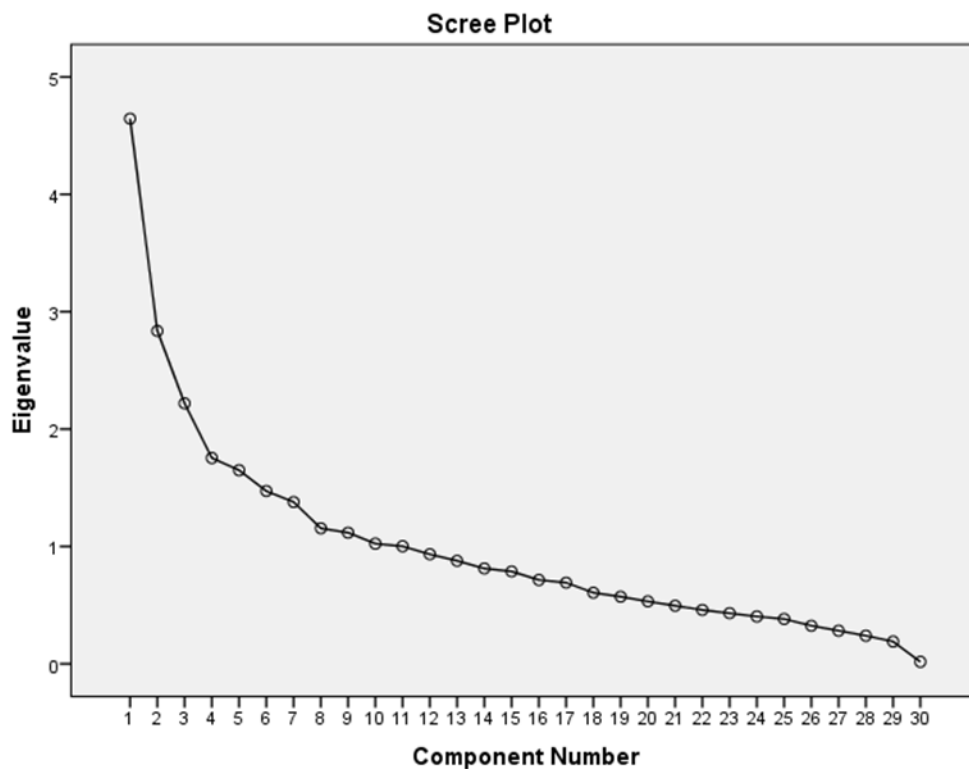
**Table 15: Total Variance Explained**

| Component | Initial Eigenvalues |               |              | Rotation Sums of Squared Loadings |               |              |
|-----------|---------------------|---------------|--------------|-----------------------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % | Total                             | % of Variance | Cumulative % |
| 1         | 4.645               | 15.484        | 15.484       | 3.039                             | 10.132        | 10.132       |
| 2         | 2.836               | 9.453         | 24.937       | 2.450                             | 8.167         | 18.298       |
| 3         | 2.219               | 7.396         | 32.332       | 2.223                             | 7.412         | 25.710       |
| 4         | 1.753               | 5.845         | 38.177       | 1.810                             | 6.034         | 31.744       |
| 5         | 1.650               | 5.498         | 43.675       | 1.804                             | 6.013         | 37.757       |
| 6         | 1.472               | 4.907         | 48.582       | 1.730                             | 5.768         | 43.526       |
| 7         | 1.379               | 4.595         | 53.177       | 1.647                             | 5.489         | 49.015       |
| 8         | 1.155               | 3.849         | 57.026       | 1.522                             | 5.073         | 54.087       |
| 9         | 1.117               | 3.724         | 60.750       | 1.520                             | 5.067         | 59.154       |
| 10        | 1.024               | 3.413         | 64.163       | 1.318                             | 4.393         | 63.547       |
| 11        | 1.002               | 3.339         | 67.502       | 1.187                             | 3.955         | 67.502       |
| 12        | .933                | 3.112         | 70.614       |                                   |               |              |
| 13        | .878                | 2.925         | 73.539       |                                   |               |              |
| 14        | .812                | 2.708         | 76.247       |                                   |               |              |
| 15        | .787                | 2.623         | 78.870       |                                   |               |              |
| 16        | .715                | 2.382         | 81.252       |                                   |               |              |
| 17        | .691                | 2.304         | 83.556       |                                   |               |              |
| 18        | .606                | 2.020         | 85.576       |                                   |               |              |
| 19        | .572                | 1.907         | 87.482       |                                   |               |              |
| 20        | .532                | 1.773         | 89.255       |                                   |               |              |
| 21        | .495                | 1.650         | 90.905       |                                   |               |              |
| 22        | .459                | 1.530         | 92.435       |                                   |               |              |
| 23        | .431                | 1.437         | 93.872       |                                   |               |              |
| 24        | .403                | 1.345         | 95.217       |                                   |               |              |
| 25        | .382                | 1.274         | 96.492       |                                   |               |              |
| 26        | .324                | 1.081         | 97.573       |                                   |               |              |
| 27        | .282                | .940          | 98.513       |                                   |               |              |
| 28        | .240                | .798          | 99.311       |                                   |               |              |

|  |      |      |         |  |  |  |
|--|------|------|---------|--|--|--|
| 29   | .189 | .631 | 99.943  |  |  |  |
| 30   | .017 | .057 | 100.000 |  |  |  |
| Extraction Method: Principal Component Analysis. |      |      |         |  |  |  |

#### 4.5.4 The Scree plot for factor analysis

**Figure 14** Scree Plot



**Figure 14**, SPSS Scree Plot. This figure demonstrates the scree plot of the eigenvalues and factors from the extraction seen in Table 15. The scree plot is a graph of the eigenvalues against all the factors. The graph is useful for determining how many factors to retain. The point of interest is where the curve starts to flatten. It can be seen that the curve begins to flatten between factors seven and eight. Note also that factor 12 has an eigenvalue of less than one, so only eight factors have been retained.

#### 4.5.5 Orthogonal Rotated Matrix

There are two main types of rotational methods: orthogonal and oblique. Orthogonal rotations (varimax, quartimax, and equimax) are appropriate when the purpose for the factor analysis is to generate factor scores or when the theoretical hypotheses concern uncorrelated dimensions (Loo, 1979). Of the orthogonal types of rotations, varimax is generally regarded as best and is most widely used (Fabrigar et al., 1999; Loo, 1979). Oblique rotations account for the relationships between the factors, which often is more appropriate within social science research (Fabrigar et al., 1999).

**Table 16: Summated scale for constructs**

| Constructs                 | Cronbach's Alpha scores | Standardized Items | N of Items |
|----------------------------|-------------------------|--------------------|------------|
| Entire model               | .728                    | .742               | 30         |
| Corporate Entrepreneurship | .544                    | .424               | 4          |
| Social capital             | .626                    | .639               | 4          |
| Economic capital           | .726                    | .684               | 4          |
| Human capital              | .721                    | .725               | 7          |

The reliability results showed that the items within each of constructs / sub-constructs can be combined together to form a summated scale for each scale. The summated scale was computed by calculating the average of the items within the scale.

#### 4.6. Multiple Linear Regression model analysis

Please refer to appendix F

Regression analysis is utilised to investigate the relationship between a range of variables, these including an error term, whereby a dependent variable is expressed as a combination of independent or explanatory variables, and “the unknown parameters in the model are estimated, using observed values of the dependent and explanatory variables” (Stoodley, Lewis & Stainton, 1980:35). Multiple linear regression analysis was the technique used to test the hypotheses. The multiple linear regression models were conducted to test to assess the relationship between forms of capital and corporate entrepreneurship. Therefore, corporate entrepreneurship (innovation, risk taking and pro-activeness) were the dependent variable and social, human and economic capitals were the independent variables. Below, the paper presents the descriptive statistics, correlations outputs for standard regressions and the basic interpretations of the multiple linear regression models.

**Table 17: Descriptive statistics and correlations outputs for standard regression**

| Descriptive Statistics     |      |                |     |
|----------------------------|------|----------------|-----|
|                            | Mean | Std. Deviation | N   |
| Corporate Entrepreneurship | 3.67 | .32            | 206 |
| Social Capital             | 3.65 | .41            | 206 |
| Human capital              | 4.00 | .32            | 206 |
| Economic capital           | 3.61 | .37            | 206 |

The descriptive statistics on **Table 17** presented the means of each variable, standard deviation and the sample size. Human capital was the highest rated construct (mean = 4.00) while Economic capital was the lowest rated construct (mean = 3.61).

**Table 18: Pearson correlation**

| Correlations        |                            |                            |                |               |                  |
|---------------------|----------------------------|----------------------------|----------------|---------------|------------------|
|                     |                            | Corporate Entrepreneurship | Social Capital | Human capital | Economic capital |
| Pearson Correlation | Corporate Entrepreneurship | 1.000                      | .329           | .398          | .368             |
|                     | Social Capital             | .329                       | 1.000          | .133          | .386             |
|                     | Human capital              | .398                       | .133           | 1.000         | .477             |
|                     | Economic capital           | .368                       | .386           | .477          | 1.000            |
| Sig. (1-tailed)     | Corporate Entrepreneurship | .                          | .000           | .000          | .000             |
|                     | Social Capital             | .000                       | .              | .028          | .000             |
|                     | Human capital              | .000                       | .028           | .             | .000             |
|                     | Economic capital           | .000                       | .000           | .000          | .                |
| N                   | Corporate Entrepreneurship | 206                        | 206            | 206           | 206              |
|                     | Social Capital             | 206                        | 206            | 206           | 206              |
|                     | Human capital              | 206                        | 206            | 206           | 206              |
|                     | Economic capital           | 206                        | 206            | 206           | 206              |

The first contains the Pearson correlation values; the second contains the probabilities of obtaining those values if the null hypothesis was true. In this case this is less than 0.05. It suggests that the observed data are inconsistent with the assumption that the null hypothesis is true, and thus that hypothesis must be rejected and the alternative hypothesis is accepted as true.

The testing of this hypothesis relates to the research question: “What impact do forms of entrepreneurial capital have on corporate entrepreneurship?” The multiple linear regression analysis was run with Corporate Entrepreneurship accounting for innovation, risk taking and pro



activeness as the dependent variable, and with total forms of entrepreneurial capital as tested predictor variables.

**Table 19: Multiple Linear Regression model summary**

| Model Summary  |                   |             |                   |                            |                   |          |    |     |               |
|--|-------------------|-------------|-------------------|----------------------------|-------------------|----------|----|-----|---------------|
| Model  | R                 | R Square    | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |    |     |               |
|  |                   |             |                   |                            | R Square Change   | F Change | df | df  | Sig. F Change |
| 1  | .497 <sup>a</sup> | <b>.247</b> | <b>.236</b>       | .283                       | .247              | 22.111   | 3  | 202 | .000          |
| a. Predictors: (Constant), Economic capital, Social Capital, Human capital |                   |             |                   |                            |                   |          |    |     |               |
| b. Dependent Variable: Corporate Entrepreneurship                          |                   |             |                   |                            |                   |          |    |     |               |

The model summary provides an overview of the results. The primary interests are the **R Square** and **Adjusted R Square** values, which are **0.247** and **0.236**, respectively. For a multiple linear regression, the adjusted  $R^2$  is the base of the analysis because it measures the total variability of the dependent variable that is explained by the independent variable. This means approximately 24% of corporate entrepreneurship is explained by the regression model or about 24% of corporate entrepreneurship is explained by the predictor variables (economic, social and human capital). The P value for the model test is <0.000, this is lower than the significance level ( $\alpha$ ) of 0.05. This means that the model is significant and a good fit for the data.

If computed manually, it would be:

$$F = \frac{R^2 / df}{(1 - R^2) / (N - df - 1)}$$

$$F = \frac{0.247^2 / 3}{(1 - 0.247^2) / (206 - 3 - 1)}$$

$$= 22.11$$

As such, the change in the amount of variance that can be explained to gives rise to the F-ratio of 22.11, which is significant ( $p < .001$ ). Therefore, we would reject the null hypothesis ( $H_0$ ) in favour of the alternative hypothesis, since it accounts for significantly more variance in the criterion variable than would be expected by chance.

**Table 19** displays the results of the analysis. The table shows the test of significance of the model using an ANOVA. There are 205 ( $N - 1$ ) total degrees of freedom. With three predictors, the Regression effect has three degrees of freedom. The Regression effect is statistically

insignificant indicating that prediction of the dependent variable is not really to some extent accomplished better than can be done by chance.

**Table 20: Anova test**

| Anova  |              |                |            |             |               |                         |
|--|--------------|----------------|------------|-------------|---------------|-------------------------|
| Model  |              | Sum of Squares | df         | Mean Square | F             | Sig.                    |
| 1  | Regression   | 5.319          | 3          | 1.773       | <b>22.111</b> | <b>.000<sup>b</sup></b> |
|  | Residual     | 16.196         | 202        | .080        |               |                         |
|  | <b>Total</b> | <b>21.515</b>  | <b>205</b> |             |               |                         |
| a. Dependent Variable: Corporate Entrepreneurship                          |              |                |            |             |               |                         |
| b. Predictors: (Constant), Economic capital, Social Capital, Human capital |              |                |            |             |               |                         |

The above ANOVA table contains two important values; namely, the F-test value and the P-value which is labeled as “Sig”. The F-value indicates that the model has low explanatory power with 22%. The model p-value = **0.000**, this is significant at 0.05 significance level. Therefore, the researcher rejects the null hypothesis in favor of the alternative hypotheses. This further maintains that the model has no explanatory power.

**Table 21: Coefficients**

| Model |                  | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|-------|------------------|-----------------------------|------------|---------------------------|-------|------|
|       |                  | $\beta$                     | Std. Error | Beta                      |       |      |
| 1     | (Constant)       | <b>1.339</b>                | .291       |                           | 4.603 | .000 |
|       | Social capital   | <b>.190</b>                 | .053       | .238                      | 3.586 | .000 |
|       | Human capital    | <b>.308</b>                 | .071       | .304                      | 4.365 | .000 |
|       | Economic capital | <b>.117</b>                 | .067       | .131                      | 1.749 | .082 |

a. Dependent Variable: Corporate Entrepreneurship

The following multiple linear regression equation was obtained utilising SPSS statistical software for the analysis of the corporate entrepreneurship as the dependent variable, the results of which are illustrated in **Table 21**:

$$y = 1.339 + .190 (\text{Social capital}_i) + 380 (\text{Human capital}_i) + 117 (\text{Economic capital}_i)$$

Therefore, this further supports the alternative hypothesis that there is significant relationship between total forms of capital and corporate entrepreneurship. This indicates that there is a relationship between the predictor and outcome. **Social capital** ( $b = 0.190$ ), indicates that as social capital increase by one unit, corporate entrepreneurship increases by 0.190 units. **Human capital** ( $b = 0.380$ ) indicate that as (skills or experiences) increases by one unit, CE increases by 0.380 units. Economic capital ( $b = 0.117$ ) indicates that as financial capital increases by one unit, CE increases by 0.117 units.

The Coefficients provides the details of the results. The Zero-order column under Correlations lists the Pearson  $r$  values of the dependent variable (innovation, risk taking and pro activeness in this case corporate entrepreneurship) with each of the predictors.

For this test, the focus is on the  $p$ -value of the  $F$ -test to see if the overall model is significant. With a  $p$ -value of 0.000, the model is statistically significant. The  $t$ -test for Social, Human and Economic capital equals 3.586, 4.365 and 1.749, and are statistically significant, meaning that the regression coefficient is significantly different from zero.

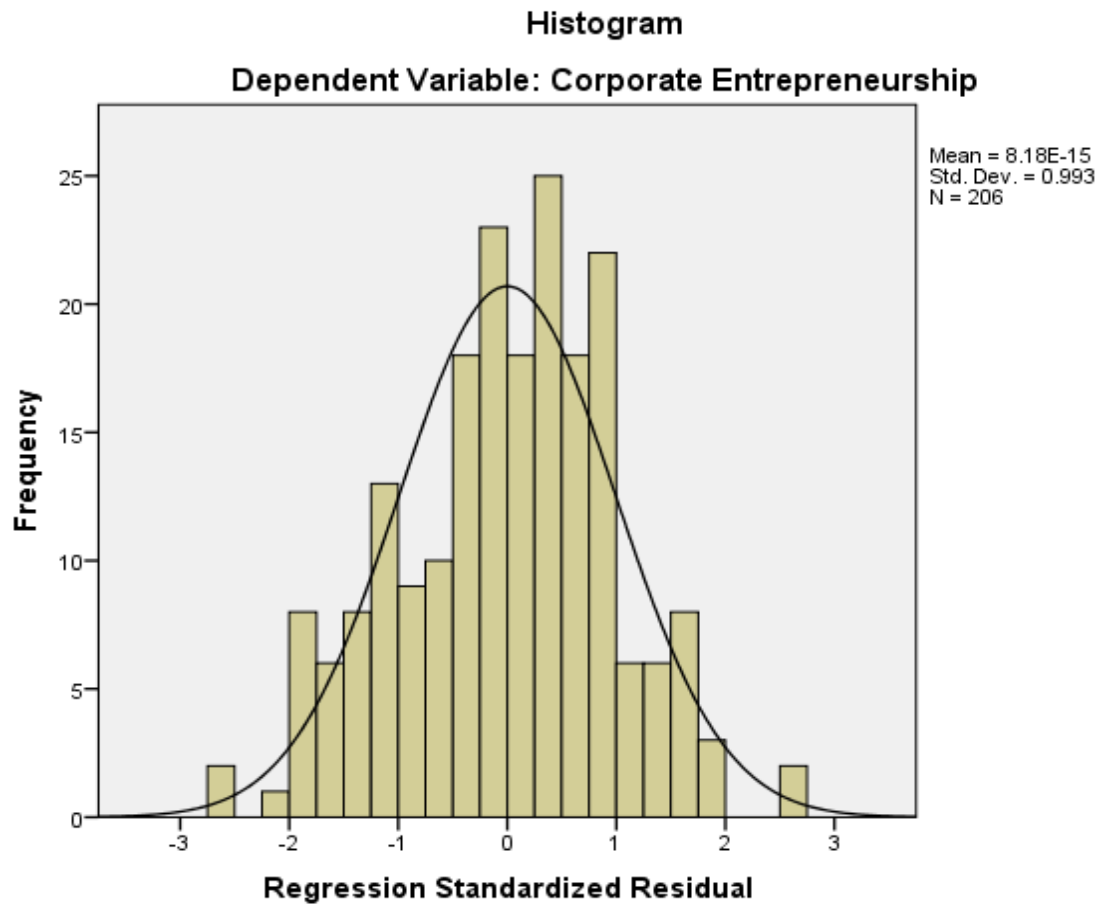
**Table 21** indicate that the  $T$ -statistic ( $t$ -value) for social capital = 3.586 and a  $p$ -value of 0.000, which is less than 0.05. Human capital = 4,365 and the  $p$ -value of 0.000, which is also less than 0.05. Therefore, we reject the  $H_0$ . This means that the independent variable (social and human capital) have a predictive ability for the dependent variable. Therefore, there is a significant

relationship between social capital and innovation. Economic capital's t-value = 1,749 with a p-value of 0,082. This is more than 0.05. Therefore, we fail to reject  $H_0$ . This means, there is a no significant relationship between economic capital and innovation. **Table 22** provides a summary of hypothesis below.

