

**Relationship Between Intellectual Capital Accounting and Business
Performance in the Pharmaceutical Firms in Kenya**

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Philosophy in Human Resource Management in the Jomo Kenyatta
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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university

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DEDICATION

This thesis is dedicated to first and foremost my parents Dad David and Mum Mary, my wife Lenah and our lovely kids De'john and Niquita whose love, strength, perseverance and patience enabled me to overcome the many challenges and confrontations throughout my doctoral studies.

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ACRONYMS AND ABBREVIATIONS

ATO	Assets Turn Over
AMOS	Analysis of Moment Structures
ANOVA	Analysis of Variance
BP	Business Performance
CEE	Capital Employed Efficiency
CFI	Comparative Fit Index
CK	Customer Knowledge
CSR	Customer and Supplier Relations
COMESA	Common Market for Eastern and Southern Africa
EE	Experience and Expertise
EP	Employee Productivity
EVA	Economic Value Added
EBIT	Earning Before Interest and Tax
GFI	Goodness of Fit Index
HCE	Human Capital Efficiency
HC	Human Capital
HR	Human Resources
ICE	Intellectual Capital Efficiency

IC	Intellectual Capital
IC	Innovation and Creation
ICA	Intellectual Capital Accounting
IPR	Intellectual Property Rights
LE	Learning and Education
MB	Market to Book Value Ratio
OECD	Organization for Economic Cooperation and Development
PC	Physical Capacity
PG	Profit Growth
PSK	Pharmaceutical Society of Kenya
QQ	Quantile Quantile
RC	Relational Capital
RD	Research and Development
RMR	Root Mean Residuals
RMSEA	Root Mean square error of approximation
ROA	Return On Assets
ROCE	Return on Capital Employed
SALA	Strategic Alliances, Licensing and Agreements
SAS	Statistical Analysis System
SC	Structural Capital

SF	Size of the firm
SG	Sales Growth
SP	Systems and Programs
SPSS	Statistical Package for Social Science
SV	Stock Value

DEFINITION OF OPERATIONAL TERMS

Human capital- This is a range of valuable skills and knowledge a person has accumulated overtime. Investment in education skills of the human resources (Edvinson & Malone 1997, Bontis, 1998, Saint-Onge, 1996,)

Structural capital- Structural capital comprises all kinds of knowledge deposits such as organizational routines, strategies, process handbooks, and databases (Boisot, 2002; Ordonez de pablos 2004; Walsh & Ungson, 1991, Roos *et al.*, 1998).

Relational capital- This is the ability of an organization to interact positively with business community members to motivate the potential for wealth creation by enhancing human and structural capital (Marti, 2001, Dewhurst & Navarro, 2004, Sveiby, 2000). Relational capital comprises the knowledge embedded in all the relationships an organization develops. Whether it is with customers, competitors, suppliers, trade associations or government bodies (Bontis, *et al.*, 2000).

Intellectual capital- According to Edvinson & Malone, (1997), Intellectual Capital is knowledge that can be converted into value. Stewart (1997) broadened the definition to intellectual capital as intellectual material, knowledge, information, intellectual property, experience that can be put to use to create wealth by developing competitive advantage in an organization.

Intellectual Capital Accounting- This is a process of identifying, measuring, communicating economic information and reporting the range of human and knowledge based factors that create sustained economic value in a business enterprise (Fincham, R. & Roslender, R. 2003).

Intangible assets- IAS 38 Defines intangibles as separately identifiable, non monetary, without physical substance Cearns (1999). One intangible Asset is human capital related. For example trained and assembled workforce. This category should be considered as an Asset (Tollington, 1997). This will provide a future economic benefit to the organization. Intangible Asset may commence its life as an intellectual asset. For example, the case of laboratory notes which will be a patent when the notes are guidelines to manufacture medicine.

Business performance- This is achieved when an organization is generating the maximum level of profitability possible given the human, financial, capital, and other resources it possesses. Business performance is defined as measurable result of the level of attainment of organizational goals or measurable result of the organizations management of its aspects (Daft & Marcic, 2001), or mechanism for improving the likelihood of the organization successfully implementing a strategy. Business performance evaluation is the process to help management's decisions regarding an organizations performance by selecting indicators, collecting and analyzing data,

assessing information against performance criteria, reporting and communicating and periodically reviewing and improving this process.

Human productivity- Describes how efficiently inputs are converted into outputs. According to (Patton, 2007), the productivity of a firm lies more on its intellectual capital and system capabilities than on its hard assets. (Bontis *et al.*, 2000) argues that leveraging knowledge assets is the key to a firm's prosperity. A firm with higher capital performance is expected to have higher rate of profitability and also it may experience higher productivity (Rob, 2010, Saari, 2006, Lazear, 2000)

Profitability – This can be defined as the state or condition of yielding a financial profit or gain. It is often measured by price to earnings ratio Business Dictionary, (2011). Profitability shows the degree to which a firm's revenue exceeds over the costs. Profitability was measured using sales growth which is the increase in sales over a specific period of time, often but not necessarily annually and profit growth which is a combination of profitability and growth, more precisely the combination of economic profitability (Brealey *et al.*, 2005 Richard, 2011, Helfert, 1997, Harrington, 1993, Fridson & Fernando, 2002).

Relationship – This is a correspondence between two variables that is Dependent Variable versus Independent Variable (Mugenda, 2008, Sekaran, 2008).

Pharmaceutical firms – These are firms that develop produces and markets drugs licensed for use as medication (Pharmaceutical society of Kenya, 2009).

Market valuation- This describes the degree to which a firm's market value exceeds its book value. It is the ratio of the total market capitalization which is the average share price time's number of outstanding common shares to book value of net assets hence Human capital adds Shareholder Value (Watson, 2002),

ABSTRACT

From the human resource point of view, intellectual capital is an investment in the organization and it is perceived to be the strategic resource and a source of competitive advantage and therefore not indicated on the statement of the financial position of a firm. Intellectual capital in conventional accounting is indicated as a cost rather than an investment. The purpose of the study was to test the relationship between intellectual capital accounting and business performance of the pharmaceutical firms in Kenya and why these firms do not account for human resources as competitive and strategic assets which offer firms a competitive advantage.

The specific objectives were to determine whether human capital, structural capital and relational capital individually and collectively influence business performance of pharmaceutical firms in Kenya.

The study was carried out in Nairobi since most of the pharmaceutical firms were located here apart from a few, which were based outside Nairobi. At present, the existing research on intellectual capital accounting is concentrated on developed countries and the policies and frameworks are derived from them as they are only suitable to developed countries. However, none of these studies identify the relationship between intellectual capital accounting and business performance in pharmaceutical firms in Kenya and therefore the need to carry out the research.

The research study adapted three research designs namely: Quantitative, explanatory and descriptive research design. The target population constituted 89 pharmaceutical firms and the sample frame was comprised of 31 local pharmaceutical firms licensed by pharmacy and poisons board in 2010-2011 which formed the sample size, thus represented 35% of the total population. Purposive sampling procedure was used to arrive at 31 pharmaceutical firms while judgemental sampling was used to target the human resource managers.

The instrument of data collection was a structured questionnaire with questions anchored on a five (5) point likert type ranking scale which was administered to the respondents. The data processing and analysis was done mainly by the use of logarithmic multiple linear regression analysis. The researcher also employed inferential statistics to test the hypothesis of the study.

The results and findings of the study indicated that human capital, structural capital and relational capital influenced business performance of pharmaceutical firms in Kenya. Human capital and structural capital relationship strongly existed among the studied pharmaceutical firms; and that the two positively and significantly influenced business performance. In addition to confirming that human capital, structural capital and relational capital are dimensions of intellectual capital accounting, relational capital did not interact with human capital and business performance but univariately it did.

The developed model confirmed that the theory fitted data with fit indices above or below the required thresholds and the empirical results provided strong support for the model. Two independent variables namely human capital and structural capital were found to have high significance and positive influence on business performance of pharmaceutical firms in Kenya. A final modified research model, named “intellectual capital accounting model” was developed. The conceptual model indicated that the factors extracted explained 92.8% representative of the full model with a goodness of fit index of 0.928 and root mean residuals of 0.009. The study provides strong practical value in that the results can assist investors, policy makers, and present pharmaceutical firms in understanding the dynamics and processes of intellectual capital accounting. This understanding can promote the development and sustainability of business performance of pharmaceutical firms in Kenya. This research is a first attempt to show that human capital and structural capital are critical to business performance of pharmaceutical firms in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background

The paradigm of production based economy has shifted to a knowledge based economy. In the contemporary era it is recognized that knowledge has become the main source of social, economic, and cultural development. Knowledge is embodied in human beings in tacit and explicit forms. Tacit knowledge is mainly based on common sense while explicit knowledge is derived from academic accomplishments (Smith, 2001). In a knowledge based economy almost all activities are based on knowledge, and it has become the most important economic resource and is replacing financial and physical capitals as the most critical capital (O'Donnell, Regan, Coates, Kenedy, Keary and Bekery, 2003). Many organizations focused their attention to utilize and strengthen the knowledge based assets of organization to gain exponential growth (Hamzah and Ismail, 2008). Further they argued that majority of the organizations apply their knowledge and internal capabilities to take competitive advantage. This therefore indicates that the performance of an organization depends on how well the organization manages its knowledge based assets.

Organization's resources can be broadly divided into three; financial resources, physical resources and human resources (employees) at the end of any financial year, the financial and physical resources are reflected as assets in the company's balance sheet. The only reference made about human resources is usually in the Chairman's or Chief Executive Officers' keynote address to the effect that, "Before I conclude, I wish to sincerely thank our employees without whose dedication and commitment, we would not have achieved our objectives and they are our most valued resources" (Edvinsson & Malone, 1997).

According to Stewart (2002), knowledge based economy is constituted on three pillars, one is knowledge that we buy, sell and do; two, knowledge based assets have become more crucial to the organization; three, in order to prosper new management techniques, new technologies and new strategies are required to explain the knowledge based assets. However, the knowledge embedded in individuals and organizations has been stated as Intellectual capital (Demediuk, 2002, Sullivan, 1999, Stewart, 1997). In a knowledge based economy, organizations are managed based on intellectual capital and they are completely dependent on the intellectual capital. (Khaliq, Shaari, Isa & Ageel, 2011) stipulated that intellectual capital is a critical source for organizations to take competitive advantages. In spite of the importance of intellectual capital most organizations do not grasp the fact on the importance and the application of intellectual capital in their organizations (Bontis, 2011 & Collis, 1996). Today's organizations are

facing tremendous and fierce global competition for their survival, and intellectual capital is recognized as a critical resource that drives economic growth and organizations to compete global challenges (Huang & Liu, 2005).

Intellectual Capital Accounting on the other hand is a method of measuring and reporting the range of human and knowledge based factors that create sustained economic value in a business enterprise (Fincham, & Roslender, 2003). Much of the literature on intellectual capital accounting has focused on the developed world but in the developing countries like Kenya, there is seldom any literature on intellectual capital accounting. For the purpose of this study, intellectual capital accounting components that is, human capital, structural capital and relational capital were used to measure the effect of intellectual capital accounting on business performance of pharmaceutical firms in Kenya since these firms are considered as one of the most important Knowledge intensive organizations and a great source of intellectual capital (pharmaceutical society of Kenya 2012).

A common frame of reference is that knowledge can be procured, measured, evaluated and distributed as something that is tangible. Knowledge is measured much like profits with a very short-term time horizon. Practitioners often look at information technology to capture and distribute this explicit knowledge; firms measure success by near-term economic returns on knowledge investment (Pfeffer & Sutton, 2006).

Whereas physical capital was of utmost importance in the economy of the past, the distinctive feature of the emerging economy is an increasing emphasis on human and intellectual capital the knowledge, skill, and experience of people. Given the growing importance of human capital and intellectual property as determinants of economic success at both the macroeconomic and enterprise levels, it should also be clear that the nature of investments made by firms needs to shift to reflect the new economic realities. Specifically, if human capital is a key determinant of organizational success, then investments in training and development of people also become critical (Flamholz, 1999).

As an intangible, human capital gains no specific recognition on the standard financial statements of corporations. However, in the new economies of the 21st century it is becoming increasingly clear that intangible factors such as the firm's investments in human resource are playing an increasingly dominant role in the creation of wealth. The capability for a value proposition to the marketplace through economic activity increasingly consists of exchanges of information, ideas, communication, and expertise in distinctive competencies and services. Corporate profitability is often driven more by organizational capabilities than by control over physical resources, and even the value of physical goods are often due to such intangibles as technical innovations embodied in the products, brand appeal, creative presentation (Lev, 2001).

This study is entrenched on the relationship between intellectual capital accounting and business performance of pharmaceutical firms. Although intellectual capital may be a source of competitive advantage, most organizations do not understand its nature and value (Collis, 1996). According to (Huand & Liu, 2005), due to increased globalised competition, there is wide spread recognition that intellectual capital is a critical force that drives economic growth.

One of the particular industries that are considered knowledge intensive and a source of great intellectual capital is the pharmaceutical industry (Daum, 2005). The industry is research intensive (Devol et al., 2004), highly innovative (Chen, 2004), well balanced in its use of human intervention and technology (Hermans, 2004) and to a large extent dependent on its intellectual capital as a source of renewal (Zucker et al., 1994). Intellectual capital is supreme over other capitals in value creation and therefore the need to explore the relationship between intellectual capital accounting and business performance in the pharmaceutical firms in Kenya.

Pharmaceutical firms in Kenya are considered as one of the most important knowledge intensive organizations and a great source of intellectual capital (Pharmaceutical society of Kenya, 2012). According to the Kenya Economic Survey 2009, gross domestic product (GDP) at market prices totaled US\$ 27,997 million, giving a GDP (current) per capita figure of US\$ 731.93. The manufacturing sector is important in the economy and

it accounts for about 10% of gross domestic product. The sector was estimated to have expanded by 3.3% in 2011 compared to a revised growth of 4.5% in 2010 (Economic survey 2012). Globally the growth of pharmaceutical firms was between 4-6% in 2010-2011 exceeding \$825 billion (UNIDO, 2011). Kenya uses about 8% of the GDP on health. According to African countries supplying pharmaceutical products to the Common Market and COMESA, Kenya exported US\$ 43,677 in 2008 and this is likely to go up UNIDO, (2011). This therefore indicates that the Pharmaceutical industry has performed well in terms of intellectual capital and its components namely human capital, structural capital and relational capital, this is what has triggered the competitive advantage hence improved business performance not only in Kenya but globally.

The pharmaceutical industry in Kenya consists of three segments namely the manufacturers, distributors and retailers and all these play a major role in supporting the country's health sector which is estimated to have about 4557 health facilities country wide (Pharmaceutical society of Kenya, 2010). Kenya is currently the largest producer of pharmaceutical products in the Common Market for Eastern and Southern Africa region supplying about 50% of the regions market. Out of the regions estimated 50 recognized pharmaceutical manufacturers, approximately thirty are based in Kenya. It is also approximated that about 9,000 pharmaceutical products have been registered for sale in Kenya. These are categorized according to particular levels of outlets as: free or over the counter sales, pharmacy technologist, dispensable or pharmacist dispensable.

Currently, medical care is a prerequisite among employers; the law requires that every employer ensures the provision of proper medicines and attendance to employees unless otherwise provided for by the government (labor laws, 2007). The pharmaceutical industry is therefore an important and crucial sector in the Kenyan economy. This sector represents the second largest African country after South Africa to start producing generic antiretroviral drugs in the continent. The past, present and future trends of human resource accounting, research asserts that today, human and intellectual capital are the strategic resources and therefore a clear estimation of their value has gained great importance.

The pharmaceutical sector consists of about 31 licensed pharmaceutical firms which include local manufacturing companies and large multinational corporations, subsidiaries or joint ventures. These firms collectively employ over 2000 people, about 65% of who work in direct production. The industry compounds and packages medicines repacking formulated drugs and processing bulk drugs into doses using predominantly imported active ingredients and recipients. The bulk of locally manufactured preparations are non-sterile, over the counter products. However, the number of companies engaged in manufacturing and distribution of pharmaceutical products in Kenya continue to expand, driven by the government's efforts to promote local and foreign investments in the sector. The companies that were considered in this study sought from the pharmaceutical society of Kenya which its roles and objectives

are licensing the pharmacists, as well as ensuring the drug store managers are members of the pharmaceutical society and have sworn allegiance to the pharmacy practitioners professional oath. Pharmaceutical society of Kenya equally plays the role of raising queries and when they believe its members are committing malpractices. It ensures standards which include; monitoring and advising its members on new disease control programmes, promotes increased quality training of pharmacy personnel, ensures proper distribution of pharmaceutical and non pharmaceutical products, compound sterile and non-sterile pharmaceutical products according to guidelines, compound extemporaneously that it is to compound any non-sterile pharmaceutical products prepared in a single item for patients and undertake pharmacy management (Pharmaceutical Society of Kenya, 2010).

1.2 Statement of the Problem

Currently, pharmaceutical firms account and report financial assets on the conventional statement of financial position. Financial assets are financed with equity and external funds. The financing of intellectual capital assets is approached in exactly the same way. The intellectual capital assets are either owned by the company (explicit) or borrowed by the company (tacit). This therefore leads to the construction of the liabilities side of intellectual statement of financial position (Saleh, 2007).

Identification, measurement and reporting information on intangibles are the major value drivers in the knowledge economy (Starovic and Marr, 2003; Ashton, 2005). The conventional accounting disregards the efforts of human resources towards the contribution of business performance. This therefore does not provide the true and fair view of the firm's financial position and performance as it leaves out the intellectual capital accounting components (Canibano et al, 2000; Ashton, 2005).

Intellectual capital based theory considers intellectual capital as being the only strategic resource to allow a company to create value addition and therefore it is a source of competitive advantage (Reed, et al, 2006). Intellectual capital is not captured by most firms in their statements of financial position, yet it is an important resource for making organizations have competitive advantage. The firms that intensively account for intellectual capital in the statement of financial position are more competitive than other firms that do not account for the intellectual capital and are therefore more successful (Youndt et al., 2004, Chiucchi, 2008 Steven, 2011).

Despite the benefits of intellectual capital accounting, in Kenya the pharmaceutical firms do not account, disclose and report their intellectual capital in their statement of financial position as compared to international pharmaceutical firms operating locally. This is because the local pharmaceutical firms are not listed in the securities market and

their financial information is not readily and therefore they have difficulty in attracting investors and banks and therefore, this affects their business performance.

The more the pharmaceutical firms accounts, values and discloses its intellectual capital, the more they become competitive and retains confidentiality of its stakeholders. If intellectual capital is not accounted for and disclosed, the book value of its share and market value will diverge (Okwy & Christopher, 2010, Holland, 2009)

Most of the studies in this area are conducted in developed countries but seldom any has been done in Kenya and there is hardly any literature of intellectual capital accounting in Kenya. Therefore, the need to explore whether there is any relationship between intellectual capital accounting and business performance in pharmaceutical firms in Kenya.

1.3 General objective

The objective of this study was to investigate the relationship between intellectual capital accounting and business performance in pharmaceutical firms in Kenya.

Specific objectives

The specific objectives of the study were to:

1. Determine whether human capital influences business performance of pharmaceutical firms in Kenya
2. Determine whether structural capital influences business performance of pharmaceutical firms in Kenya
3. Determine whether relational capital influences business performance of pharmaceutical firms in Kenya

1.4 Hypothesis

A hypothesis is an assumption. It is a tentative explanation for certain behavior patterns, phenomena, or events that have occurred or will occur (Gay, 1996). For the purpose of this study alternative hypotheses were used which states a value or relationship between the independent and dependent variables (Kombo & Tromp, 2006). Most of the research done on Intellectual capital use directional hypothesis which states the relationship between the variables being studied or difference between experimental treatments that a researcher expects to emerge (Khalique et al., 2011, Cabrita & Bontis, 2008, Saari, 2011, Shabarati & Bontis, 2010, Cheng et al., 2010).

The research study was be guided by the following alternative hypotheses

H_1 : Human capital positively and significantly influences the business performance of the pharmaceutical firms in Kenya

H_2 : Structural capital positively and significantly influences the business performance of the pharmaceutical firms in Kenya

H_3 : Relational capital positively and significantly influences the business performance of the pharmaceutical firms in Kenya

1.5 Importance of the study

Human resource and intellectual capital accounting play a major role in the development of competitive advantage of business organization. Findings from this study were useful for the domestic pharmaceutical industry because they help them overcome problems arising from valuation of the intangible assets, overcome difficulties in providing sufficient information to investors in traditional balance sheet and finally to profile the enterprise and improve its image and attract future employees. Thus, the results of this study are not only useful for individual firm, but also for researchers, industry, policy makers and largely to investor's community. It benefits the decision makers because it helps the senior management in understanding the long term cost and benefits implications of their human resources decisions so that better business decisions can be taken. The study greatly contributed to the understanding of the intellectual capital accounting of Kenyan pharmaceutical firms and serves as a base for further studies on intellectual capital.

1.6 Scope of the study

The research was carried out in Nairobi according to the location of the firms under the pharmacy and poisons board. The study concentrated on the 31 pharmaceutical firms. It focused on pharmaceutical firms due to the fact that skilled manpower is the core for research and development activities of these firms, which are integral part of human capital.

The huge investment that the firm makes on the intellectual capital infrastructure is an inseparable component of the structural capital. The continuous efforts of the firm in developing new molecules result in a substantial patent ownership in these firms. This intellectual capital forms a part of the organizational assets and capital. The study concentrated on the 31 pharmaceutical firms which were licensed by pharmacy and poisons board 2010-2011.

1.7 Limitations of the study

Access to managers with the required information on the components of intellectual capital accounting was a problem as they lacked the understanding of intellectual capital accounting. This was mitigated by researcher taking the managers through the facets of intellectual capital accounting and how they were being utilized in the pharmaceutical firms. They were also guided through the questionnaire to have an in-depth understanding on what they were expected to respond to the questions.

There was difficulty in following up the questionnaires during the data collection process since most of the pharmaceutical firms are not listed in the Nairobi Security Markets therefore the information is not generally available to the public. However, this limitation was mitigated by persistent continuous follow up until the human resource managers gave feedback. The respondents were assured of their confidentiality of the information relayed and insisted that it was purposely meant for academics not for business.

The VAICTM method as one of intellectual capital measurement focusing on accounting measures and financial calculations was not be used since these required publicly traded companies whose audited financial results were fully disclosed and available, this phenomenon lacks in Kenya because the study found out that only two (Glaxosmithkline and Cosmos Ltd) out of the 31 targeted companies disclosed their financial information. All the other 29 were not listed in the security exchange market and therefore were not willing to disclose their financial results.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review was guided by the topic of discussion that is relationship between intellectual capital accounting and business performance of pharmaceutical firms in Kenya and the components of intellectual capital accounting that are indicated on the objectives of the study namely human capital, structural capital and relational capital. This section is divided into the following subheading drawn from the research topic.

2.1.1 Knowledge Economy

In the knowledge-based economy, organization's capabilities are based on knowledge and managers should understand which capabilities they need in order to maintain their competitive advantages (Barney, 1991; Prahalad & Hamel, 1990; Jafari et al., 2009). Many sectors are animated by new economics, where the payoff to managing knowledge astutely has been dramatically amplified, in part because of the phenomena of increasing returns, in part because of new information technology, and in part because of the changing role of intellectual property (Teece, 2000). Thus firms are more intensive to create obstacles to copying, reduce openness, and limit the spillover of information to buyers and outside competitors (Akiyama & Furukawa, 2009).

2.1.2 Organizational Resources

Organization's resources can be broadly divided into three: Financial resources, physical resources and human resources (employees) at the end of any financial year, the financial and physical resources are reflected as assets in the company's balance sheet. The only reference made about human resources is usually in the Chairman's or Chief Executive Officers' keynote address to the effect that, "Before I conclude, I wish to sincerely thank our employees without whose dedication and commitments, we would not have achieved our objectives and they are our most valued resources" (Edvinsson & Malone, 1997).

2.1.3 Physical Resources

The category of physical resources covers a wide range of operational resources concerned with the physical capability to deliver a strategy. These include production facilities, location of existing production facilities, capacity, investment and maintenance requirements, current production processes, quality, method and organization, extent to which production requirements of the strategy can be delivered by existing facilities marketing facilities, marketing management process, distribution channels, information technology, Integration with customers and suppliers Tutor 2u, (2012).

2.1.4 Financial Resources

Financial resources concern the ability of the business to finance its chosen strategy. For example, a strategy that requires significant investment in new products, distribution channels, production capacity and working capital will place great strain on the business finances. Such a strategy needs to be very carefully managed from a finance point-of-view. An audit of financial resources would include assessment of the following factors: Existing finance funds, cash balances, bank overdraft, bank and other loans, shareholders' capital ,working capital (i.e. stocks, debtors) already invested in the business, creditors (suppliers, government) ability to raise new funds, strength and reputation of the management team and the overall business, strength of relationships with existing investors and lenders ,Attractiveness of the market in which the business operates and Listing on a quoted Stock Exchange (Tutor 2u, 2012; Serenko et al., 2008).

2.1.5 Human Resources

Human resource at macro level indicates the sum of all components such as skills, creative abilities, innovative thinking, intuition, imagination, knowledge and experience possessed by all the people. An organization with abundant physical resources may sometimes fail miserably unless it has right people, human resource to manage its affairs. Thus the importance of human resource cannot be ignored. Therefore, it becomes important to pay due attention on proper development of such an important resource of

an organization. An audit of human resources would include assessment of the following factors: Existing staffing resources, numbers of staff by function, location, grade, experience, and qualification, remuneration, existing rate of staff loss overall standard of training and specific training standards in key roles Assessment of key "intangibles" for example. Morale and business culture (Bontis, 2008; Chen, 2004, Chen et al., 2005)

The success of an organization depends on how best the scarce physical resources are utilized by the human resource. Therefore, the efficient and effective utilization of inanimate resources depends largely on the quality, calibre, skills, perception and character of the people. (Bontis & Cabrita, 2008). The fact that intellectual capital is not reflected in the balance sheet brings into focus the question whether employees are assets or liabilities. Various studies have been conducted to answer this question. It has been observed that financial and physical resources are passive factors of production while human resources are active factors because it mobilizes the financial resources, exploit the physical resources and build up a progressive organization. For that reason, it is the most important of the three resources. Manpower is the largest component of any organization and its proper development is vital to success of the organizations' productive efforts (Guthrie et al; 2004).

The success and survival of any organization depends upon the manner in which people are recruited, developed and utilized effectively. All activities of any enterprise are

initiated and determined by the persons who make up that institution. Plants, offices, computers, automated equipment, and all else that a modern firm uses are unproductive except for human effort and direction. Human beings design or order the equipment; they decide where and how to use computers; they modernize the technology employed; they secure the capital needed and decide on the accounting and physical procedures to be used. Every aspect of a firm's activities is determined by the competence, motivation and general effectiveness of its human organization (Hendry et al., 1990).

Most management would agree that the effectiveness of their organizations would at least be doubled if they could discover how to tap the unrealized potential present in their human resources. Theories that were propounded earlier based on the above studies, can be concluded that human resources are not only assets but the most valuable of all assets. However, as assets, they ought to be reflected in the financial statements (balance sheet) like other assets. For this to be done, they must first be properly valued. The valuation of human resources is a major challenge that so far, very few organizations have taken up (Stewart, 2001).

Intellectual capital accounting is a method of measuring and reporting the range of human and knowledge based factors that create sustained economic value in a business enterprise (Fincham & Roslender, 2003). The components of intellectual capital

accounting that are measured and reported include Human capital, structural capital and relational capital.

Human capital includes such attributes as education and training, experience and expertise, capacity for innovation and team working, flexibility, attitude to change, all of the qualities that identify both individuals and the collectivity as being valuable organizational assets. Designating them as assets, however, is an important issue, since within conventional accounting and reporting employees are principally represented as a cost. Consistent with what was argued in the previous section, in practice as well as paying their employees, employers commonly take steps to grow the stock of attributes that reside with their employees (Abeysekera, 2008).

Structural capital can be considered as glue for an organization. It is a critical component of intellectual capital. It represents all the non human storehouses of knowledge including databases, organizational charts, process manual, strategies, routines and policies (Bontis et al, 2000; Wu & Tsai, 2005; Shaari et al., 2010; Khalique, et al., 2011). Roos et al (1998) stated that structural capital as “what remains in the company when employees go home for the night” structural capital provides the environment that support individuals to invest their human capital to create and leverage to enhance the business performance.

Relational capital is mainly based on the relationship between the organization and its customers (Edvinsson & Malone, 1997, Shaari et al., 2010; Tai-Ning et al., 2011). Regarding the importance of relational capital, (Roos et al., 2001, Hill & Jones, 2001 stipulated that the relationship with customers and other stakeholders is very important for organizations because customers and stakeholders buy products or services from the business enterprises. Therefore, customers and stakeholders are the main source for revenue generation of organization.

In some cases, actual expenditures are involved, which are also treated as charges in the profit and loss account in the period in which they are incurred, even though it is widely appreciated that the purpose of such investments is to create sustained shareholder value (and in recent times customer value) through the mechanism of profitable performance. The technicalities of these issues were widely explored in the accounting and finance literature and beyond in the 1960s and 1970s under the guise of human asset (Roslender, 2009). In this way accounting for intellectual capital is seen as continuing this focus into the twenty first century.

2.2 Theoretical and Conceptual Framework

Theoretical framework is a collection of interrelated ideas based on theories. It is a reasoned set of prepositions, which are derived from and supported by data or evidence.

It attempts to clarify why things are the way they are based on theories. It is therefore a general set of assumptions about the nature of phenomena (Kombo & Tromp, 2006).

The theoretical framework has been guided by the foundations of intellectual capital theory and its subcomponents. Intellectual capital emerged in the past decade in response to the growing realization of the importance of information and knowledge. Edvinsson, Malone and Stewart, 1997, agree that intellectual capital is the merging of three types of capital, human capital, structural capital and relational capital.

Once an organization becomes aligned and balanced in these three foundational components, it is able to create the best possible financial capital (value). From the intellectual capital theory perspective, human capital refers to the acquired skills, knowledge, and abilities of human beings. The underlying concept is that such skills and knowledge increase human productivity and that they do so enough to justify the cost incurred in acquiring them (Hornbeck, & Salamon, 1991). Structural capital belongs to the organization as a whole. It can be reproduced and shared and is entitled to legal rights of ownership e.g., technologies, inventions, copyrighted strategies, culture, systems, organizational routines and procedures Stewart, (1997). Relational capital is the most obviously valuable component to intellectual capital. It is based on the assumption that customers support the company and its bottom line. This capital is defined as the

value of its franchise, its ongoing relationships with the people or organizations to which it sells Stewart, (1997).

Based on Stewart, Edvinsson & Malone (1997), intellectual capital is slowly becoming a viable alternative in building competitive leverage in today's market (Donbon & Haapaneimi, Allee, (1997), because it incorporates the foundational components necessary to do business. The underlying emphasis of the intellectual capital theory is the need for consistent balance among the three components in order to create the most optimum intellectual capital organization.

Edvinsson and Malone (1997) hypothesized that corporate value does not arise directly from any of its intellectual capital factors, but only from the interaction among all three. And no matter how strong an organization is on one or two of these factors, if the third factor is weak or misdirected, that organization has no potential to turn its intellectual capital into corporate value. Therefore, a company needs to build on these particular strengths in order to produce a higher value asset. The concept of intellectual capital has been derived from the human capital theory by specifically linking knowledge to capital Stewart, (1997). By singling out knowledge from human capital theory, intellectual capital identifies individual's knowledge as assets to an organization. Based on this assumption, an organization needs to tap into its knowledge base and find ways of acquiring or sharing that knowledge with others. The first and most significant

knowledge is tacit knowledge that is in the heads of people. It is the unspoken expertise that resides among individuals and teams and it is often based on previous learning experiences, perceptions, beliefs and values Baughn et al, (1997).

The theoretical framework dwells on time tested theories that embody the findings of numerous investigations on how phenomena occur. The theoretical framework provides a general representation of relationships between things in a given phenomenon. The theoretical framework in this study deals with the theories like human capital theory, decision usefulness theory, stakeholders theory, legitimacy theory, resource dependence and resource based theory.

There are several theories that justify companies disclosing intellectual capital in their annual reports (Guthrie et al, 2004). Theories explaining the decision by companies to voluntarily disclose supplementary human capital information include human capital theory, decision usefulness theory, agency theory, stakeholder theory, legitimacy theory, resource-based theory and resource dependence theory.

2.2.1 Human Capital Theory

This theory emphasizes the value added that people contribute to an organization. It regards people as assets and stresses that investments by organizations in people will generate worthwhile returns. The theory suggests that investment in people results in

economic benefits for individuals and society as a whole (Sweetland, 1996). The investment in an individual can be made in terms of health, nutrition, education, and any other development that results in long-term benefits. It is important to clarify that the investor in this particular case is the individual who decides whether to invest his or her time, money, and other resources into some activity that will benefit his or her human capital.

Human capital theory thus focuses on educational level of employees as a source of labour productivity and economic growth (Becker, 1993; Shultz, 1993). However, in terms of benefits to an organization, general knowledge is not the most important element. One of the most influential theoretical concepts of human capital theory is the distinction between general and specific training and knowledge (Becker, 2001). The amount of human capital in the organization is linked to how well a certain task is performed; this proposition changes at the firm level and in the context of firms with significant amounts of human capital.

In assessing the contributions of the human capital to performance, it is useful to distinguish between general and specific human capital with regard to the domains of pre- and post-investment activities identified above. General human capital refers to overall education and practical experience, whereas specific human capital refers to education and experience, with a scope of application limited to a particular activity or

context (Becker, 1975; Gimeno, Folta, Cooper, & Woo, 1997; Lazear, 1998). The firm-specific training guarantees the sustainability of human capital because employees with such knowledge and skills may be more valuable to the particular company because of their firm-specific knowledge. At the same time, these are the employees that contribute to the core competence of the organization and provide competitive advantage to the firm.

The theory is associated with the resource based view of the firm Barney (1991), developed a theory that proposes that sustainable competitive advantage is attained when the firm has a human capital that cannot be imitated or substituted by its rivals, for the employer investments in training and developing people is a means of attracting and retaining human capital as well as getting better returns from those investments.

According to Barney (1991), the link between organizational human capital and performance can be understood in the context of the resource-based view of the firm, which associates superior performance with the possession of resources that are valuable, rare, inimitable, and no substitutable. Knowledge is a resource that readily meets these conditions, is heterogeneously distributed across firms, and is therefore critical and central to understanding differences in performance (Spender, 1996). Not all knowledge, however, renders a firm unique it is its tacit component, embedded in the firm's social context that makes the yielded advantage long lasting (Spender, 1996).

Human capital is a component of intellectual capital which has been referred to as a strategic asset (Bontis, 1998) and this is what makes an organization to perform better due to its unique characteristics that cannot be imitated. These returns are expected to be improvements in business performance, human productivity, flexibility and the capacity to innovate that should result from enlarging the skills base and increasing levels of knowledge and competence. According to Schuller (2000), persuasive skills, knowledge and competences are key factors in determining whether organizations and firms will prosper or fail.

2.2.2. Decision Usefulness Theory

This theory emphasizes that for decisions to be made by investors and stakeholders, information needs to be available. This theory indicates that vital information needs to be in the public domain so that the true worth of an organization can be seen both from physical resources, financial resources and human resources. This makes the investors to make informed decisions whether they would wish to be associated with the firm or not. Bebbington et al., (2001), explains that in order to provide useful information, companies need to identify and fulfill the demand from various stakeholders for information that will help them in assessing management efficiency and the future value of the companies. However, to avoid information overload and loss of competitive advantage, companies tend to only supply information that is perceived to be useful.

2.2.3 Agency theory

The agency theory explains the relationship between principals, such as a shareholders, and agents, such as a company's executives. In this relationship the principal delegates or hires an agent to perform work. The theory attempts to deal with two specific problems: first, that the goals of the principal and agent are not in conflict (agency problem), and second, that the principal and agent reconcile different tolerances for risk(Nicolai *et al.*, 2007)

This theory explains how information asymmetry between principals and agent may impair the efficient allocation of capital (Diamond & Verrecchia, 1991), leading to higher costs of capital (Botosan & Plumlee, 2002). Tayles et al., (2007) in their research, they found some support for the fact that, amongst Malaysian companies, greater information asymmetry between investors and the management in high intellectual capital companies meant that there is greater scope for surprise, resulting in stock market volatility and stock price over-reaction.

When information is asymmetric in the market, investors without inside information, such as details concerning human capital, are in a disadvantaged position when judging the quality of companies and this affects the business performance of the firms. Often, principals engage intermediaries such as financial analysts and rating agencies to seek private information to uncover managers' superior information (Healy & Palepu, 2001).

The privileged position of analysts, via private meetings with company management, permits some degree of access to additional information not available to ordinary shareholders.

2.2.4. Stakeholder Theory

The theory suggests that all stakeholders have a right to be provided with information on how organizational activities impacted them, even if they choose not to use it (Deegan, 2000). Organizations will elect to voluntarily disclose information about their human resource, over and above mandatory requirements, in order to meet real or perceived stakeholder expectations (Guthrie et al., 2006). The various interest groups deemed to have an interest in controlling certain aspects of an organization can be efficiently communicated with via the annual report. Also, companies will voluntarily disclose information such as human capital to meet the demands of stakeholders who have power to control resources required by the organization.

The disclosure of information on human capital is vital and therefore analysts have developed analytical tools to value a company performance beyond financial results, taking into consideration factors like leadership, human resources, and specialized workforce. In addition, many companies, to reduce the amount of analysts and market speculation, voluntarily disclose information about their strategy, management objectives, and key success factors in supplements to their financial reports. Without

reporting intellectual capital and accounting for intellectual capital, financial reports and statements are far from accurate in communicating the real value of the enterprise and its future Business performance potential (Turan et al, 2011).

2.2.5. Legitimacy Theory

Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions (Suchman, 1995). Legitimacy theory posits that businesses are bound by the social contract in which the firms agree to perform various socially desired actions in return for approval of its objectives and other rewards, and this ultimately guarantees its continued existence and improved business performance.

This theory views society as having implicit and explicit expectations on how organizations should conduct their operations. Hence, companies will voluntarily report on human, environmental and other social activities and responsibilities as part of their legitimating process. According to (Guthrie, et al., 2004), companies are more likely to report on their human capital if they specifically have a need to do this, because they cannot legitimize their status via the hard assets that are traditionally recognized as symbolizing corporate success. Hybels (1995) argues that good models in legitimacy theory must examine the relevant stakeholders, and how each influences the flow of resources crucial to the organizations' establishment, growth, and survival, either

through direct control or by the communication of good will. He identifies critical organizational stakeholders, each of which control a number of resources. An organization being legitimate enables organizations to attract resources necessary for survival (Hearit, 1995). An example of the critical organizational stakeholder is the financial community that invests in the resources of the organization.

Human capital is invested in Pharmaceutical firms for the purpose of research and development, innovation and creation, experience and expertise (Deegan, et al., 2002). These resources form part of intellectual capital. Intellectual capital accounting is legitimate since companies try to manage their legitimacy because it helps to ensure the continued inflow of financial resources, human capital and relational capital necessary for viability of business. In business organizations the assumption that the organizations operating actions are desirable and appropriate within social systems makes the organization perform well since the stakeholders are willing to invest their resources in the organizations hence improved business performance.

2.2.6. Resource Dependence and Resource Based Theories

These theories provide explanations on how firms can create value by managing their resources, including human capital, strategically. Resource dependence theory, originally formulated by (Pfeffer & Salancik, 1978), suggests that when companies lack essential resources, they will seek to establish relationships with parties upon whom they

depend, they would choose to outsource the resources for example human capital. Three factors deemed critical in determining dependence and power are the importance of the resource to the organization, the alternative sources available for the resource the organization is dependent upon, and the degree of unfettered discretion in the deployment of the resources (Medcof, 2001).

Companies that are particularly dependent on employees, financiers and others for survival and growth, there is strong incentive to disclose human capital information as it will not only increase the opportunity to attract and retain human resources but also to get the necessary contacts, networking, and official sanction via important figures in society. According to (Abhayawansa & Abeysekera, 2008) link human capital to the resource based theory of the firm and the pioneering work of (Penrose, 1959). Resource based theory translated into valuable resources that are neither perfectly imitable nor substitutable without great effort. The theory is a basis for competitive advantage of a firm. The theory indicates that a resource has to be valuable that is it must enable a firm to employ a value creating strategy, it has to be rare, inimitable where the competitors are not able to duplicate this strategic asset and non substitutable therefore, human capital resources within a firm are valuable, unique and difficult to imitate and they provide the firms with competitive advantage Barney, (1991). Hence, firms should disclose information on human capital such as experience, qualifications, training, and leadership since these help firms to create value in the capital market. These theories

emphasize that human capital is critical due to its resourcefulness and the fact that human capital cannot be imitated by the competing organizations. It forms a vital component of intellectual capital and hence human capital combined with other components of intellectual capital accounting that is structural capital and relational capital have a positive effect on business performance of firms.

Empirical literature reveals that intellectual capital accounting encourages the business performance of organizations. Several studies have been carried out to indicate how intellectual capital influences business performance. A study was conducted to measure the effect of intellectual capital on Jordan pharmaceutical industry and they explored that intellectual capital has a significant and positive impact on performance of Jordan pharmaceutical industry (Sharabati et al., 2010). The same argument is supported by (Bontis et al., 2000) who examined the constituents of intellectual capital accounting (human capital, structural capital, relational capital) and its impact on business performance of service and non service sector of Malaysia and they concluded that relational capital has positive effect on service sector while human capital has positive impact on service sector performance.

Studies done by Teese, (2000) demonstrate that intellectual capital accounting is the key to achieving sustainable competitive advantage and drives economic growth. According to Reed, (2000) intellectual capital is a strong predictor of a company's

performance. Riahi-Belkaoui, (2003) tested the relationship between intellectual capital and the performance of selected multi-national companies of United States of America. The result suggested that intellectual capital is positively associated with financial performance. Saudah, (2005) examined the impact of intellectual capital on performance measurement and business performance. Results suggested that intellectual capital has influence on the business performance.

Ming-Chin et al., (2005) examined the relationship between the value creation efficiency and financial performance. They have found that the intellectual capital has a positive influence on the financial performance. Maria & Jorge, (2005) examined the inter relationships and the interaction effects among intellectual capital components and organizational performance, in the Portuguese banking context. The study results indicated the significant relationship between intellectual capital and Business performance. Syed, (2005) investigated empirically the value creation efficiency of Intellectual Capital and financial performance of 22 Bangladesian Banks listed on Dhaka Stock Exchange. The study results support the positive role of intellectual Capital accounting in creating better performance of business organizations.

Norma, (2006) examined the relationship between intellectual capital and new venture performance in high tech ventures of United States of America. The findings of this study

suggested that human capital is the most critical component of intellectual capital when predicting operating performance.

Flavio, (2007) conducted a study with Intellectual capital stock and Intellectual capital efficiency and corporate performance as measured by Return on Assets, Return on Equity and Return on Shares of 1000 biggest Brazilian companies. The study results suggested the existence of a positive relationship between intellectual capital accounting and the Business Performance. The empirical research found that firms' intellectual capital has a significant positive relationship with its investors' capital gain on shares. The studies clearly indicate the usefulness of intellectual capital accounting and this motivates the researcher to undertake a study on the relationship between intellectual capital accounting and business performance in pharmaceutical firms in Kenya.

Makki & Lodhi, (2009) examined the relationship between intellectual capital and return on investment (ROI) using the VAIC developed by Pulic, (1998). The study results indicated that intellectual capital efficiency can be used as a benchmark and strategic indicator to direct financial and intellectual resources towards the right direction to enhance the firm's ultimate corporate value. According to Kamath, (2010) measured the performance of banks in Pakistan on a new dimension of intellectual capital. The study estimated the value added intellectual capital of the banks in Pakistan for a two year period. The study concluded that the private sector banks were doing much better than

all other banks in Pakistan on intellectual capital efficiency levels. The good performance is attributed to efficient usage and management of human resources.

Intellectual capital has long been recognized as a vital asset and value creator to companies. According to Roslender & Dyson, (1992), value was seen in a broad sense as enhancing the performance of an organization. Swart, (2006) refers to core competence, knowledge creation and innovation creating value over and above physical and financial resources.

In the current business environment, human capital is regarded as a key source of competitive advantage. With the knowledge agenda, companies view their employees as an important resource and invest heavily in them. But the value of human resources, or human capital, may not be adequately reported to stakeholders partly due to strict recognition criteria for intangible assets that do not allow human resources to be shown as an asset in the balance sheet (Tayles et al., 2002). The pressures on companies to measure and report the value of intellectual capital is increasing and will eventually affect the firm's intellectual capital policies Marr et al., (2003).

There is no universally accepted measurement method of intellectual capital. There has been an attempt by Sveiby, (2005) to categorize the various methods into five approaches; the approaches include the following: Market capitalization approach- suggests that the intellectual capital of a company can be obtained by subtracting the

company net assets value from its observable market value. This approach is based on the accounting paradigm of historical cost and balance sheet evaluation. It may have the problems that the market value of the company varies from day to day and may be subject to speculation in the capital markets. The approach does not easily assist managers to understand what intellectual capital is, how it exists or how it influences the dynamic of a business as it does not immediately identify the components of intellectual capital (Andriesson, 2004; Bontis, 2001; Caddy, 2002; Guthrie et al., 2001; Sveiby, 2005).

Direct intellectual capital measurement approach estimates and assigns a direct monetary value to what a company may consider as individual components of the intangible assets pool. These assets are identified and obtained from a series of audit questionnaire. The reporting may either take the form of a dollar value or be aggregated as coefficients. A weakness of this approach arguably lies in the qualitative nature of the determination and identification of key intangibles assets which may be highly subjective. In the absence of a generally accepted definition of intellectual capital this approach seems unlikely to become a universal method enabling uniform measurement and comparison of companies (Bontis, 2001; Caddy, 2002; Sveiby, 2005).

Scorecard approaches make use of different definitions and classifications of components of intellectual capital. Note that Skadia Navigator by (Edvinsson & Malone,

1997) was the pioneer in the use of the scorecard method measuring and reporting Intellectual capital scorecards are used to generate indicators and indices, and may not require the assignment of a financial value to the intellectual capital component. The balanced scorecard (Kaplan & Norton, 1992) was originally used in management reporting and was later suggested that intellectual capital measuring activities such as those of Skadia could also be incorporated into the reporting of the balanced scorecard.

The qualitative nature of these methods coupled with lack of standardization could be argued as a potential challenge facing their general adoption especially when consideration is given to public and statutory reporting (Andriessen, 2004; Bontis 2001; Kannan & Aulbur, 2004; Kaplan & Norton, 1992; Mouristsen, et al., 2005; Narasimhan, 2004; Petty & Guthrie, 2000; Seetharam, et al., 2004; Sveiby, 2005).

The economic value added approach was intended to be a comprehensive measure for studying the performance of the whole business, economic value added may be established by the following equation; $EVA^{TM} = \text{net sales} - \text{operating expenses} - \text{taxes} - \text{capital charges}$. Assuming that a company's increase in EVA^{TM} only results from effective management of the company's knowledge assets and nothing else, then EVA^{TM} might seem a reasonable proxy for measuring intellectual capital, Tangible assets also contribute to the well being of a company as indicated by the resource based view

Barney, (1991). Intellectual capital alone may not function without support of tangible assets such as stock, machinery, and financial capital.

Value added intellectual coefficient. An increasing number of studies and literature suggests that VAICTM may be a promising mechanism for measuring intellectual capital. This method was devised by the Austrian intellectual capital research centre under Pulic, (2000). An important concept in the VAICTM methodology is corporate intellectual ability. It refers to the total value creation efficiency due to both intellectual capital and physical capital functioning in concert in a business environment Pulic, (2004). The basic assumption is that intellectual capital alone cannot operate independently without the support of financial and physical capital (Pulic 2002, Seetharaman et al., 2004; Tseng & Goo, 2005). Simply stated corporate intellectual ability as measured by VAIC coefficient is an indicator of the overall efficiency or ability of a company to use the total resources of intellectual capital in creating value for the company.

The multidisciplinary nature of intellectual capital lends itself to a richness of perspective as well as a difficulty for valuation Bontis et al., (1999) and relevance Booker et al., (2008). Facing intense globalized competition, there is a widespread recognition that intellectual capital is a critical force that drives economic growth Huang & Liu, (2005). Human capital is the set of assets contributed as employees including employee's education, skills, training, experiences and entrepreneurial spirit. They are

usually non-proprietary to the firm but creates economic value and should be measured and reported on the balance sheet from a value based perspective.

The issue of human capital has a specific reference to service sectors like, pharmaceutical firms Banks and financial institutions, hotels, information technology industry, education, where the role of human capital is much more evident among the other components of intellectual capital. The intangibles have become one of the important performance indicators and a strategy to gain competitive advantage several researches have been conducted trying to measure intellectual capital and exploring its relation with corporate performance is one of the reasons for the awareness among the firm for the increasing importance of intellectual capital disclosure (Bollen et al., 2005)

As early as the 1960s, Gary Becker, recipient of 1992 Nobel Prize in economic science, recognized the importance of human expertise. He argued that expenditures on education, training, and medical care produce human not physical or financial capital because you cannot separate the person from his or her knowledge, skills, health, or values the way it is possible to move financial and physical assets while the owner stays put Becker, (1964). Human capital constitutes both the broader human resource considerations of the business workforce and more specific requirements of individual competence in the form of knowledge, skills, and attributes of employees (McGregor, et al., 2004). Human capital is movable and does not belong to specific organization

because employees are considered to be the owners of human capital (Roos, et al., 1998). According to Stewart, (1997), human capital is the place where all the ladders start; the wellspring of innovation, the home page of insight. (Bontis, 1999), argued that human capital is important since it is the source of strategic innovation for organizations

Research asserts that today, human and intellectual capital are perceived to be strategic resources and therefore, clear estimation of their value has gained significant importance. The increased pressures for corporate governance and the corporate code of conduct demanding transparency in accounting have further supported the need for developing methods of measuring human value (Reed, et al., 2006).