**Table 22: Summary of hypotheses**

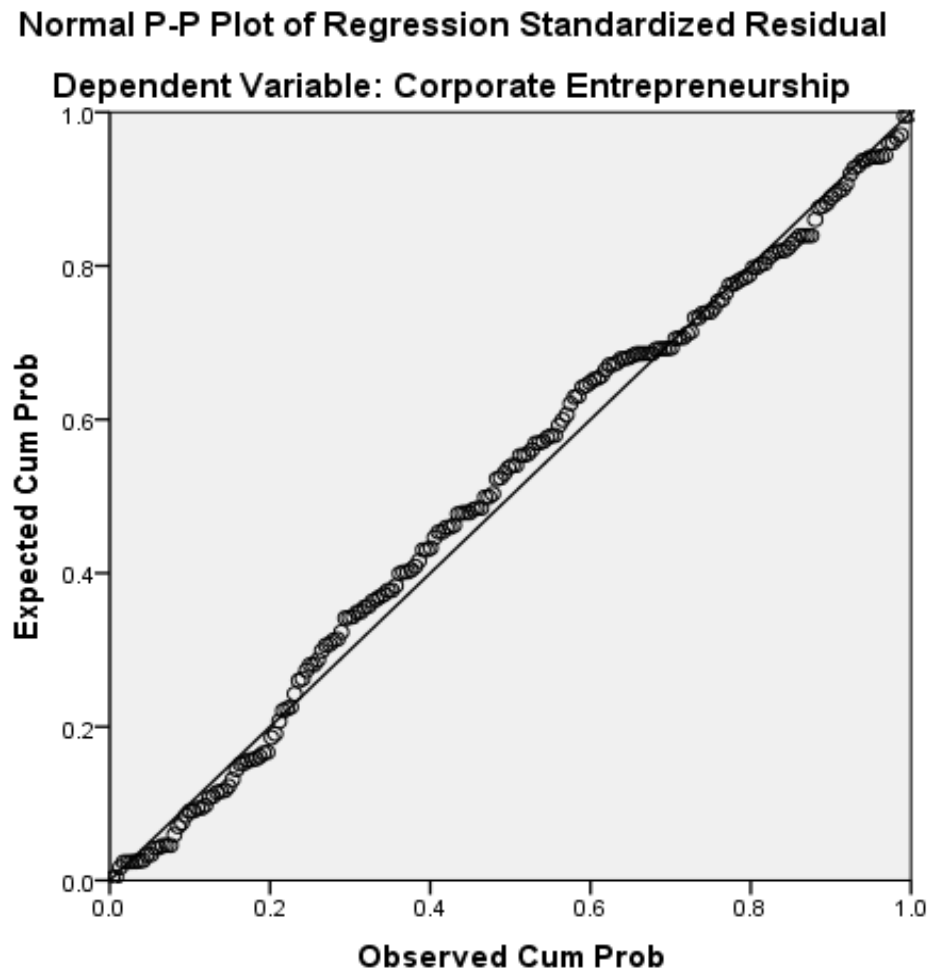
|                      |                     |                               | $\beta$ | T-value | T-value |                  |
|----------------------|---------------------|-------------------------------|---------|---------|---------|------------------|
| <b>H<sub>1</sub></b> | Forms of capital    | Corporate<br>Entrepreneurship | 0.211   | 3.233   | 0.000   | Supported        |
| <b>H<sub>2</sub></b> | Economic<br>capital | Innovation                    | 0.131   | 1.749   | 0.082   | Not<br>Supported |
| <b>H<sub>3</sub></b> | Human capital       | Pro-activeness                | 0.304   | 4.365   | 0.000   | Supported        |
| <b>H<sub>4</sub></b> | Human capital       | Innovation                    | 0.238   | 3.586   | 0.000   | Supported        |
| <b>H<sub>5</sub></b> | Social capital      | Risk taking                   | 0.234   | 3.572   | 0.000   | Supported        |

**Figure 15: Regression Standard Residual**



**Figure 15** shows a histogram of frequency for corporate entrepreneurship, the regression follows a normal distribution (a bell-shaped curve). Therefore, we assume normality.

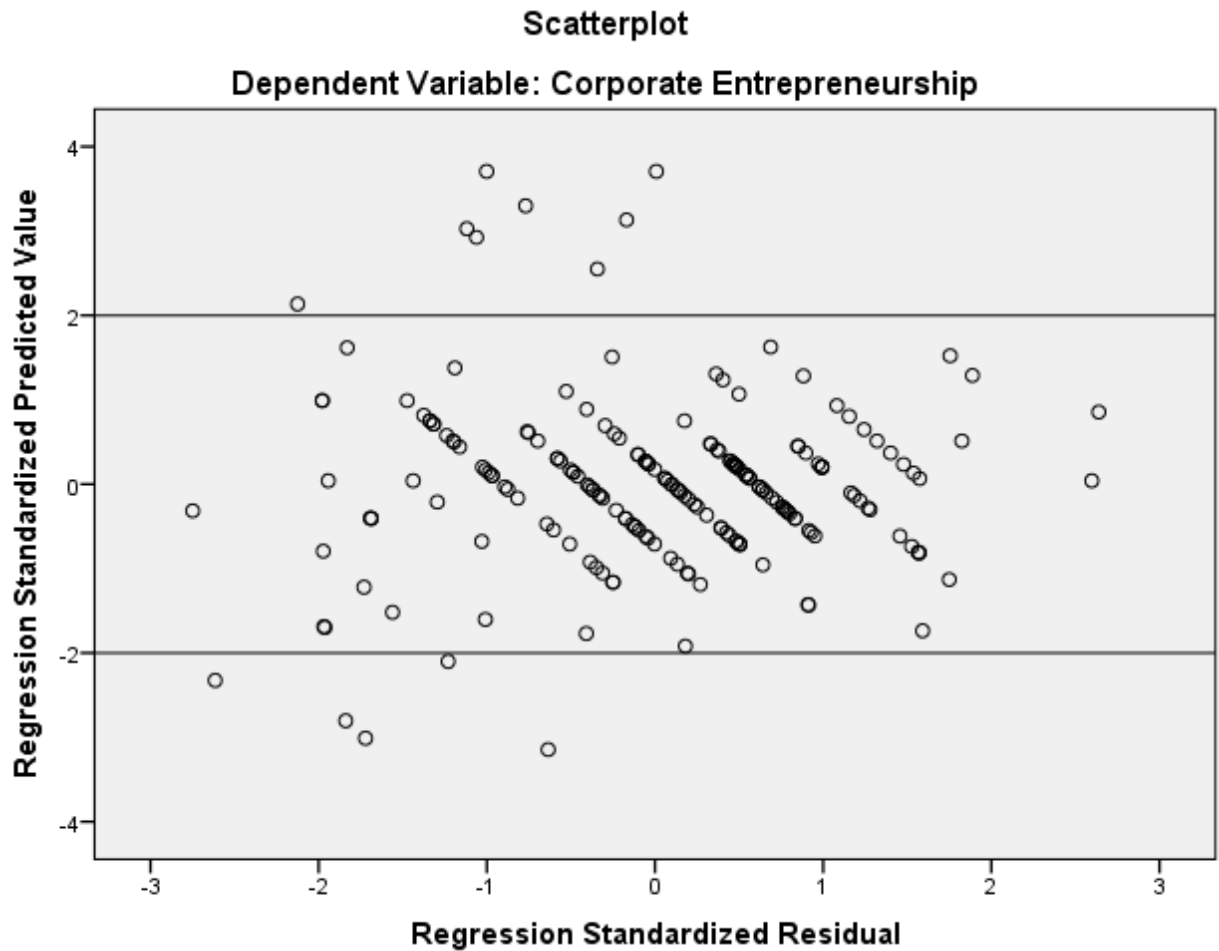
**Figure 16: Normal P-P Plot of Regression Standardised Residual**



**Figure 16** shows a normal probability plot for corporate entrepreneurship. The normal probability plot also shows up deviations from normality. The straight line in this plot represents a normal distribution, and the points represent the observed residual. Therefore, in a perfectly distributed data set, all points will lie on the line.



**Figure 17: Scatterplot for Corporate Entrepreneurship**



Apart from few outliers depicted on **Figure 17**, the residuals can be contained within the two lines. The points are randomly and evenly dispersed throughout the plot. This pattern is indicative of a situation in which the assumptions of linearity and homoscedasticity have been met.

Due to the outliers of the regression, the regression was rerun without the outliers to improve the fit of the model. Three other multiple linear regressions were conducted in other to see what would be the best method. The two regressions that were conducted are: stepwise method, and backwards elimination

#### 4.6.1 Stepwise Regression Analysis

Please refer to appendix G

Stepwise regression is a modification of the forward selection so that after each step in which a variable was added, forms of capital as variables in the model are checked to see if their significance has been reduced. If a non-significant variable is found, it is removed from the model. For instance, Economic capital on innovation was found to be non-significant and therefore removed. Stepwise selection methods are widely applied to identify variables for inclusion in regression models. However, one of the problems of stepwise selection is biased estimation of the regression coefficients (Miller, 2002).

**Table 23: Stepwise method**

| Variables Entered/Removed                         |                   |                   |   |
|---|-------------------|-------------------|---|
| Model   | Variables Entered | Variables Removed | Method  |
| 1   | Human capital     | .                 | Stepwise (Criteria: Probability-of-F-to-enter $\geq$ .050, Probability-of-F-to-remove $\geq$ .100). |
| 2   | Social Capital    | .                 | Stepwise (Criteria: Probability-of-F-to-enter $\geq$ .050, Probability-of-F-to-remove $\geq$ .100). |
| a. Dependent Variable: Corporate Entrepreneurship |                   |                   |   |

**Table 23**, informs us of the variables that were included in the model in each step. “Human capital” was the single best predictor (step 1), and “Social capital” was the next best predictor (added the most) and was included in the model (step 2).

**Table 24: Model Summary for Stepwise Method**

| Model   | R                 | R Square    | Adjusted R Square | Std. Error of the Estimate | Change Statistics |               |               |       |
|---|-------------------|-------------|-------------------|----------------------------|-------------------|---------------|---------------|-------|
|   |                   |             |                   |                            | R Square Change   | F Change      | Sig. F Change |       |
| 1   | .398 <sup>a</sup> | <b>.158</b> | <b>.154</b>       | .29                        | .158              | <b>38.398</b> | .000          |       |
| 2   | .486 <sup>b</sup> | <b>.236</b> | <b>.228</b>       | .28                        | .077              | <b>20.558</b> | .000          | 1.867 |
| a. Predictors: (Constant), Human capital;                 |                   |             |                   |                            |                   |               |               |       |
| b. Predictors: (Constant), Human capital, Social Capital; |                   |             |                   |                            |                   |               |               |       |
| c. Dependent Variable: Corporate Entrepreneurship         |                   |             |                   |                            |                   |               |               |       |

In **Table 24** with “Human capital” alone (step 1), 15.8 of the variances was accounted for. With both Human capital and Social capital 23.6% of the variance was accounted for. The adjusted  $R^2$  gives us some idea of how well our model generalizes and ideally we would like its values to be the same, or very close to, the value of  $R^2$ . In this model, the difference for the first model is smaller (in fact the difference is  $.158 - .154 = .004$ ) as compared to the second model. This shrinkage means that if the model were derived from the population rather than a sample it would account for approximately 0.4% less variance in the outcome.  $R^2$  in this model is 24% which is just on the margin for a good model.

**Table 25: The ANOVA test**

| Anova   |            |                |     |             |               |                   |
|---|------------|----------------|-----|-------------|---------------|-------------------|
| Model   |            | Sum of Squares | df  | Mean Square | F             | Sig.              |
| 1   | Regression | 3.408          | 1   | 3.408       | <b>38.398</b> | .000 <sup>b</sup> |
|   | Residual   | 18.107         | 204 | .089        |               |                   |
|   | Total      | 21.515         | 205 |             |               |                   |
| 2   | Regression | 5.073          | 2   | 2.537       | <b>31.319</b> | .000 <sup>c</sup> |
|   | Residual   | 16.442         | 203 | .081        |               |                   |
|   | Total      | 21.515         | 205 |             |               |                   |
| a. Dependent Variable: Corporate Entrepreneurship         |            |                |     |             |               |                   |
| b. Predictors: (Constant), Human capital                  |            |                |     |             |               |                   |
| c. Predictors: (Constant), Human capital , Social Capital |            |                |     |             |               |                   |

The ANOVA test indicates whether the model is significantly better at predicting the outcome than using the mean, dubbed a ‘best guess’ by (Field, 2011). First, we see that the F-test is statistically significant, which means that the model is statistically significant. F-ratio for the initial model is 38,398, which is significant ( $p < .001$ ). Therefore, we would reject the null hypothesis ( $H_0$ ): and decide to use the model. For the second model, F-ratio is 31.319, which is

also significant ( $p < 0.001$ ). The initial model significantly improved our ability to predict the outcome variable but the new model does not improve because it is less significant. This means approximately 39% of corporate entrepreneurship is explained by the regression model or about 39% of corporate entrepreneurship is explained by the predictor variables (economic, social and human capital).

**Table 26: The coefficients**

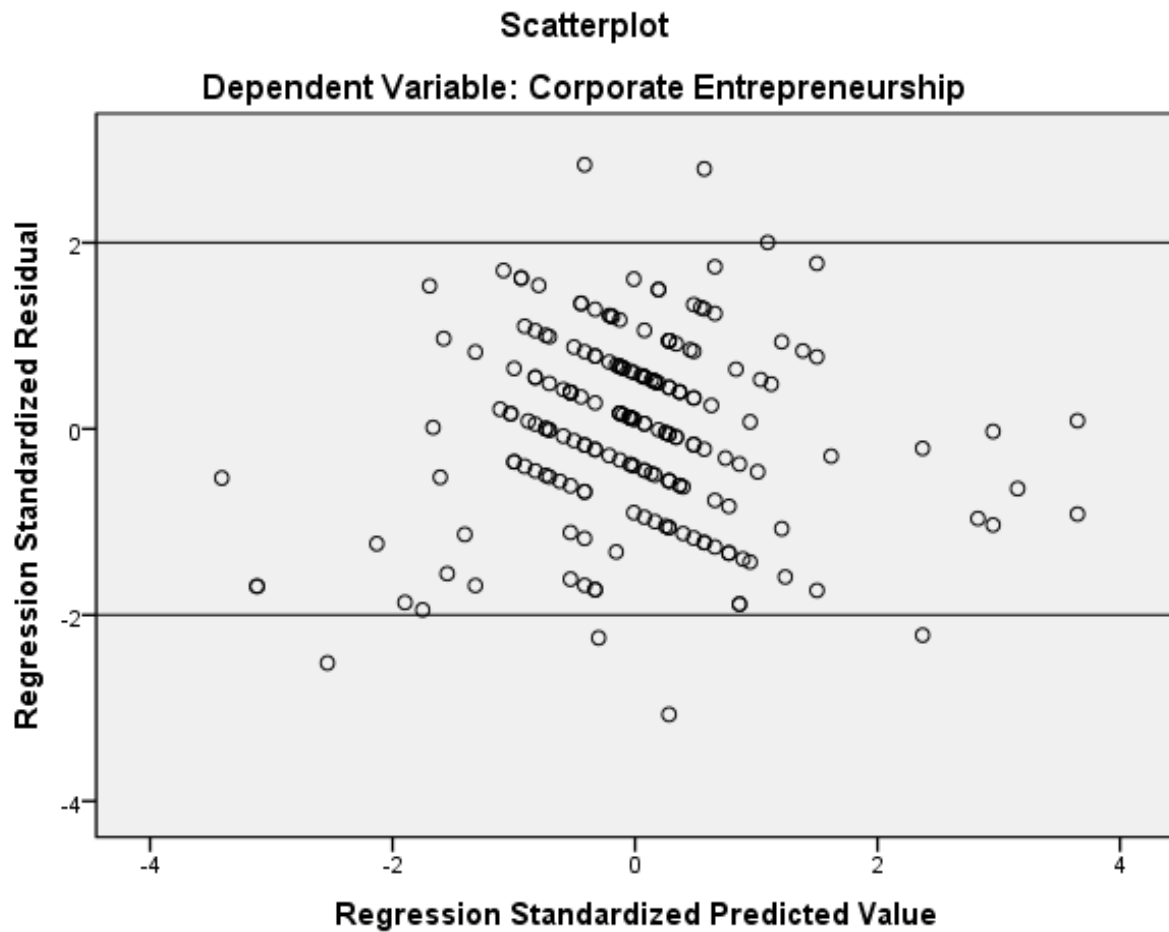
| Model   |                | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. | 95.0% Confidence Interval for B |             |
|---|----------------|-----------------------------|------------|---------------------------|-------|------|---------------------------------|-------------|
|   |                | B                           | Std. Error | Beta                      |       |      | Lower Bound                     | Upper Bound |
| 1   | (Constant)     | 2.072                       | .261       |                           | 7.930 | .000 | 1.557                           | 2.588       |
|   | Human capital  | .404                        | .065       | .398                      | 6.197 | .000 | .275                            | .532        |
| 2   | (Constant)     | 1.405                       | .290       |                           | 4.848 | .000 | .834                            | 1.976       |
|   | Human capital  | .366                        | .063       | .361                      | 5.824 | .000 | .242                            | .489        |
|   | Social Capital | .224                        | .049       | .281                      | 4.534 | .000 | .127                            | .321        |
| a. Dependent Variable: Corporate Entrepreneurship |                |                             |            |                           |       |      |                                 |             |

The following multiple linear regression equation was obtained utilising the stepwise method for the analysis of the corporate entrepreneurship as the dependent variable, the results of which are illustrated in the above table:

$$y = 1.405 + .336 (\text{Human capital } i) + .224 (\text{Social capital } i)$$

The b values tell us about the relationship between corporate entrepreneurship and each predictor. Because the value is positive we can indicate that there is a positive relationship between the predictor and the outcome. This means as human capital and social capital increase, innovation, pro-activeness and risk taking in SOEs will also increase. Therefore, there is a significant relationship between experienced employees and innovation. This basically indicates to what degree each predictor affects the outcome if the effects of all other predictors are held constant.

**Figure 17: Stepwise method Scatterplot for Corporate Entrepreneurship**



The points are similar to the first scatterplot although there are fewer outliers as compared to the first scatterplot. The points are still randomly dispersed throughout the plot. This pattern is indicative of a situation in which the assumptions of homoscedasticity have been.

#### 4.6.2 Backwards Stepwise Analysis

Please refer to appendix H

Backward stepwise selection involves starting off in a backward approach and then potentially adding back variables if they later appear to be significant. To avoid the problem of suppressor variables, the method of backward stepwise elimination was used, whereby variables were removed from the equation on the basis of having the least significant coefficient, until only significant variables remained in the equation.

**Table 27: Backward elimination method model summary**

| Model Summary   |                   |          |                   |                            |
|---|-------------------|----------|-------------------|----------------------------|
| Model   | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1   | .497 <sup>a</sup> | .247     | .236              | .28316                     |
| 2   | .000 <sup>b</sup> | .000     | .000              | .32399                     |
| a. Predictors: (Constant), Economic capital, Social Capital , Human capital |                   |          |                   |                            |
| b. Predictor: (constant)  |                   |          |                   |                            |

**Table 27** depicts results from the backwards model, the  $R^2$  for the first model yielded .247 and the second model .000, respectively. In this model, the difference between for the  $R^2$  and adjusted  $R^2$  is above 0.05 (in fact the difference is  $.247 - .236 = .011$ ), which is more than 0.05. This shows that by removing some variables, we can explain 25% in the corporate entrepreneurship.



**Table 28: Coefficients**

| Model   |                  | Unstandardized Coefficients |            | Standardized Coefficients | t       | Sig. | 95.0% Confidence Interval for B |             |
|---|------------------|-----------------------------|------------|---------------------------|---------|------|---------------------------------|-------------|
|   |                  | B                           | Std. Error | Beta                      |         |      | Lower Bound                     | Upper Bound |
| 1   | (Constant)       | 1.339                       | .291       |                           | 4.603   | .000 | .765                            | 1.912       |
|   | Social Capital   | .190                        | .053       | .238                      | 3.586   | .000 | .085                            | .294        |
|   | Human capital    | .308                        | .071       | .304                      | 4.365   | .000 | .169                            | .447        |
|   | Economic capital | .117                        | .067       | .131                      | 1.749   | .082 | -.015                           | .248        |
| 2   | (Constant)       | 3.687                       | .023       |                           | 163.328 | .000 | 3.642                           | 3.731       |
| a. Dependent Variable: Corporate Entrepreneurship |                  |                             |            |                           |         |      |                                 |             |

**Table 29: Excluded Variables**

| Model |                  | Beta In           | t     | Sig. | Partial Correlation | Collinearity Statistics |       |                   |
|-------|------------------|-------------------|-------|------|---------------------|-------------------------|-------|-------------------|
|       |                  |                   |       |      |                     | Tolerance               | VIF   | Minimum Tolerance |
| 2     | Social Capital   | .329 <sup>b</sup> | 4.973 | .000 | .329                | 1.000                   | 1.000 | 1.000             |
|       | Human capital    | .398 <sup>b</sup> | 6.197 | .000 | .398                | 1.000                   | 1.000 | 1.000             |
|       | Economic capital | .368 <sup>b</sup> | 5.646 | .000 | .368                | 1.000                   | 1.000 | 1.000             |

The researcher focuses on the p-value of the F-test to see if the overall model is significant. With a p-value of zero to three decimal places, the model is statistically significant. The t-test for Social, Human and Economic capital equals 3.586, 4.365 and 1.749, and are statistically significant, meaning that the regression coefficient is significantly different from zero.

#### **4.7 Conclusion**

This chapter presented results and concluded on the tested hypothesis. All five null hypotheses were rejected in favour of the alternative hypotheses. This supports the notion that total forms of entrepreneurial capital have an impact on corporate entrepreneurship in State Owned Enterprises. Through descriptive statistics, test results of the study were also outlined for demographics such as gender, race, and number of experience in the organisation, highest qualification and occupational level. A Factor Analysis test was performed containing a Principle Component Analysis to examine the correlation coefficients between variables. Multiple linear regression analysis was used in order to determine the most significant variables in the model. A discussion on these variables and the model, and how they relate to the stated hypotheses will be the next chapter.

## **Chapter 5: Analysis of the research findings**

### **5.1.Introduction**

In this chapter, a discussion of the results obtained from the statistical tests will be related to the stated hypotheses and literature presented in chapter two. This section also explores the findings implications.

### **5.2.Hypothesis testing**

#### **5.2.1 The results associated with the tested of the hypothesis**

The hypotheses proposed in literature review are reiterated here. The results of the testing of the hypotheses are reported in the following sections.

Through this dissertation, as set out to assess the impact of forms of entrepreneurial capital on corporate entrepreneurship in State Owned Enterprises, these hypotheses relate to the research question: “Do forms of capital have an impact on corporate entrepreneurship activities in State Owned Enterprise?” The multiple linear regression analysis was conducted with Corporate Entrepreneurship as the dependent variable, and with forms of capital as tested predictor variables. In terms of variables, there were three times the data points as there were variables run. Social, human and economic capital variables were tested as predictor variables in the following multiple linear regression analysis.

### **5.2.2 A discussion relating the tested hypotheses in with the literature review**

The researcher will now relate these individual variables to variables that were identified in the literature review in chapter two:

Strong support has been found as far as alternative Hypothesis 1 is concerned. With an exception of economic capital on innovation, the results showed that all forms of capital had a positive effect on most components of corporate entrepreneurship. Previous studies have suggested positive outcomes for innovation, risk taking and particularly human capital which were investigated for strategic renewal. Innovation reflects a firm's tendency to engage in, and support, new ideas, uniqueness, experimentation and creative processes that may result in new products, services, or technological processes. While employees/entrepreneurs may show high levels of human and social capital, and they are motivated to apply this in entrepreneurial activity, it is apparent that there are still factors that may influence, positively or negatively, the ability of the entrepreneur to identify and exploit opportunities (Shepherd et al., 2012). In their conceptual discussion, Volberda et al. (2001) suggested differentiated organisations might be facilitative to renewal, as changes can be confined to the unit involved instead of having effects for the whole organisation. In this way, this dissertation contributes to corporate entrepreneurship literatures by providing empirical support for previous notions of the positive effects of differentiated organisations on innovation (Brown & Eisenhardt, 1997), venturing (Gilbert, 2006), and strategic renewal (Volberda et al, 2001). Second, connectedness positively affected the relation between structural differentiation and innovation and venturing activities. Social capital provides the possibility to connect informally enabling managers/corporate entrepreneurs to overcome the boundaries of structurally differentiated units. This allows innovation and venture units to secure the necessary resources and support and transfer available knowledge.

It can be noted from the equation that human capital has the most significant relationship with corporate entrepreneurship. This is confirmed by Churchill and Lewis (1983), who argue that an established firm's levels of economic capital, human capital, and business resources can have a significant impact on the firm's survival and the growth of the firm. Human capital, despite being considered another dimension, is recognised by many authors as the organisation's most important intangible resource (Johnson 2005; Marr & Roost, 2005) by playing a fundamental role in firms in this new knowledge based economy. Therefore, the results indicate that **there is a significant relationship between total forms of capital and corporate entrepreneurship.**

Moving to another variable identified from the regression analysis, hypothesis two. Assuming a positive effect from total forms of capital on corporate entrepreneurship as per the outcome in hypothesis one, hypothesis two was deemed likely to have a positive effect as it is a dimension of total capital. However, this variable is Economic capital on innovation, with a p-value = 0.082 for coefficient analysis and the backwards elimination method yielding exactly the same p-value. This value is not significant ( $0.082 > 0.05$ ). This variable relates to innovation and financial resources in entrepreneurial activities. However, practical evidence suggests otherwise with the recent state of some State Owned Enterprise, economic capital is critical for the survival and growth of the business. According to these results, **there is no significant relationship between economic capital and innovation.** These results also maintain the profile of State Owned Enterprises (Table 2) provided in chapter two. The table reflects on how much economic capital SOEs receive from government and other financial institution to fund new venture initiatives. Recently a total R14.4 billion loan guarantee was granted to the South African Airways by government through the National Treasury (Business Day, 2015). Government also injected R10 billion to Eskom to upgrade its ageing infrastructure which is expected in June 2015. These

initiatives of government financially supporting SOEs are a confirmation of the first alternative hypotheses the research. For SOEs to contribute to the successful implementation of the National Development Plan, they must be financially sound and be properly governed and managed (Zuma, 2015)

From the literature review, Firkin (2001) found that economic capital plays an important role considering its important impact in corporate venturing and sometimes could lead to implications of closure of the business. Bourdieu (1986:252) also argued that “economic capital is at the root of all other types of capital and that it combined with other forms of capital to create and reproduce inequality”. Therefore, this suggests that SOEs could be unsustainable businesses due to the lack of economic capital. Due to the importance of economic capital, privatisation in South Africa’s state-owned enterprises is an open ended argument that has been raging since the 1990s. Currently, popular opinion goes against the privatisation of SOEs but the financial and managerial problems that have been experienced at South Africa’s major SOEs over recent years have led to passionate arguments both for and against the privatisation of these enterprises. According to a Presidential review commission report (2015), SOEs may be partially privatised, while defunct companies face closure. The findings of the report suggest that partial privatisation through the listing and sale of equity stakes. The reformation of South Africa’s SOEs follows mounting pressure from private sector business leaders who have been advocating for private-public partnerships in order to aid public entities in helping them run more efficiently and profitably and to prevent further ratings downgrades.

The literature presented in chapter two considered the nature or the quality of the company's workforce by means of employee human capital. Of all the managerial processes that can affect the pursuit of corporate entrepreneurial outcomes, human capital is considered as one of the more vital (Morris & Jones, 1993).

Greater support was established for the alternative hypothesis three. A growing number of entrepreneurs and managers recognises the importance of human capital for developing the business. After all, firms increasingly profess that people are the source of their competitive advantage (Katz, 2000). Effective management of the human capital can spell success or failure of all firms, but especially of the entrepreneurial ones (Katz, 2000). As such, the natures of the human capital as well as management practices developing it are likely to be conducive to corporate entrepreneurial activity, including innovation. Human capital theory maintained that knowledge provides individuals with cognitive abilities, leading to more productive and efficient entrepreneurial activities (Mincer, 1974). This view supports that **there is a significant relationship between human capital and pro-activeness**. Pro-activeness is an opportunity-seeking, forward-looking perspective characterised by the introduction of new products and services ahead of the competitors and acting in anticipation of future. Pro-activeness and efficiently used knowledge is not only an important intellectual asset, but also a useful tool for organisations to effectively compete in the increased levels of market competition (Carneiro, 2000; Alavi & Leidner, 2001). What this means is that the experience and skills of the employees in SOEs remain critical in growing the organisation. According to Drucker (1995:271), "knowledge has become the key economic resource and the dominant-and perhaps even the only-source of comparative advantage".

De Clerq et al., (2014) argued that employee's perceptions of the organisation's support for entrepreneurial activity and the individual's perception of working conditions in the organisation drive their motivational levels to act in an innovative and entrepreneurial manner. Organisational factors influence the entrepreneurial behaviour of the employee, and therefore affect the way in which the employee acts out the innovation, proactivity and risk taking elements that may define the corporate entrepreneurial process (De Jong, Parker, Wennekers & Wu, 2015). Notwithstanding the fact that an entrepreneur may have strong levels of human and social capital, the influence of competition must be acknowledged as an influencing factor in determining entrepreneurial opportunities and resultant entrepreneurial activity (Plummer & Acs, 2014). Competition increases levels of knowledge and knowledge-driven entrepreneurial activity (Plummer & Acs, 2014). On the contrary, competition, and particularly localised competition reduced the share of opportunities that entrepreneurs are able to exploit (Plummer & Acs, 2014).

Hypothesis four, which has a direct element of hypothesis three also supports the alternative hypothesis. A group of authors that identified human capital as one of the key drivers on corporate entrepreneurship was Davidsson and Honig (2003). Experienced employees who have specific and industry human capital and engage in entrepreneurial process as part of their employment role have superior ability in recognising and successfully exploiting opportunities (Davidsson & Honig, 2003). According to Alpkan, Bulut, Gunday, Ulusoy and Kilic (2010) human capital is an important driver of innovative performance especially when there is organised support. Individual employees differ in the extent and nature of human and social capital that each possesses (Grichnick, Brinkmann, Singh and Manigart, 2014). The human capital of each employee is made up of their education, business training and business



experience (Grichnick, et al, 2014). The ability of each employee to identify and implement entrepreneurial opportunities is dependent on the levels of human capital. Even though some individual may have strong and relevant human and social capital, the employee must still be motivated to utilise their human and social capital to the benefit of the company's entrepreneurial strategy. Furthermore, corporate entrepreneurship in general and innovation in particular are often considered as a most suitable tool for this purpose, as innovation embodies the entrepreneurial spirit and stimulates the growth, development and performance capabilities of new firms (Baldwin & Gellatly, 2003; Drucker, 1985; Hsueh & Tu, 2004). Based on these views and the results, **there is a significant relationship between human capital and innovation.**

Hypothesis five, which was the last variable that was identified in the regression analysis, was Social capital. There is some support found in favor of the alternative hypothesis. This variable for hypothesis five is social capital, with a p-value = 0.000 for coefficient analysis. The value is significant ( $0.000 < 0.05$ ). It can also be noted from the equation that social capital appeared to be a significant relationship with corporate entrepreneurship with  $\beta$  value of positive 190. This states that **there is a significant relationship between social capital and risk taking.** Fiol (1995) argued that it is the access to a diverse set of firm resources that significantly enhances corporate entrepreneurship activities, which points to the importance of social capital at multiple levels within the organisations in pursuing corporate entrepreneurship (Gilbert, 2006; Tushman and O'Reilly, 1996; Westerman et al., 2006). However, in particular at top management team level such integration mechanisms have also been associated with inertia and rigid management logics (Burgelman, 2002; Tripsas & Gavetti, 2000). There is still a lack of theoretical understanding and empirical evidence on how informal integration across structurally differentiated units impact corporate entrepreneurship activities and whether these effects differ

for innovation, venturing and strategic renewal as three distinct components of corporate entrepreneurship. Social capital can facilitate and coordinate actions of corporate entrepreneurs to ensure that they achieve desired goals (Ebrahim, 2004). Many researchers refer to networks as an important source of social capital. This view of social capital is influenced by network theorists (Lesser, 2000). The development of social capital within organisations across industry is necessary for the creation of intellectual capital and hence innovation that will continue to growth business. Nahapiet and Ghoshal (1998) argue that innovation is the product of collective problem-solving leading to the development of new ideas.

Of course, social capital is not the cure-all for many of the State Owned Enterprises. Likewise, for private organisations, it is not the only key to organisational success. Some organisations succeed despite the negative effects of low social capital because organisations are complicated and operate in complicated environments (Cohen & Prusak, 2001). Substantial literature on Social capital demonstrates that where relationships are high in trust, people are more willing to engage in social exchange and cooperative interaction. Trust has been at the center of theorizing about cooperative and productive interaction within organisations (Cohen & Prusak, 2001).

Established companies have an edge in innovation and fostering entrepreneurial behaviour, because they can afford engineers, staff (Human capital), modern facilities and the latest technology equipment (Barrett & Weinstein 1998; Morris et al 2008). Therefore, access to Economic capital offers firms the flexibility to invest in research and development and to become more innovative (Clark 2010). The availability of such forms of capital tends to trigger corporate entrepreneurship. Corporate entrepreneurship dimensions, such as innovation, risk taking and pro-activeness, have a positive influence on the company's growth prospects. Corporate entrepreneurship is the main driver of innovation, risk taking and pro-activeness and

can be triggered by different activities and actions within, and outside, the organisation (Miller 1983; Dess et al. 1999). Innovation was found to be significantly important for the organisation to act entrepreneurially and to improve its performance.

Innovation is imperative as part of corporate entrepreneurship and is pertinent in South Africa, especially in State Owned Enterprises. Corporate Entrepreneurship activities embody risk taking, pro-activeness and radical product innovations. Entrepreneurial behaviour tends to be associated with higher growth and this behaviour is a result of innovation, risk taking and pro-activeness (Moreno and Casillas 2008).

Informal integration mechanisms related to social capital and corporate entrepreneurship provide important new insights into how firms could manage their corporate entrepreneurship activities. The research findings reinforced the importance of structurally differentiating entrepreneurial from mainstream businesses when engaging in corporate entrepreneurship activities. The dissertation extended by providing new insights regarding how this effect is strongly positively moderated by connectedness on an organisational level. Moreover, the research showed that the effects for the three components of corporate entrepreneurship: innovation, venturing, and strategic renewal were significantly different.

### **5.3 Conclusion**

This chapter presented a discussion on the key empirical findings of the research. The results of the statistical testing of the hypotheses were reported according to tests undertaken. The findings were incorporated with literature to identify the link between the empirical findings and the literature. Four linear regressions analyses were calculated and analysed to assess the impact of forms of capital on corporate entrepreneurship in state-owned enterprises. The above analyses show that the following relationships were significant: the relationship between total forms of capital and corporate entrepreneurship, economic capital and innovation, human capital and innovation, human capital and pro-activeness and the relationship between social capital and risk taking.

From the conclusive tests the researcher can now answer the research question: “Do forms of capital have an impact on corporate entrepreneurship activities in State Owned Enterprise?” The answer is: yes, forms of capital have a significant impact on corporate entrepreneurship activities in State Owned Enterprises. This means that corporate entrepreneurs can effectively use economic, human and social capital in executing entrepreneurial activities.

The next chapter, chapter six will include a summary of the research and the research findings. Chapter six will give a list of implications which were discovered through this research and the chapter will also list the limitations of the research and recommendations for future research endeavors. Lastly, this chapter will give the final conclusion of the research.

## **Chapter 6: Conclusion and recommendations**

### **6.1 Introduction**

This chapter will provide a summary of the main findings of the research which were broadly discussed in chapters four and five, as well as limitations of this research. The chapter will also discuss possibilities for future research and this will be followed by implications for theory, policy, practice and further research that emerged from corporate entrepreneurs in State Owned Enterprises. Finally, this chapter describes limitations of the study and makes a conclusion of the entire study.

### **6.2.Overview of the literature review**

The study was undertaken with the underlying objective to address the question of “*what impact do forms of capital have on corporate entrepreneurship in SOEs*”. This objective was achieved through:

- 1) Examining the impact of economic capital through government funding or financial institutions on corporate entrepreneurship. The holistic financial data on SOEs was quite sensitive to obtain due to ethical processes. However, table two in chapter two provides some insight on the financial outlook of different SOEs in the past three years.
- 2) Assessing the impact made by human capital on new innovation and its contribution to pro-activeness on production processes. It was discovered that the lack of adequate human capital may have a positive effect on the rest of the activities that create value for the firm (Edvinsson & Malone, 1999). This study considered the nature or the quality of the company’s workforce by means of employee human capital. Of all the managerial

processes that can affect the pursuit of corporate entrepreneurial outcomes, human capital is considered as one of the more vital (Morris & Jones, 1993). The technological advances experienced both by firms and by society in general have meant that the required worker profile is increasingly one with the competencies, attitudes and intellectual ability that permit critical and systematic thinking within the changing and uncertain environment that he/she must confront (Bontis, 2002). Therefore, human capital is considered the potential source of innovation and generation of ideas for the firm, thus providing added value of unquestionable importance (Viedma & Martí 2001; Bontis 1998).

- 3) Determining if social capital has a significant impact on risk taking into new industries or markets. Fiol (1995) argued that it is the access to a diverse set of firm resources that significantly enhances corporate entrepreneurship activities, which points to the importance of social capital at multiple levels within the organizations in pursuing corporate entrepreneurship (Gilbert, 2006; Tushman and O'Reilly, 1996; Westerman et al., 2006). The study contained reliable constructs on forms of capital to measure its impact on corporate entrepreneurship in state owned enterprises as indicated by the Cronbach's alpha's scores.

The nature of exploratory research is intended on that the study should not be confined by specific characteristics; instead the direction of the study should be guided by existing literature and situational factors of the context that the study is being conducted in.

### **6.3. Summary of the empirical findings**

This research had five other objectives which included assessing the impact of economic, human and social capital on corporate entrepreneurship on state owned enterprise.

The first finding was that total forms of capital will positively influence corporate entrepreneurial activities in state owned enterprises. Essentially what this means is that, if all human, economic and social capital is used effectively and efficiently by established organisations, they could effectively achieve executing entrepreneurial activities. However, it should be noted that entrepreneurial activities do not solely depend on forms of capital.

The second finding was that the use of economic capital is significant and will positively influence new venture creation for state owned enterprises. What this means is that, any form of capital that is directly convertible to money is important in setting up new ventures. However, capital can be regarded as economic capital if it is invested in some activity that produces returns. Economic capital also provides organisational financial slack, facilitating necessary changes in response to changing conditions and increasing the willingness of the firm to innovate and change (Castrogiovanni, 1996; Zahra, 1991). Hence, the access to more economic capital at corporate venturing should have positive implications.

The third finding was that human capital (knowledge in particular) is perceived to be important in creating innovative ideas for the business. In essence, what this means is that, when creating innovative ideas for the business the knowledge of corporate entrepreneurs in that industry is primarily important. Human capital aspects of the entrepreneurial team in the restricted sense have an effect on employee human capital. More precisely, the entrepreneurial team's education level has a strong and positive influence on the nature of employee human capital. Consequently,

this aspect of the entrepreneurial team's human capital follows what hypothesis four has put forward. Effective management of the human capital can spell success or failure of all firms, but especially of the entrepreneurial ones (Katz, 2000). As such, the natures of the human capital as well as management practices developing it are likely to be conducive to corporate entrepreneurial activity, including innovation. This view is supported by the human capital theory which maintains that knowledge provides individuals with cognitive abilities, leading to more productive and efficient potential activity (Mincer, 1974). The concept of human capital pertains to the individual's knowledge, skills and abilities that allow for change in action and economic growth (Coleman, 1988).

The fourth finding was that experienced employees with high levels of human capital make significant contributions to company innovations. What this means is that, experienced employees who have been in the company or industry could make significant contributions on corporate entrepreneurship activities. Several researchers have examined the role of industry and specific experience economic growth and performance of entrepreneurial ventures (Siegel, 1993, Kenney & von Burg, 1999). These researchers suggest that industry or specific human capital may play an important role in the generation of innovative activity within an industry if it is characterised by high quality knowledge exchange among the main players within that industry.

The final finding was that there is a significant relationship between social capital and corporate venturing in state owned enterprises. Social capital provides the possibility to connect informally enabling managers/corporate entrepreneurs to overcome the boundaries of structurally differentiated units. This allows innovation and venture units to secure the necessary resources and support and transfer available knowledge. Moreover, connecting the isolated pockets of knowledge in the organizations unleashes the creative potential of organizations, leading to



increased venturing and innovation (Fiol, 1995). Previous studies focused on external social capital (Yiu & Lau, 2008), but it may be the internal social capital that holds the competitive advantage for innovations and ventures (Chesbrough, 2000). It seems that differentiation enriches the diversity and richness of social capital, while connectedness enables the access to the body of knowledge and resources. These findings are also supported by the work done by Davidsson and Honig (2002:309) who claimed that “social capital may also assist with the entrepreneurial exploitation process, by providing and diffusing critical information and other essential resources”. Furthermore, Coleman (1988) argues that the central proposition of social capital literature is that networks of relationships constitute to resources that could be used for good of the collective. What this means is that networks can provide access to new industries.

In summary, all the forms of capital constructs have demonstrated significant relationships with corporate entrepreneurship in the context of State Owned Enterprises. The following table presents a summary for the research hypothesis.

**Table 30: Summary of the empirical findings**

| Hypothesis.  | Hypothesis tested  | Outcome      |
|--------------|--|--------------|
| Hypothesis 1 | (H <sub>0</sub> ): There is no significant relationship between total forms of capital and corporate entrepreneurship. |              |
|              | (H <sub>a</sub> ): There is significant relationship between total forms of capital and corporate entrepreneurship.    | Accepted     |
| Hypothesis 2 | (H <sub>0</sub> ): There is no significant relationship between economic capital and innovation.                       |              |
|              | (H <sub>a</sub> ): There is a significant relationship between economic capital and innovation.                        | Not accepted |
| Hypothesis 3 | (H <sub>0</sub> ): There is no significant relationship human capital and innovation.                                  |              |
|              | (H <sub>a</sub> ): There is a significant relationship between human capital and innovation.                           | Accepted     |
| Hypothesis 4 | (H <sub>0</sub> ): There is no significant relationship between human capital and pro-activeness.                      |              |
|              | (H <sub>a</sub> ): There is a significant relationship between human capital and pro-activeness.                       | Accepted     |
| Hypothesis 5 | (H <sub>0</sub> ): There is no significant relationship between social capital and risk taking.                        |              |
|              | (H <sub>a</sub> ): There is a significant relationship between social capital and risk taking.                         | Accepted     |

*Source: Developed for this dissertation (2015)*

In order to test these hypotheses, the researcher identified three independent variables (economic, human and social capital) and thereafter derived five hypotheses. All variables were identified from the regression to be significant effect at 0.05 significance levels on the dependent variable, (i.e. corporate entrepreneurship).

#### **6.4. Implications of the research findings**

This research provides various implications for research into entrepreneurship and particularly entrepreneurship in the public sector. The substance of these implications arises as this research investigates the previously untrammelled research focus of entrepreneurship in state owned enterprises and adopts an untested “mix and match” methodology to study public sector entrepreneurship. This research, unlike previously reported research, studied public sector entrepreneurship focusing on the impact of forms of capital. A number of implications on findings with respect to assessing the impact of forms of capital on corporate entrepreneurship in South African SOEs have been noted thought-out this study. In this section, implications derived from the research findings are considered in terms of being issues suggested for further research.

From the model tested as a whole and its relation to the established literature review, it can be concluded that the creation of a model on effective use forms of capital can influence corporate entrepreneurship activities in State Owned Enterprises. However, the model cannot be structured as not all employees would possess the same level of forms of capital, for instance, social capital. The literature supports this analogy in a study conducted by Russell et al (1995) that a complete model of corporate entrepreneurship must provide an explanation of how a flow of creative ideas are produced and how innovation-supporting behaviour becomes part of the development process in entrepreneurial organisations.