The paradigm shift from focusing on tangible assets to non tangible assets not recognized in financial statements to increase competitiveness of firms has challenged the decision relevance of information provided by financial reporting systems (Bontis, 2000; Coy, 2001). In particular several assets that enable firms to enhance competitiveness and future profitability are not recognized in financial statements such as knowledge assets represented by employee's collective capabilities, information systems in firms is relevant information for investor decision making (Stewart, 2001).

Attempts have been made to estimate the value of knowledge in order to obtain the true value of a company Bontis, (2001). Generally, it is assumed that increased and better-utilized knowledge will have a beneficial influence on the companies' performance

(Roos & Roos, 1997). Regarding this assumption the intangible and dynamic character of knowledge and the lack of agreement on the definition of knowledge cause major obstacles (Yates-Mercer & Bawden, 2002).

Mostly, three knowledge-categories are distinguished, namely knowledge related to employees (human capital), knowledge related to customers (customer or relational capital) and knowledge related to the company only (structural or organizational capital). Together these constitute the intellectual capital of the company. Sometimes, additional or separate parts are distinguished like innovation capital (Chen et al., 2004), social capital (Bueno et al., 2004) or intellectual property. (Marr et al., 2004) present a clear taxonomy of the different intellectual capital-categories stressing their mutual interdependencies. Management and valuation methods have been developed for the different parts of intellectual capital (Stewart, 2001; Bontis, 2002). In order to create a more solid basis for the mostly empirical models and measuring methods, theories of intellectual capital are also being developed (Viedma-Marti, 2003).

Although the importance of intellectual capital has increased greatly Serenko & Bontis, (2004), many organizations are still struggling with better management of intellectual capital due to measurement difficulties Dzinkowski, (2000). Many authors have argued that intellectual capital which represents the stock of assets generally not recorded on the balance sheet, has become one of the primary sources of competitive advantage of a firm

(Bontis, 1996, 1998, 2001; Edvinsson & Malone, 1997; Ross, et al., 1998; Stewart, 1997; Sveiby, 1997). Given the remarkable shift in the underlying production factors of a business within the new knowledge economy, it is important for firms to be aware of the elements of intellectual capital that could lead to value creation (Drucker, 1993).

2.2.7 Conceptual Framework

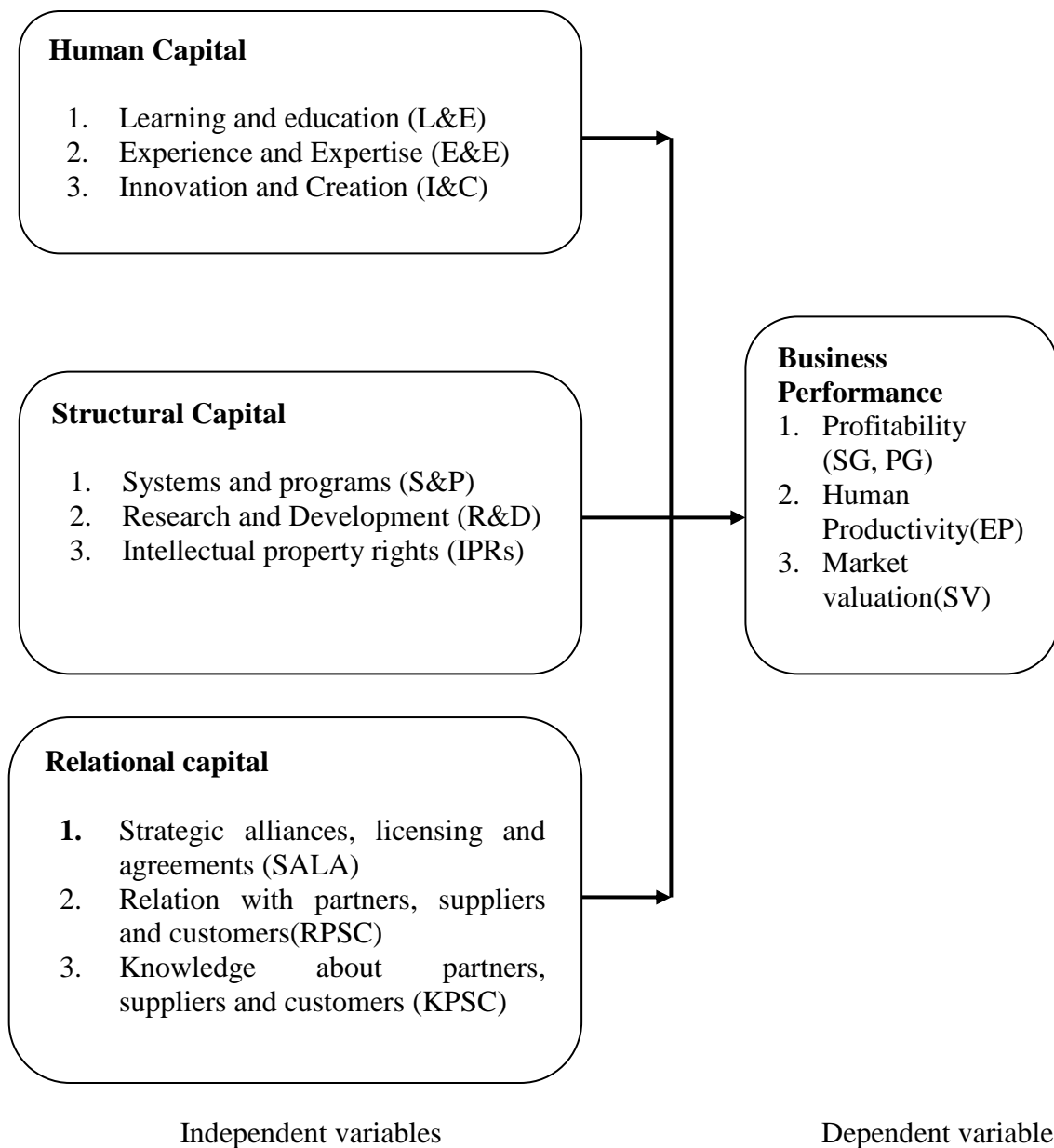
A conceptual framework includes descriptive categories systematically placed in a structure of explicit propositions, statements of relationships between two or more empirical properties to be accepted or rejected (Parsons & Shils, 1962). It explores the relationship between independent variables and dependent variables. An independent variable is the presumed cause of changes in the dependent variable. Dependent variable is the variable the researcher wishes to explain. Also referred to as the criterion or predictor variable (Kothari, 2004).

The conceptual framework of this study was based on the following independent variables: human capital where the following was looked at; learning and education, experience and expertise, innovation and creation; structural capital; systems and programs, research and development, and intellectual property rights, relational capital; strategic alliances, licensing and agreements, relation with partners, suppliers and customers and knowledge about partners, suppliers and customers.

The conceptual framework was the researcher's idea on how the research problem was to be explored and was founded on theoretical framework. Essentially this conceptual framework posits that there is a direct and positive association between intellectual capital accounting and business performance.

Previous studies by (Bontis, 1998; Bontis et al., 2000; Chen, 2001 Cabrita & Bontis, 2008) identified the positive relationship between intellectual capital and business performance. These are three empirical studies conducted respectively in Canada, Malaysia and Portugal. All the research results indicated that human capital, structural capital and relational capital impact business performance. This conceptual framework was developed in accordance with the literature review. From the literature review it was noticed that intellectual capital is related to business performance.

The Intellectual capital accounting variables defined in the study are in relation to the improvement of Stewart (1998) to Cabrita & Bontis (2008) classification of intellectual capital: human capital, structural capital and relational capital. Their inter-relation and their influence on business performance were tested. Therefore after these considerations the researcher developed the conceptual framework for the study as indicated by Figure 1:



Source: Developed from Stewart, (1998) and revised from (Cabrita & Bontis, 2008)

Figure 1 Conceptual Framework

2.2.8 Operationalization of variables

This section discusses the operationalization of both independent and dependent variables together with their sub variables and also their relationships as indicated on the conceptual framework (figure 1).

2.2.9 Human capital

According to the viewpoint of most research, human capital is an integral and most important part of intellectual capital (Stewart, 1999, Hubert 1996, Dzinkowski, 2000, Guthrie, 2000; Edvinsson, 2000) including knowledge, skill, expertise of employees and managers, proactive response. In order to take full advantage of human capital, the top management should be well aware of the staff considerations and provide proper training to highlight the effective utilization of collective wisdom. Grantham & Nichols (1997) underlined the importance of analytical thinking, experiment and systems integration.

Organizations must not only teach the employees how to foster their professional skill through analytical thinking, but also tell them why this is important. Despite the fact that employees are the most important asset of an enterprise, the enterprises themselves are not the owner of human capital if they are not aware of the principle of resource sharing. The organization can strengthen and utilize properly the knowledge, skill and learning capability of employees and also make investment in them to increase personnel value

and create intellectual capital for the organization (Stewart, 1999 Grantham, &Nichols 1997).

Human capital therefore, through learning and education of employees, their experience and expertise and also their innovation and creation yields the best results of Business Performance (Bontis, 2008).

2.2.10 Learning and Education

This contains the competencies, skills and intellectual agility of the individual employees. Zambo s **that** adds that as part of intellectual capital variable it also includes collective knowledge of individuals. This component of human capital brings in the unique competencies, knowledge, skills and attitudes that cannot be imitated by any individuals or organizations and this is what brings in competitive advantage over other firms hence improved business performance.

2.2.11 Experience and Expertise

These are the competencies and the skills which are presented by the individuals in the organizations. This is what gives the organizations competitive advantage over other organizations when a company has employees with the conceptual skills and they have worked in related departments for some times and therefore they are in a position to transform the organization to better performance. This is indicated by employees being

experts in their respective areas and they are professionals in their careers (Curado & Bontis, 2006). This sub variable of human capital indicates the resourcefulness the employees bring to the organization. This resourcefulness is what steers the organizations to greater heights hence improved business performance (Khalique et al, 2011).

2.2.12 Innovation and Creation

Creativity is the ability to think a new idea. This includes the ability to rethink an old idea for example, to think of a new application for an existing technology. Innovation is the process by which the new idea is put into practice. This definition of creativity allows for the artistic creative genius and the brilliant inventor, but also enables everyone to be creative, since anyone can have a new idea. The definition of innovation links the world of ideas to the world of human affairs. Innovation also acts along the entire spectrum from soft to hard, where soft envisages communication, vision, and people's behavior and hard stands for structure, organizational forms, procedures and Information technology systems.

Innovation and creativity are addressed everywhere in the organization (Edward, & Roberts, 2007, Bawden& Yates, 2002). Innovativeness and creation of employees makes them have an upper hand than other employees in other organizations and therefore the

organizations to which they are working for becomes more competitive hence improved business performance.

2.2.13 Structural Capital

Structural capital is intended to share knowledge effectively, increase collective knowledge, shorten learning and preparation time and improve the productivity of human capital. It is necessary to share knowledge and experience continuously and with the help of knowledge deposits such as organizational routines, strategies, process handbooks, and databases (Boisot, 2002; Ordóñez de Pablos 2004; Walsh & Ungson, 1991). Structural capital contains three elements systems and programs, research and development and intellectual property rights. As they are interrelated they must be properly fitted to bring structural capital into full play, and improve the productivity of human capital through rapid knowledge sharing, retention and well organized procedures (Chen et al., 2004). Structural capital therefore is a strategic asset which is comprised of non human assets such as systems and programs, research and development and intellectual property rights these sub variables helps the organization to achieve its goals and objectives hence improved business performance.

2.2.14 Systems and programs

These are the databases and programs (Edvinsson & Malone, 1997). This is the institutionalized knowledge possessed by an organization and which is stored in

databases manuals, it is often the knowledge owned by the organizations. This also calls for the organizations to have succession training programs for each and every major position, there is company's culture and atmospheres are supportive and comfortable. The company has an elaborate and well developed reward systems related to performance. The company also needs to support their employees by constantly upgrading their skills and education whenever it is necessary and this yield better performance of organizations (Youndt, 2000).

2.2.15 Research and Development

Until recently only few regulations were available with regard to the specification of intangible assets. Lev and Zarowin, (1999) detected, as a result of the scarce information on intangibles, shortcomings in the financial information for investors called information asymmetry. Though some companies did mention their intangibles on the balance, research and development expenses were virtually the only intangible, which was taken into account.

The expansion of technology based communication and industry sectors that heavily depend on human innovation and capabilities such as research and development are examples (Bontis & Dzinkowski, 2000). The intellectual capital represents a subset of such assets not recognized in financial statements. Disclosure of intellectual capital becomes important to signal investors about affairs of firm in an intense globally

competitive economic environment. Intellectual capital can give rise to agency problems as insiders of firms can take advantage of such information to earn excess profits (Thompson & Randall, 2000). Intellectual capital can be categorized into several ways for analysis and interpretation (Abeysekera & Guthrie, 2004).

The emphasis is more on the knowledge of intellectual capital that the employees bring to the organizations. One such area is the research and development done in the pharmaceutical industry in formulation of cost effective drugs. Nevertheless one of the first firms that reported their invisible assets was Skandia (Bontis, 1998). One particular industry that is considered knowledge intensive and a source of great intellectual capital is pharmaceutical industry (Dawin, 2005). The industry is research intensive, highly innovative (Devol, et al., Chen, 2004) and well balanced in its use of human intervention and technology (Hermons, 2004) and to a large extent dependent on its intellectual capital for a source of renewal and hence improved business performance (Zucker, et al 1994).

2.2.16 Intellectual Property Rights

Intellectual property can be regarded as more tangible part of a company's knowledge, as Intellectual property consist of patents, copyright, trademarks etc that can be more easily valuated than the more intangible intellectual capital assets (Bollen et al., 2005 & Nelson, 2009), Intellectual property creation, protection and utilization are hard to

achieve and is a kind of intellectual asset for organizations. Every new intellectual property-centric strategy influences other parts of intellectual capital too. As a result, not only identifying Intellectual Property and its position in intellectual capital is noticeable, but also Intellectual Property's effects on other components of intellectual capital are very critical (Akiyama & Furukawa, 2009).

In a global economy increasingly propelled by knowledge-based industries, the protection of ideas and innovations has become a priority in the competitive strategy of powerful industries and countries (Sarkissian, 2008), thus, for gaining more value from knowledge, intellectual property protection, which is an issue of intellectual property right in the society and internal environment of organization, is essential.

Intangible assets, like intellectual capital, have been a focus of management studies in recent years (Bontis, 2001). Intangible assets are also regarded as an important resource for future value creation (Daum, 2005). Intangible assets are in most cases defined as being not physical and not belonging to financial assets. Examples are ideas, research, new ways of thinking, organizational aspects (Mard, et al., 2002). Many companies mention patents and other forms of protected knowledge. Also prepaid expenses, pension liabilities, brands, goodwill reputation and a plethora of other costs are labeled as intangible (Seetharaman, et al., 2004).

Intellectual property rights, trademarks or information technologies, are intangible resources intangibles such as i.e. intangibles that can be measured at any time in a company due to their static nature; the concept of resources is seen by some as being wider than assets, whereas others state that it is the other way round; the term intangible resources is suggested as an overall term (Hall, 1992)

2.2.17 Relational Capital

The relational capital refers to the relationship between enterprises, customers, suppliers and partners Johnson, (1999) which is critical to long lasting profit making and successful business operation. The major considerations include strategic alliances, licensing agreements, relations with partner's suppliers and customers, knowledge about partners and customers.

In this era of the information explosion, customers find it easier to find suppliers, thus enabling customers to change the balance between buyers and sellers, and improve the customers bargaining power. Under such an environment with fierce competition, the key to create profit and improve performance is to win the loyalty of customers and build long term friendly relationships with them.

The stakeholders of the firm include employees, investors, customers, shareholders, suppliers and also the government, using the simple measure of financial indicator may

not be suffice as it may just reflect the accountant view towards performance of the firm. Researchers (Sveiby, 2000, 2001; Pulic 2001; Edvinsson, 1997, Bontis, 2001) therefore agree that the traditional financial measures are solely not sufficient to analyze the performance of the knowledge firms. Relying on traditional measures may be misleading to the stakeholders and decision makers using these indicators may end up in gross misallocation of resources Since, the present accounting and reporting system does not support the changed paradigm, it is imperative to look for a new method or tool to evaluate analyze and review the performance of the organization (Ordonez de Pablos, 2002). The sub-variables of relational capital are discussed;

2.2.18 Strategic Alliances, Licensing Agreement

Generally, strategic alliances are arrangements between two or more entities that are created to achieve mutual goals through collaboration. Strategic alliances take many forms, including contractual arrangements such as license agreements, marketing agreements, and development agreements, minority equity investments, and joint ventures that are operated as separate legal entities such as corporations, limited liability companies, or partnerships.

Regardless of the form, strategic alliances share common features such as defined scope and strategic objectives; interdependent contractual arrangements within the defined scope and to achieve the strategic goals; specifically defined responsibilities and

commitments for each party; independence of the parties outside of the defined scope of the alliance; and a fixed time period in which to achieve the strategic goals (Edward, 2007; Nelson, 2009). Partners may provide the strategic alliance with resources such as knowledge, expertise.

The strategic alliance is a cooperation which aims for a synergy where each partner hopes that the benefits from the alliance will be greater than those from individual efforts. The alliance often involves technology transfer (access to knowledge and expertise) hence improved business performance of firms (David et al., 1996)

2.2.19 Relation with Partners, Suppliers and Customers

This is part of the knowledge embedded in business networks where by the partners, suppliers and customers are part of the business networks created to influence the cordial relationship with the stakeholders in terms of business. It is necessary to capture individual knowledge through knowledge management process but it is equally important to take into account social considerations that is, the ways in which knowledge is developed through interactions between people. (Bontis et al., 1999) points out that it is flows as well as stocks that matter. Intellectual capital develops and changes overtime and a significant part is played in these processes by people acting together.

This can be assessed where customers show loyalty to the company and would indicate that they are generally satisfied. When new products have been introduced the company's customers have increasingly selected company's products verses competitors (Stewart, 1997; Roos et al., 1998; Bollen et al., 2005).

2.2.20 Knowledge about Partners, Suppliers and Customer

This is part of social capital and consists of the knowledge derived from network of relationships within and outside the organization. The concept of social capital has been defined by Putnam, (1996) as the feature of social life, networks, norms and trust that enables participants to act together more effectively to pursue shared objectives. The World Bank, (2000) offers the following definition; Social capital refers to the institutions relationships and norms that shape the quality and quantity of society's social interactions. Social capital is not just the sum of the institutions that underpin a society; it's the glue that holds them together.

In this case the company gets feedback out of customers as it possibly can under different circumstances. The company has to maintain a data bank for the customers and it should be continuously updated. This knowledge about the customers is generally distributed in the whole company. The company also needs to meet with the customers so that they can know what they want from the company so that the company can create a niche for its customers unlike the competitors (OECD, 2007).

2.2.21 Business Performance

Many authors believe strongly that intellectual capital could have positive effect on the company's financial performance (Riahi- Belkaoui, 2003; Youndt et al., 2004; Chen et al., 2005; Tan et al., 2007). Business performance is defined as measurable result of the level of attainment of organizational goals or measurable result of the organizations management of its aspects (International Standard Organization, 1999), or mechanism for improving the likelihood of the organization successfully implementing a strategy. Business performance evaluation is the process to help management's decisions regarding an organizations performance by selecting indicators, collecting and analyzing data, assessing information against performance criteria, reporting and communicating and periodically reviewing and improving this process.

If organizations are to survive and prosper in information age competition, they must use measurement and management systems derived from strategies and capabilities. This statement summarizes the necessity of performance to measure, and as direct consequence and to evaluate their performance. The business performance as a dependent variable was measured by profitability (Sales Growth, Profits Growth), Human productivity (Employee Productivity, Process Productivity, Industry leadership, success rate in new product launches) and market valuation (future outlook, overall response to competition overall business performance, and company stock value).

According to (Youndt et al., 2004) intellectual capital intensive companies are more competitive than other companies and are therefore more successful.

Human productivity, profitability and market valuation have been used as the indicators of business performance. Studies done by (Sharabati et al., 2010; Khalique et al., 2011; Saari, 2011; Bontis, 2008; Cheng et al., 2010) indicate that Business Performance has been measured by these indicators with success over time.

It has been argued that the success of an organization depends on how best the scarce physical resources are utilized by human resources. The physical resources are being activated by the human resources as they cannot act on their own. Therefore effective and efficient utilization of inanimate resources depends largely on the quality, skills, character of the people that is human resources working on it.

According to the resource based view, firms may gain competitive and can achieve superior performance through the acquisition, holding and subsequent use of strategic assets (Wernerfelt, 1984). Both tangible and intangible assets are perceived as potential strategic assets. Among the invisible assets, intellectual capital is generally considered to be a vital strategic asset. According to Riahi-Belkaoui (2003), intellectual capital refers to the specific and valuable knowledge that belongs to organization. This qualification of intellectual capital as a strategic asset rests on a potential link between

intellectual capital on the one side and the firm performance on the other Seethamraju (2000).

Further many scholars argue that in comparison with the tangible resources the intellectual capital or intangible resources are more likely to be the key resources for many enterprises which help them in acquiring the required competitive advantage or to ensure market dominance (Brernan & Connell, 2001; Marr, 2004).

2.2.22 Human Productivity

Productivity describes how efficiently inputs are converted into outputs. According to Patton, (2007), the productivity of a firm lies more on its intellectual capital and system capabilities than on its hard assets. Bontis et al., (2000) argues that leveraging knowledge assets is the key to a firm's prosperity. A firm with higher capital performance is expected to have higher rate of profitability and also it may experience higher productivity (Rob, 2010; Saari, 2006; Lazear, 2000)

In human resource this refers to the relationship between what is put in to the business (inputs) and the final result is (outputs). In human resource input measures include investment in training, remuneration; output measures include profit per employee. The output measures can be considered in two ways; in relation to actual goods and services produced for example clients serviced per employee, and considering people relative to

key financial performance areas for example profit per employee or revenue per employee. And outcome measures consider how people respond e.g. number of employees voluntarily leaving the organization, higher remuneration in other companies (Cite HR, 2011). This was measured by employee productivity and process transaction productivity, success rate in new products launches.

2.2.23 Profitability

Profitability shows the degree to which a firm's revenue exceeds over the costs. Profitability was measured using sales growth which is the increase in sales over a specific period of time, often but not necessarily annually and profit growth which is a combination of profitability and growth, more precisely the combination of economic profitability (Economic Profit is the residual wealth that is got by deducting the cost of capital from the firm's operating profit) and Growth of free cash flow (is cash flow available for distribution among all the securities holders of an organization) of the respective pharmaceutical firms (Brealey et al., 2005).

2.2.24 Market Valuation

This describes the degree to which a firm's market value exceeds its book value. It is the ratio of the total market capitalization which is the average share price time's number of outstanding common shares to book value of net assets., According to Watson, (2002), human capital adds shareholder value, for example in Europe Great people management

equals great shareholder value. European companies with the best human capital management deliver around twice as much shareholder value as their average competitors. The key practices associated with higher shareholders value hence high market value, continue to show up in bull, bear and flat markets, with the emphasis evolving over time.

The effectiveness of the human resource function itself is a key factor to drive market value from the human capital which needs great practices and highly efficient human resource function which is closely aligned with the business's needs. This was measured by the company's stock value, response to competition, overall business performance and success as well as future outlook of the pharmaceutical firms.

2.3. Critique of the existing literature

The review of the theories indicated that there are issues relating to inadequate disclosure about human capital to companies' stakeholders. Furthermore, these issues have largely been addressed from a normative supply-side perspective with little insight on possible reasons for disclosure of intellectual capital information by companies in developing countries like Kenya. Specifically, the human capital information that is currently disclosed does not meet the needs of the investment community, whether mechanistic disclosure of readily quantifiable details places disproportionate emphasis on metrics at the expense of human capital drivers of business performance, and how

any tendency by emerging economies to focus disclosure on particular components of human capital may be explained.

The theories were useful intellectual models especially when applied to aggregate behavior. They capture average investor behavior, financial accounting standards board writes general accepted accounting principles based on the assumption that decisions are made following decision theory. That is identifying a goal, identify decisions need, specify alternatives, select decision model, choose action and experience consequences. The major contribution of the theories is that they are relevant to the area of study since they help the investors, stakeholders, business community, and business organizations to understand how disclosure of intellectual capital in the financial statement is useful.

The literature reviewed indicated that there is a relationship between intellectual capital accounting and business performance. However, most of the literature reviewed come from the developed economies where company's practice intellectual capital accounting. In Kenya the pharmaceutical firms only report financial resources but rarely do they report the contribution of the human resources to the improvement of business performance.

Therefore the reviewed literature doesn't address the Kenyan scenario in the pharmaceutical industry since most of the firms under pharmacy and poisons board 2010-2011 are not listed in the Nairobi securities market making it difficult for their

information to be readily available. The essence of the literature was to establish the practice elsewhere in order to test whether it can be replicated in Kenyan pharmaceutical firms.