The results of the first hypothesis which measured the relationship between total forms of capital and corporate entrepreneurship indicated to be positive. Therefore, the main implication for corporate entrepreneurs if they decide to incorporate any of the forms of capital in their method for entrepreneurial activities would be to influence positive outcomes in organisational goals in growing the business. Based on activities classified as entrepreneurial, innovation was a central

theme; creating new and unique products, services and markets. Economic capital will facilitate necessary changes in response to changing conditions and increasing the willingness of the firm to innovate and change (Castrogiovanni, 1996; Zahra, 1991). Thus, the access to more economic capital at corporate venturing should have positive implications

A number of interesting insights have emerged on the public sector entrepreneurship context on this study, including issues relating to operating environments and the pronounced reforms set out to govern SOEs. One notable view is that the adoption of a corporate entrepreneurship model that can be applied to the public sector organisation has a number of benefits over more traditional entrepreneurship models and theories that focus on organisations in the private sector. Recently, two of South Africa's SOEs that participated on this study were facing financial crisis and used economic capital and human capital to restructure the business and stay competitive in the market. Economic capital is probably the most tangible form of capital, acting as a buffer and giving greater freedom in exploring different strategies that could ultimately lead towards gaining access to new markets and growing the business. Moreover, Economic capital provides a buffer against unforeseen difficulties which may arise from environmental changes, poor management etc. Human capital contains knowledge that could lead to higher productivity and access to network resources due to the general background of the employees.

The implications of privatisation of some SOE could lead to government listing on the Johannesburg Stock Exchange (JES) while astutely preserving government control and maximising investor participation.

### **6.5. Limitations of the study**

The study encountered several minor limitations; the recognition of these should help to refine future research efforts. Firstly, forms of capital as a concept appeared not to be a prominent one for some employees in SOEs. Therefore, an explanation was required during the data collection stage.

Economic capital on corporate entrepreneurship is an under-research topic. Furthermore, it was somewhat difficult to including direct question related to funding of the SOEs. However, financial records of companies are readily available as this is public information such as newspaper and on the internet.

The questions relating to corporate entrepreneurship were modified to link forms of capital. However, most of these questions were not reliable as indicated by the Cronbach's alpha. As further research continues in this area, the instruments may be expended and modified.

As the nature of the sample was senior management in SOEs, initially it was problematic to gain access and questionnaires filled in a short period of time. Therefore, to increase of response rate, the researcher was required to extend the data collection period.

It was noted that the public sector entrepreneurship is currently undergoing rapid changes. The data upon which this dissertation is based was gathered between September and November 2014. Therefore, any changes to the sector or literature relevant to matters affected by changes which occurred or were published after that date are not taken into account.

## **6.6 Recommendations for future research**

Future corporate entrepreneurship research should distinguish between innovation, venturing and renewal and investigate whether these differences also apply to other antecedents and outcomes of corporate entrepreneurship, as this is a highly relevant but under-researched topic.

Economic capital literature appeared to be limited particularly in the context of established companies. Therefore, it could be recommended that future studies make a contribution economic capital literature or explore other sources of previous research.

Future research that could be established from findings on human capital would be to explore innovation as a corporate entrepreneurial outcome on SOEs Employees in state owned enterprises that have a high level of human capital might be able to increase the level of innovations and well-thought strategies of revitalising the organisation as their skills seem to be more important. An important feature of innovation is leveraging from the business core skills and resources. Ireland (2003) defined innovation as applied creativity. Therefore, this signals that businesses will need employees who are able to think ahead.

From the social capital impact on corporate entrepreneurship research, it can be recommended that future research explores the notion of elements of social capital such as trust, playing an important role in strategic renewal. Substantial literature demonstrates that where relationships have a greater level of trust, people are more willing to engage in exchange of profitable information and cooperative interaction. Notwithstanding this recognition on a theoretical level, most empirical research of social capital on corporate entrepreneurship seems to have been concentrating on larger corporations, leading to an empirical research gap on small companies.

## **6.7 Policy recommendations**

The findings of the dissertation suggest that economic, human and social capital has a positive impact on corporate entrepreneurship activities. Therefore, it could be recommended that policy makers should influence policies to provide increasing mechanisms to SOEs' management to acquire economic capital when it is necessary. Partial privatisation could be the only route to make these entities more efficient and not a drain on state resources. This suggests that policy should play a supporting role in increasing the ability to acquire financial assistance from government or any financial institution. According to the Department of Public Enterprise (2012), change in the way capital is allocated to SOEs has been considered to be an important factor in the development of a more comprehensive national mandate. The report further mentions that two of the practices that are under evaluation include the guarantee mechanism that is currently used by government to supply SOEs loans and the regulatory imposition of pricing constraints which restricts the profitability of operations thereby capping an SOE's ability to fund infrastructure expansion programmes.

The findings of the study support that human capital is vital for the growth of SOEs' and their ability to meet developmental goals. According to the DPE Strategic Plan 2009 –2012, what is of the utmost importance is that policy and regulation be brought up to date on skills development programmes.

## **6.8 Conclusion**

This dissertation constitutes one of the steps towards a better understanding of the importance of forms of entrepreneurial capital on Corporate Entrepreneurship in South African State-Owned

Enterprises. To achieve this objective, the dissertation focused on three forms of capital (1) Economic capital, (2) Human capital, (3) and Social capital. Each form of capital is critical and has been discussed in the literature in order to orientate its utility in relation to entrepreneurship.

The dissertation contributes to the understanding of the role of social capital in corporate entrepreneurship by showing how linking mechanisms can provide access to social capital in structurally differentiated organisations to enhance corporate entrepreneurship activities. Chapter two presented literature on three components Corporate Entrepreneurship; forms of capital and a brief background on South Africa's SOEs. The results reveal that forms of capital have a significant impact on corporate entrepreneurship in SOEs. One of the principal conclusions reached in this study, is the importance of Human capital and Social capital for the survival of SOEs. Individual employees differ in the extent and nature of human and social capital that each possesses (Grichnick, Brinkmann, Singh and Manigart, 2014). The human capital of each employee is made up of their education, business training and business experience, while their social capital relates to their personal networks (Grichnick, et al, 2014). The ability of each employee to identify and implement entrepreneurial opportunities is dependent on the levels of human and social capital. However, even though the individual may have strong and relevant human and social capital levels, the employee must still be motivated to utilise their human and social capital to the benefit of the company's entrepreneurial strategy. The forms of capital are significant given their relevance in executing entrepreneurial activities. This research included an empirical quantitative research study on three major SOEs. This study made a contribution to the public enterprise policies and development plans in SOEs. Furthermore, the study provided insight on whether forms of capital are a key aspect in revitalising large corporations' ability to



innovate and compete effectively. In conclusion, it can be said that given the lack of popularity of using forms of capital especially in corporate entrepreneurship, the issues of using such resources should receive more attention from both business practitioners and corporate entrepreneurship researchers in the future.

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## Appendix A



Research Office

**HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)**  
R14/49 Mpanza

**CLEARANCE CERTIFICATE**

**PROTOCOL NUMBER H14/11/01**

**PROJECT TITLE**

Assessing the impact of forms of capital on corporate entrepreneurship on State Owned Enterprises

**INVESTIGATOR(S)**

Ms P Mpanza

**SCHOOL/DEPARTMENT**

Economic & Business Sciences

**DATE CONSIDERED**

21 November 2014

**DECISION OF THE COMMITTEE**

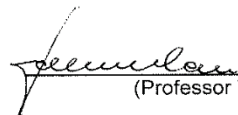
Approved Unconditionally

**EXPIRY DATE**

09/12/2016

**DATE** 10/12/2014

**CHAIRPERSON**

  
(Professor T Milani)

cc: Supervisor : Dr R Venter

**DECLARATION OF INVESTIGATOR(S)**

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10000, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

## Appendix B



School of Economic and Business Sciences

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### **Assessing the impact of forms of capital on corporate entrepreneurship in state-owned enterprises**

Dear Sir/Madam

My name is Phelelani Mpanza, I am a masters of commence candidate at the School of Economic and Business Sciences, University of the Witwatersrand, Johannesburg. The title of my master's research is: **Assessing the impact of forms of capital on corporate entrepreneurship in state-owned enterprises**. Specifically, I am interested in understanding the role of form of capital (Economic, Human and Social capital) has on growing state-owned enterprises.

As an executive/manager/employee in a State-Owned Enterprise, you are cordially invited to take part in this study. The purpose of this study is to assess the extent to which different forms of capital have on Corporate Entrepreneurship in State-Owned Enterprises.

Your response is significant and there is no right or wrong answer. This survey is both confidential and anonymous. Anonymity and confidentiality are guaranteed by not entering your

name or your company's name on the questionnaire and by destroying the questionnaire after the survey is completed and after the University requirements have been met. Please note that your participation is completely voluntary and involves no risk, penalty, or loss of benefits whether or not you participate. You may withdraw from the survey at any stage.

The first part of the survey comprises of 6 demographics questions. The second part comprises of 32 business related questions. These questions relate to how the three forms of capital impact Corporate Entrepreneurship in State-Owned Enterprises. Please indicate the extent to which you strongly agree or strongly disagree with each question, by tick in the appropriate column. The entire survey should take less than 10 minutes to complete.

Thank you for considering to participating. Should you have any questions, or wish to obtain a copy of the results of the research project, please feel free to contact me on 0793185604 or email me on [phelelani.mpanza@gmail.com](mailto:phelelani.mpanza@gmail.com)

Sincerely,  
Phelelani Mpanza

Masters Candidate  
School of Economic and Business Sciences

## CONSENT TO PARTICIPATE FOR MASTERS RESEARCH

*Please read the following, and sign in the space below should you agree to complete the questionnaire. If you have any questions relating to the consent form, please contact the principal researcher - phelelani.mpanza@gmail.com 079 3185 604.*

I have read and understand the contents of the participant information sheet attached to the questionnaire, a copy of which I have received for my own records. I have been encouraged to ask questions and all of my questions have been answered to my satisfaction. By signing this form:

- I agree voluntarily to participate in this study.
- I understand that my responses will be treated as anonymous and confidential at all times and that this signed consent form will be kept separate from the questionnaire I complete.
- I know that I can withdraw from the study at any time.

---

Signature of participant

---

Date

---

Signature of Researcher

---

Date

### How to complete the questionnaire

Some questions seek responses by requesting that you mark a box to indicate a “yes or no” response. Other questions seek for your opinion or request that you mark a box indicating the answer which best reflects your view. You are asked to mark a cross (X) in the box marked from strongly agree to strongly disagree which best reflects your response to the question. For instance, if the question is:

| Question  | Strongly<br>Agree | Agree | Not sure | disagree | Strongly<br>disagree |
|---|-------------------|-------|----------|----------|----------------------|
| Experience is important to foster corporate entrepreneurship. |                   |       |          |          |                      |

Would you please place a cross in box “strongly agree” if it does have impact on your organisation at all? You would cross box “strongly disagree” if it does not have significant impact upon your organisation. The boxes between strongly agree to strongly disagree gives you an opportunity to make your response at an intermediate level.

**Please return the questionnaire after a month from the day you received it**

### Demographics section

|           |      |        |
|-----------|------|--------|
| 1. Gender | Male | Female |
|           |      |        |

|         |         |       |        |         |
|---------|---------|-------|--------|---------|
| 2. Race | African | White | Indian | Colored |
|         |         |       |        |         |

|   |     |     |     |            |
|---|-----|-----|-----|------------|
| 3. How long have you been in your current organisation? | 0-3 | 4-6 | 7-9 | 10 or more |
|   |     |     |     |            |

|   |            |                |          |                |
|---|------------|----------------|----------|----------------|
| 4. How would you best describe your function in your organisation | Operations | Administration | Strategy | Other, specify |
|   |            |                |          |                |

5. What your highest qualification obtained

|  |  |
|--|--|
| <b>School leaving certificate (Grade 12)</b> |  |
| <b>National higher certificate</b>           |  |
| <b>National Diploma</b>                      |  |
| <b>Undergraduate Degree</b>                  |  |
| <b>Honours Degree</b>                        |  |
| <b>Master's Degree</b>                       |  |
| <b>PhD</b>                                   |  |

6. Occupation level? Please tick relevant block

|                             |  |
|-----------------------------|--|
| <b>Director</b>             |  |
| <b>Executive Management</b> |  |
| <b>Senior Management</b>    |  |
| <b>Middle Management</b>    |  |
| <b>Junior Management</b>    |  |
| <b>Employee</b>             |  |

| Questions  | Strongly agree | Agree | Not sure | Disagree | Strongly disagree |
|--|----------------|-------|----------|----------|-------------------|
| 7. Network-based resources such as political connection can assist in acquiring funds for expanding my organisation. |                |       |          |          |                   |
| 8. My organisation entered into new business by expanding its operations in existing or new markets.                 |                |       |          |          |                   |
| 9. Financial capital (money) plays a critical role in getting new project ideas off the ground.                      |                |       |          |          |                   |
| 10. My organisation provides extensive financial resources for the creation of new products                          |                |       |          |          |                   |
| 11. Many of the Top Managers are known for their experience with innovative processes.                               |                |       |          |          |                   |
| 12. My organisation gives its employees the  |                |       |          |          |                   |



|  |  |  |  |  |  |
|--|--|--|--|--|--|
| opportunity to use their creative skills to respond to market changes.   |  |  |  |  |  |
| 13. My organisation creates a culture that fosters cross-functional collaboration.   |  |  |  |  |  |
| 14. Reputational capital provides my organisation with speed to access various resources and legitimacy in emerging markets.       |  |  |  |  |  |
| 15. Network connections play a critical role in corporate venturing.   |  |  |  |  |  |
| 16. My organisation develops ideas for improvement of the corporation is encouraged.   |  |  |  |  |  |
| 17. My experience within the organisation or industry enables me to be more productive.  |  |  |  |  |  |
| 18. Skills and knowledge, such as in selling, negotiating, product development, risk judgment are important in business operations |  |  |  |  |  |
| 19. My organisation revitalized the company's operations by consistently improving of its products.                                |  |  |  |  |  |
| 20. My organisation values my knowledge and experiences in growth the company.   |  |  |  |  |  |
| 21. My organisation uses alliances connections to expand nationally or internationally.  |  |  |  |  |  |
| 22. It possible to venture into other industries without financial support.  |  |  |  |  |  |
| 23. Skills and experiences create productivity in my organisation.   |  |  |  |  |  |
| 24. My experience within the organisation or industry enables you to be more productive.   |  |  |  |  |  |
| 25. My organisation gets financial support from relevant institution when it needed.   |  |  |  |  |  |
| 26. Network has provided my organisation with access to other industry.  |  |  |  |  |  |
| 27. It could be difficult to execute new projects for the organisation if there is lack of financial support.                      |  |  |  |  |  |
| 28. Financial support from institutions does enhance the organisation's entrepreneurial processes.                                 |  |  |  |  |  |
| 29. Financial capital is the most important form of capital in supporting new innovations.   |  |  |  |  |  |

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| 30. My knowledge and skills can enable me to be more proactive in new project developments.   |  |  |  |  |  |
| 31. My experience gained during the period of employments contributes significantly to new ideas and new products.                      |  |  |  |  |  |
| 32. I see the value of connection to assist your organisation to create new products.   |  |  |  |  |  |
| 33. Top level management use their networks to expand the organisation or get information about emerging markets.                       |  |  |  |  |  |
| 34. Individuals with successful innovative projects receive additional rewards and compensation for their ideas and efforts.            |  |  |  |  |  |
| 35. There are several options within the organisation for individuals to get financial support for their innovative projects and ideas. |  |  |  |  |  |
| 36. Firm-specific skills may give firms an advantage over their competitors as these skills are not transferable to other firms.        |  |  |  |  |  |

**Thank you for your participation**

## Appendix C

### Cronbach's alpha for the entire model

| Reliability Statistics |  |            |
|------------------------|--|------------|
| Cronbach's Alpha       | Cronbach's Alpha Based on Standardized Items | N of Items |
| .728                   | .742   | 30         |

| Item-Total Statistics |                            |                                |                                  |                              |                                  |
|-----------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
|                       | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
| Q7-S                  | 109.13                     | 48.145                         | .380                             | .                            | .712                             |
| Q8-CE                 | 109.19                     | 50.387                         | .186                             | .                            | .724                             |
| Q9-E                  | 108.80                     | 50.987                         | .145                             | .                            | .726                             |
| Q10-CE                | 109.36                     | 51.750                         | .021                             | .                            | .734                             |
| Q11-H                 | 109.76                     | 49.963                         | .154                             | .                            | .727                             |
| Q12-CE                | 109.53                     | 49.695                         | .186                             | .                            | .725                             |
| Q13-CE                | 109.44                     | 47.525                         | .383                             | .                            | .711                             |
| Q14-S                 | 109.33                     | 50.263                         | .137                             | .                            | .728                             |
| Q15-S                 | 109.24                     | 49.565                         | .274                             | .                            | .719                             |
| Q16-CE                | 109.24                     | 49.492                         | .298                             | .                            | .718                             |
| Q17-H                 | 109.28                     | 52.130                         | .059                             | .                            | .728                             |
| Q18-H                 | 109.11                     | 50.234                         | .274                             | .                            | .720                             |
| Q19-CE                | 109.97                     | 48.444                         | .269                             | .                            | .719                             |
| Q20-H                 | 109.39                     | 50.030                         | .232                             | .                            | .722                             |
| Q21-S                 | 109.31                     | 51.690                         | .015                             | .                            | .735                             |
| Q22-E                 | 111.35                     | 50.459                         | .100                             | .                            | .732                             |
| Q23-H                 | 109.20                     | 48.801                         | .431                             | .                            | .712                             |
| Q24-H                 | 109.28                     | 48.245                         | .496                             | .                            | .709                             |
| Q25-E                 | 109.48                     | 49.937                         | .224                             | .                            | .722                             |
| Q26-S                 | 109.49                     | 49.717                         | .179                             | .                            | .726                             |
| Q27-E                 | 108.99                     | 51.057                         | .156                             | .                            | .725                             |
| Q28-E                 | 109.55                     | 45.998                         | .545                             | .                            | .700                             |
| Q28-E                 | 109.54                     | 46.312                         | .538                             | .                            | .701                             |
| Q30-H                 | 109.14                     | 48.275                         | .500                             | .                            | .709                             |
| Q31-H                 | 109.25                     | 48.262                         | .432                             | .                            | .711                             |
| Q32-S                 | 109.55                     | 51.139                         | .112                             | .                            | .728                             |
| Q33-S                 | 111.54                     | 46.469                         | .278                             | .                            | .721                             |
| Q34-CE                | 110.68                     | 50.752                         | .061                             | .                            | .736                             |
| Q35-E                 | 110.37                     | 47.564                         | .248                             | .                            | .723                             |
| Q36-H                 | 109.47                     | 49.287                         | .309                             | .                            | .718                             |

| Scale Statistics |          |                |            |
|------------------|----------|----------------|------------|
| Mean             | Variance | Std. Deviation | N of Items |
| 113.34           | 52.394   | 7.238          | 30         |

### Inter-correlation matrix

| Items | H     | CE    | S     | E    | CE    | S    | CE   | H    | CE   | E    | CE   | S    |
|-------|-------|-------|-------|------|-------|------|------|------|------|------|------|------|
| H     | 1000  |       |       |      |       |      |      |      |      |      |      |      |
| CE    | .345  | 1000  |       |      |       |      |      |      |      |      |      |      |
| S     | .329  | .436  | 1000  |      |       |      |      |      |      |      |      |      |
| E     | -.058 | .319  | -.189 | 1000 |       |      |      |      |      |      |      |      |
| CE    | .448  | .358  | .548  | .647 | 1000  |      |      |      |      |      |      |      |
| S     | .357  | .344  | .189  | .398 | -.014 | 1000 |      |      |      |      |      |      |
| CE    | .330  | .589  | .289  | .367 | .232  | .244 | 1000 |      |      |      |      |      |
| H     | .454  | .514  | .301  | .398 | .309  | .621 | .586 | 1000 |      |      |      |      |
| CE    | -.115 | .642  | .304  | .192 | .411  | .435 | .414 | .398 | 1000 |      |      |      |
| E     | -.017 | -.098 | .328  | .109 | .001  | .009 | .304 | .401 | .412 | 1000 |      |      |
| CE    | .444  | .589  | .421  | .529 | .604  | .222 | .631 | .234 | .303 | .307 | 1000 |      |
| S     | .544  | .499  | .509  | .511 | -.323 | .345 | .656 | .516 | .406 | .408 | .498 | 1000 |