2.4 Summary

This chapter started with the adequately addressing foundations of intellectual capital theory and its subcomponents. Theoretical framework discussed the various theories that explain the theories related to the problem area of study. It also addressed the review of empirical literature relevant to the problem being investigated as well as the conceptual framework where the relationships between independent variables and dependent variables are shown. The studies carried out on this area assert that intellectual capital is a strategic resource and therefore, it is of great importance. Human capital does not belong to specific organizations because employees are considered to be the owners of human capital and as an intangible asset it is a strategic asset which brings about organizational success.

The components of human capital that were considered in this study included learning and education, expertise and experience and innovation and creation. Specifically innovation and creation is vital since aspects as leadership, policy and strategy, people, partnership and resources, processes are addressed. Studies carried out show that pharmaceutical firms do not account, disclose and report intellectual capital and this

gives rise to agency problem and asymmetric information which is detrimental to the business performance.

The second component of the independent variable was structural capital which strongly dependent on human capital. The management of the pharmaceutical firms has the responsibility to convert tacit knowledge encapsulated in employees into structural capital in the form of routines and procedures to ensure the efficient running of the company. Structural capital can also be intellectual liability where it has negative decrement to customer capital and this will have negative effects on the business performance.

The study encompassed the following components in structural capital; Systems and programs, research and development, intellectual property rights. The systems and programs are institutionalized knowledge possessed by an organization and this is basically what the firm owns in terms of knowledge. Therefore, the firm should devise ways to have successful training programs for each and every major position. Therefore, the organization needs to support their employees by constantly upgrading their skills and education whenever it's necessary. Research and development is more pronounced in intellectual capital brought to the pharmaceutical firms by employees in formulation of cost effective drugs. Intellectual property rights cannot be left out and their influence

on the business. This is because if the firm is overtaken by counterfeit drugs then that mean that the firm will be deprived of revenue.

Thirdly is relational capital which is the ability of an organization to interact positively with the business community to motivate the potential for wealth creation by enhancing human and structural capital. The market orientation of the organization derived from customer relations cannot be ignored. Relational capital is embedded in strategic alliances, agreements where these are arrangements between two or more entities created to achieve mutual goals through collaborations and this is very prominent in pharmaceutical firms especially as part of the contract which addresses the ownership of intellectual property rights.

Relations with suppliers, partners and customers are knowledge embedded in business networks which influence the cordial relationship with the stakeholders. These relations are developed through interactions between people and can be assessed where customers show loyalty to the company. Finally is knowledge about partners, suppliers and customers. This is the social capital which refers to the institutions relationships and norms that shape the quality and quantity of society's social interactions. The company gets the feedback out of customers so that it can improve its services in order to have a competitive advantage over its competitors. The independent variables discussed influence the dependent variable in that according to previous studies intellectual capital

accounting and have a positive effects on company's performance and this is captured in the profitability which is the degree to which a firm revenue exceeds over the costs, and measured using Sales Growth and Profit Growth, Human Productivity(EP) productivity which is how efficiently inputs are converted into outputs and market valuation which is the degree to which a firms market value exceeds its book value. The next chapter is the research methodology which deals with the how to measure the relationships between the dependent and independent variables.

2.5 Research Gap

The empirical literature indicates that studies have been carried out on intellectual capital accounting where the most popular focus of intellectual capital accounting has been internal management control; that is management and strategy, i.e. balanced scorecard (Andon et al., 2005; Bose & Thomas, 2007; Hoque, 2003; Lawrence & Sharma, 2002). There is ample evidence that intellectual capital accounting research has been undertaken in developed countries but there is a considerable opportunity to expand research to emerging economies (Northcott & France, 2005). At present the existing research is concentrated on developed countries and the policies and frameworks are derived from these countries that could be suitable only in developed countries (Jazayeri & Scapens, 2010).

However, there remains a paucity of research on intellectual capital accounting in developing nations like Kenya and particularly on relationship between intellectual capital accounting and business performance of pharmaceutical firms in Kenya. This is a fertile ground for intellectual capital accounting research which is seeking for a unified definition and a conceptual framework that is grounded in well established theory. Intellectual capital theory offers a solid and useful framework from which intellectual capital researchers can begin to understand its influence on business performance in pharmaceutical firms in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this study was to investigate the relationship between intellectual capital accounting and business performance of pharmaceutical firms in Kenya. This chapter sets out the methodology that was used to achieve the objectives of the study. The methodology includes the population, sample, and data collection method, instruments, and analysis technique used in the research study.

The study made considerations of the research philosophy to be adopted and from the empirical literature, there are two prominent research philosophical leanings or paradigms: positivist and phenomenological. A paradigm is a worldview underlying the theories and methodology of a particular scientific subject or a belief system about a subject. It has also been defined as a framework containing all of the commonly accepted views about a subject, a structure of what direction research should take and how it should be performed (Steps of the Scientific Method. Retrieved 19 Jan. 2012 from Experiment Resources: <http://www.experiment-resources.com/index.html>). The positivist position is derived from that of natural science and is characterized by the testing of hypothesis developed from existing theory (hence deductive or theory testing)

through measurement of observable social realities. This position presumes the social world exists objectively and externally, that knowledge is valid only if it is based on observations of this external reality and that universal or general laws exist or that theoretical models can be developed that are generalisable, can explain cause and effect relationships, and which lend themselves to predicting outcomes.

Positivism is based upon values of reason, truth and validity and there is a focus purely on facts, gathered through direct observation and experience and measured empirically using quantitative methods surveys and experiments and statistical analysis (Blaikie, 1993; Saunders, Lewis & Thornhill, 2007; Eriksson & Kovalainen, 2008; Easterby-Smith, Thorpe & Jackson, 2008; Hatch & Cunliffe, 2006). Hatch & Cunliffe (2006) relate this to the organizational context, stating that positivists assume that what truly happens in organizations can only be discovered through categorization and scientific measurement of the behavior of people and systems and that language is truly representative of the reality.

On the other hand, phenomenologists are concerned with what things mean, rather than with identifying and measuring phenomena. They are particularly interested in the idea that human experience is a valuable source of data, as opposed to the idea that true research or discovery lies in simply measuring the existence of physical phenomena

(Easterby-Smith, Thorpe & Lowe, 1991). The comparison between the positivist and phenomenological paradigms is presented in Table 1

Table 1 Comparison between the Positivist and Phenomenological Paradigms

The Positivist Paradigm	The Phenomenological Paradigm
Basic beliefs: <ul style="list-style-type: none"> - The world is external - Observer is independent - Science is value-free 	Basic beliefs: <ul style="list-style-type: none"> - The world is socially constructed. - Observer is part of it. - Science is value-driven.
Researcher should: <ul style="list-style-type: none"> - Focus on facts - Look for causality - Try to measure phenomena - Formulate/develop hypotheses 	Researcher should: <ul style="list-style-type: none"> - Focus on meanings - Look at totality - Try to understand phenomena - Formulate/develop ideas
Preferred research methods include: <ul style="list-style-type: none"> - Using concepts - Taking large samples 	Preferred research methods include: <ul style="list-style-type: none"> - Using multiple perspectives - Taking small samples

Source: Easterby-Smith, M., Thorpe R. & Lowe A. (1991).

Alongside the philosophical debate between phenomenology and positivism there is a parallel debate among social scientists. It concerns the respective merits of qualitative and quantitative research. Qualitative research has, as a model of society, a set of conceptual relationships, while quantitative research uses a purely causal empirical model (Rosen, 1978). Consistent with the argument by Henning, Van Rensburg and Smith (2004), this study was classified as quantitative and a positivist framework was

followed because it was an empirical investigation with the core of scientific endeavour being observation and measurement. Interval data anchored on a five-point Likert type scale was collected. Support for classification of this study as positivist derives from Richie & Lewis (2003) who note that beliefs and practices associated with positivism include:

1. The methods of the natural sciences are appropriate for the study of social phenomenon;
2. Hypotheses are derived deductively from scientific theories to be tested empirically (the scientific method)
3. Observations are the final arbiter in theoretical disputes
4. Facts and values are distinct, thus making it possible to conduct an objective enquiry

Since this study adhered to the foregoing beliefs and practices, it would be appropriate to assert that a predominantly positivist framework was followed. In the design of the questionnaire, all questions were closed-ended. Primary data was collected from the respondents using structured questionnaires to enable reporting on the variables while secondary data was used to arrive at the sample size. The background secondary data regarding the number of pharmaceutical firms was obtained from published sources from the pharmaceutical society of Kenya.

3.2 Research Design

Research design is the blue print for the collection, measurement, analysis of data and a plan to obtain answers to research questions (Coopers & Schindler, 2006). This research study used three research designs namely quantitative, explanatory and descriptive research design to identify, analyze, and describe the relationship between intellectual capital accounting and business performance of pharmaceutical firms in Kenya. Quantitative research design was used to quantify the hypothesized relationship between dependent and independent variables. This was because it required the data to be transposed into numbers in a formal, objective, systematic process and obtain information, describe variables and their relationship, (Mark et al., 2009, Nicholas, 2011, William et al., 2010).

The research was explanatory because it meets the criteria described by Nicholas, (2011), which indicated that the research investigated the full nature of the phenomenon (of testing relationship between intellectual capital accounting and business performance of pharmaceutical firms in Kenya). Descriptive research provides an accurate account of characteristics of a particular individual event or group in real life situation, (Kothari, 2004; Mugenda, 2008, Orodho & Kombo, 2002). Descriptive design was used to develop theory, identify problems with current practice of intellectual capital accounting, justifying current practice (why pharmaceutical firms in Kenya do not practice intellectual capital accounting, and determine what other pharmaceutical firms

in other countries practice for the purpose of replication in the Kenyan pharmaceutical firms.

Characteristics of quantitative research include the following; there is a single reality that can be defined by careful measurement, it's usually concise, it describes, examines relationships and determines causality among variables where possible, statistical analysis is conducted to reduce and organize data, determine significant relationships and identify differences and similarities within and between different categories of data, reliability and validity of the instruments are crucial, (Nachmias & Nachmias, 2008; Mark et al., 2009; Nicholas, 2011). According to (Sekaran, 2008), an explanatory descriptive research design is a flexible research design that provides an opportunity to examine all aspects of the problem being studied, strives to develop new knowledge and data may lead to suggestions of hypothesis for future studies.

Studies that have been undertaken in the area of research by (Bontis, 1998) in Canada, (Miller et al., 1999) in Canada, (Berglund ,et al., 2002) in Sweden, (Sofian et al., 2004) in Malaysia, (Bin ismael, 2005) in Malaysia, (Moslehi et al., 2006) in Iran, (Cabrita & Bontis, 2008) in Portugal, (Sharabati et al., 2010) in Jordan and (Khalique et al., 2011) in Pakistan justify the use of these research designs.

The selected research design that is quantitative, explanatory, and descriptive was used to address the three specific objectives in regards to the independent variables. In all the

three independent variables each of the designs was used. For human capital the variable was transposed and reported in numerals, out of the thirty questions on the three sub-variables of human capital exploration was done so as to be left with only the sub-variable items that had significant influence. The same procedures were repeated for structural capital and relational capital.

3.2.1 Measurement of Dependent Variable

For the purpose of conducting the analysis in this study, three dependent variables were taken into account namely; profitability, human productivity and market valuation. In each of the sub variables different measures were used including; Profitability (Sales growth, Profit growth), human productivity (Employee productivity, process productivity, success rate in new product launches and industrial leadership), and market valuation (future outlook, overall response to competition, overall business performance and success, company's stock value). This constituted ten items for the dependent variable.

Correlation analysis was done to establish whether there is any correlation between profitability and intellectual capital, human productivity and intellectual capital and market valuation and intellectual capital of the pharmaceutical firms. Regression analysis was used to investigate the relationships between variables. Usually, the investigator sought to ascertain the causal effect of dependent variable upon the

independent variables that is; relationship between intellectual capital accounting and business performance. To explore such, the investigator assembled data on the underlying variables of interest and employed regression to estimate the quantitative effect of the causal variables upon the variable that they influence. The investigator also typically assessed the statistical significance of the estimated relationships, that is, the degree of confidence that the true relationship is close to the estimated relationship.

3.2.2 Measurement of Independent Variables

For the purpose of conducting the analysis in this study, three independent variables were taken into account namely; human capital, structural capital and relational capital. In each of the variable different measures were used including; human capital (learning and education, experience and expertise, innovation and creation), structural capital (systems and programs, research and development, intellectual property rights), relational capital (strategic alliances licensing and agreements, customer and supplier relations, customer knowledge). This constituted ninety items for the independent variables.

The independent variables were first run through the statistical package for social sciences to test their discriminant validity through factor analysis which confirms the dimensions of the concept that have been operationally defined as well as indicate which of the items are most appropriate for each dimensions. The sub contrasts that had a inter

item correlation of less than 0.2 were eliminated and they were not to be used for further analysis.

The remaining sub constructs were tested for their reliability through the use of cronbachs alpha which is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. The cronbachs alpha of the three independent variable that is; human capital, structural capital and relational capital was approximately 0.867, which exceeds the criterion of 0.7, considered good for explanatory research (Nunnally, 1978). Many studies on intellectual capital have used this measurement of independent variables by using Cronbachs alpha to test the reliability of the measures with great success (Bollen et al., 2005; Bontis, 1998; Miller, et al., 1999; Moslehi, et al., 2006; Bin Ismail, 2005; Cabrita & Bontis, 2008; Cheng, et al., 2010; Khalique, et al., 2011).

Table 2 Summary of Measures of Variables

Variable	Indicator	Source	Number of item Measures
Human Capital	Learning & education (LE)	Adapted from Bontis & Sharabati, 2010	6
	Experience & Expertise (EE)		5
	Innovation & Creation(IC)		8
Structural Capital	Systems & programs (SP)	Adapted from Bontis & Sharabati, 2010	6
	Research & development (RD)		7
	Intellectual property rights(IPR)		6
Relational Capital	Strategic alliances, licensing and agreements(SALA)	Adapted from Bontis & Sharabati, 2010	7
	Customer & Supplier Relations(CSR)		6
	Customer Knowledge (CK)		4
Business Performance	Human Productivity(EP)	Developed	4
	Profitability (SG, PG)		2
	Market valuation(SV)		4

3.3 Population

A population is the total collection of element about which inferences are made and refers to all possible cases which are of interest for a study Sekaran, (2008). For purposes of this study the target population was pharmaceutical manufacturing firms listed by the pharmaceutical society of Kenya. Pharmaceutical firms were chosen because they are knowledge intensive firms as indicated by (Daum, 2005). Kenya also spends about 8% of its gross domestic product on health and therefore the pharmaceutical firms make a considerable contribution (Pharmaceutical Society of Kenya, 2006). The manufacturing sector makes a contribution of approximately 34 per cent to 35 per cent of total gross domestic product in 2009 (Economic Survey, 2009). The health sector is estimated to reach kshs 36.1 billion in 2011-2012 (Kenya economic survey, 2012)

The target population was 89 pharmaceutical firms as per the pharmaceutical society of Kenya directory of manufacturers Kimotho, (2010). This was the total number of pharmaceutical firms that existed in year 2010-2011 in Kenya.

3.4 Sampling Frame

Sample frame is a list that includes every member of the population from which a sample is to be taken. Without some form of a sample frame, a random sample of a population other than an extremely small population is impossible, (Nicholas, 2011;

Mark, 2009). For the purpose of this study the sample frame was 31 local manufacturing pharmaceutical firms' licensed by the pharmacy and poisons board 2010-2011. Other studies done in this area of intellectual capital have a relatively small sample frame of 15 pharmaceutical firms (Sharabati et al., 2010), 32 quoted companies in Nigeria (Olayinka & Uwalomwa, 2011), 12 Modaraba companies in Pakistan (Wasim, et al., 2011), 31 pharmaceutical companies in Islamabad-Pakistan (Khalique et al., 2011).

3.5 Sample and sampling technique

Sampling is done to some elements of a population so that conclusions about the entire population can be drawn. The ultimate test of a sample design is how well it represents the characteristics of the population it purposes to (Kothari, 2004; Thorn hill, 2009; Nachmias & Nachmias, 2008). The entire target population constituted 89 local pharmaceutical manufacturers, but only 31 local manufacturers were chosen since they had been licensed by Pharmacy and Poisons Board. This constituted 35% of the population.

Purposive sampling technique was used to obtain information from the 31 pharmaceutical firms in Kenya since they were the only licensed by pharmacy and poisons board in the year 2010-2011. Purposive sampling is confined to specific types of people who can provide the desired information, either because they are the only ones who have it or conform to some criteria set by the researcher (Sekaran, 2003).

Judgmental sampling which is a subset of purposive sampling was used to target human resource managers but their deputies were considered where the human resource managers were not present to respond to the questionnaires. Judgmental sampling involves the choice of subjects who are most advantageously placed or in the best position to provide the information on intellectual capital accounting.

According to (Mugenda, 2008, William et al., 2010; David, 2004; Orodho & Kombo, 2002) they recommend that for small populations a sample of 30 is statistically significant. Similarly, Sekaran, (2003, pp294), points out that for populations lying between 30 and 35 units, a sample of between 20 and 32 is adequate to represent the population. This criterion was used at 95% confidence interval, 5% margin of error and p-value 0.05.

3.6 Instruments

The overall aim of the study was to establish whether the various independent variables are related to business performance. The analysis therefore contained measures of Business performance of the pharmaceutical firms as the dependent variable. In this study business performance of the pharmaceutical firms was defined by profitability, human productivity, and market valuation

In this study the main primary tool of data collection was the structured questionnaire which was used to collect factual information with likert scale from 1 to 5. The structured questionnaires are recommended because they help the respondents to respond more easily and help the researcher to accumulate and summarize responses more efficiently (William, 2006; Piergiorgio, 2003; Blaxter, et al., 2006). The likert scale had the following measures; 1 – Being strongly disagree, 2- disagree, 3- Neutral, 4- agree, 5- Strongly agree based on how the respondents feel the statement.

Many studies done in the area of intellectual capital have used likert scale since they are perceptual measures and also the data obtained was ordinal in nature (Sharabati et al., 2010; Cheng- Ping, et al., 2010; Bontis et al., 2000; Chung-Fah & Sung-Lin, 2007; Saari, 2011). Given that intangible assets are difficult to measure objectively it was common to find the use of perceptual measures (Kannan & Aulbur, 2004). The 10 items in the questionnaire generated the measures of the dependent variable.

3.7 Data Collection Procedure

The survey unit of the sample targeted the Human resource managers and their deputy's managers drawn from the local pharmaceutical manufacturer's population. Business performance information was collected from the 10 items of the aforementioned local pharmaceutical manufacturer's population list and they had a cronbach alpha of 0.904 which was an indication that they were reliable enough to measure the dependent

variable. The human resource managers and their deputy's of the pharmaceutical firms were the most knowledgeable with respect to the overall situation of their firms. The primary data was collected by the use of questionnaire instruments.

Cooper & Schindler, (2006) recommends the use of questionnaire in descriptive studies because of the following; Self administered surveys typically cost less than personal interviews, sample accessibility. The researcher can contact participants who might also be inaccessible, careful consideration where the participants can take more time to collect facts, talk with others or consider replies at length than is possible in an interview and finally in terms of anonymity where the surveys are typically perceived as more impersonal, providing anonymity than other communication modes

Collecting data through multi methods and from multiple sources lends rigor to the research (Sekaran, 2003; Kothari, 2004). The study used self administered questionnaire. The intellectual capital accounting questionnaire was structured into three elements human capital, structural capital and relational capital. The subsets of the dependent variable were measured by data from the 10 items in the questionnaire of the pharmaceutical firms which was derived from a list of pretested measures from Stewart, (1998) and revised from (Cabrita & Bontis, 2008). Each sub construct was operationalized with ten items that measures employee perception of that variable.

Data was collected through the administration of the questionnaire to the 31 pharmaceutical firms. Each objective of the study was addressed by the questionnaire which had various subdivisions for example human capital addressed (learning and education, experience and expertise, innovation and creation), structural capital addressed (systems and programs, research and development, and intellectual property rights) relational capital addressed (strategic alliances, licensing and agreements, customer and supplier relations, customer knowledge). The dependent variable also had ten items such as industrial leadership, future outlook, overall response to competition, success rate in new product launches, overall business performance and success, employee productivity, process productivity, sales growth, profit growth and company's stock value.

Studies in this area advocate for administration of questionnaire as the primary source of relevant data and they have succeeded in this approach (Saari, 2011; Sharabati, et al., 2010; Khalique et al., 2011; Bontis & Cabrita, 2008).

3.8 Pilot Test

According to (Sekaran, 2008; Mugenda, 2008; William, 2006) Pilot test is necessary for testing the reliability of instruments and the validity of a study. A pilot test was conducted using questionnaires administered to 6 Human Resource Managers from the pharmaceutical firms. This constituted 10% of the 31 pharmaceutical firms licensed by

the pharmacy and poisons Board. The three firms (10% of 31) = 3 firms were selected using simple random sampling. In each of the pharmaceutical firm (1) head of human resource and (1) deputy human resource manager were targeted. This constituted 2 respondents in each firm and therefore the total number of the respondents for the pilot was 3 firms * 2 respondents @ = 6 respondents

A pilot test was conducted to detect weaknesses in design and instrumentation and to provide proxy data for selection of a probability sample (Cooper & Schindler, 2006; Nachmias & Nachmias, 2008). According to Nicholas, (2011), the respondents in a pilot test do not have to be statistically selected. Cronbach's alpha was used to test the reliability of the measures in the questionnaire. The Cronbach's alpha results were ranging between 0.831 and 0.912 and therefore the construct were acceptable. Cronbach's alpha is the most commonly used coefficient of internal consistency and it's computed as; $Alpha = Nr \div [N + r(N - 1)]$ where r = mean inter item correlation, N = number of items in the scale. It is tedious to calculate the correlation of each item with every other item to derive the mean inter-item correlation. However, this was easily done using any of the computer packages in statistics (Mugenda, 2008; Kothari, 2004; Sekaran, 2008).

3.9 Data Processing and Analysis

Data analysis was guided by the research objectives presented. After collection of data through questionnaire, data was edited; handling of blank responses was done, coded, categorizing the data and creating a data file. The data was then keyed into SPSS version 17.0. After keying in data, feeling of data was done through carrying out means, standard deviations, correlations and frequency distribution of each independent and dependent variables.

The mean, standard deviation and variance on the dependent and independent variable were used to show how clustered or dispersed the variables were, this gave the idea of how well the questions were framed for tapping the concepts. Inter correlation matrix of the variables was used to give indications of how closely or unrelated the variables under investigation were. Goodness of measures was also done through testing of reliability and validity. Reliability was done by testing for both consistency and stability. Consistency indicated how well the items measuring the concepts hang together as a set. Cronbachs alpha was used to measure reliability. This was done on the three objectives of the study. For validity tests factor analysis was used to reveal whether the dimensions were indeed tapped by the items in the measures. Finally the hypotheses were tested. (Sekaran, 2008; Kothari, 2004) advocates for this procedure of data analysis.

In order to test for the normal distribution of response data, a Kolmogorov – Smirnov, Normal QQ plot test for dependent and independent variables was conducted. This non parametric significance test was appropriate since the research situation called for comparison of an observed sample distribution with a theoretical distribution. The Kolmogorov-Smirnov test was designed to test the hypothesis that a given data set could have been drawn from a given distribution. Unlike the chi-square test, it is primarily intended for use with continuous distributions and is independent of arbitrary computational choices (Shenoy and Madan, 1994). Chi-square statistic is sensitive to sample size and therefore most authors recommend that chi-square not be used if the sample size is less than 50.

Confirmatory factor analysis was used to test the conceptual model and relationships among independent variables and the dependent variable, in this case AMOS version 17.0 and SAS applications were used since SPSS does not have these applications for structural equation modeling. The results of confirmatory factor analysis are attached on appendix (iv). The conceptual model results indicated that the goodness of fit index was 0.928, which was an indication that the data collected fit the theory and explained 92.8% of the full model. The conceptual models meet the threshold for goodness of fit (GFI) which should be greater than 0.9 David, F. et al (2010). The conceptual model also indicated that the root mean residual (RMR) was 0.009. The model meets the threshold since RMR was less than 0.05.

The independent and dependent variables had the following results from confirmatory factor analysis; human capital had a comparative factor index (CFI) =1.00 good fit (≥ 0.90), and a root mean square error of approximation (RMSEA) = 0.0544 - good Fit (≤ 0.06). These results indicated that human capital meet the threshold since the fit index is greater than 0.90 and therefore it was desirable.

Structural capital had a comparative factor Index (CFI) =1.0 good fit (≥ 0.90) and a root mean square error of approximation (RMSEA) = 0.0597 - good Fit (≤ 0.06). The results indicated that structural capital meets the threshold since CFI indicated 0.90 which is a good fit and therefore desirable. RMSEA also indicated a good fit at 0.0597 as compared to the threshold which is 0.06, David, et al, (2010). Relational capital had a comparative factor Index (CFI) =1.0 GOOD fit (≥ 0.90) and a root mean square error of approximation (RMSEA) = 0.0363 - good Fit (≤ 0.06) which meet the threshold of 0.90 and 0.06 respectively. This was an indication that the data collected fit the model as hypothesized (appendix iv)

A set of multi-regression equations was used for estimation and decomposition of effects between the variables (Mugenda, 2008; Kothari, 2004 & Nicholas, 2011). Confirmatory factor analysis was used to verify the factor structure of a set of observed variables. It allows the researcher to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists. The researcher uses knowledge of

the theory, empirical research, or both, postulates the relationship pattern a priori and then tests the hypothesis statistically (Child, 1990).