### Cronbach's alpha for Corporate Entrepreneurship

| Reliability Statistics |  |            |
|------------------------|--|------------|
| Cronbach's Alpha       | Cronbach's Alpha Based on Standardized Items | N of Items |
| .544                   | .424   | 4          |

| Summary Item Statistics |       |         |         |       |                   |          |            |
|-------------------------|-------|---------|---------|-------|-------------------|----------|------------|
|                         | Mean  | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
| Item Means              | 3.998 | 3.835   | 4.136   | .301  | 1.078             | .022     | 4          |
| Item Variances          | .503  | .353    | .660    | .306  | 1.867             | .025     | 4          |
| Inter-Item Correlations | .156  | -.055   | .290    | .344  | -5.282            | .013     | 4          |

| Item-Total Statistics |                            |                                |                                  |                              |                                  |
|-----------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
|                       | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
| Q8-CE                 | 11.85                      | 2.408                          | .117                             | .039                         | .485                             |
| Q12-CE                | 12.16                      | 1.722                          | .328                             | .111                         | .285                             |
| Q13-CE                | 12.08                      | 1.618                          | .357                             | .131                         | .247                             |
| Q16-CE                | 11.88                      | 2.293                          | .205                             | .083                         | .415                             |

### Cronbach's alpha for Social capital

| Reliability Statistics |  |            |
|------------------------|--|------------|
| Cronbach's Alpha       | Cronbach's Alpha Based on Standardized Items | N of Items |
| .626                   | .639   | 3          |

| Summary Item Statistics |       |         |         |       |                   |          |            |
|-------------------------|-------|---------|---------|-------|-------------------|----------|------------|
|                         | Mean  | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
| Item Means              | 3.982 | 3.850   | 4.102   | .252  | 1.066             | .016     | 3          |
| Item Variances          | .560  | .375    | .665    | .290  | 1.774             | .026     | 3          |
| Inter-Item Correlations | .371  | .321    | .431    | .111  | 1.345             | .003     | 3          |

| Item-Total Statistics |                            |                                |                                  |                              |                                  |
|-----------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
|                       | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
| Q14-S                 | 7.95                       | 1.471                          | .397                             | .163                         | .586                             |
| Q15-S                 | 7.84                       | 1.722                          | .487                             | .241                         | .486                             |
| Q26-S                 | 8.10                       | 1.366                          | .445                             | .218                         | .516                             |



### Cronbach's alpha for Economic Capital

| Reliability Statistics |  |            |
|------------------------|--|------------|
| Cronbach's Alpha       | Cronbach's Alpha Based on Standardized Items | N of Items |
| .726                   | .684   | 3          |

| Summary Item Statistics |       |         |         |       |                   |          |            |
|-------------------------|-------|---------|---------|-------|-------------------|----------|------------|
|                         | Mean  | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
| Item Means              | 4.044 | 3.795   | 4.537   | .741  | 1.195             | .182     | 3          |
| Item Variances          | .489  | .299    | .605    | .306  | 2.024             | .028     | 3          |
| Inter-Item Correlations | .419  | .133    | .980    | .847  | 7.366             | .189     | 3          |

| Item-Total Statistics |                            |                                |                                  |                              |                                  |
|-----------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
|                       | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
| Q9-E                  | 7.60                       | 2.311                          | .139                             | .022                         | .989                             |
| Q28-E                 | 8.34                       | .979                           | .816                             | .960                         | .240                             |
| Q28-E                 | 8.33                       | 1.017                          | .833                             | .960                         | .222                             |

### Cronbach's alpha for Human Capital

| Reliability Statistics |  |            |
|------------------------|--|------------|
| Cronbach's Alpha       | Cronbach's Alpha Based on Standardized Items | N of Items |
| .721                   | .725   | 7          |

| Summary Item Statistics |       |         |         |       |                   |          |            |
|-------------------------|-------|---------|---------|-------|-------------------|----------|------------|
|                         | Mean  | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
| Item Means              | 4.081 | 3.868   | 4.235   | .368  | 1.095             | .018     | 7          |
| Item Variances          | .323  | .240    | .411    | .171  | 1.713             | .003     | 7          |
| Inter-Item Correlations | .273  | .070    | .497    | .427  | 7.081             | .018     | 7          |

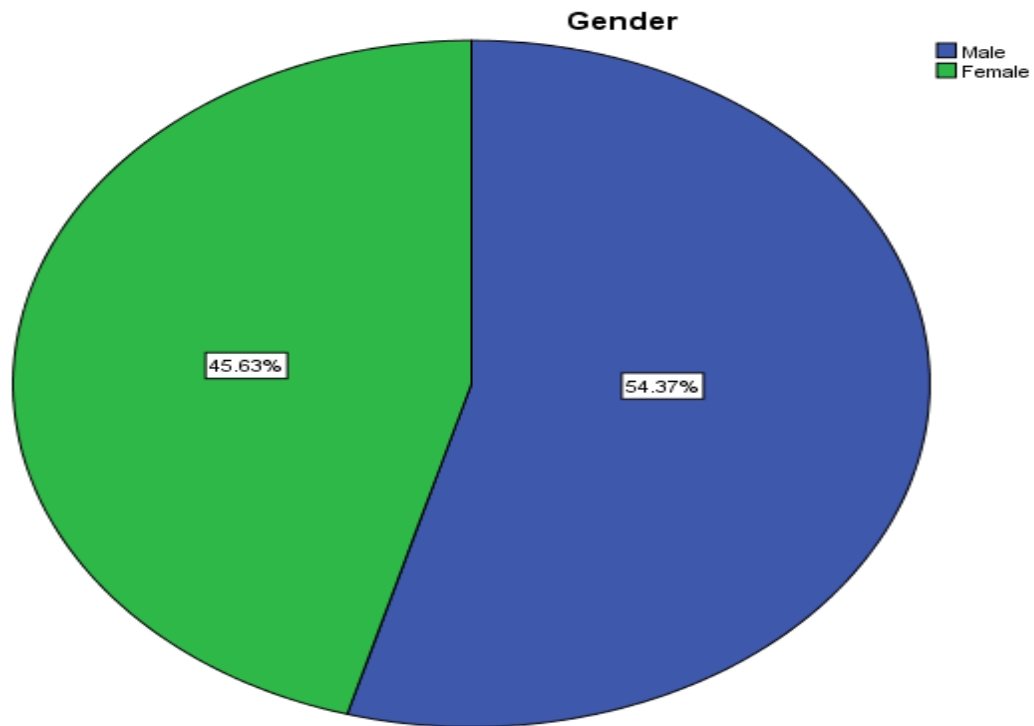
| Item-Total Statistics |                            |                                |                                  |                              |                                  |
|-----------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
|                       | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
| Q18-H                 | 24.33                      | 4.972                          | .325                             | .205                         | .712                             |
| Q20-H                 | 24.61                      | 4.958                          | .235                             | .069                         | .737                             |
| Q23-H                 | 24.43                      | 4.354                          | .555                             | .360                         | .659                             |
| Q24-H                 | 24.50                      | 4.409                          | .526                             | .357                         | .666                             |
| Q30-H                 | 24.36                      | 4.369                          | .553                             | .437                         | .660                             |
| Q31-H                 | 24.48                      | 4.251                          | .522                             | .350                         | .665                             |
| Q36-H                 | 24.70                      | 4.555                          | .349                             | .187                         | .713                             |

## Appendix D

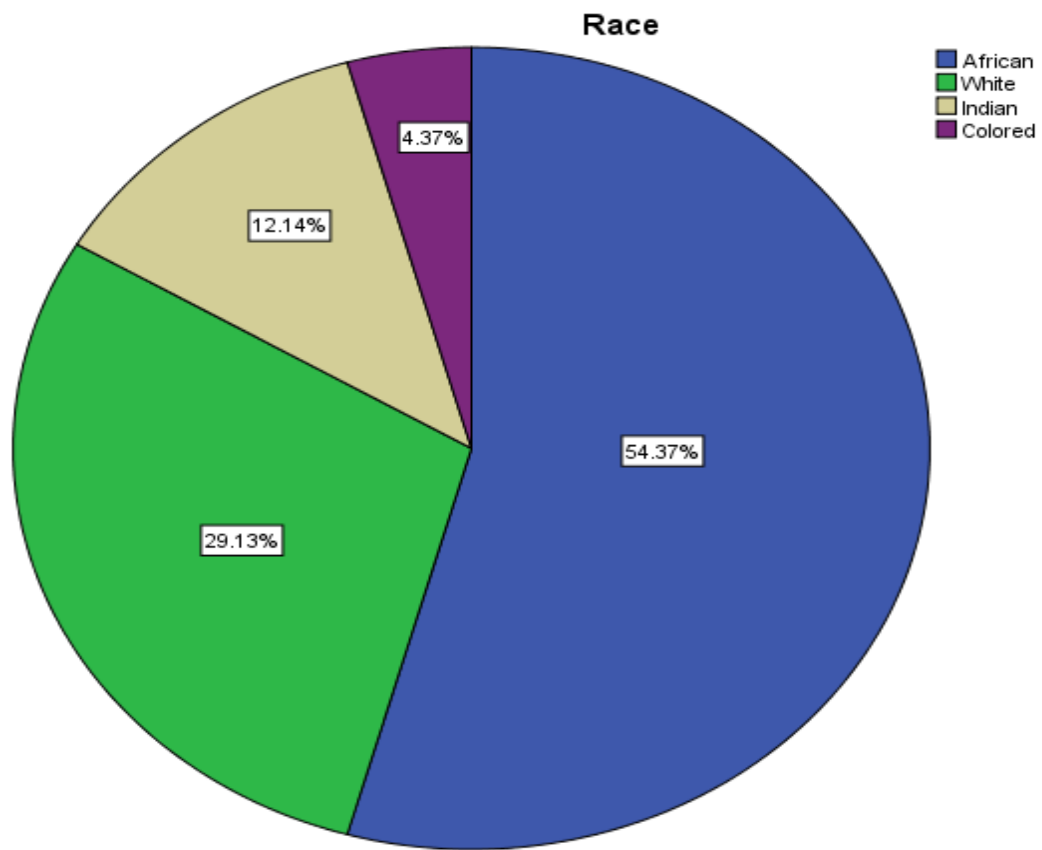
### Demographics

| Statistics |         |        |      |                                    |          |                       |            |
|------------|---------|--------|------|------------------------------------|----------|-----------------------|------------|
|            |         | Gender | Race | Experience in current organisation | Function | Highest qualification | Occupation |
| N          | Valid   | 206    | 206  | 206                                | 206      | 206                   | 206        |
|            | Missing | 0      | 0    | 0                                  | 0        | 0                     | 0          |
| Mean       |         | 1.46   | 1.67 | 2.88                               | 2.51     | 3.99                  | 3.89       |
| Median     |         | 1.00   | 1.00 | 3.00                               | 3.00     | 4.00                  | 4.00       |
| Mode       |         | 1      | 1    | 4                                  | 3        | 5                     | 4          |
| Range      |         | 1      | 3    | 3                                  | 3        | 5                     | 4          |
| Minimum    |         | 1      | 1    | 1                                  | 1        | 1                     | 2          |
| Maximum    |         | 2      | 4    | 4                                  | 4        | 6                     | 6          |
| Sum        |         | 300    | 343  | 594                                | 517      | 821                   | 801        |

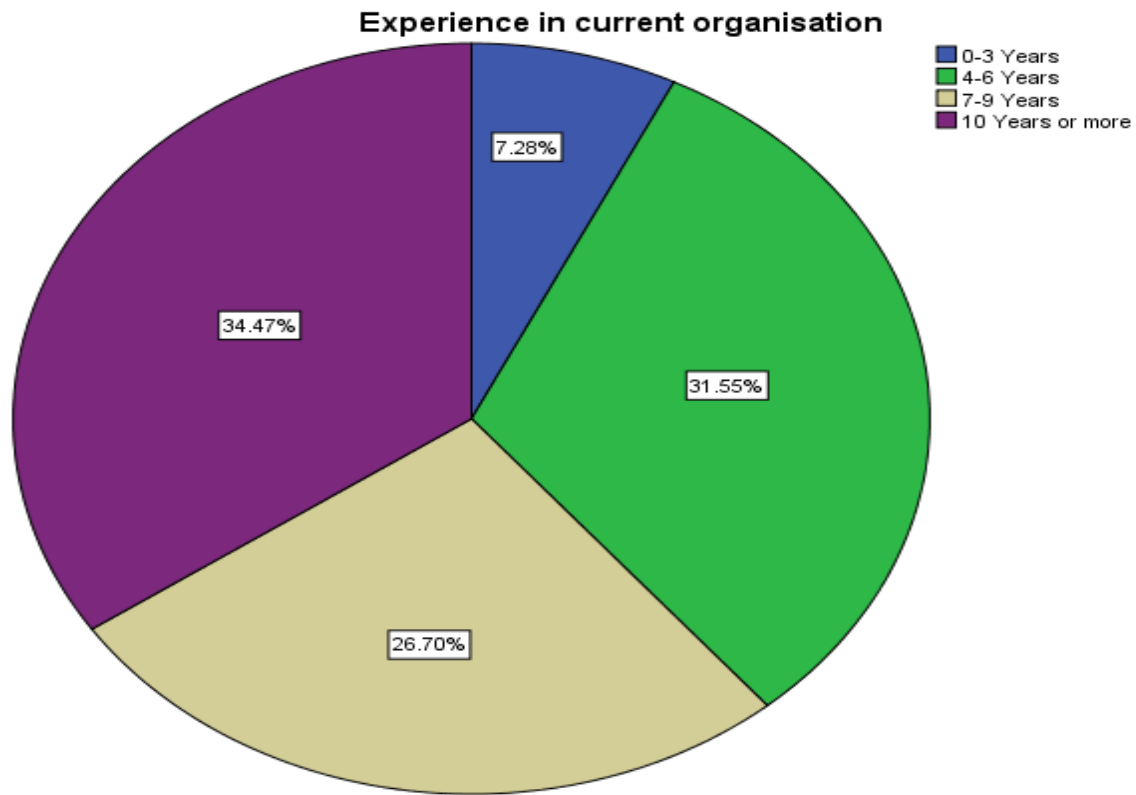
| Gender |        |           |         |               |                    |
|--------|--------|-----------|---------|---------------|--------------------|
|        |        | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid  | Male   | 112       | 54.4    | 54.4          | 54.4               |
|        | Female | 94        | 45.6    | 45.6          | 100.0              |
|        | Total  | 206       | 100.0   | 100.0         |                    |



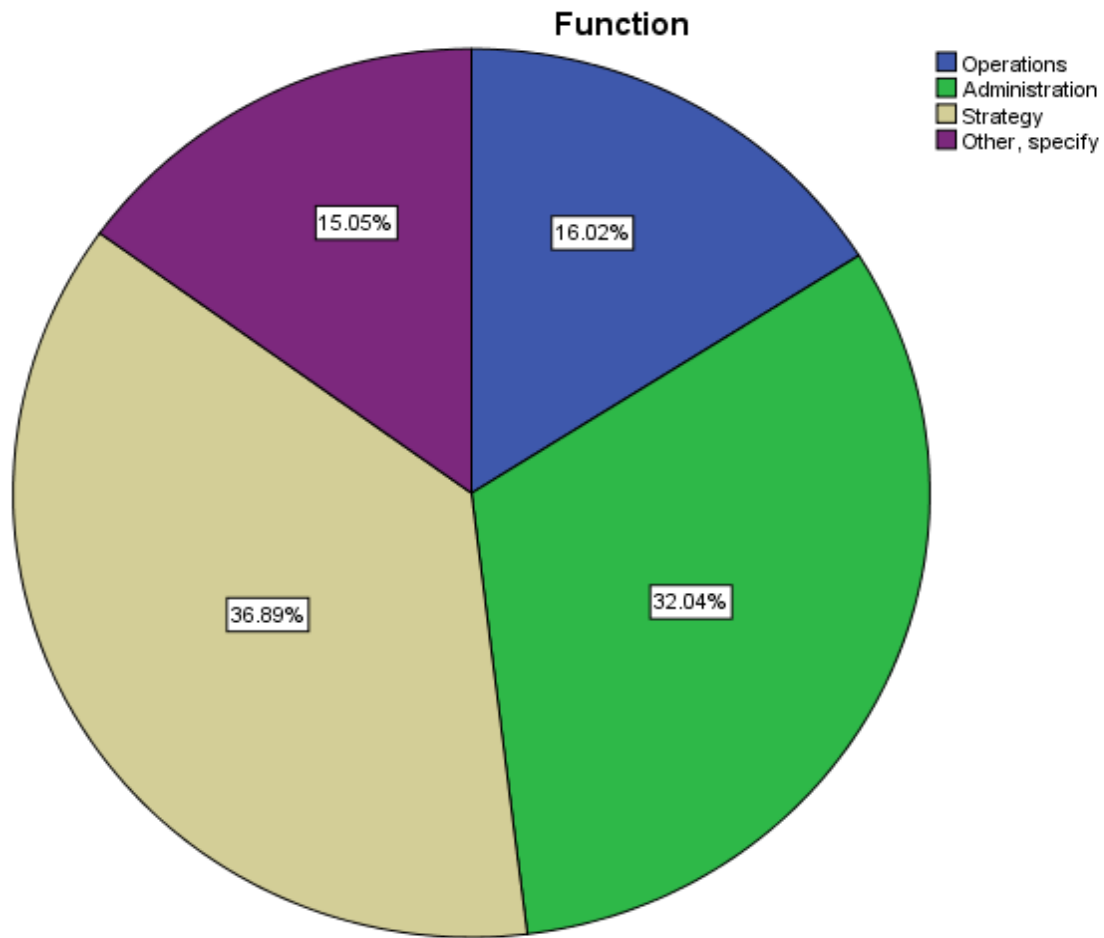
| Race  |         |           |         |               |                    |
|-------|---------|-----------|---------|---------------|--------------------|
|       |         | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | African | 112       | 54.4    | 54.4          | 54.4               |
|       | White   | 60        | 29.1    | 29.1          | 83.5               |
|       | Indian  | 25        | 12.1    | 12.1          | 95.6               |
|       | Colored | 9         | 4.4     | 4.4           | 100.0              |
|       | Total   | 206       | 100.0   | 100.0         |                    |



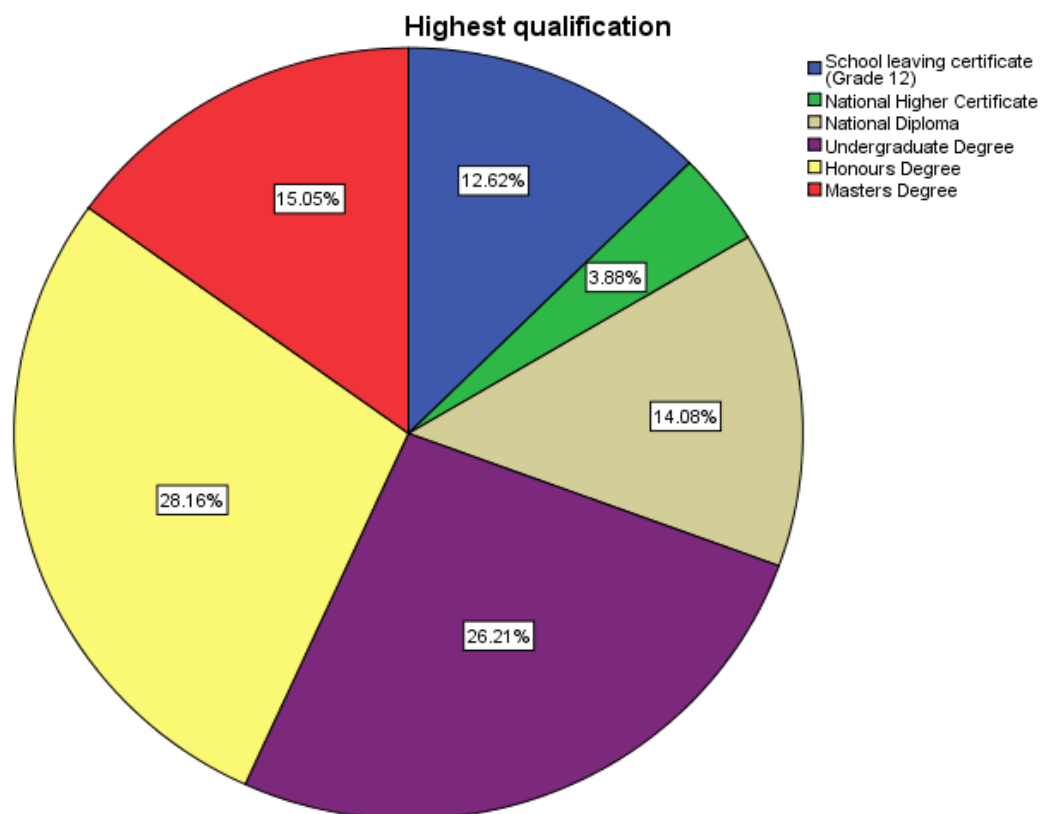
| Experience in current organisation |                  |           |         |               |                    |
|------------------------------------|------------------|-----------|---------|---------------|--------------------|
|                                    |                  | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid                              | 0-3 Years        | 15        | 7.3     | 7.3           | 7.3                |
|                                    | 4-6 Years        | 65        | 31.6    | 31.6          | 38.8               |
|                                    | 7-9 Years        | 55        | 26.7    | 26.7          | 65.5               |
|                                    | 10 Years or more | 71        | 34.5    | 34.5          | 100.0              |
|                                    | Total            | 206       | 100.0   | 100.0         |                    |



| Function |                |           |         |               |                    |
|----------|----------------|-----------|---------|---------------|--------------------|
|          |                | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid    | Operations     | 33        | 16.0    | 16.0          | 16.0               |
|          | Administration | 66        | 32.0    | 32.0          | 48.1               |
|          | Strategy       | 76        | 36.9    | 36.9          | 85.0               |
|          | Other, specify | 31        | 15.0    | 15.0          | 100.0              |
|          | Total          | 206       | 100.0   | 100.0         |                    |