Pearson Bivariate correlation coefficient was used to test the relationship between independent and dependent variables. The Pearson correlation coefficient is a measure of how closely related two variables are, both of which must be measured at the interval/ratio level. This relationship is assumed to be linear, and the correlation is a measure of how tightly clustered data points are about a correlation line. Correlation ranges from -1.0 (perfect negative relationship) to 1.0 (perfect positive relationship) (Sekaran, 2008 & Kothari, 2004). The correlation coefficient was calculated to determine the strength of the relationship between independent and dependent variable.

Multiple regression analysis was conducted for each of the hypothesis indicating whether the individual hypothesis was statistically supported or not (Cooper & Schindler, 2008; Sekaran, 2008; Thorn hill, et al., 2009). Robustic tests for significance that is t- test and f- test were used to test the significance of independent variables with the dependent variable. Inferential statistics tests were also used to help deductions to be made from the data collected, to test hypothesis set and relate the findings to the sample. t- Test was used since the sample size was less than 30. For the hypotheses to be accepted or rejected comparison was done between the critical t and the calculated t. this gave the basis for accepting the null hypothesis or failing to reject the alternative

hypothesis. If the calculated t was greater than the critical t , then alternative hypothesis was accepted (Shenoy & Madan, 1994).

Analysis of variance (ANOVA) test was then used to study the amount of variation within each of the sample relative to the amount of variation between samples before conducting multiple regression analysis which is a test of multi collinearity. Analysis of variance was used because it makes use of the F-test in terms of sums of squares effects over sums of squares residual (Mugenda, 2008; Sekaran, 2008; William, et al., 2010).

The researcher assumed a 95% confidence level while testing the three hypotheses. The 95% confidence level was used so as to allow tolerance and f - tests yield better coefficients at 95%. The data was presented using statistical techniques, graphical techniques and a combination of both to indicate the results of the analysis and also for better conclusions. The regression model (1) was used for the purpose of this study.

3.9.1 Linear multiple regression

For the purpose of analysis of the respective relationships between the dependent variable and independent variables which were defined from the conceptual framework, multiple linear regression analysis was performed on the following general model. Many of the studies done in the area of intellectual capital advocate for the use of multiple

linear regression models (Sharabati et al., 2010; Cheng-Ping, et al., 2010, Chung & Sung, 2007, Wasim, et al., 2011; Khalique et al., 2011)

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (1)$$

Where Y = Business Performance

β_0 = Intercept

$\beta_1 - \beta_3$ = Slopes coefficients representing the influence of the associated Independent variables over the dependent one

X_1 = Human Capital

X_2 = Structural Capital

X_3 = Relational Capital

ε = Error term

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The study aimed at investigating the relationship between intellectual capital accounting and business performance in pharmaceutical firms in Kenya. The specific objectives were to determine whether human capital, structural capital and relational capital influenced business performance of pharmaceutical firms in Kenya. This chapter presents the results and findings of the study. Non-responsive bias for the whole sample of respondents was assessed based on the notion that later respondents would be more like non respondents than earlier respondents (Armstrong & Overton, 1977). This chapter has been divided into three parts of analysis: descriptive statistics, inferential statistics and fitting of the conceptual model.

4.2 Response rate

A total of 31 questionnaires were distributed to human resource managers in the pharmaceutical firms. In cases where the managers were not present questionnaire were distributed to their and their deputies. The researcher received 19 completed questionnaires out of the 31 that were distributed. This represented an overall response rate of 61%. However the remaining 12 questionnaires were not returned, this

represented 39%. This response rate was considered adequate for further statistical analysis because it was over 60% which is recommended and indicated as good by Mugenda, (2008), the response rate is represented in Figure 2

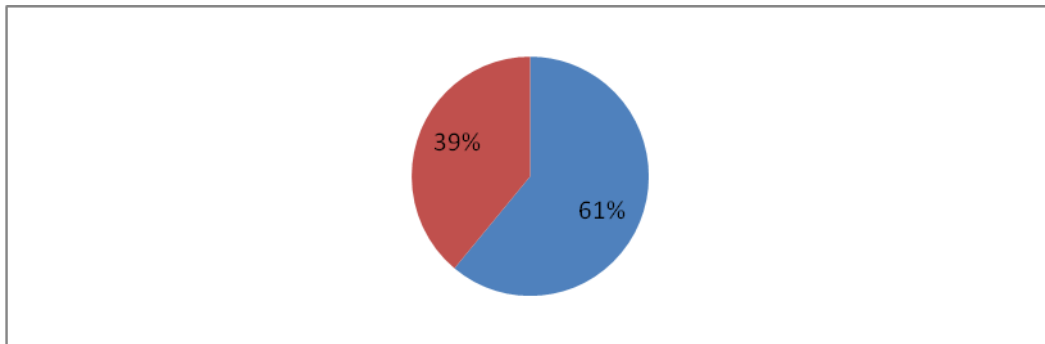


Figure 2 Response rate

4.3 Reliability and validity analysis

Reliability of a measure indicates the extent to which it is without bias (error free) and hence ensures consistent measurement across time and across the various items in the instruments. It is therefore, an indication of the stability and consistency with which the instrument measures the concept and helps to assess the goodness of a measure.

In this study, cronbach alpha which is a reliability coefficient was used to indicate how well the items in the set are correlated to each other. The cronbach alpha was computed in terms of the average inter-correlations among the items measuring the concepts. The

rule of the thumb for cronbach alpha is that the closer the alpha is to 1 the higher the reliability (Sekaran, 2008). A value of at least 0.7 is recommended.

Table 3 Reliability and Validity measurement results

Constructs	Number of items	Cronbachs alpha of sub constructs	Overall alpha	Cronbachs alpha
Human capital	30			
L&E	10	0.552		
E&E	10	0.548	0.860	
I&C	10	0.819		
Structural capital	30			
S&P	10	0.767		
R&D	10	0.804	0.912	
IPRs	10	0.910		
Relational capital	30			
SALA	10	0.758		
RPSC	10	0.650	0.831	
KPSC	10	0.649		
Business Performance	10			
SG&PG	4	0.916		
EP	4	0.774	0.904	
SV	2	0.714		

Legend: L&E-learning and education, E&E-experience and expertise, I&C-innovation and creation, S&P- systems and programs, R&D-research and development, IPRs-intellectual property rights, SALA-strategic alliances, licensing, agreements RPSC-relation with partners, suppliers and customers, KPSC-knowledge about partners,

suppliers and customers SG-sales growth, EP-human productivity, SV- market valuation.

Table 3 indicates the reliability statistics for the four variables namely, business performance which had coefficient of 0.904 for 10 items that were investigated which shows that it is acceptable measure for business performance according to cronbachs rule for internal consistency and reliability. Human capital which was an independent variable with 30 items under investigation, its cronbach's alpha was 0.860 which indicated that the measures of the variable were reliable and suitable for further analysis. Structural capital had 30 items with a cronbachs alpha of 0.912 which implied that the variable had reliable measures suitable for further analysis. Similarly, relational capital with 30 items and a cronbachs alpha coefficient of 0.831 had reliable measures for analysis.

From table 3 the internal consistency measures of the three independent variables namely human capital, structural capital, relational capital and the dependent variable, business performance were acceptable and valid because ($\alpha \geq 0.7$) .

4.4 Factor Analysis of Independent and Dependent Variables

After reliability analysis was done and confirmation that the three independent variables and the dependent variable were acceptable for further analysis, factor analysis was

conducted to ascertain the suitability of all the variables. First the correlation analysis matrix was obtained for all the factors and checked for chances of multicollinearity. The factors that had correlations of less than 0.2 were excluded from obtaining the factor loadings. After the exclusion of the factors which had correlations of less than 0.2, discriminant factor analysis was done and those factors that had loading less than 0.5 were excluded from further analysis.

A general rule of thumb for acceptable factor loading is 0.40 or above (David et al., 2010). The component matrix was obtained and rotated and ranking done from the highest value to the lowest factor loading value. Tables 4, 5, 6 and 7 show the results of factor analysis after rotation apart from the dependent variable which was not rotated since there were no differences between the values before rotation and after rotation. The initial considerations were that data screening was done so as to find a factor solution to a set of variables.

Therefore, inter-correlation between variables was examined. The variables that had a correlation of less than 0.2 were excluded before the factor analysis was run. The correlation between variables was checked using a correlation procedure from SPSS to create a correlation matrix of all variables. This was done to eliminate any variable that don't correlate with any other variables or correlate very highly with other variables ($R < 0.9$). This was done to detect multicolliniarity (Sekaran, 2003).

4.4.1 Human Capital

Figure 3 indicates the scree plot of human capital; it shows that out of the thirty questions that were tested only eighteen of them were viable for consideration for subsequent analysis, since their eigen values were above one. The rule of the thumb is that eigen values are considered for viability of the factors if and only if the scores are one or above one. The study was guided by the Kaisers rule of eigen values >1 and the scree plot (Shenoy & Madan, 1994).

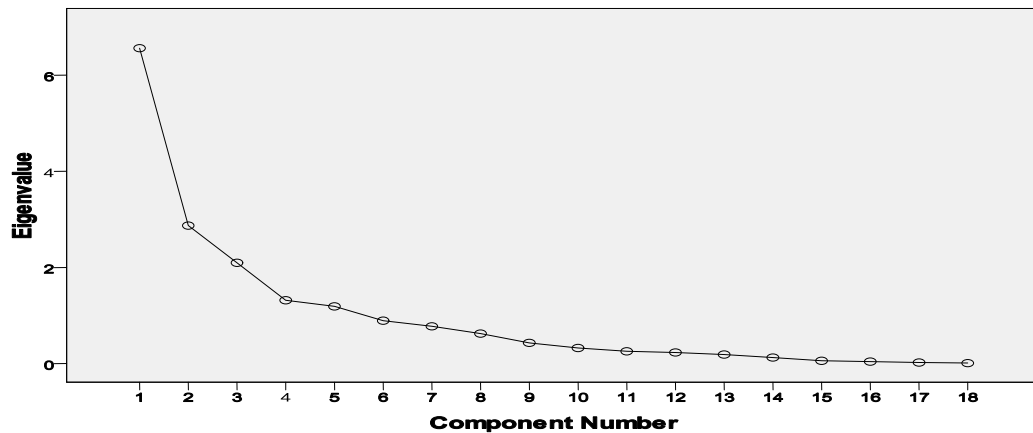


Figure 3 Scree Plot for Human Capital

The scree plots are used to indicate the number of factors to be extracted and therefore this is specified by selecting the number of factors. In this case scree plots were used, to indicate the number of questions to be retained for further analysis. The criterion that

was used to eliminate the questions gave the same number of questions from the questionnaire and therefore, there was no need to examine communalities. According to Field (2005), the use of eigen value and scree plots over 1 leads to retaining the same number of factors and therefore the researcher continue with the analysis, he indicates that if the two criteria gives different results then communalities can be examined and the researcher can decide which of the two criteria to believe.

Figure 3 indicates the number of components that were considered for human capital was eighteen. This constituted six questions from learning and education (LE), five questions from experience and expertise (EE) and seven questions from innovation and creation(IC). Confirmatory factor analysis was done to confirm these items as indicated in Table 4.

However out of the factors that were retained and meet the threshold, seven (7) of them were extracted using the scree plot and the factors had a cumulative variance of 85.836% above the recommended threshold +70% (David, et al, 2010). This information and their extraction loading and eigen values are indicated on Appendix (III)

Table 4 Rotated Component Matrix of Human Capital

	Component		
	1	2	3
LE Company's market share continually improve over past few years	.899		
LE Employees learning and education affect company's market value	.848		
LE Company devotes a lot of time effort update and develop employees knowledge and skills	.802		
LE Ratio of educated personnel on average compared with industry	.709		
LE undergo continuous training program to employees annually	.652		
LE competence of company employee	.504		
EE Company employees consistently perform their best		.776	
EE Company employees are experts in respective areas		.750	
EE company has lowest cost per transaction of any in the industry		.684	
EE Employees experience and expertise affect market value		.676	
EE staff are highly professional		.545	
IC company employees encouraged new ideas and knowledge			.859
IC company employees highly motivated and committed to share new great ideas			.795
IC Large numbers of new products are launched with competitors			.762
IC employees innovation creation affect company market value			.730
IC Company employees are keen to voice opinions in group discussions			.710
IC Company employees are considered creative and bright compared to other companies in the industry			.667
IC Company employees usually come up with new ideas			.649
IC company employees satisfied with company innovation policies and programs			.529

Table 4 shows the factor loadings of independent variable (Human capital) this show that the three sub-constructs for human capital namely learning and education (LE), experience and expertise (EE), innovation and creation(IC) were acceptable for other subsequent analysis. All the variables and sub variable items were confirmed to be valid

since their factor loadings values were more than 0.4. These results conform to previous studies conducted by Bollen et al., and Bin Ismail, (2005).

4.4.2 Structural Capital

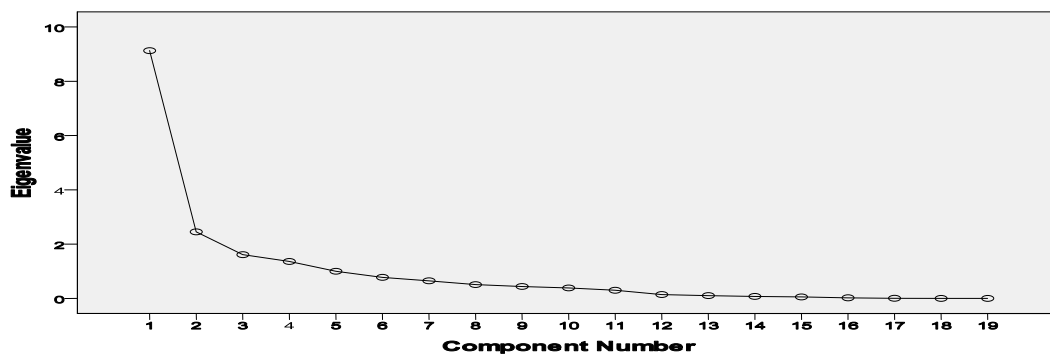


Figure 4 Scree Plot for structural Capital

Figure 4 indicates the eigen value of structural capital and the components of structural capital where nineteen (19) components were considered for further analysis. The 19 items were considered because their eigen value was greater than one.

The items constituted six questions from systems and programs (SP), seven questions from research and development (RD), and six questions from intellectual property rights (IPRs). Confirmatory factor analysis was done to confirm these items (see Table 5).

Exploratory factor analysis was done to come up with the factors on Tables 4, 5, 6 and 7. After exploration of the factors those that met the threshold of 0.5 and above were retained so as to confirm the conceptual models shown in Appendix (IV). However, out of the factors that were retained for further analysis, six (6) factors were extracted from the scree plot since their eigen values were >1 and they explained a cumulative variance of 85.782% (Appendix III)

Table 5 Rotated Component Matrix of Structural Capital

	Component		
	1	2	3
SP Company has well-developed reward system related performance	.856		
SP Company recruitment programs are comprehensive and dedicated to hiring best candidates available	.769		
SP Company supports their employees by constantly upgrading their skills and education	.669		
SP Company culture atmosphere are supportive and comfortable	.698		
SP Staff have sufficient influence over decision made within company	.636		
SP Company succession training programs each post	.496		
RD Company continuously develops reorganizes itself based on R & D		.898	
RD Company board of management highly trust and support the RD Department		.695	
RD Systems and procedures of company support innovation			
RD Company continuously develops work process		.587	
RD Company determines appropriate and adequate budget for R & D		.586	
RD Company follow adopt latest scientific technical development around the world		.531	
RD Company considered a research leader		.530	
IPR Company pursues multiple strategy of licensing IPRs spinning new organizations		.516	.922
IPR Company Monitors performance of the IPR portfolio			.861
IPR Company actively encourages and rewards creation and extends use to maximize income			.819
IPR Company sets clear strategies and procedures for IPRs management			.760
IPR Company utilizes IPR to maximum level			.590

Table 5 indicates the factor loadings of structural capital and its sub constructs namely systems and programs, research and development and intellectual property rights. From these loadings all the items were acceptable for subsequent analysis since all of them had a coefficient above 0.5. The dependent variable and the sub variables items were

confirmed valid since their factor loadings values were more than 0.4. This result is consistent with previous studies conducted by (Bollen et al, & Bin Ismael, (2005)

4.4.3 Relational Capital

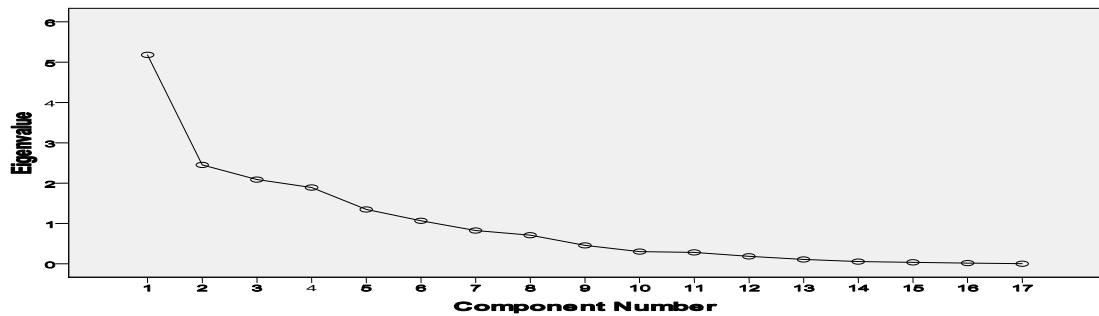


Figure 5 Scree Plot for Relational Capital

Figure 5 indicates the eigen value of relational capital components. According to this result seventeen components were considered for further analysis namely seven items from strategic alliances, licensing and agreements (SLA), six items from customer and supplier relations (CSR) and four items from customer knowledge (CK). However, out of these factors seven (7) were extracted using the scree plot since they accounted for 88.064% of explained cumulative variance of the relational capital construct. The rule of the thumb is that for more subsequent considerations the eigen value has to be one or greater than one. These results indicated that in relational capital construct seventeen

(17) sub variables were valid for subsequent analysis as indicated in Table 6. This contradicts the results of previous studies done by Bin Ismail, (2005), which indicates that all items for relational capital were confirmed since their factor loadings were above 0.4. Out of thirty items for relational capital thirteen were excluded from subsequent analysis. This is indicated by Table 6.

Table 6 Rotated Component Matrix of Relational Capital

	Component		
	1	2	3
SLA Company strategic alliances affect company market value	.934		
SLA Company strategic alliances affect company productivity	.792		
SLA Company prides itself on being partnership – oriented	.779		
SLA Company able to learn and add value through its partners	.724		
SLA People from outside company are consulted when decision are made within company	.668		
SLA Company has many and diverse alliances	.639		
SLA Company currently working on joint projects with many other organizations	.585		
CSR Company capitalize on customer wants and needs by continually striving to make them satisfied		.763	
CSR Company relationship with customer supplier affect market value		.732	
CSR Company relationship with customer supplier affect profitability		.708	
CSR Company maintains long standing relationship with suppliers		.688	
CSR Company feels confident that will continue to do business with it		.685	
CSR A poll of company customers show them to be loyal to company would indicate that they are generally satisfied		.535	.712
CK Customer knowledge is widely distributed throughout company			
CK Company has useful and updated information system in use			.627
CK Is it Important for company share knowledge with partners			.616
CK Company continually meets customers to find out what they want			.589

Table 6 indicates the factor loadings of relational capital and its sub constructs namely strategic alliances, licensing and agreements (SLA), customer and supplier relations (CSR), and customer knowledge (CK). From these loadings, the factors were acceptable for subsequent analysis since all of them had coefficients above 0.5.

4.4.4 Business Performance

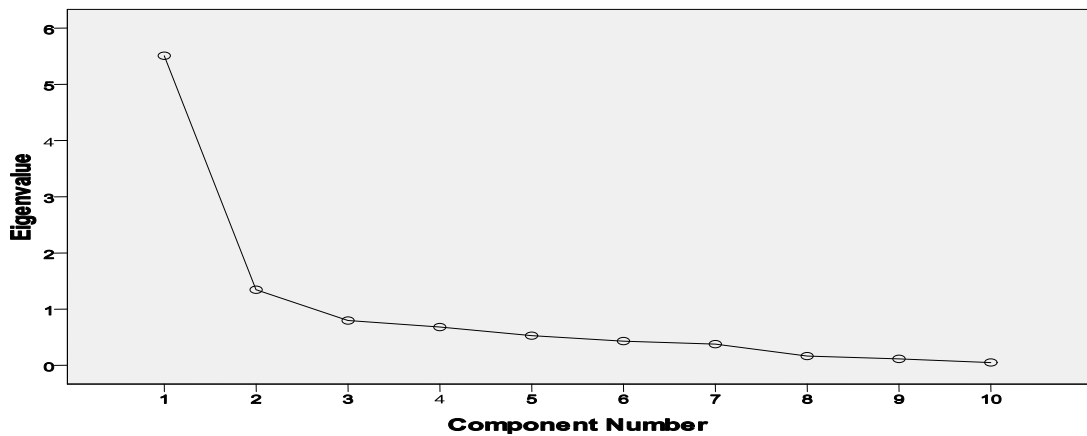


Figure 6 Scree plot of Business Performance

Figure 6 indicates the eigen value of the dependent variable (business performance) and the components of business performance. Figure 6 indicates that ten (10) components were considered for further analysis. However out of the factors, five (5) of them were extracted from the scree plot since their eigen values were >1 or equal to 1. These factors explained a cumulative variance of 88.622% as recommended threshold of +70

percent (David, et al, 2010). The rule of the thumb is that for more subsequent analysis the eigen value has to be 1 or more. These results of eigen values indicated that in business performance variable ten sub variables were valid for subsequent analysis and this results conforms to the results of previous studies done by (Bin Ismail, 2005; Salleh & Selamat, 2007; Moslehi, et al., 2006; Bollen, et al., 2005; Seng, et al., 2004; Westhuizen, 2005)

All the ten (10) sub variable items of the dependent variable (Business Performance) were confirmed to be valid for subsequent further analysis since their factor loading values were more than 0.5 which is considered to be good (Field, 2005).

Table 7 Component matrix of Business Performance

	Component
	1
BP Sales growth	.847
BP Profit growth	.846
BP Industry leadership	.810
BP Company market valuation	.796
BP Success rate in new product launches	.756
BP Process (transaction) productivity	.724
BP Future outlook	.710
BP Overall response to competition	.704
BP Employee Productivity	.641
BP Overall business performance and success	.528

Table 7 indicates the measures of business performance from the highest loadings to the lowest that is; sales growth, profit growth, industry leadership, company's market valuation, success rate in new products launch, process productivity, future Outlook, overall response to competition, employee productivity and overall business performance and success respectively.

From Table 4, 5 and 6, an orthogonal rotation was used because the assumption was that the underlying factors should be theoretically independent (unrelated to each other); factor loadings less than 0.5 were not displayed because SPSS was commanded to suppress the loadings. The variables were listed in order of the size of their factor loading because of the command to SPSS. The rotation of the factors clarified things considerably because out of the three independent variables under investigation, human

capital had three (3) factors, structural capital three (3) factors and relational capital three (3) factors respectively. The suppression of the factor loadings less than 0.5 and ordering variables by loading size makes the interpretation easier because the researcher doesn't have to scan the matrix to identify substantive loadings.

Bartlett's test was used to test whether the original correlation matrix was an identity matrix. For the results to be significant the value had to be less than 0.05 (Field, 2005). Therefore, a significance test indicates that rotation matrix is not identity therefore some relationships between variables need to be included in the analysis.

In all the three independent variables; human capital, structural capital and relational capital the Bartlett's test was highly significant ($P \leq 0.001$) and therefore factor analysis was appropriate.

Tables 4, 5 and 6 show the rotated components matrix of the three independent variables. human capital, structural capital and relational capital. These results agree with threshold recommended in previous studies (Bontis, 1998; Bollen, et al., 2005; Bin Ismail, 2005).

4.5: Descriptive Statistics of Independent and Dependent Variables

4.5.1. Business Performance

For the purpose of this study, descriptive statistics were used to describe the phenomenon under investigation and help the researcher come up with conclusions about the characteristics of data used in order to proceed to inferential statistics. Table 8 presents the characteristics of Business Performance data.

Table 8 Descriptive Statistics of Business Performance

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Business performance Valid N (listwise)	19	24.82	1.14	25.96	15.9498	1.45156	6.32718	40.033	-.346	.524	.265	1.014

Table 8 indicates that the number of pharmaceutical firms considered was 19 and among them they had a range of 24.82 which is the length of the smallest interval which contains all the data, its calculated by subtracting the smallest observation(sample minimum) from the greatest (sample maximum) and provides an indication of statistical dispersion.