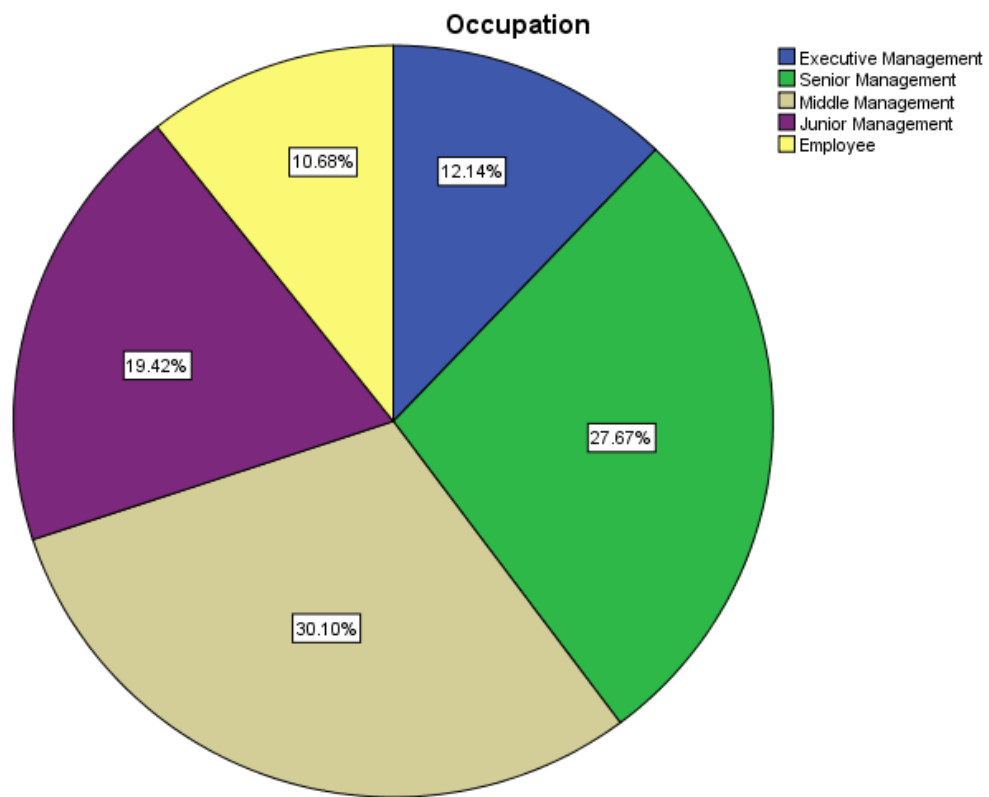


| Highest qualification |                                       |           |         |               |                    |
|-----------------------|---------------------------------------|-----------|---------|---------------|--------------------|
|                       |                                       | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid                 | School leaving certificate (Grade 12) | 26        | 12.6    | 12.6          | 12.6               |
|                       | National Higher Certificate           | 8         | 3.9     | 3.9           | 16.5               |
|                       | National Diploma                      | 29        | 14.1    | 14.1          | 30.6               |
|                       | Undergraduate Degree                  | 54        | 26.2    | 26.2          | 56.8               |
|                       | Honours Degree                        | 58        | 28.2    | 28.2          | 85.0               |
|                       | Master's Degree                       | 31        | 15.0    | 15.0          | 100.0              |
|                       | Total                                 | 206       | 100.0   | 100.0         |                    |



| Occupation |                      |           |         |               |                    |
|------------|----------------------|-----------|---------|---------------|--------------------|
|            |                      | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid      | Executive Management | 25        | 12.1    | 12.1          | 12.1               |
|            | Senior Management    | 57        | 27.7    | 27.7          | 39.8               |
|            | Middle Management    | 62        | 30.1    | 30.1          | 69.9               |
|            | Junior Management    | 40        | 19.4    | 19.4          | 89.3               |
|            | Employee             | 22        | 10.7    | 10.7          | 100.0              |
|            | Total                | 206       | 100.0   | 100.0         |                    |





## Appendix E

### Factor analysis

| Rotated Component Matrix <sup>a</sup> |           |      |      |      |       |       |      |      |       |      |       |
|---------------------------------------|-----------|------|------|------|-------|-------|------|------|-------|------|-------|
|                                       | Component |      |      |      |       |       |      |      |       |      |       |
|                                       | 1         | 2    | 3    | 4    | 5     | 6     | 7    | 8    | 9     | 10   | 11    |
| Q28-E                                 | .917      |      |      |      |       |       |      |      |       |      |       |
| Q28-E                                 | .915      |      |      |      |       |       |      |      |       |      |       |
| Q30-H                                 | .566      | .402 |      |      |       |       |      |      |       |      |       |
| Q23-H                                 | .508      | .414 |      |      |       |       |      |      |       |      |       |
| Q31-H                                 | .493      | .464 |      |      | .390  |       |      |      |       |      |       |
| Q24-H                                 |           | .807 |      |      |       |       |      |      |       |      |       |
| Q16-CE                                |           | .584 |      |      |       |       |      |      |       |      |       |
| Q12-CE                                |           | .435 |      |      | -.365 | -.386 |      |      |       |      |       |
| Q13-CE                                |           | .406 |      | .321 |       |       |      |      | -.316 |      |       |
| Q20-H                                 |           | .343 |      |      |       |       |      | .310 |       |      |       |
| Q15-S                                 |           |      | .792 |      |       |       |      |      |       |      |       |
| Q14-S                                 |           |      | .655 |      |       |       |      |      |       |      |       |
| Q26-S                                 |           |      | .653 |      | -.423 |       |      |      |       |      |       |
| Q10-CE                                |           |      | .609 |      |       | -.327 |      |      |       |      |       |
| Q8-CE                                 |           |      |      | .770 |       |       |      |      |       |      |       |
| Q7-S                                  |           |      |      | .661 |       |       |      |      |       |      |       |
| Q9-E                                  |           |      |      |      | .782  |       |      |      |       |      |       |
| Q18-H                                 |           | .353 |      |      | .575  |       |      |      |       |      |       |
| Q19-CE                                |           |      |      |      |       | .760  |      |      |       |      |       |
| Q32-S                                 |           |      |      |      |       |       | .787 |      |       |      |       |
| Q35-E                                 |           |      |      |      |       | .313  | .543 |      |       |      |       |
| Q25-E                                 |           |      |      | .311 |       | -.390 | .437 |      |       |      |       |
| Q22-E                                 |           |      |      |      |       |       |      | .744 |       |      |       |
| Q11-H                                 |           |      |      |      |       |       |      | .609 |       |      |       |
| Q36-H                                 | .364      |      |      |      |       |       | .314 | .448 |       |      | -.419 |
| Q27-E                                 |           |      |      |      |       |       |      |      | .750  |      |       |
| Q33-S                                 | .303      |      |      |      |       |       | .348 |      | .537  |      |       |
| Q21-S                                 |           |      |      |      |       |       |      |      |       | .766 |       |
| Q34-CE                                |           |      |      |      | -.309 | .406  |      |      |       | .504 |       |
| Q17-H                                 |           |      |      |      |       |       |      |      |       |      | .872  |

Extraction Method: Principal Component Analysis.

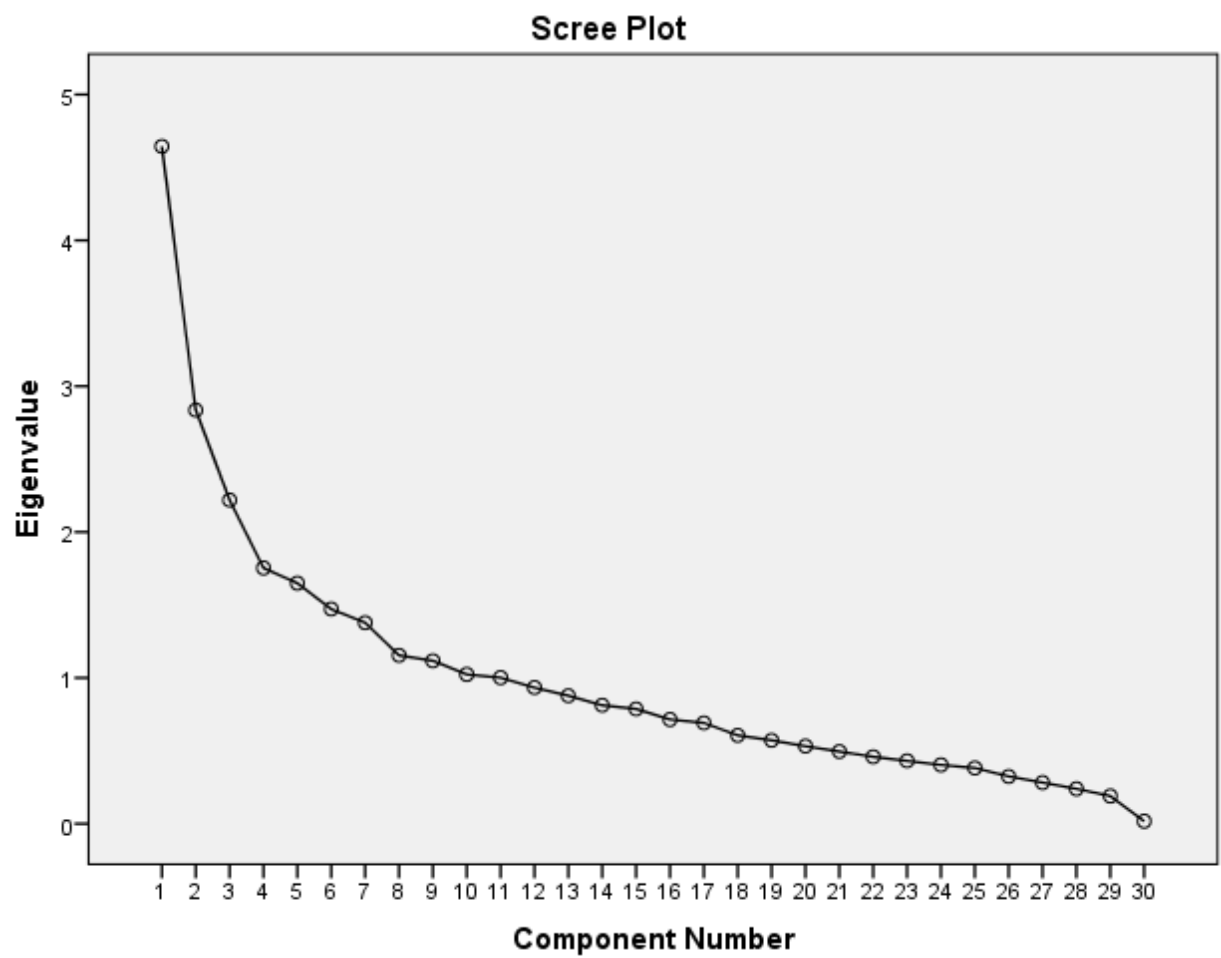
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 12 iterations.

| Items     | H     | CE    | S     | E    | CE    | S    | CE   | H    | CE   | E    | CE   | S    |
|-----------|-------|-------|-------|------|-------|------|------|------|------|------|------|------|
| <b>H</b>  | 1000  |       |       |      |       |      |      |      |      |      |      |      |
| <b>CE</b> | .345  | 1000  |       |      |       |      |      |      |      |      |      |      |
| <b>S</b>  | .329  | .436  | 1000  |      |       |      |      |      |      |      |      |      |
| <b>E</b>  | -.058 | .319  | -.189 | 1000 |       |      |      |      |      |      |      |      |
| <b>CE</b> | .448  | .358  | .548  | .647 | 1000  |      |      |      |      |      |      |      |
| <b>S</b>  | .357  | .344  | .189  | .398 | -.014 | 1000 |      |      |      |      |      |      |
| <b>CE</b> | .330  | .589  | .289  | .367 | .232  | .244 | 1000 |      |      |      |      |      |
| <b>H</b>  | .454  | .514  | .301  | .398 | .309  | .621 | .586 | 1000 |      |      |      |      |
| <b>CE</b> | -.115 | .642  | .304  | .192 | .411  | .435 | .414 | .398 | 1000 |      |      |      |
| <b>E</b>  | -.017 | -.098 | .328  | .109 | .001  | .009 | .304 | .401 | .412 | 1000 |      |      |
| <b>CE</b> | .444  | .589  | .421  | .529 | .604  | .222 | .631 | .234 | .303 | .307 | 1000 |      |
| <b>S</b>  | .544  | .499  | .509  | .511 | -.323 | .345 | .656 | .516 | .406 | .408 | .498 | 1000 |

| Total Variance Explained                         |                     |               |              |                                   |               |              |
|--|---------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| Component  | Initial Eigenvalues |               |              | Rotation Sums of Squared Loadings |               |              |
|  | Total               | % of Variance | Cumulative % | Total                             | % of Variance | Cumulative % |
| 1  | 4.645               | 15.484        | 15.484       | 3.039                             | 10.132        | 10.132       |
| 2  | 2.836               | 9.453         | 24.937       | 2.450                             | 8.167         | 18.298       |
| 3  | 2.219               | 7.396         | 32.332       | 2.223                             | 7.412         | 25.710       |
| 4  | 1.753               | 5.845         | 38.177       | 1.810                             | 6.034         | 31.744       |
| 5  | 1.650               | 5.498         | 43.675       | 1.804                             | 6.013         | 37.757       |
| 6  | 1.472               | 4.907         | 48.582       | 1.730                             | 5.768         | 43.526       |
| 7  | 1.379               | 4.595         | 53.177       | 1.647                             | 5.489         | 49.015       |
| 8  | 1.155               | 3.849         | 57.026       | 1.522                             | 5.073         | 54.087       |
| 9  | 1.117               | 3.724         | 60.750       | 1.520                             | 5.067         | 59.154       |
| 10   | 1.024               | 3.413         | 64.163       | 1.318                             | 4.393         | 63.547       |
| 11   | 1.002               | 3.339         | 67.502       | 1.187                             | 3.955         | 67.502       |
| 12   | .933                | 3.112         | 70.614       |                                   |               |              |
| 13   | .878                | 2.925         | 73.539       |                                   |               |              |
| 14   | .812                | 2.708         | 76.247       |                                   |               |              |
| 15   | .787                | 2.623         | 78.870       |                                   |               |              |
| 16   | .715                | 2.382         | 81.252       |                                   |               |              |
| 17   | .691                | 2.304         | 83.556       |                                   |               |              |
| 18   | .606                | 2.020         | 85.576       |                                   |               |              |
| 19   | .572                | 1.907         | 87.482       |                                   |               |              |
| 20   | .532                | 1.773         | 89.255       |                                   |               |              |
| 21   | .495                | 1.650         | 90.905       |                                   |               |              |
| 22   | .459                | 1.530         | 92.435       |                                   |               |              |
| 23   | .431                | 1.437         | 93.872       |                                   |               |              |
| 24   | .403                | 1.345         | 95.217       |                                   |               |              |
| 25   | .382                | 1.274         | 96.492       |                                   |               |              |
| 26   | .324                | 1.081         | 97.573       |                                   |               |              |
| 27   | .282                | .940          | 98.513       |                                   |               |              |
| 28   | .240                | .798          | 99.311       |                                   |               |              |
| 29   | .189                | .631          | 99.943       |                                   |               |              |
| 30   | .017                | .057          | 100.000      |                                   |               |              |
| Extraction Method: Principal Component Analysis. |                     |               |              |                                   |               |              |





**Component Transformation Matrix**

| Component | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1         | .716  | .545  | .057  | .152  | .152  | .208  | .182  | .188  | .163  | .016  | -.046 |
| 2         | -.122 | .238  | .563  | .381  | -.272 | -.337 | .036  | .211  | -.342 | -.314 | .131  |
| 3         | -.054 | -.268 | .625  | .153  | .322  | .303  | .322  | -.394 | .187  | .123  | .087  |
| 4         | -.229 | .234  | .137  | -.046 | .552  | .318  | -.527 | .210  | -.359 | .121  | .028  |
| 5         | -.030 | -.208 | -.443 | .675  | .435  | -.141 | .232  | .051  | -.163 | -.084 | .059  |
| 6         | .013  | .193  | .002  | -.507 | .431  | -.517 | .353  | -.100 | -.168 | -.009 | .300  |
| 7         | -.492 | .397  | -.151 | .092  | -.207 | .237  | .386  | .174  | .101  | .436  | .301  |
| 8         | .152  | -.087 | .059  | .185  | .014  | -.307 | -.456 | .030  | .426  | .280  | .607  |
| 9         | .125  | -.485 | .168  | -.167 | .038  | .011  | .212  | .775  | -.033 | .211  | -.015 |
| 10        | .259  | -.047 | .041  | .108  | -.172 | -.181 | -.027 | -.256 | -.504 | .709  | -.177 |
| 11        | -.260 | .188  | .135  | .106  | .212  | -.425 | -.048 | .109  | .438  | .220  | -.623 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

## Pearson correlation matrix

| Correlations   |                     |                |               |                  |                            |
|--|---------------------|----------------|---------------|------------------|----------------------------|
|  |                     | Social Capital | Human capital | Economic capital | Corporate Entrepreneurship |
| Social Capital   | Pearson Correlation | 1              | .133          | .386**           | .329**                     |
|  | Sig. (2-tailed)     |                | .056          | .000             | .000                       |
|  | N                   | 206            | 206           | 206              | 206                        |
| Human capital  | Pearson Correlation | .133           | 1             | .477**           | .398**                     |
|  | Sig. (2-tailed)     | .056           |               | .000             | .000                       |
|  | N                   | 206            | 206           | 206              | 206                        |
| Economic capital   | Pearson Correlation | .386**         | .477**        | 1                | .368**                     |
|  | Sig. (2-tailed)     | .000           | .000          |                  | .000                       |
|  | N                   | 206            | 206           | 206              | 206                        |
| Corporate Entrepreneurship                                   | Pearson Correlation | .329**         | .398**        | .368**           | 1                          |
|  | Sig. (2-tailed)     | .000           | .000          | .000             |                            |
|  | N                   | 206            | 206           | 206              | 206                        |
| **. Correlation is significant at the 0.01 level (2-tailed). |                     |                |               |                  |                            |



## Appendix F

### Multiple linear regression model

| Descriptive Statistics     |      |                |     |
|----------------------------|------|----------------|-----|
|                            | Mean | Std. Deviation | N   |
| Corporate Entrepreneurship | 3.68 | .323           | 206 |
| Social Capital             | 3.65 | .406           | 206 |
| Human capital              | 4.00 | .319           | 206 |
| Economic capital           | 3.61 | .363           | 206 |

| Correlations        |                            |                            |                |               |                  |
|---------------------|----------------------------|----------------------------|----------------|---------------|------------------|
|                     |                            | Corporate Entrepreneurship | Social Capital | Human capital | Economic capital |
| Pearson Correlation | Corporate Entrepreneurship | 1.000                      | .329           | .398          | .368             |
|                     | Social Capital             | .329                       | 1.000          | .133          | .386             |
|                     | Human capital              | .398                       | .133           | 1.000         | .477             |
|                     | Economic capital           | .368                       | .386           | .477          | 1.000            |
| Sig. (1-tailed)     | Corporate Entrepreneurship | .                          | .000           | .000          | .000             |
|                     | Social Capital             | .000                       | .              | .028          | .000             |
|                     | Human capital              | .000                       | .028           | .             | .000             |
|                     | Economic capital           | .000                       | .000           | .000          | .                |
| N                   | Corporate Entrepreneurship | 206                        | 206            | 206           | 206              |
|                     | Social Capital             | 206                        | 206            | 206           | 206              |
|                     | Human capital              | 206                        | 206            | 206           | 206              |
|                     | Economic capital           | 206                        | 206            | 206           | 206              |