The maximum and the minimum are the values of the greatest and the least elements of a sample. The minimum and the maximum value are the first and last orders statistics and are easily obtained by sorting in the order of increasing value; the dependent variable had a minimum value of 1.14 and a maximum value of 25.96. However, the sample maximum and minimum need not be outliers, if they are not unusually far from other observations. The Variance is a measure of the dispersion of a set of data points around the mean value. This is a mathematical expectation of the average squared deviations from the mean. This measures the variability from an average. Business performance had a big variance of 40.033 indicating that there was a great dispersion of the pharmaceutical firms. The mean score of the pharmaceutical firms was 15.9498.

The standard deviation is a measure of the dispersion of a set of data from its mean. The more spread a part the data, the higher the deviation. This can be applied to the annual rate of return of an investment to measure the investments volatility. This is used by investors as a gauge for the amount of expected volatility. A large dispersion tells of how much the return on the funds is deviating from the expected normal returns. The dependent variable had a value of 6.32718.

The Standard error is a statistical term that measures the accuracy with which a sample represents a population. The dependent variable mean had a standard error of 1.45156 indicating that the smaller the standard error, the more representative the sample will be

of the overall population; this was subject to 95% confidence interval. This is also inversely proportional to the sample size, the larger the sample size the smaller the standard error because the statistics will approach the actual value.

The 95% confidence interval of business performance is

$$\begin{aligned} C.I &= 15.9498 \pm t_{18}(0.05) * 1.45156 \\ &= 15.9498 \pm 2.101 * 1.45156 = 15.9498 \pm 3.0497276 \end{aligned}$$

Therefore the 95% confidence interval for business performance was between 12.90 and 18.98. The skewness of the dependent variable is -0.346 which indicates a distribution with an asymmetric tail extending towards the left of the mean values of business performance (this indicates that more than half of the pharmaceutical companies are below the mean which is 15.9498). Skewness characterizes the degree of asymmetry of a distribution around its mean. Kurtosis on the other hand is a measure of flatness of the distributions. The kurtosis of Business Performance is positive 0.265 which indicates a relatively peaked distribution since (Kurtosis > 0). This indicates that there are fewer companies around the mean performance than expected.

4.5.2 Human Capital

Table 9 indicates the raw data of human capital from the lowest valid score of 25.69 to the highest score of 71.96. For the purpose of this study, descriptive statistics was used

to discuss the phenomenon under investigation and help the researcher to come into conclusions about the characteristics of data used in order to proceed to inferential statistics. Table 9 therefore demonstrates the characteristics of human capital data.

Table 9 Descriptive statistics of Human Capital

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Human capital	19	46.27	25.69	71.96	47.7579	2.22599	9.70289	94.146	.227	.524	1.950	1.014
Valid N (listwise)	19											

Table 9 indicates that valid data was collected from 19 pharmaceutical firms. The mean of the 19 pharmaceutical firms in reference to human capital had a score of 47.7579, minimum score of 25.69 and the maximum score of 71.96. The quantiles indicate that 25% of the pharmaceutical companies had a score of less than 42.6686, 50% of the pharmaceutical companies had a score of less than 46.3064 and 75% of the pharmaceutical companies had a score of less than 54.7434. Human capital had the following confidence interval at 95%;

$$\begin{aligned}
 C.I &= 47.7579 \pm t_{18}(0.05) * 2.22599 \\
 &= 47.7579 \pm 2.101 * 2.22599 = 47.7579 \pm 4.676805
 \end{aligned}$$

The confidence interval was constructed by the use of the mean and standard deviation. Confidence interval is between 43.08 and 52.42 respectively indicating that the probability of the interval being out of this range is 5%. Figure 7 indicates a box plot graph, which indicates that the first company in the data list had extra ordinary high Human capital with a maximum score of 71.96 (GlaxoSmithKline) compared to the others and company number 5(Medivet Products Limited) in the data list had a very low measure of human capital with a minimum score of 25.69.

Table 9 indicates that there is a weak positive skewness of human capital scores implying that we have more on the upper scores of human capital. This indicates that most of the pharmaceutical firms in Kenya have realized the potential of their organizations human capital in order to establish a strong market orientation for their customers and hence this will result to better performance of businesses. These results are consistent to the previous studies done by (Bontis, 2000).

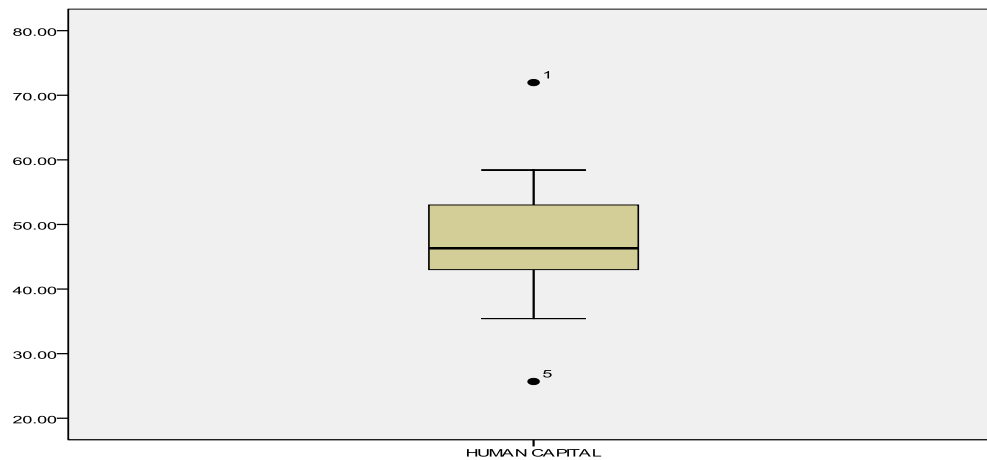


Figure 7 Box Plot for Human Capital

4.5.3 Structural Capital

For the purpose of this study, descriptive statistics was used to discuss the phenomenon under investigation and help the researcher to come into conclusions about the characteristics of data used in order to proceed to inferential statistics. Table 10 therefore, demonstrates the characteristics of structural capital data.

Table 10 Descriptive statistics of Structural Capital

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Varianc	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Structural capital Valid N (listwise)	19	61.49	12.38	73.88	52.0312	3.06584	13.36370	178.589	-1.391	.524	3.414	1.014

Table 10 indicates that the valid pharmaceutical companies that data was collected from were 19; the mean of the 19 pharmaceutical firms in reference to structural capital had a score of 52.0312, minimum score of 12.38 and the maximum score of 73.88. The percentiles indicate that 25% of the pharmaceutical companies had a score of below 47, 50% of the pharmaceutical companies had a score of 54.9266 and 75% of the pharmaceutical companies had a score of 61.2415. The skewness of the independent variable structural capital is -1.391 which indicates that a distribution with an asymmetric tail extending towards more negative values of structural capital (this means that more company's in respect to their structural capital much more needs to be done). Skewness characterizes the degree of asymmetry of a distribution around its mean. Kurtosis on the other hand is a measure of flatness of the distributions. It characterizes the relative peakedness or flatness of the distribution compared with the normal distribution. The kurtosis of structural capital is positive 3.414 which indicate a

relatively peaked distribution and therefore normally distributed since the standard kurtosis for normal distribution is 3.0 (this therefore means that very few company's whose structural capital was around the average.). These results indicate that Pharmaceutical firms in Kenya need to transform individual employee knowledge into non human knowledge. This conforms to the previous studies conducted by Bontis and Chua, (2000). Structural capital had the following confidence interval at 95%.

$$C.I = 52.0312 \pm t_{18}(0.05) * 3.06584$$

$$= 52.0312 \pm 6.44$$

The confidence interval was constructed by the use of the mean and standard deviation. Confidence interval is between 45.59 and 58.47 respectively indicating that the probability of the interval being out of this range is 5%.

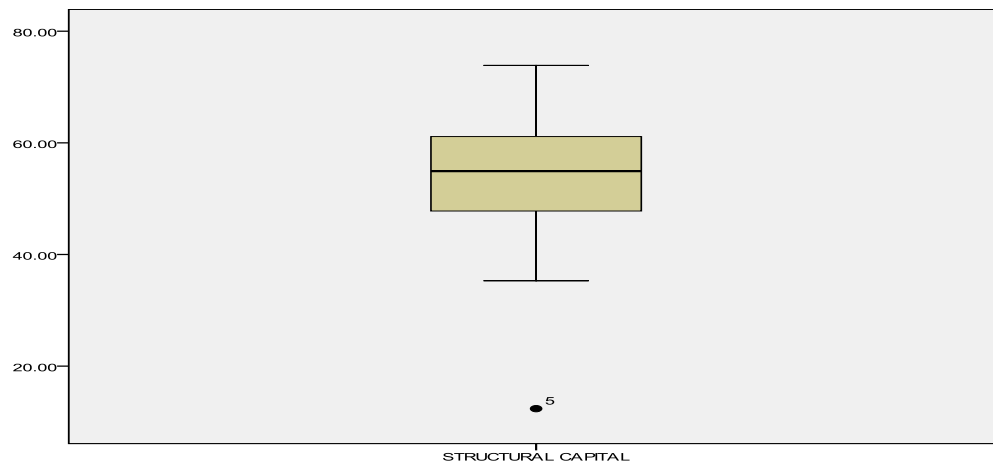


Figure 8 Box Plot of Structural Capital

Figure 8 indicates a box plot of structural capital; this shows that most of the pharmaceutical firms in Kenya have a better capability for transforming individual employee's knowledge into non human knowledge. However out of the valid pharmaceutical firm's one of the firms was an outlier which had a very low measure of structural capital this was company number 5(Medivet products ltd) in the list of Pharmaceutical companies.

4.5.4 Relational Capital

For the purpose of this study, descriptive statistics was used to discuss the phenomenon under investigation and help the researcher to come into conclusions about the

characteristics of data used in order to proceed to inferential statistics. Table 11 therefore, demonstrates the characteristics of relational capital data.

Table 11 Descriptive statistics of Relational Capital

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Relational capital Valid N (listwise)	19	39.11	24.78	63.89	47.7548	2.35787	10.27774	105.632	-.763	.524	-.005	1.014

Table 11 indicates the raw data for relational capital construct where the valid frequency from the questionnaire response was 19 and the cumulative percentage of the data was given as 100%. The mean score of the 19 pharmaceutical firms in reference to relational capital was 47.7548, with a minimum score of 24.78 and the maximum score of 63.89. The percentiles indicate that 25% of the pharmaceutical companies had a score of 39.10, 50% of the pharmaceutical companies had a score of 49.7491 and 75% of the pharmaceutical companies had a score of 55.1976. The skewness of the relational capital was -0.763 which was a distribution with an asymmetric tail indicating that most of the companies relational capital was below the mean. Skewness characterizes the degree of

asymmetry of a distribution around its mean. Kurtosis on the other hand is a measure of flatness of the distributions.

The kurtosis of relational capital is negative, -0.005, which indicates a relatively flat distribution since (Kurtosis < 0) ,this means that the number of companies around the mean of relational capital is very close to what should be expected in a normal situation. The results mirrors previous studies done by Housel and Bell, (2001), who attest that, pharmaceutical firms need to invest in developing a strong and loyal relationship underlying a strong relational capital. Relational capital had the following confidence interval at 95%,

$$\begin{aligned}
 C.I &= 47.7548 \pm t_{18}(0.05) * 2.35787 \\
 &= 47.7548 \pm 2.101 * 2.35787 = 47.7548 \pm 4.9538849
 \end{aligned}$$

The confidence interval was constructed by the use of the mean and standard deviation. Confidence interval is between 42.80 and 52.70 respectively indicating that the probability of the interval being out of this range is 5%.

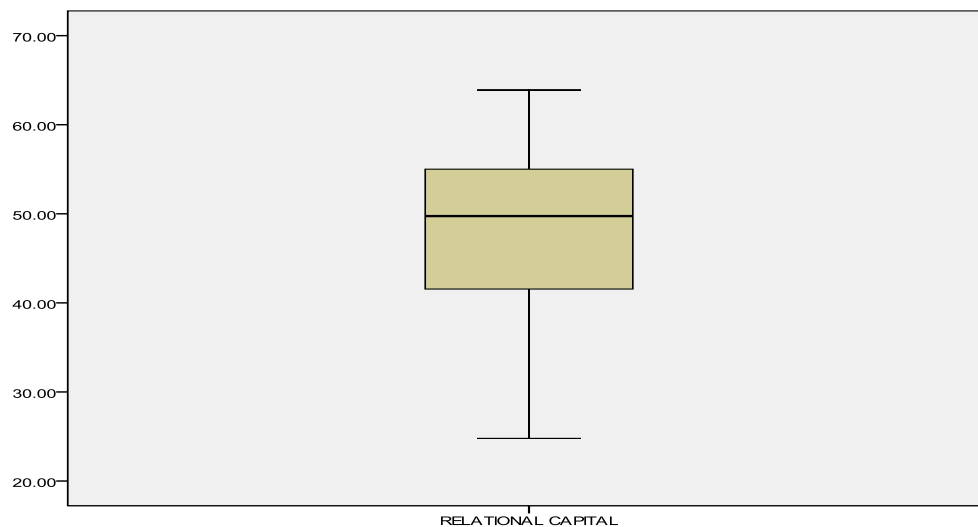


Figure 9 Box Plot of Relational Capital

Figure 9 indicates the box plot of relational capital. This shows that half of the valid pharmaceutical firms had an average score of 47.7548 of relational capital and very few pharmaceutical firms had upper scores of relational capital. The results therefore indicate that relational capital is not very popular with the pharmaceutical firms in Kenya. This therefore indicates that Relational capital tends to have lower influence on the pharmaceutical firms in Kenya.

4.6. Inferential Statistics

The Statistical model under investigation was;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (2)$$

Where Y = Business Performance

β_0 = intercept

$\beta_1, \beta_2, \beta_3$ = slope coefficients representing the influence of the associated independent variable over the dependent variable

X_1 = Human Capital

X_2 = Structural Capital

X_3 = Relational Capital

ε = Error term

4.6.1. Normality of Business Performance

Many data analysis methods that is; t- test, ANOVA, and regression depend on the assumption that data were sampled from a gaussian distribution (Indiana, 2011). The

best way to evaluate how far data are from gaussian is to look at a graph and see if the distribution deviates grossly from a bell-shaped normal distribution (GraphPad, 2011). The testing of normality of business performance (Dependent Variable) in this study was done by using the Kolmogorov-Smirnov and Shapiro Wilk test. Such that given H_0 and H_1 , set $\alpha = 0.05$, the rule is that reject H_0 if P- value is less than α else fail to reject H_0 : where

H_0 : The data is normal

H_1 : The data is not normal.

Table 12 Checking for Normality of Business Performance

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Business performance	.107	19	.200	.961	19	.583

Table 12 indicates that using the two tests of normality that is Kolmogorov-Smirnov and Shapiro-Wilk, business performance data is normal since the P-value for both tests are above 0.05. The study therefore concluded that business performance variable is normal in distribution and hence subsequent analysis could be carried out.

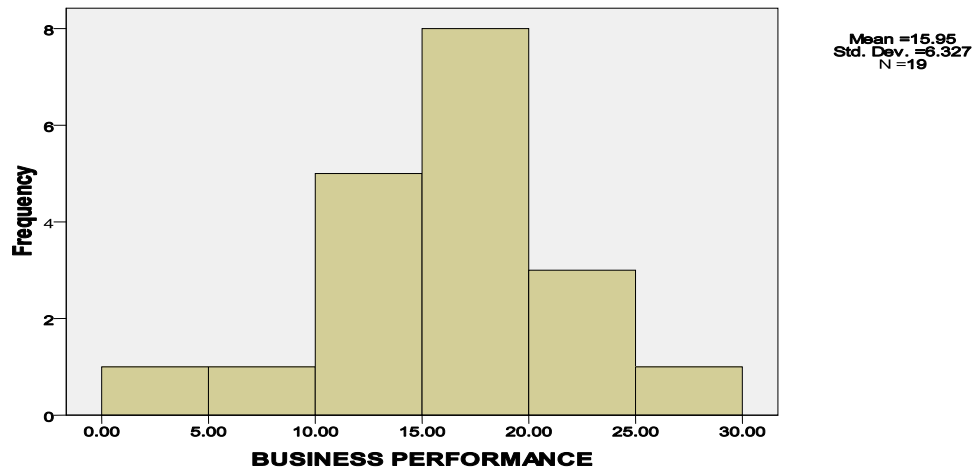


Figure 10 Normality of Business Performance

Figure 10 shows that Business Performance is approximately normally distributed with a mean of 15.95, standard deviation of 6.327 and the number of pharmaceutical companies that responded were 19 represented by $N = 19$ and therefore subsequent analysis can be done. The dependent variable should be normally distributed because the study was using a multiple linear regression model, where the condition of normality must be satisfied.

One way to make it very likely to have normal residuals is to have a dependent variable that is normally distributed and predictors that are all normally distributed (Shenoy & Madan, 1994). Figure 10 shows the normal QQ plot which indicates that the condition of

normality for business performance is satisfied .The quantile-quantile (QQ) plot is an excellent way to see whether the data deviate from normal (the plot has been set up to see whether the data deviate from other distributions but only interested in the normal distribution).

Quantile plot determines whether the proportion of the observed scores fall below any one score, then the z score that would fit that proportion if the data were normally distributed is calculated, and finally that z score that would cut off that proportion (the expected normal value) is translated back into the original metric to see what raw score that would be. Therefore, a scatter plot shows the relationship between the actual observed values and what those values would be expected when the data is normally.

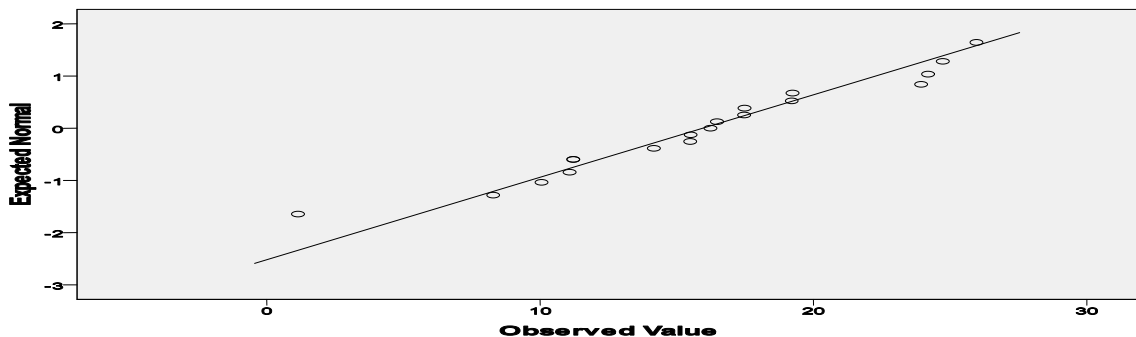


Figure 11 Normal quantile-quantile plot of business performance with theoretical quantile line

According to Shenoy and Madan (1994), for a variable to be normally distributed most of the points should lie on the theoretical quantile line. The theoretical quantile line of the data is fitted and from the Normal QQ Plot it indicates that the observed values versus the expected normal values are randomly distributed along the line of best fit indicating that the dependent variable is normally distributed. In case the dependent variable is not normally distributed then normality has to be sought for before proceeding to check whether the dependent variable is influenced by the other independent variables.

4.7 Influence of Human Capital and Business Performance

The study was guided by three objectives as indicated in the introduction of the chapter, each of these objectives and hypothesis were analyzed to test whether they conform or deviate from what the researcher had proposed. The first objective of the study was to determine whether Human capital influences business performance of pharmaceutical firms in Kenya.

This objective of the study sought to determine whether human capital influences business performance of pharmaceutical firms in Kenya. From Figure 12 it is clear that there is a positive linear relationship between human capital and business performance of pharmaceutical firms in Kenya.

4.7.1 Scatter plot of Human Capital and Business Performance

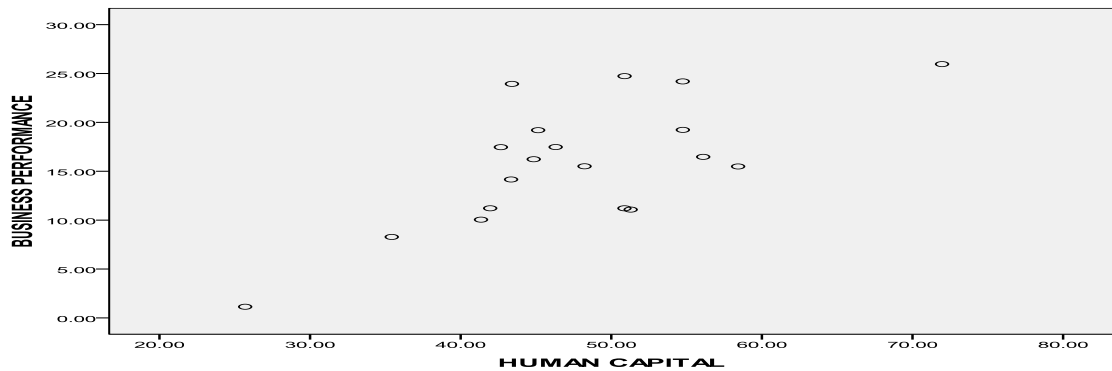


Figure 12 Scatter Plot of Human Capital and Business Performance

Figure 12 indicates that there is positive linear relationship between human capital and business performance implying that increased human capital will lead to better business performance in the pharmaceutical firms in Kenya. Conversely decreased human capital will lead to poor business performance. This conforms to the studies undertaken by (Bontis, 1998, Bontis & Cabrita, 2008).

Table 13 Correlations between Human Capital and Business Performance

		Human capital	Business performance
Human capital	Pearson Correlation	1	.686**
	Sig. (2-tailed)		.001
Business performance	Pearson Correlation	.686**	1
	Sig. (2-tailed)	.001	

Table 13 indicates that there is positive significant linear relationship between human capital and business performance of pharmaceutical firms in Kenya. This relationship had been illustrated by the correlation coefficient of 0.686 at 0.01 significant level. This implies that there is a strong positive relationship between human capital and business performance of pharmaceutical firms in Kenya. Human capital is an important source of innovation, competitive advantage to the organizations since it cannot be imitated. The result conforms to previous studies done by (Bontis, 1998; Stewart, 1997; Edvinsson & Malone, 1997; Wan Fadzilah, 2008).

4.7.2 Regression line fitting

The regression line indicates that the human capital is randomly distributed around the regression line in respect to business Performance. However, there is an outlier with a very small score. A regression line was superimposed on the scatter plot of business

performance versus human capital as shown in Figure 13. The regression line indicates a positive gradient which means that an increase in human capital leads to an increase in business performance.

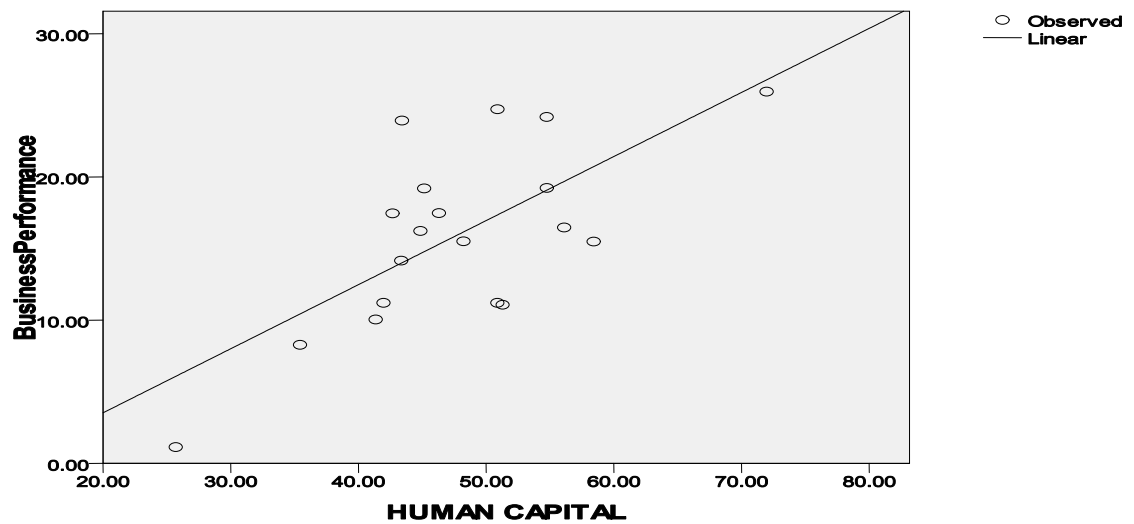


Figure 13 Significance of the fitted regression line

There is a positive unstandardized beta coefficient of 0.338 as indicated by the coefficients (Table, 14). For the regression line to be significant, the following alternative hypothesis has to be true;

$$H_0 : \beta_1 = 0$$

$$H_1 : \beta_1 \neq 0$$

Table 14 shows that the P-Value is less than 0.05. Therefore, in this case the null hypothesis was rejected and the alternative hypothesis accepted that; $\beta_1 \neq 0$, which implies that human capital has a significance effect on performance of pharmaceutical firms in Kenya.