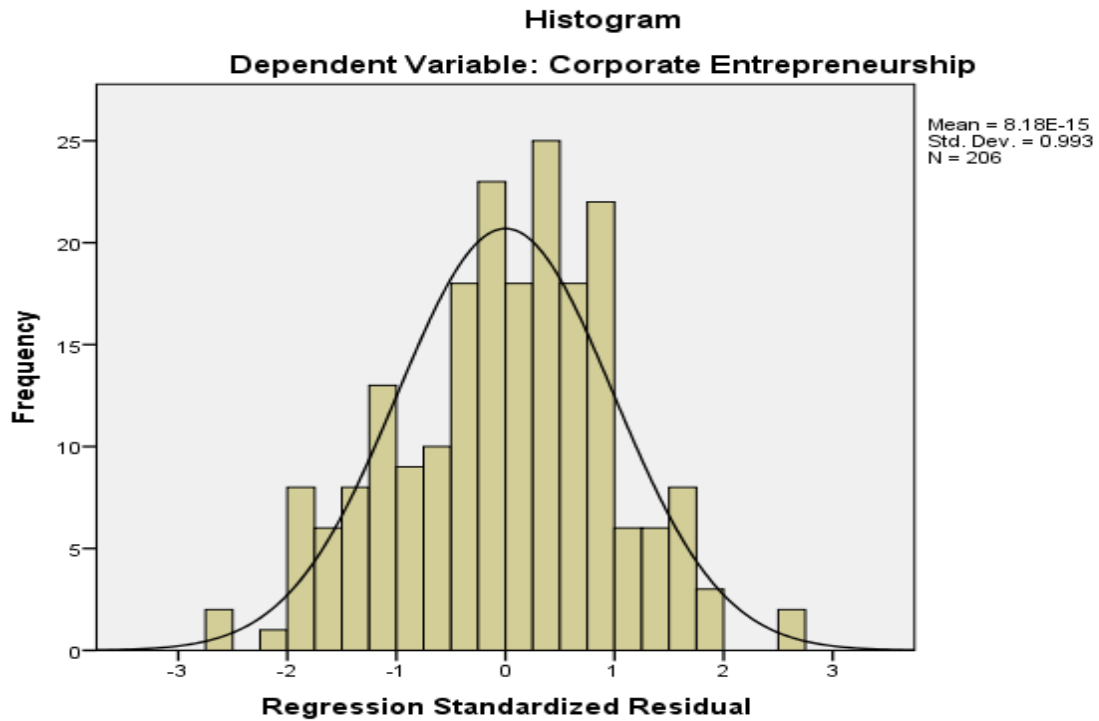
| Model Summary <sup>b</sup>  |                   |          |                   |                            |                   |          |     |     |             |
|---|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|-------------|
| Model   | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |             |
|   |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. Change |
| 1   | .497 <sup>a</sup> | .247     | .236              | .2831                      | .247              | 22.111   | 3   | 202 |             |
| a. Predictors: (Constant), Economic capital, Social Capital , Human capital |                   |          |                   |                            |                   |          |     |     |             |
| b. Dependent Variable: Corporate Entrepreneurship                           |                   |          |                   |                            |                   |          |     |     |             |

| Anova   |            |                |     |             |        |                   |
|---|------------|----------------|-----|-------------|--------|-------------------|
| Model   |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
| 1   | Regression | 5.319          | 3   | 1.773       | 22.111 | .000 <sup>b</sup> |
|   | Residual   | 16.196         | 202 | .080        |        |                   |
|   | Total      | 21.515         | 205 |             |        |                   |
| a. Dependent Variable: Corporate Entrepreneurship                           |            |                |     |             |        |                   |
| b. Predictors: (Constant), Economic capital, Social Capital , Human capital |            |                |     |             |        |                   |

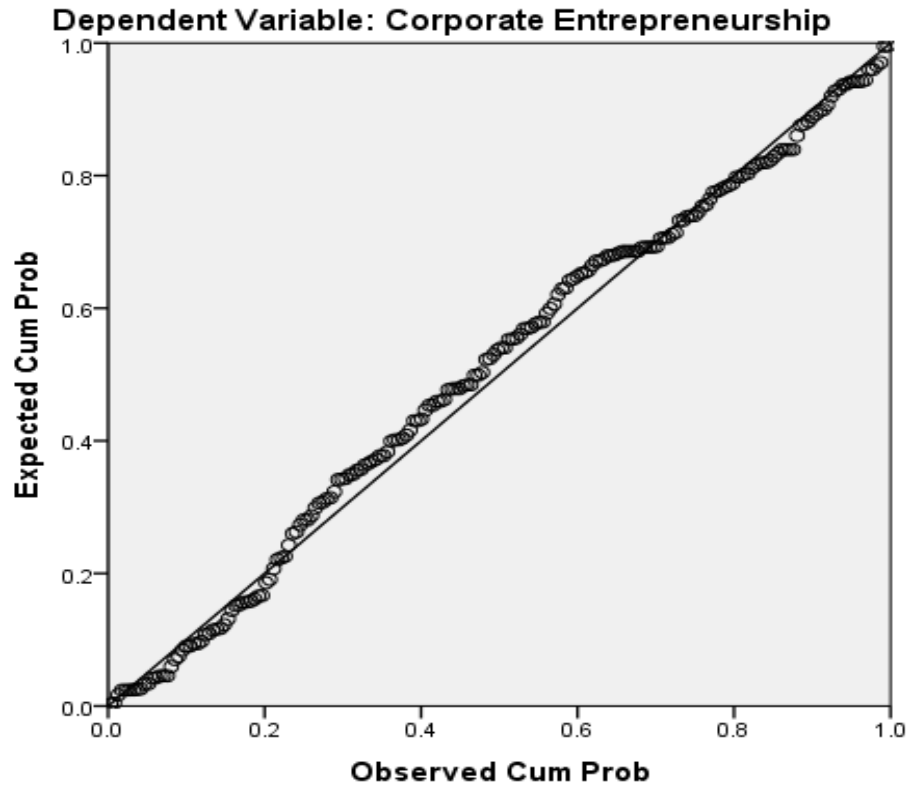
| Model |                  | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|-------|------------------|-----------------------------|------------|---------------------------|-------|------|
|       |                  | B                           | Std. Error | Beta                      |       |      |
| 1     | (Constant)       | 1.339                       | .291       |                           | 4.603 | .000 |
|       | Social Capital   | .190                        | .053       | .238                      | 3.586 | .000 |
|       | Human capital    | .308                        | .071       | .304                      | 4.365 | .000 |
|       | Economic capital | .117                        | .067       | .131                      | 1.749 | .082 |

| Collinearity Diagnostics                          |           |            |                 |                      |                |               |                  |
|---|-----------|------------|-----------------|----------------------|----------------|---------------|------------------|
| Model   | Dimension | Eigenvalue | Condition Index | Variance Proportions |                |               |                  |
|   |           |            |                 | (Constant)           | Social Capital | Human capital | Economic capital |
| 1   | 1         | 3.983      | 1.000           | .00                  | .00            | .00           | .00              |
|   | 2         | .009       | 21.330          | .02                  | .82            | .13           | .02              |
|   | 3         | .005       | 27.631          | .25                  | .01            | .04           | .84              |
|   | 4         | .003       | 38.147          | .73                  | .17            | .82           | .13              |
| a. Dependent Variable: Corporate Entrepreneurship |           |            |                 |                      |                |               |                  |

| Residuals Statistics                              |                           |                       |                           |                      |     |
|---|---------------------------|-----------------------|---------------------------|----------------------|-----|
|   | Minimum                   | Maximum               | Mean                      | Std. Deviation       | N   |
| Predicted Value                                   | 3.179846048<br>355103     | 4.283494472<br>503662 | 3.686546463<br>245491     | .1610735922<br>57450 | 206 |
| Std. Predicted Value                              | -3.146                    | 3.706                 | .000                      | 1.000                | 206 |
| Standard Error of Predicted Value                 | .020                      | .098                  | .037                      | .014                 | 206 |
| Adjusted Predicted Value                          | 3.204100847<br>244263     | 4.307520866<br>394043 | 3.687970176<br>843485     | .1599410015<br>90035 | 206 |
| Residual  | -<br>.7785475254<br>05884 | .7471835613<br>25073  | .00000000000<br>00002     | .2810806276<br>71074 | 206 |
| Std. Residual                                     | -2.749                    | 2.639                 | .000                      | .993                 | 206 |
| Stud. Residual                                    | -2.810                    | 2.660                 | -.002                     | 1.006                | 206 |
| Deleted Residual                                  | -<br>.8133264183<br>99811 | .7592466473<br>57941  | -<br>.0014237135<br>97994 | .2888202007<br>94283 | 206 |
| Stud. Deleted Residual                            | -2.860                    | 2.701                 | -.003                     | 1.011                | 206 |
| Mahal. Distance                                   | .051                      | 23.366                | 2.985                     | 3.588                | 206 |
| Cook's Distance                                   | .000                      | .138                  | .007                      | .017                 | 206 |
| Centered Leverage Value                           | .000                      | .114                  | .015                      | .018                 | 206 |
| a. Dependent Variable: Corporate Entrepreneurship |                           |                       |                           |                      |     |

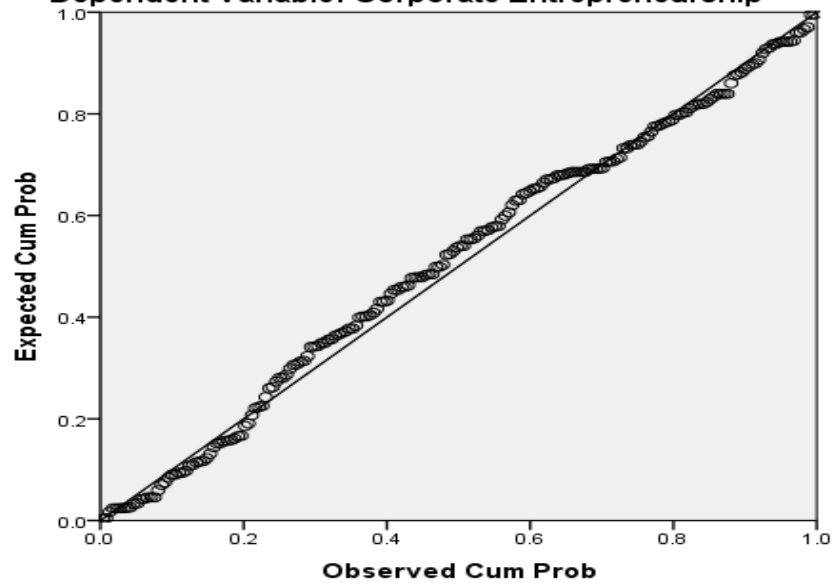


**Normal P-P Plot of Regression Standardized Residual**



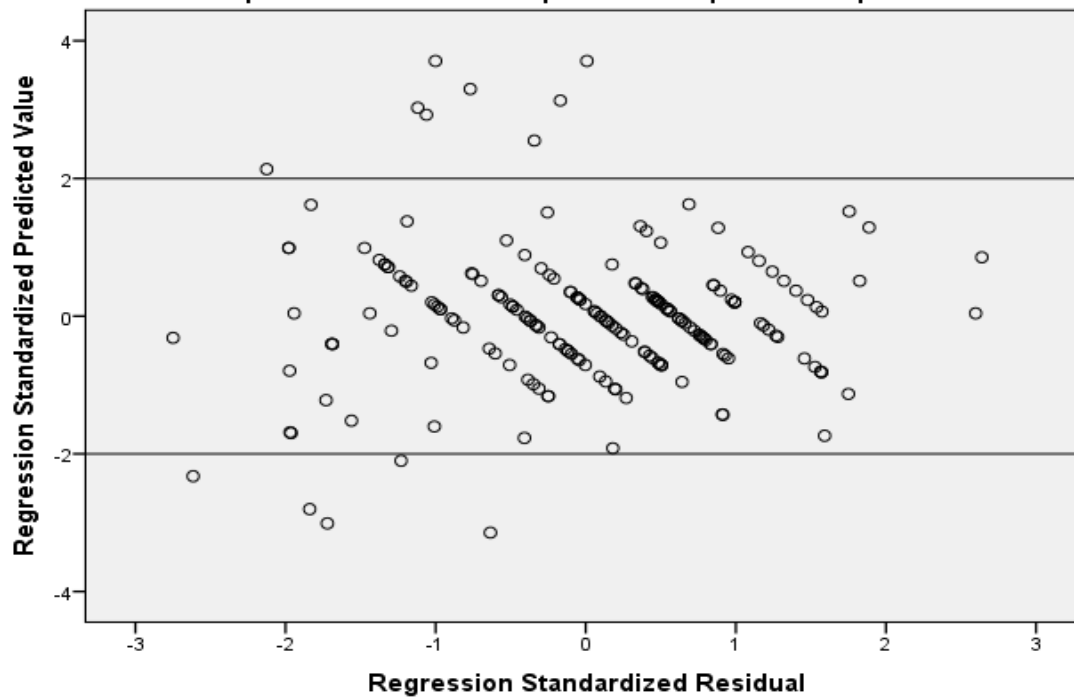
**Normal P-P Plot of Regression Standardized Residual**

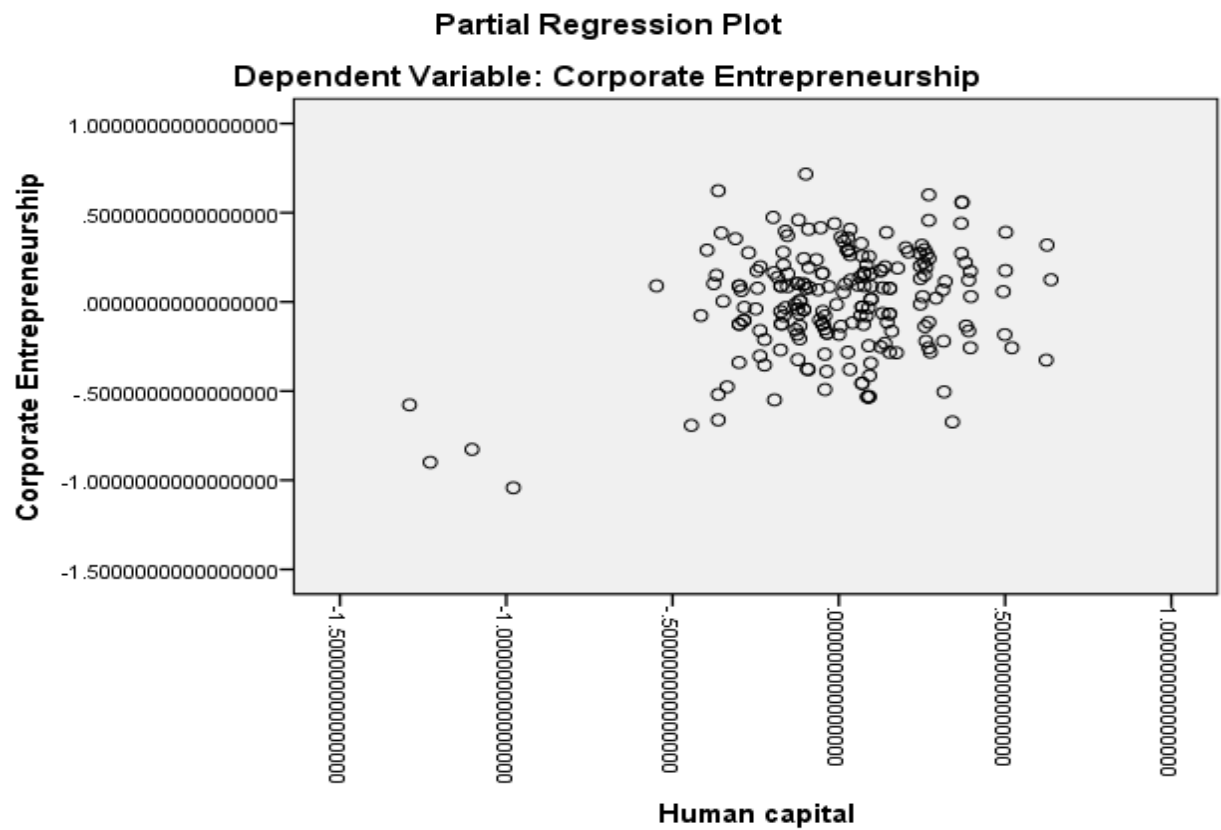
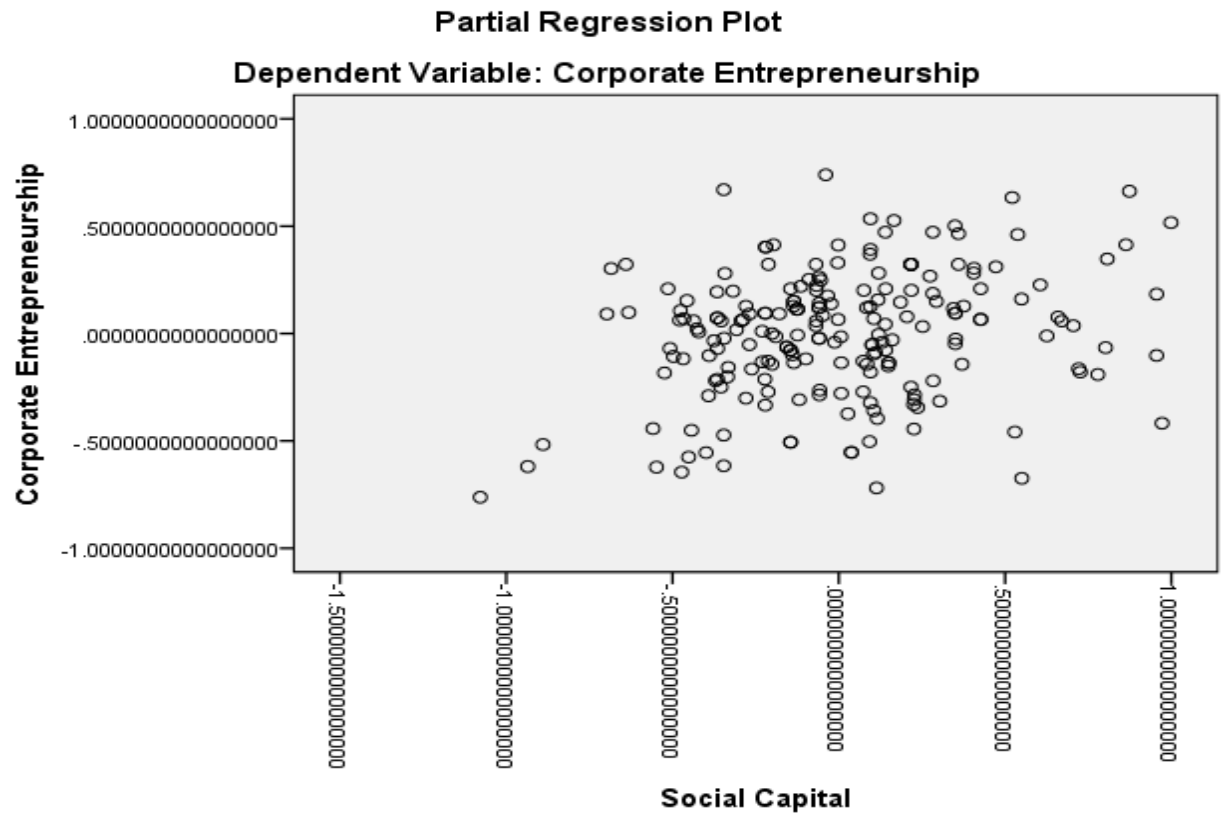
**Dependent Variable: Corporate Entrepreneurship**

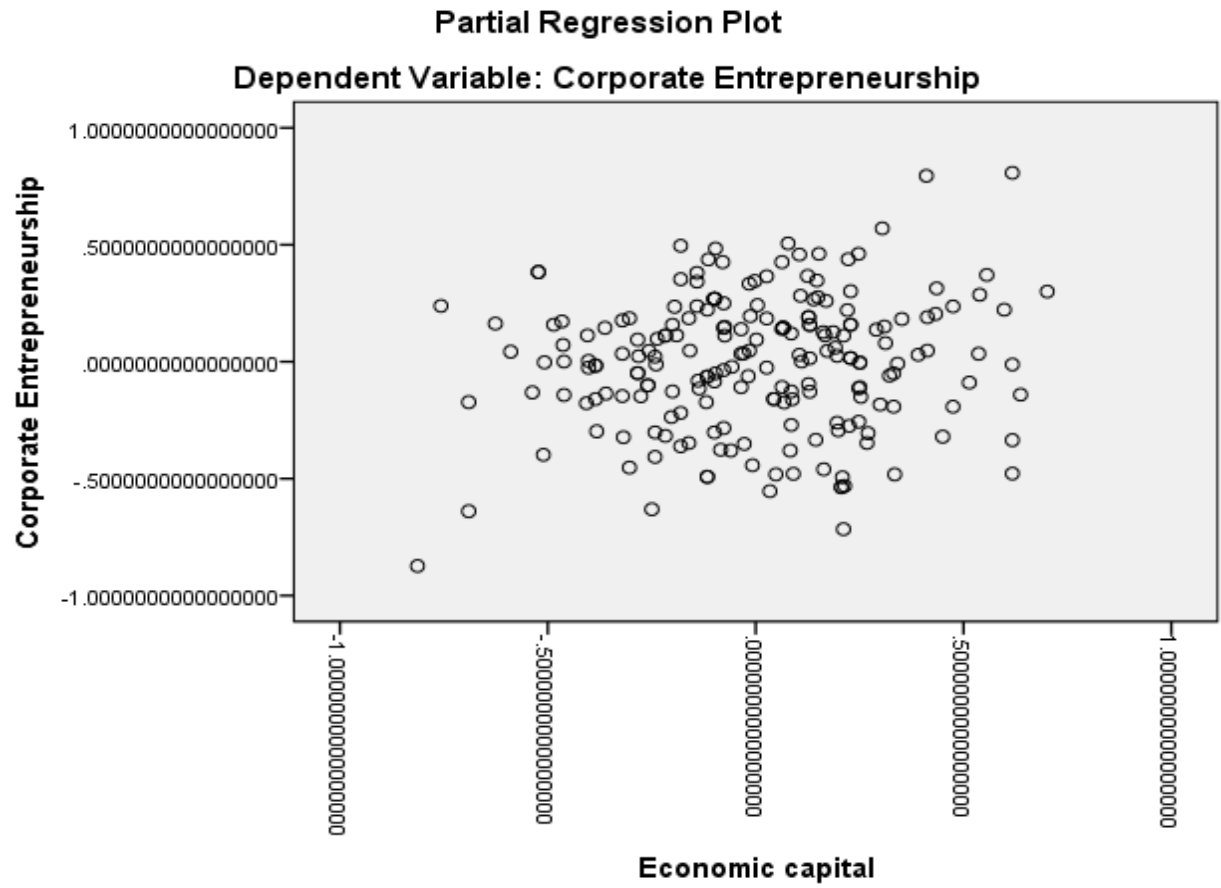


**Scatterplot**

**Dependent Variable: Corporate Entrepreneurship**







## Appendix G

### Stepwise method

| Variables Entered/Removed                         |                   |                   |   |
|---|-------------------|-------------------|---|
| Model   | Variables Entered | Variables Removed | Method  |
| 1   | Human capital     | .                 | Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100). |
| 2   | Social Capital    | .                 | Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100). |
| a. Dependent Variable: Corporate Entrepreneurship |                   |                   |   |