Table 14 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	HUMAN CAPITAL	.338	.022	.963	15.181	.000

4.7.3 Objective 1: Goodness of fit

In order to test the research objectives, regression analysis was employed. The model equation $Y = \beta_1 X_1 + \varepsilon$ explained 92.4 % as measured by the goodness of fit (R-square) in Table 15. The results of the analysis are represented in table 15 (model summary). This result showed that human capital explained 92.4 % (adjusted R- square = 0.924) of the variance in business performance was explained by the model $Y = \beta_1 X_1 + \varepsilon$. This concludes that human capital influences business performance of pharmaceutical firms

in Kenya. The finding conforms to the previous studies done by Bontis, (2000); Bontis & Cabrita (2008).

Table 15 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.963	.928	.924	4.72809

Predictor: Human Capital

The univariate model was significant and therefore, supports the objective that human capital influences business performance of pharmaceutical firms in Kenya.

4.7.4 Hypothesis 1: Human capital positively influences business performance of pharmaceutical Firms in Kenya

This hypothesis intends to test whether human capital has a positive influence or not. In order to test this hypothesis the regression coefficient was considered. The hypothesis that

$$H_0 : \beta_1 = 0$$

Versus

$H_1 : \beta_1 > 0$ Was tested

Table 16 Coefficients of Human Capital against Business Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	t- Critical
	B	Std. Error	Beta		
1 Human capital	.338	.022	.963	15.181	1.734
a. Dependent Variable: Business Performance					

In order to test the direction of the hypothesis human capital positively influences business performance of pharmaceutical firms in Kenya. The hypothesis on sub-section 4.7.4 was tested. This entailed comparing the scores of calculated t and the critical t. since the calculated $t = 15.181$ and the critical $t_{19-1}^{0.05} = 1.734$ as indicated on table 16. The study therefore concluded that since the calculated t is greater than the critical t, reject the null hypothesis and fail to reject the alternative hypothesis that $H_1 : \beta_1 > 0$. The study therefore concluded that human capital positively and significantly influences business performance of pharmaceutical firms in Kenya.

4.8 Influence of Structural Capital on Business Performance

The second objective of the study sought to determine whether structural capital influences business performance of pharmaceutical firms in Kenya. It is indicative that there is a positive linear relationship between structural capital and business

performance of pharmaceutical firms in Kenya, since the scatter diagram on figure 4.9 indicates that this relationship tends to show positive correlation

4.8.1 Scatter plot for Structural Capital and Business Performance

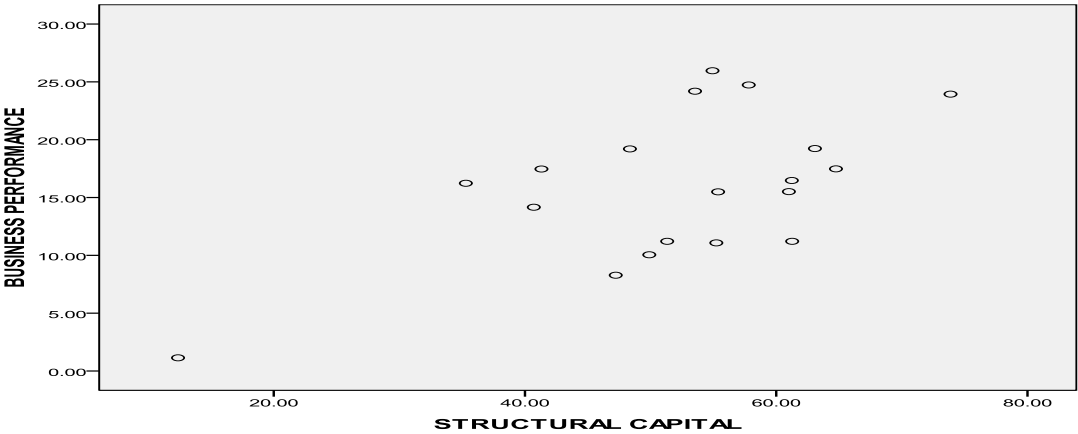


Figure 14 Scatter Plot for Structural Capital and Business Performance

Figure 14 indicates a positive linear relationship between structural capital and business performance. This implies that increased structural capital will lead to better business performance. Conversely decrease in structural capital will lead to poor business performance of pharmaceutical firms in Kenya, (Cheng & Wen, 2010).

Table 17 Correlation between Structural Capital and Business Performance

		Structural capital	Business performance
Structural Capital	Pearson Correlation	1	.585**
	Sig. (2-tailed)		.009
Business Performance	Pearson Correlation	.585**	1
	Sig. (2-tailed)	.009	

Table 17 indicates the correlation between structural capital and business performance of pharmaceutical firms in Kenya. Table 17 indicatives that structural capital has a positive significant linear relationship with business performance with a Pearson correlation coefficient of 0.585 and P-value of 0.009. This implies that there is fairly positive correlation between Structural Capital and Business Performance, although the results indicate that Structural Capital had a positive correlation coefficient of 0.585.

4.8.2 Regression line fitting

The regression line in figure 15 indicates that the structural capital is randomly distributed around the regression line in respect to business performance. However there is an outlier with a very small score of Structural capital against business performance. A regression line was superimposed on the scatter plot of business performance against structural capital.

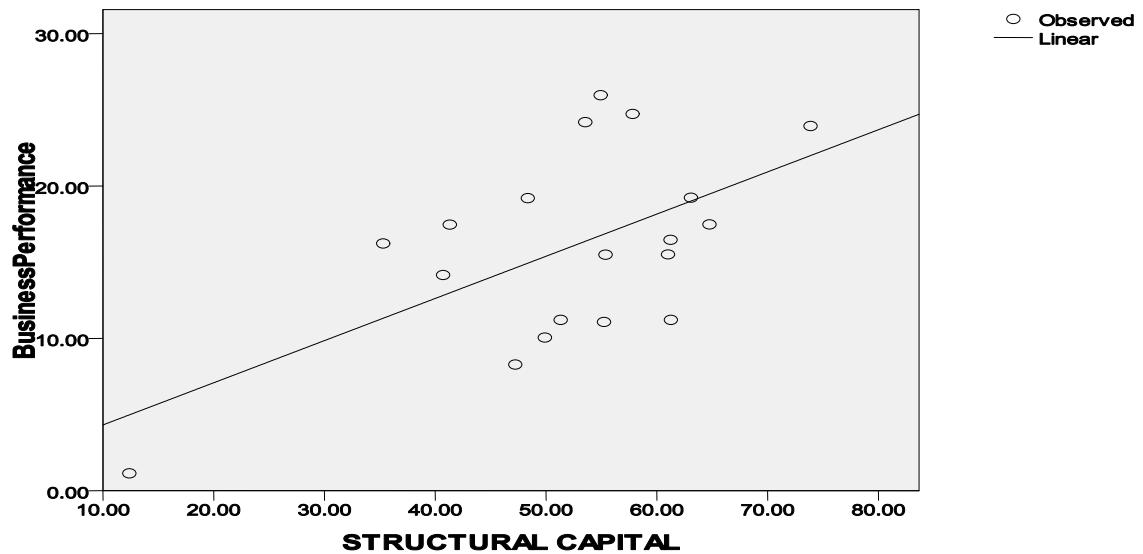


Figure 15 Significance of fitted regression line

For the regression to be significant, the following alternative hypothesis has to be true

$$H_0 : \beta_1 = 0$$

$$H_1 : \beta_1 \neq 0$$

Figure 15 shows regression line fitting of structural capital and business performance. This shows that there are randomly distributed along the line of best fit. There is still an outlier which is one of the pharmaceutical firms (Medivet Products Ltd.) which has very low relationship between structural capital and business performance.

Table 18 indicates that the P-Value is less than 0.005. The study therefore rejected the null hypothesis and accepted the alternative hypothesis that $\beta_1 \neq 0$, which implied that structural capital has a significant effect on business performance of pharmaceutical firms in Kenya.

Table 18 Regression coefficients

Model		Unstandardized Coefficients		Standard ized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Structural capital	.305	.022	.956	13.842	.000

Dependent Variable: Business Performance

The regression coefficient indicated a positive gradient of 0.305 which means that an increase in Structural Capital leads to increase in Business Performance.

4.8.3 Objective 2: Goodness of fit

The model equation $Y = \beta_2 X_2 + \varepsilon$ explained 90.9% as measured by the goodness of fit in table 19. Table 19 demonstrated that 90.9 % (adjusted R- square = 0.909) of the variance in business performance was explained by structural capital

Table 19 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.956	.914	.909	5.14783

a. Predictors: Structural capital

Table 19 indicates that the variation in business performance was significantly explained by structural capital and since this variable is a component of intellectual capital accounting it was suggested that structural capital significantly influenced business performance among pharmaceutical firms in Kenya.

4.8.4 Hypothesis 2: Structural Capital positively influences Business Performance of Pharmaceutical Firms in Kenya

This hypothesis intended to test whether structural capital had a positive influence or not. In order to test this hypothesis the regression coefficient was considered. The hypotheses that;

$$H_0 : \beta_1 = 0$$

Versus

$H_1 : \beta_1 > 0$ Was tested

Table 20 **Coefficients of structural capital against Business performance**

Model		Unstandardized Coefficients		Standard ized Coefficients	t	t- Critical
		B	Std. Error	Beta		
1	STRUCTURAL CAPITAL	.305	.022	.956	13.842	1.734

Dependent Variable: Business Performance

In order to test the direction of the hypothesis that structural capital positively influences business performance of pharmaceutical firms in Kenya, the hypotheses on sub-section 4.8.4 was tested. This entailed comparing the scores of calculated t and critical t. From Table 19, the results of the analysis showed that calculated $t = 13.842$, and the Critical $t = t_{19-1}^{0.05} = 1.734$. Therefore, since the calculated t is greater than the critical t, the study rejected the null hypothesis and failed to reject $H_1 : \beta_1 > 0$. The study therefore concluded that structural capital positively and significantly influences business performance of pharmaceutical firms in Kenya. Therefore, Table 20 indicates that structural capital influences business performance of pharmaceutical firms in Kenya since it had a significant coefficient of 0.305

4.9. Influence of Relational Capital on Business Performance

The third objective of the study sought to determine whether relational capital influences business performance of pharmaceutical firms in Kenya. Figure 16 shows that there was a positive relationship between relational capital and business performance of pharmaceutical firms in Kenya, since the scatter diagram on figure 16 indicates that this relationship tends to show the positive correlation

4.9.1 Scatter plot for Relational Capital and Business Performance

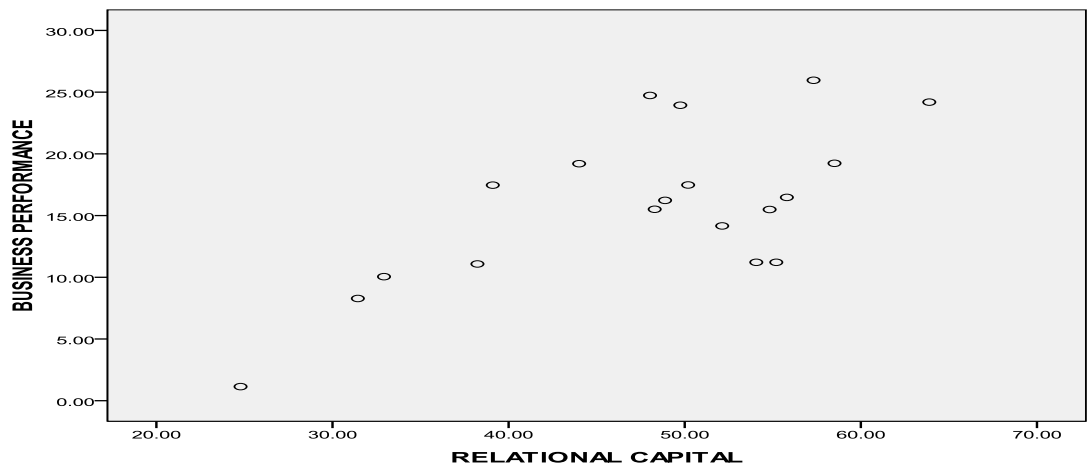


Figure 16 Scatter Plot of Relational Capital versus Business Performance

According to Figure 16 there was a positive linear relationship between relational capital and business performance. This implies that increased relational capital will lead to better business performance. Conversely decrease in relational capital will lead to poor

business performance of pharmaceutical firms in Kenya (Shabarati & Bontis, 2010; Cabrita & Bontis, 2008).

Table 21 Correlation between Relational Capital and business Performance

		Business Performance	Relational Capital
Business Performance	Pearson Correlation	1	.673**
	Sig. (2-tailed)		.002
Relational Capital	Pearson Correlation	.673**	1
	Sig. (2-tailed)	.002	

Table 21 indicates the correlation between relational capital and business performance of pharmaceutical firms in Kenya. It is indicative that relational capital has a positive significant linear relationship with business performance, with a Pearson correlation coefficient of 0.673 and a p-value of 0.002. This implies that there is fairly strong positive correlation between relational capital and business Performance. This conforms to the studies undertaken by (Khalique et al., 2011; Saari, 2011; Bontis & Cabrita, 2008).

4.9.2 Regression line fitting

The regression line in Figure 17 indicates that relational capital is randomly distributed around the regression line in respect to business performance. However there is an outlier with a very small score of relational capital against business performance.

A regression line was superimposed on the scatter plot of business performance against relational capital as shown in Figure 17

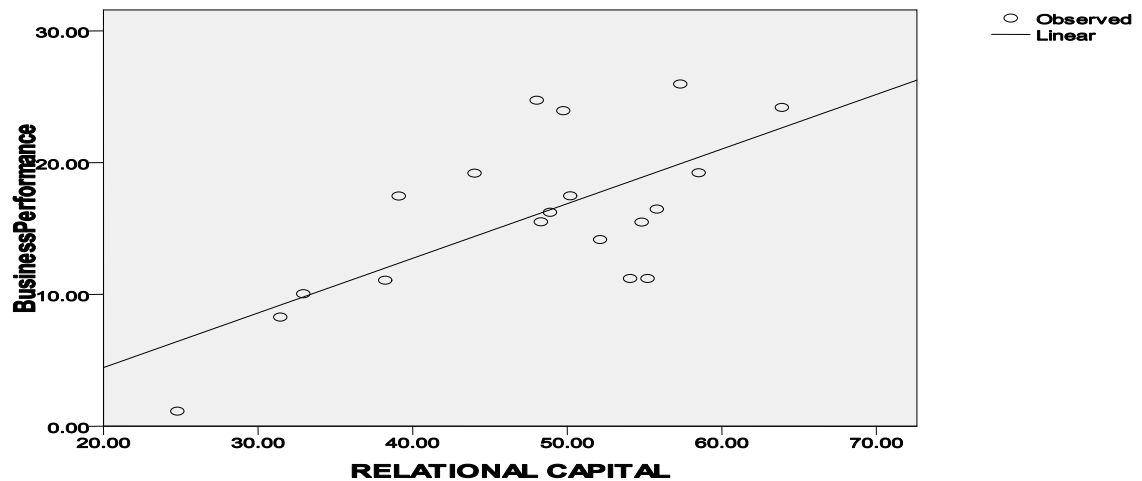


Figure 17 Significance of the fitted regression line For the regression to be significant, the following alternative hypothesis had to be true:

$$H_0 : \beta_1 = 0$$

Versus

$$H_1 : \beta_1 \neq 0$$

The regression line had a positive gradient (0.337) indicating that an increase in relational capital leads to increase in Business Performance. Figure 17 indicates that the

observed variables are randomly distributed along the linear regression line. Relational capital influences business performance of pharmaceutical firms in Kenya.

Table 22 indicates that the p-value is less than 0.05. Therefore, in this case the study rejected the null hypothesis and failed to reject the alternative hypothesis that, $\beta_1 \neq 0$ which implies that relational capital has a significant effect on Performance of Pharmaceutical firms in Kenya.

Table 22 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Relational capital	.337	.022	.963	15.112	.000
a. Dependent Variable: Business Performance						

The multiple regression results indicated that relational capital explained 92.3% of the variation in business performance. The variation in business performance was very significantly explained by variation in relational capital at $p < 0.05$ and positively and significantly influenced business performance (Table 22) among pharmaceutical firms in Kenya.

4.9.3 Objective 3: Goodness of fit

In order to test the research objective regression analysis was used. The model equation $Y = \beta_3 X_3 + \varepsilon$ explained 92.3% as measured by the goodness of fit. The results of the

analysis are represented in table 23(model summary). This showed that relational capital explained 92.3 % of the variation in Business Performance.

Table 23 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.963	.927	.923	4.74790

Predictor: Relational Capital

According to the results of regression, relational capital (RC) was found to have a positive influence on business performance of pharmaceutical firms in Kenya. This is illustrated by the regression results at 95% confidence level with unstandardized beta coefficient of 0.337 and t- value 15.112 ($p < 0.05$).

Therefore the result confirms that Relational Capital influences business performance of pharmaceutical firms in Kenya. This was consistent with the previous studies conducted by Saari, (2011), Bontis and Cabrita, (2008); and Khalique et al., (2011).

4.9.4 Hypothesis 3: Relational capital positively influences Business Performance of Pharmaceutical Firms in Kenya

This hypothesis intended to test whether or not relational capital has a positive influence.

In order to test this hypothesis the regression coefficient was considered. The hypotheses that

$$H_0 : \beta_1 = 0$$

Versus

$$H_1 : \beta_1 > 0 \text{ Was tested}$$

Table 24 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t- Calculated	t-Critical
		B	Std. Error	Beta		
1	Relational capital	.337	.022	.963	15.112	1.734
a. Dependent Variable: Business Performance						

In order to test the direction of the hypothesis that relational capital positively influences

Business Performance of pharmaceutical firms in Kenya the hypotheses on sub-section

4.9.4 was tested. This entailed comparing the scores of calculated t against critical t.

Table 24 showed that calculated $t = 15.112$, and the critical $t = t_{19-1} \alpha .05 = 1.734$

Therefore, since the calculated t is greater than the critical t , the study rejected the null hypothesis and fail to reject the alternative hypothesis that $H_1 : \beta_1 > 0$.

The study therefore concluded that relational capital positively influences business performance of Pharmaceutical firms in Kenya was supported. Therefore table 24 indicates that relational capital has a significant influence on performance of pharmaceutical firms in Kenya since it has a positive coefficient of 0.337. The results conforms to the research study done by (Chung- fah & Sung-lin, 2007), which indicates that a higher positive correlation exist between relational capital and Business performance.

4.10 Hypothesis Results

The study sought to test three hypotheses (see part 1.4), Table 25 indicates the results of the hypotheses, the variables that were tested, the results of the hypotheses and the explanation of the results.

Table 25 Results of Hypothesis Testing

Hypothesis Number	Variables	Hypotheses Result	Explanation
H ₁	Human Capital	Accepted	HC significantly and positively influences Business Performance of Pharmaceutical Firms in Kenya
H ₂	Structural Capital	Accepted	SC significantly and positively influence Business Performance of Pharmaceutical Firms in Kenya
H ₃	Relational Capital	Accepted	RC significantly and positively influence Business Performance of Pharmaceutical Firms in Kenya

Note: HC= Human Capital, SC= Structural Capital, RC= Relational Capital

4.11 Association among variables

Correlation analysis was used to examine the association among variables. Correlation coefficient is a measure of linear association between two variables. Values of the correlation coefficient are always between -1 and +1. A correlation coefficient of +1

indicates that two variables are perfectly related in a positive linear sense; a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense, and a correlation coefficient of 0 indicates that there is no linear relationship between the two variables (GraphPad, 2011; Indiana, 2011). The correlations between business performance and human capital, structural capital and relational capital are indicated by Table 25

Table 26 Correlations between Dependent and Independent Variables

		Business Performance	Human Capital	Structural Capital	Relational Capital
Business Performance	Pearson Correlation	1			
	Sig. (2-tailed)				
Human capital	Pearson Correlation	.686**	1		
	Sig. (2-tailed)	.001			
Structural capital	Pearson Correlation	.585**	.534*	1	
	Sig. (2-tailed)	.009	.019		
Relational capital	Pearson Correlation	.673**	.740**	.583**	1
	Sig. (2-tailed)	.002	.000	.009	

Table 26, it indicates that all the variables are highly significant and all of them are positively correlated. From the Table 26 the ranking of the independent variables with relation to their contribution to business performances are; human capital contributes

more to business performance of pharmaceutical firms in Kenya with a Pearson correlation of 0.686, followed by relational capital with a Pearson correlation of 0.673 and thirdly by structural capital with a Pearson product moment correlation of 0.585.

These results indicate that Business Performance is positively and significantly influenced by human capital with ($r = 0.686$, $p = 0.001$) structural capital with ($r = 0.585$, $p = 0.009$) relational capital with ($r = 0.673$, $p = 0.002$). The findings show that human capital appears as the most important component of intellectual capital accounting in influencing business performance of pharmaceutical firms, human capital is a primary and very critical component of intellectual capital because it is a very important source of innovation (Bontis, 1998; Stewart, 1997; Edvinson & Malone, 1997). On the other hand structural capital is ranked third. This contradicts the previous studies conducted by (Khalique et al., 2011) in Pakistan which demonstrate that in Pakistan structural capital is ranked as a second contributor to business performance of pharmaceutical firms.

Structural capital tended to have lower influence on the performance of the pharmaceutical firms than that of human capital. This corroborates with the research study by (Khalique et al., 2011, Saari, 2011; Dimitrios et al., 2009) in Pakistan which indicated that structural capital tends to have lower performance on pharmaceutical firms in Pakistan than that of human capital. Therefore the results revealed support for

the hypothesis that structural capital positively influences business performance of pharmaceutical firms in Kenya.

However, the results of this study rank relational capital as a second contributor to business performance of pharmaceutical firms in Kenya, whereas the study conducted by (Khalique. et al., 2011) in Pakistan indicates that relational capital is the third contributor in the Rank. Study undertaken by (Saari, 2011) in Iran indicates that relational capital is a first contributor to business Performance as compared to human capital and structural capital. It can therefore be concluded that different components of intellectual capital accounting will have different contribution to business Performance of pharmaceutical firms in different countries. Overall, the results illustrated that the three components of intellectual capital accounting have positive relation with business performance. Human capital is a major contributor towards the business performance of pharmaceutical firms. This is in line with Kamath (2008) who found that in Indian pharmaceutical companies' human capital appeared as the major contributor towards the organizational performance. The results also revealed that the relational capital and structural capital have a positive relationship with business performance and based on the value of the correlation coefficients, these variables appeared as second and third contributor respectively.

The findings demonstrated that intellectual capital can be used to mobilize, assemble and manage all intangible resources in order to enhance business performance, and this concurs with the findings of other studies (Bontis et al., 2000; Salina & Wan Fadzilah, 2008; Chen, et al., 2005; Kamath, 2008; Sharabati et al., 2010). Undoubtedly, intellectual capital has contribution towards the business performance of pharmaceutical firms. Moreover, this finding enhances intellectual capital theory by demonstrating that intellectual capital has significant positive relationship on business performance. This emphasizes the importance of the components of intellectual capital accounting which comprise of human capital, structural capital and relational capital, in influencing performance of an organization. As such, when an organization increases its intellectual capital, it is expected that its performance will be enhanced.

In a similar study relationship between structural capital and business performance was important regardless of industry (whether service or non- service industry). This implies that organization's effort to (unlock the organizational knowledge) or codify organizational knowledge and thereby further develop their structural capital ultimately yields a sustainable competitive advantage. This advantage translates itself into relatively higher business performance.

Implications for senior managers are that there exist a constant interplay among human capital, structural capital and relational capital in order for an organization to leverage its

complete knowledge base (Bontis, 1998). Isolated stocks of knowledge that reside in employees minds that are never codified into organizational knowledge will never positively affect business performance. Meaning that it's not enough for an organization to hire and promote the brightest individuals it can find. An organization must also support and nurture bright individuals into sharing their human capital through organizational learning and externalization into information systems. The findings confirm that there positive significant relationship between intellectual capital accounting and business performance of pharmaceutical firms in Kenya. These findings corroborate with the findings of previous studies such as Riahi-Belkaoui, (2003); Saudah, (2005); Maria and Jorge, (2005). The study results therefore, indicate that there is significant relationship between intellectual capital accounting and business performance.

Therefore it can be concluded from the findings that intellectual capital accounting has a positive influence on the three components as indicated by the correlation results and supported by empirical research by (Reed, 2000; Ming-chin, et al., 2005; Paula & Anti, 2005; Syed, 2005; Flavio ,2007; Ranjith, 2007; Makki & Lodhi, 2009; Kamath, 2010). The correlations between all attributes of intellectual capital accounting and business performance were positive and were significant at the 0.05 level (2 – tailed). These results revealed support for the hypothesis.

4.12. Full Regression Model of Human Capital, Structural Capital and Relational Capital with Business Performance

The ANOVA results indicated that the model of business performance with human capital, structural capital and relational capital was significant ($p < 0.05$) and explained the variance in business performance among pharmaceutical firms in Kenya. The results of the analysis of variance (ANOVA) for the full model are presented in Table 27

Table 27 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5190.585	3	1730.195	76.143	.000
	Residual	363.568	16	22.723		
	Total	5554.152	19			
a. Predictors: Human capital, Structural capital, Relational capital						

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

The assumption in this case when using analysis of variance is that;

$$H_0 : \beta_1 = \beta_2 = \beta_3 = 0$$

$$H_1 : \text{At least one of the } \beta \text{ is not equal to zero}$$

The P-value = 0.00 implying that reject the null hypothesis and accept that at least one of the $\beta \neq 0$. This implies and concludes that human capital, structural capital and

relational capital have significant combined effect on business performance. The F-ratio, which explained whether the results of the regression model could have occurred by chance (error) had a value of 76.143, $p=0.00$ and was considered significant.