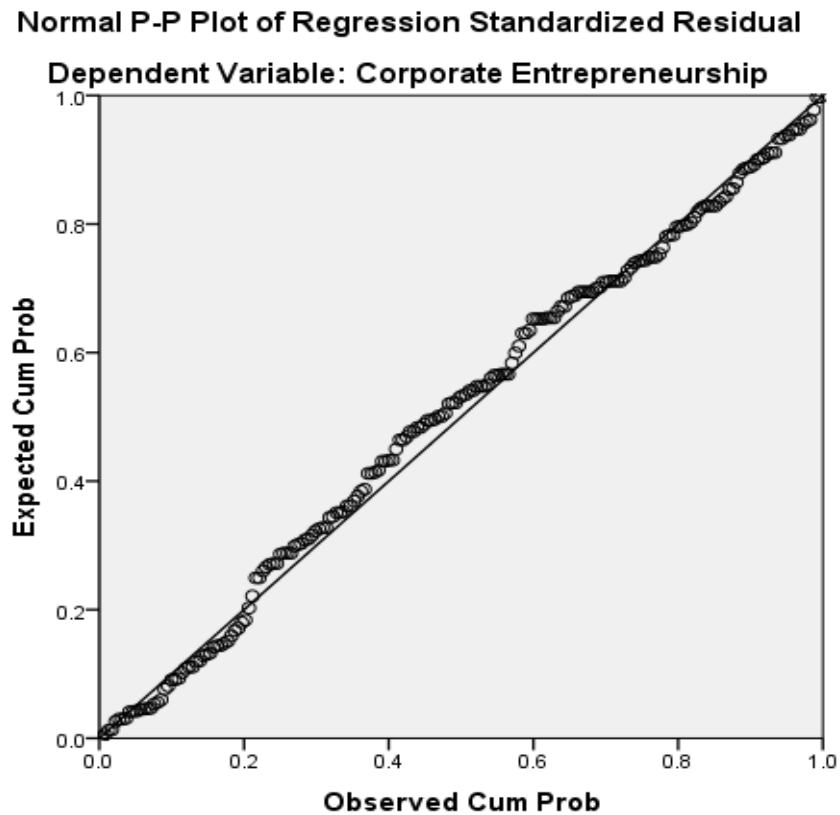
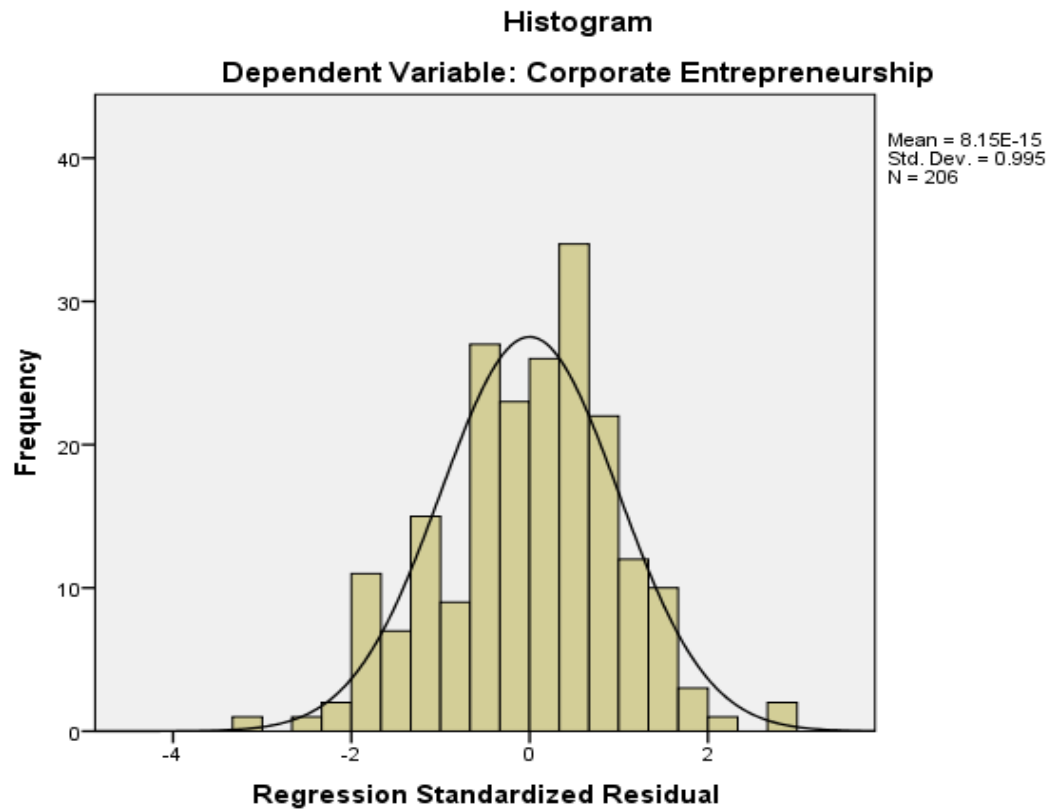
| Model Summary  |                   |          |                   |                            |                   |          |     |     |
|--|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|
| Model  | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |
|  |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 |
| 1  | .398 <sup>a</sup> | .158     | .154              | .297924048145183           | .158              | 38.398   | 1   |     |
| 2  | .486 <sup>b</sup> | .236     | .228              | .284593771089381           | .077              | 20.558   | 1   |     |
| a. Predictors: (Constant), Human capital                 |                   |          |                   |                            |                   |          |     |     |
| b. Predictors: (Constant), Human capital, Social Capital |                   |          |                   |                            |                   |          |     |     |
| c. Dependent Variable: Corporate Entrepreneurship        |                   |          |                   |                            |                   |          |     |     |

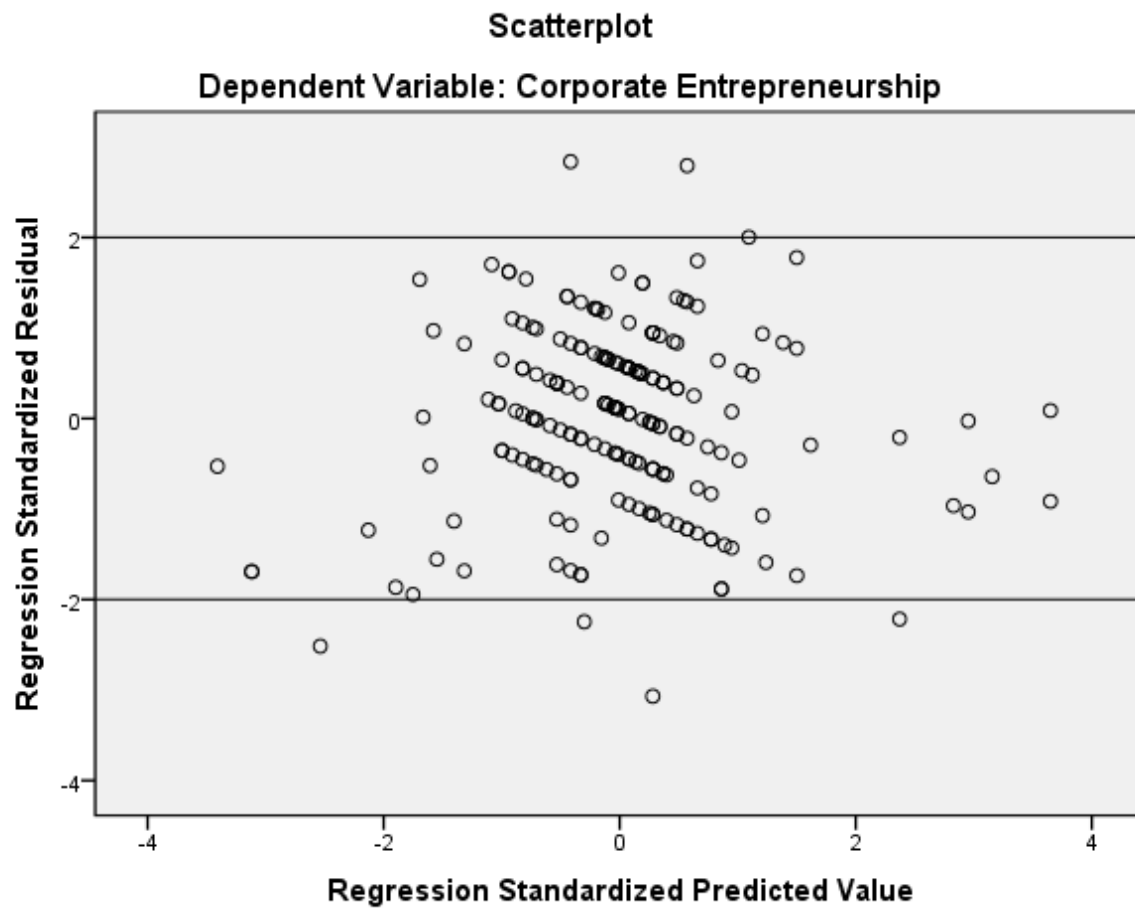


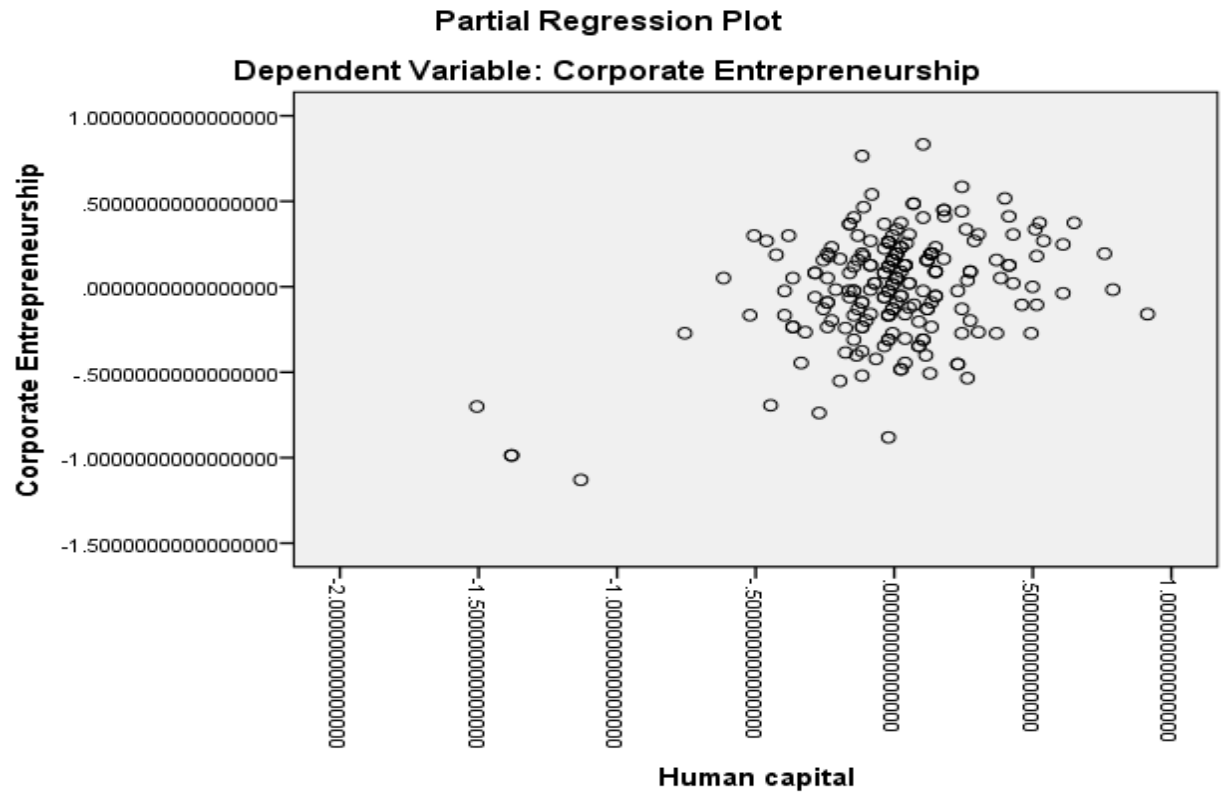
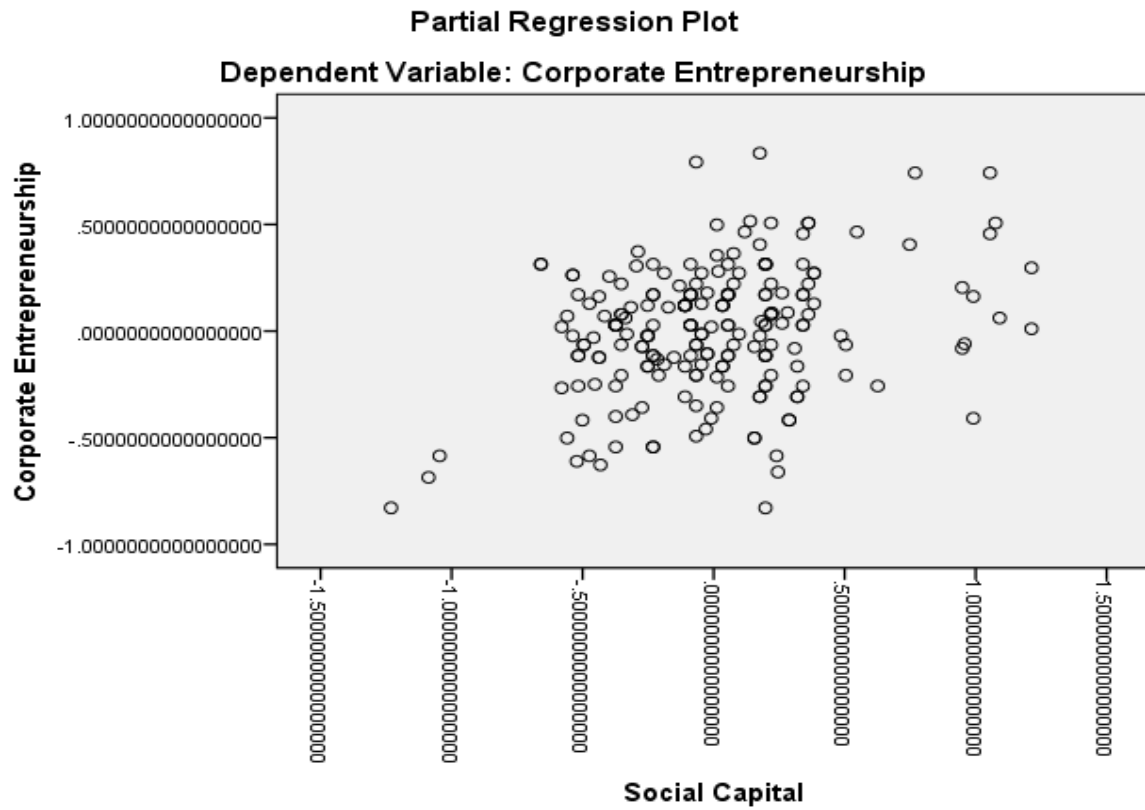
| Anova   |            |                |     |             |        |                   |
|---|------------|----------------|-----|-------------|--------|-------------------|
| Model   |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
| 1   | Regression | 3.408          | 1   | 3.408       | 38.398 | .000 <sup>b</sup> |
|   | Residual   | 18.107         | 204 | .089        |        |                   |
|   | Total      | 21.515         | 205 |             |        |                   |
| 2   | Regression | 5.073          | 2   | 2.537       | 31.319 | .000 <sup>c</sup> |
|   | Residual   | 16.442         | 203 | .081        |        |                   |
|   | Total      | 21.515         | 205 |             |        |                   |
| a. Dependent Variable: Corporate Entrepreneurship         |            |                |     |             |        |                   |
| b. Predictors: (Constant), Human capital                  |            |                |     |             |        |                   |
| c. Predictors: (Constant), Human capital , Social Capital |            |                |     |             |        |                   |

| Model |                | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|-------|----------------|-----------------------------|------------|---------------------------|-------|------|
|       |                | B                           | Std. Error | Beta                      |       |      |
| 1     | (Constant)     | 2.072                       | .261       |                           | 7.930 | .000 |
|       | Human capital  | .404                        | .065       | .398                      | 6.197 | .000 |
| 2     | (Constant)     | 1.405                       | .290       |                           | 4.848 | .000 |
|       | Human capital  | .366                        | .063       | .361                      | 5.824 | .000 |
|       | Social Capital | .224                        | .049       | .281                      | 4.534 | .000 |

| Excluded Variables   |                  |                   |       |      |                     |                         |
|--|------------------|-------------------|-------|------|---------------------|-------------------------|
| Model  |                  | Beta In           | t     | Sig. | Partial Correlation | Collinearity Statistics |
|  |                  |                   |       |      |                     | Tolerance               |
| 1  | Social Capital   | .281 <sup>b</sup> | 4.534 | .000 | .303                | .982                    |
|  | Economic capital | .230 <sup>b</sup> | 3.219 | .001 | .220                | .772                    |
| 2  | Economic capital | .131 <sup>c</sup> | 1.749 | .082 | .122                | .666                    |
| a. Dependent Variable: Corporate Entrepreneurship                      |                  |                   |       |      |                     |                         |
| b. Predictors in the Model: (Constant), Human capital                  |                  |                   |       |      |                     |                         |
| c. Predictors in the Model: (Constant), Human capital , Social Capital |                  |                   |       |      |                     |                         |







## Appendix H

### Backwards elimination method

| Model Summary   |                   |          |                   |                            |
|---|-------------------|----------|-------------------|----------------------------|
| Model   | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1   | .497 <sup>a</sup> | .247     | .236              | .283                       |
| 2   | .000 <sup>b</sup> | .000     | .000              | .323                       |
| a. Predictors: (Constant), Economic capital, Social Capital , Human capital |                   |          |                   |                            |
| b. Predictor: (constant)  |                   |          |                   |                            |

| Anova   |            |                |     |             |        |                   |
|---|------------|----------------|-----|-------------|--------|-------------------|
| Model   |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
| 1   | Regression | 5.319          | 3   | 1.773       | 22.111 | .000 <sup>b</sup> |
|   | Residual   | 16.196         | 202 | .080        |        |                   |
|   | Total      | 21.515         | 205 |             |        |                   |
| 2   | Regression | .000           | 0   | .000        | .      | . <sup>c</sup>    |
|   | Residual   | 21.515         | 205 | .105        |        |                   |
|   | Total      | 21.515         | 205 |             |        |                   |
| a. Dependent Variable: Corporate Entrepreneurship                           |            |                |     |             |        |                   |
| b. Predictors: (Constant), Economic capital, Social Capital , Human capital |            |                |     |             |        |                   |
| c. Predictor: (constant)  |            |                |     |             |        |                   |

| Model |                  | Unstandardized Coefficients |            | Standardized Coefficients | t       | Sig. |
|-------|------------------|-----------------------------|------------|---------------------------|---------|------|
|       |                  | B                           | Std. Error | Beta                      |         |      |
| 1     | (Constant)       | 1.339                       | .291       |                           | 4.603   | .000 |
|       | Social Capital   | .190                        | .053       | .238                      | 3.586   | .000 |
|       | Human capital    | .308                        | .071       | .304                      | 4.365   | .000 |
|       | Economic capital | .117                        | .067       | .131                      | 1.749   | .082 |
| 2     | (Constant)       | 3.687                       | .023       |                           | 163.328 | .000 |

| Excluded Variables                                |                  |                   |       |      |                     |                         |       |                   |
|---|------------------|-------------------|-------|------|---------------------|-------------------------|-------|-------------------|
| Model   |                  | Beta In           | t     | Sig. | Partial Correlation | Collinearity Statistics |       |                   |
|   |                  |                   |       |      |                     | Tolerance               | VIF   | Minimum Tolerance |
| 2   | Social Capital   | .329 <sup>b</sup> | 4.973 | .000 | .329                | 1.000                   | 1.000 | 1.000             |
|   | Human capital    | .398 <sup>b</sup> | 6.197 | .000 | .398                | 1.000                   | 1.000 | 1.000             |
|   | Economic capital | .368 <sup>b</sup> | 5.646 | .000 | .368                | 1.000                   | 1.000 | 1.000             |
| a. Dependent Variable: Corporate Entrepreneurship |                  |                   |       |      |                     |                         |       |                   |
| b. Predictor: (constant)                          |                  |                   |       |      |                     |                         |       |                   |