4.13 Characteristics of collected data

Histogram, Normal PP plots and box plots were generated to determine the characteristics of the response variable namely business performance

4.13.1 Checking for the normality of the residuals (errors)

The standard assumption in linear regression is that the theoretical residuals are independent and normally distributed. The observed residuals are an estimate of the theoretical residuals, but are not independent (there are transforms on the residuals that remove some of the dependence, but still give only an approximation of the true residuals) Indiana, (2011). Figure 18 shows that the error term is normal. The assumption made is that the errors are normally distributed with mean zero and constant variance. Figure 18 show that the residual errors are within the normal curve but not perfect.

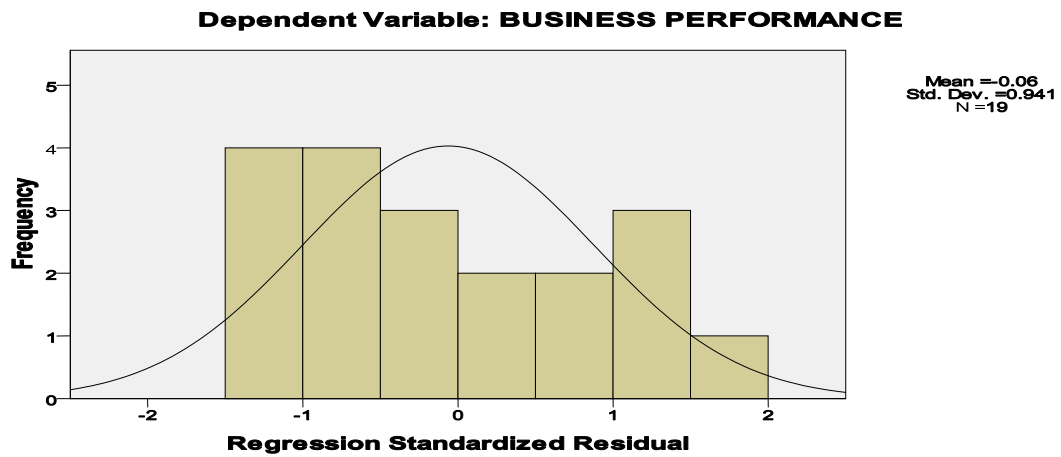


Figure 18 Histogram for Business Performance Responses

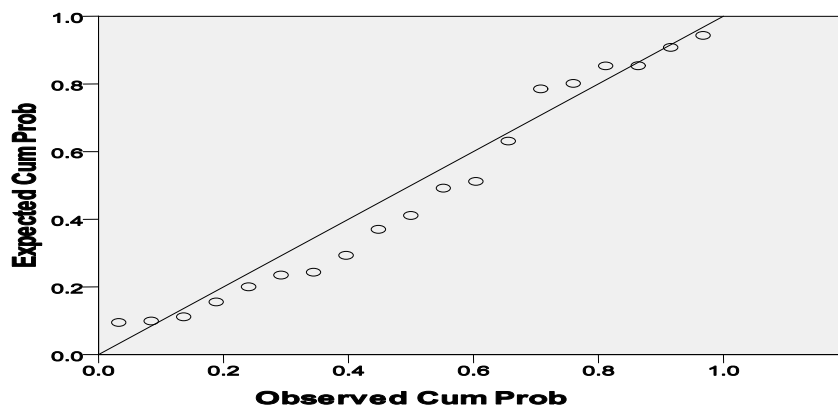


Figure 19 Normal probability plot of regression standardized residue for Business Performance

Figure 19 demonstrates that the residue errors are randomly distributed around Zero, satisfying the condition that the error term is normal with mean Zero and constant Variance does not change with time. This therefore indicates that the mean is zero and the variance is constant.

Visually, the probability plot shows a linear pattern. The fact that the points in the lower and upper extremes of the plot do not deviate significantly from the straight-line pattern indicates that there are not any significant outliers (relative to a normal distribution). In this case, we can quite reasonably conclude that the normal distribution provides an excellent model for the data.

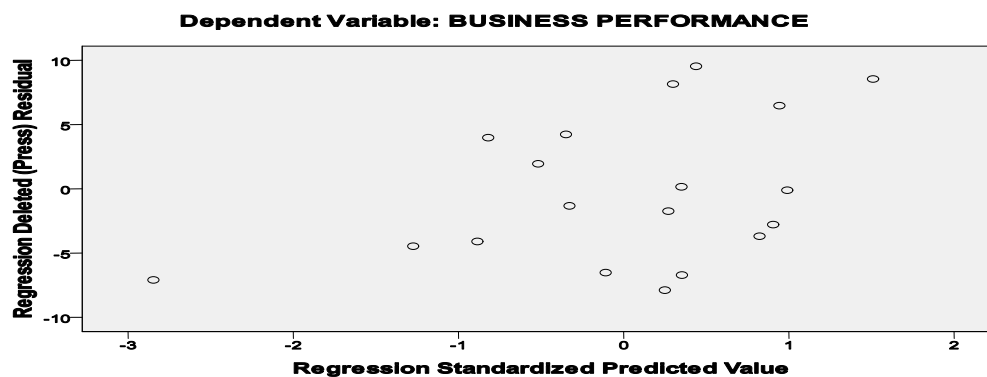


Figure 20 Scatter Plot of residue errors of Business Performance

Figure 20 indicates that the mean is zero and the variance is constant. The scatter plot indicates that the residue errors are randomly distributed.

4.14. Model fitting

The researcher fitted the model of the study through the following processes;

4.14.1 Multiple Linear Regression Model

The results of the analysis are presented in Table 28(overall model summary). This result showed that a combination of human capital, structural capital and relational capital explained 92.2% of variation in business performance.

Table 28 Overall model summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.967	.935	.922		4.76686

Predictors: Structural Capital, Human Capital, Relational Capital

4.14.2. Multiple correlation coefficient

The multiple correlation coefficients generalize the standard coefficient of correlation. It is used in multiple regression analysis to assess the quality of the prediction of the dependent variable. It corresponds to the squared correlation between the predicted and the actual values of the dependent variable. It can also be interpreted as the proportion of

the variance of the dependent variable explained by the independent variables. When the independent variables (used for predicting the dependent variable) are pair wise orthogonal, the multiple correlation coefficient is equal to the sum of the squared coefficients of correlation between each independent variable and the dependent variable. This relation does not hold when the independent variables are not orthogonal. The significance of a multiple coefficient of correlation can be assessed with an F ratio (Darlington, 1990; Pedhazur et al., 1997).

4.14.3. Significance of Individual Coefficients

The essence of using regression coefficient was to check the significance of the p-value. The purpose of the regression coefficients of the independent variable that is human capital, structural capital and relational capital was used to test whether there is significant influence on business performance. The hypothesis to be tested was; $H_0 : \beta_j = 0$ versus $H_1 : \beta_j \neq 0$ for $j=1, 2, 3$. Since the P- value in table 29 was greater than 0.05 the study concluded that the three independent variables have insignificant individual influence on business performance and therefore this meant that the data needed to be transformed to check for comparison between the transformed data and the original data. This comparison can be seen on table 33 which indicates that the three independent variables improved from being positively insignificant to positively

significant for structural capital as indicated by ($p=0.008$) which meet the threshold of $p<0.05$.

Table 29 Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Relational capital	.114	.169	.325	.675	.509
	Human capital	.139	.163	.397	.856	.404
	Structural capital	.080	.103	.250	.772	.451
Dependent Variable: Business performance						

The multiple regression results showed that human capital, structural capital and relational capital explained 92.2% of the variation in business performance. The variation in business performance was insignificantly explained by variation in human capital, structural capital and relational capital at $p>0.05$ and positively and insignificantly influenced business performance (Table 29) among pharmaceutical firms in Kenya.

The overall independent variables coefficients insignificantly but positively ($\beta = 0.139$ for *HC* $\beta = 0.080$ for *SC* and $\beta = 0.114$ for *RC*) influenced business performance of pharmaceutical firms in Kenya. The insignificance of the three variables is indicated by *HC* 0.404, *SC* 0.451 and *RC* 0.509.

Pursuant to the results in Table 29, the researcher had to rerun some univariate regression analysis to check whether individual independent variables have influence on the dependent variables and the results attested that the three independent variables that is human capital, structural capital and relational capital influences business performance of pharmaceutical firms in Kenya. The study therefore concluded that univariately the three independent variables positively and significantly influenced business performance of pharmaceutical firms in Kenya.

4.15. Data Transformation

Data was transformed since the individual independent variable insignificantly but positively influenced business performance as indicated by Table 29 based on the linear multiple regression model. According to Xuhua, (2011), data transformation is used to make data conform to the assumptions of the statistical methods. The assumptions of most parametric methods are; homoscedasticity, normality, additivity, linearity. One type of data transformation that was done was the logarithmic transformation. In this study a multiplicative relationship between independent variables assumed to influence the dependent variable. Therefore the model was specified as

$$\log Y = \log k + \beta_1 \log HC + \beta_2 \log SC + \beta_3 \log RC + \varepsilon$$

Where $\beta_0 = \log k$, $\varepsilon = \text{error term}$

4.15.1. Correlations for Logs of overall variables

After the transformation of data into logarithms, the log to the independent and dependent variable correlations were run. The following were the results;

Table 30 Correlations

			Log business performan ce	Log human capital	Log structural capital	Log relational capital
Log performance	business	Pearson Correlation Sig. (2-tailed)	1			
Log human capital		Pearson Correlation Sig. (2-tailed)	.792**	1		
Log capital	structural	Pearson Correlation Sig. (2-tailed)	.837**	.698**	1	
Log capital	relational	Pearson Correlation Sig. (2-tailed)	.768**	.800**	.670**	1
			.000	.000	.002	

From Table 30 logarithm of human capital, logarithm of relational capital correlations are quite high which indicates that there is multicollinearity and therefore one variable with this characteristic needs to be dropped so as to test the best model of the variables. The interaction correlations, namely Log of human capital (0.800, $p < 0.01$) and relational capital 0.800, $p < 0.01$; are high and significant. Though these correlations are high they are below the threshold of 0.9. This therefore indicates discriminant validity among the

research explanatory variables. This necessitated the researcher to go further and test the relationships of the independent variables versus the dependent variable

4.15.2 Linear Regression for Log Human Capital, Log Structural Capital, Log Relational Capital and Log Business Performance

Table 31 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.894	.800	.760	.33660

Predictors: (Constant), log relational capital, log structural capital, log human capital

The results of the analysis are represented in Table 31(model summary). This result showed that a combination of log human capital, log structural capital and log relational capital explained 76% of variation in log business performance.

4.15.3 Significance of the overall Model

In order to test the significance of the overall model, analysis of variance was used for this purposes as indicated on Table 32.

Table 32 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.785	3	2.262	19.962	.000
	Residual	1.699	15	.113		
	Total	8.484	18			

a. Predictors: (Constant), log relational capital, log structural capital, log human capital

b. Dependent Variable: log business performance

Table 32 results indicated that the overall model was significant at ($F=19.962$; Sig 0.000). Therefore, human capital, structural capital and relational capital significantly ($P<0.05$) explained the variance in business performance in pharmaceutical firms in Kenya.

The Regression coefficients were used in the context of multiple linear regression analysis to give the amount by which the dependent variable increases when one independent variable is increased by one unit and all the other independent variables are held constant. The coefficient value depends upon the other independent variables.

Table 33 Regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-6.530	1.469		-4.446	.000
Log human capital	.843	.662	.263	1.273	.222
Log structural capital	.915	.302	.507	3.030	.008
Log relational capital	.612	.559	.218	1.094	.291

a. Dependent Variable: log business performance

Table 33 indicates that when the independent variables are combined together, they indicate that only structural capital has significant influence on business performance with a unstandardized beta of 0.915 and t- value of 3.030 ($p = 0.008$) as compared to the other variables that is relational capital and human capital. This necessitated the study to drop one of the variables that is; relational capital since it had the highest chance of Multicollinearity as shown in table 30.

4.15.4 Regression of Log Human Capital, Log Structural Capital, Log Business Performance

Relational capital was dropped from the other independent variable since there was multicollinearity between human capital and relational capital. Log of structural capital and Log of human capital against the log of business performance were regressed so as to get the best model of this study. The following were the results;

Table 34 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.885	.784	.757	.33865

Predictors: (Constant), log structural capital, log human capital

The results of the analysis are presented in Table 34(model summary). This result showed that a combination of human capital and structural capital explained 75.7% of variation in business performance.

Table 35 ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.649	2	3.325	28.989	.000
	Residual	1.835	16	.115		
	Total	8.484	18			

a. Predictors: (Constant), log structural capital, log human capital
b. Dependent Variable: log business performance

The ANOVA results indicated that the model of business performance with human capital and structural capital was significant ($F=28.989$ at $P\text{-value} < 0.05$) and explained the variance in business performance among pharmaceutical firms in Kenya. The results of the analysis of variance (ANOVA) for the model are presented in Table 35. This implies and concludes that structural capital and human capital have significant combined effect on business performance.

Table 36 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6.255	1.456		-4.297	.001
	Log human capital	1.296	.520	.405	2.491	.024
	Log structural capital	1.000	.293	.554	3.409	.004

a. Dependent Variable: log business performance

Therefore the best model for the study was a multiple log linear regression model and not a multiple linear regression model that had been tested earlier (equation 2). Therefore the study concluded that best model of the study was (equation 4)

$$\log Y = \beta_0 + \beta_1 \log HC + \beta_2 \log SC + \varepsilon \quad (3)$$

Where Y= business performance

The findings of the study showed in Table 34 (model summary), Table 35 (ANOVAs) and Table 36 (regression coefficients) that only two variables namely human capital and structural capital appeared as positively significant contributors towards business performance in the overall regression model with unstandardized beta coefficient of 1.000 and t- value 3.409 with a p value of 0.004 and 1.296 and t- value with a p value of 0.024 respectively.

However relational capital showed insignificant influence on the business performance of pharmaceutical firms in Kenya at 95% confidence level with unstandardized beta coefficient of 0.015 and t- value 1.006 with a p value of 0.05. Moreover, the overall regression model was found to be significant at 95% confidence level.

$$Y^* = \beta_1 + \beta_2 HC^* + \beta_3 SC^* + \varepsilon \quad (4)$$

Where $Y^* = \log(\text{Business Performance})$

$HC^* = \text{Log}(\text{Human Capital})$

$SC^* = \text{Log}(\text{Structural Capital})$

Therefore, $\text{Log}(\text{Business Performance}) = -6.255 + 1.296\log(HC) + \log(SC)$ (5)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter contains the summary, conclusions and recommendations on the relationship between intellectual capital accounting and business performance in pharmaceutical firms in Kenya.

5.2 Summary

The study sought to establish the relationship between intellectual capital accounting and business performance of pharmaceutical firms in Kenya. The purpose of the study was to test the relationship between intellectual capital accounting and business performance of the pharmaceutical firms in Kenya and why they do not account for human resources as competitive and strategic assets which offer firms competitive advantage. Therefore the study was investigating how intellectual capital accounting plays a major role in the development of competitive advantage of business organizations. This was useful especially for the domestic pharmaceutical firms because they overcome the problems that arise from the valuation of intangible assets such as human capital and also the difficulties in providing sufficient information to investors in their statements of financial results and also to attract their future employees.

The relationship between intellectual capital accounting and business performance in pharmaceutical firms in Kenya was arrived at by critically examining the three specific objectives of the study. They included; determine whether human capital, structural capital and relational capital influences business performance of pharmaceutical firms in Kenya.

Descriptive statistics, Pearson product moment correlation and regression analysis were used to address objective one, two and three. A sample survey of 19 human resource managers was conducted among 19 pharmaceutical firms in order to address the three research objectives which comprised determining whether human capital, structural capital and relational capital influences business performance in pharmaceutical firms in Kenya. Data collection instrument was a structured questionnaire with variable measures anchored on a five point likert scale. Explanatory data analysis, correlation analysis, regression analysis, principal component analysis were done with the help of statistical package for social scientists (SPSS Version 17). Human capital, structural capital and relational capital accounting for the three objectives was found to be significant within 95% confidence interval. Human capital, structural capital and relational capital positively and significantly influenced business performance. This is similar to the influencers of other countries where intellectual capital research has been done such as Pakistan, Malaysia, Taiwan, Portugal, Jordan, and Nigeria. The following indicates the summary of each individual objective as per the findings.

5.2.1 Key Objective 1

Determine whether human capital influences business performance of pharmaceutical firms in Kenya.

The research results showed that human capital is the most important component of intellectual capital accounting in influencing Business Performance of Pharmaceutical firms in Kenya. The results indicated that human capital explains 92.4 % of the variance of business performance of pharmaceutical firms in Kenya. Human capital is a primary and very critical component of intellectual capital accounting because it is a very important source of innovation, creation. Employee's knowledge and capabilities are the most important sources of innovation. The study findings maintain that human capital influences business performance of pharmaceutical firms in Kenya through learning and education, experience and expertise, innovation and creation, most of all the competencies and capabilities of human capital cannot be imitated.

Correlation analysis results between human capital and business performance indicated that there was a strong positive linear correlation between human capital and business performance. The regression analysis was significant since the alternative hypothesis was true that $\beta_1 \neq 0$ Implying that human capital has a significant effect on performance of pharmaceutical firms. This confirms to the studies done by (Bontis, 2000; Saari, 2011; Bontis & Cabrita, 2008; Khalique et al., 2011)

5.2.2 Key Objective 2

Determine whether structural capital influences business performance of pharmaceutical firms in Kenya.

The research results showed that structural capital positively influences Business performance of pharmaceutical firms in Kenya. The results indicated that Structural capital explains 90.9% of the variance of business performance of pharmaceutical firms in Kenya. From the results it can be concluded that pharmaceutical firms with strong structural capital will have supportive culture that allows individual to try new things, to learn and to fail. Structural capital is a critical link that allows intellectual capital to be measured at the organizational level of analysis and therefore it implies that organizations effort to codify organizational knowledge and thereby further develop their structural capital ultimately yields a sustainable competitive advantage and this competitive advantage translates itself into relatively higher business performance.

Correlation results indicated that structural capital had a fairly positive significant relationship with business performance. The regression analysis results also indicated that the alternative hypothesis that $\beta_1 \neq 0$ was supported by the objective implying that the regression was significant and therefore the objective was right. This also confirms to the previous studies done by (Bin Ismail, 2005, Salleh & Salamat, 2007, Moslehi et al, 2006)

5.2.3 Key Objective 3

Determine whether relational capital influences business performance of pharmaceutical firms in Kenya.

The research findings indicate that relational capital influences business performance of pharmaceutical firms in Kenya. The results indicated that relational capital explains 92.3% of the variance of business performance of pharmaceutical firms in Kenya. Under this environment with fierce competition in the pharmaceutical firms in Kenya, the results have shown that the key to create profit and improve business performance is to win the loyalty and trust customers and build long term friendly relationship with them.

Correlation results indicated that relational capital has a positive significant relationship with business performance. The regression was significant since the objective supported the hypothesis that $\beta \neq 0$. This was an indication that the relational capital influences business performance of pharmaceutical firms in Kenya. This confirms to the previous study done by (Saari, 2011, Bontis & Cabrita, 2008, Khaliq et al, 2011, Sharabati et al, 2010, Cheng-Ping et al, 2010). However relational capital and human capital had higher chances of multicollinearity and therefore relational capital was dropped and not considered when coming up with the overall model of the study.

5.3 Conclusions

The objectives of the study were tested and the results indicated that all the three independent variables that were investigated that is; human capital, structural capital and relational capital had a positive significant influence on the business performance of the pharmaceutical firms in Kenya.

Therefore the three objectives of the study were achieved as indicated by the results. First the study considered human capital as the first independent variable and it had three sub variables namely learning and education, experience and expertise, innovation and creation. First the learning and education sub variable had the following conclusions from the results; the pharmaceutical firms get much of results out of employee's cooperation, employees learning and education affects pharmaceutical firm's productivity and profitability as well as market value. However, the pharmaceutical firms need to devote a lot of time and effort to update and develop employee's knowledge and skills.

Secondly was experience and expertise which had the following conclusions from the results; employees experience and expertise affects company productivity, profitability and market value. It was indicative that employees are experts in respective areas. However, the transaction cost of the industry needs to be improved.

Thirdly was innovation and creativity which had the following conclusions from the results; employee innovation and creativity affects company's productivity, profitability and market value. However the pharmaceutical firms need to launch large number of new products with competitors.

The second independent variable was structural capital which had three sub variables which were systems and programs, research and development and intellectual property rights. The following were the conclusions of each sub variable. The first sub variable was systems and programs that had the following conclusions from the results; the pharmaceutical firms have well-developed reward system that is related to performance. Secondly was the research and development which had the following conclusions from the results and findings; the pharmaceutical firms continuously develops reorganizes themselves based on research and development, the firms determines appropriate and adequate budget for research and development and the firms continuously develops work process. Finally was intellectual property rights which concluded that the pharmaceutical firms pursue multiple strategy of licensing intellectual property rights spinning out new organizations or disposing of them to other parties.

The third independent variable was relational capital and it had three sub variables namely strategic alliances, licensing and agreement, customer and supplier relations and customer knowledge. The following were the conclusions from each sub variable; first

was strategic alliances, licensing and agreement where the following was concluded; pharmaceutical firm's strategic alliances affect company productivity. The second sub variable was customer and supplier relations and the following was concluded that, the firms relationship with customer supplier affect market value, customer knowledge is widely distributed throughout the pharmaceutical firms, the firms have useful and updated information system in use, is it important for company to share knowledge with partners and continually meets customers to find out what they want from the firms in terms of the products and services.

In respect to the dependent variable that is business performance the following was concluded: profit growth of the pharmaceutical firms in Kenya took the lead followed by the employee productivity. However, all the other factors were considered significant by the tests that were carried out but the most prominent ones were the two.

The purpose of the study was also arrived at since it was established that the pharmaceutical firms in Kenya do not account for their human capital and therefore they turn away the investors to other sectors of the economy. It was also discovered that the domestic pharmaceutical firms in Kenya are not listed in the securities exchange market and therefore their information is not in the public domain and this is a negative publicity to their operations in the market. As compared to the international pharmaceutical firms the Kenyan pharmaceutical firms are performing poorly and the

essence of this was discovered that the international pharmaceutical firms that operate in the Kenyan market practice intellectual capital accounting and therefore their performance is way above that of the domestic firms. Examples of such an international firm that practice intellectual capital accounting include GlaxoSmithKline ltd. The findings indicated that GlaxoSmithKline ltd had extra ordinary scores on all the variables that were investigated.

The findings demonstrated that intellectual capital accounting can be used to mobilize, assemble and manage all intangible resources in order to enhance business performance of pharmaceutical firms in Kenya. Undoubtedly, intellectual capital accounting has contribution toward the business performance of pharmaceutical firms in Kenya. Moreover the findings enhance intellectual capital theory by demonstrating that intellectual capital accounting has significant positive relationship with business performance. The findings emphasize the importance of the components of intellectual capital accounting which comprise of human capital, structural capital and relational capital in influencing business performance of an organization.

5.4 Recommendations

The following recommendations were derived from the results and findings:

The domestic pharmaceutical firms need to practice intellectual capital accounting because that is the only way they can lure the investors by providing sufficient information to them and therefore make informed decisions whether to invest or not, otherwise asymmetric information would affect the business performance of the pharmaceutical firms and therefore, would result in the deterioration of the pharmaceutical firms operations.

The results and findings indicated that human resource managers can improve the company's market leadership through the three intellectual capital accounting components. First from human capital construct, pharmaceutical firms need to improve employee learning and education, experience and expertise, innovation and creation since they affect the company's market value second, from structural capital construct, the pharmaceutical firms need to engage in research and development for them to be market leaders. The firms should also improve on the number of intellectual property rights per year as compared with other competitors in the market. Third, from relational capital construct, pharmaceutical firms need to learn and add value through its partners and therefore they should pay more attention to their potential competitors.

The results and findings also indicated that human resource managers can improve the company's financial performance through the three intellectual capital accounting components. First, from human capital the pharmaceutical firms need to devote a lot of

time efforts to update and develop employee's knowledge and skills. In order to achieve the objectives of the firm, managers should provide more incentives for employees to give their all. The firms should also launch large number of new products in the market and this would enhance competitive advantage hence improved financial performance.

Second, from structural capital construct, the pharmaceutical firms should create a supportive and comfortable culture that helps employees to produce new ideas. The firm's recruitment programs should be comprehensive and dedicated to hiring the best candidates available who can work as a team, instead of those who are too self-centered and not willing to cooperate with others. Third, from relational capital construct, the firm should spend more time meeting with customers wants and needs by continually striving to make them satisfied. With public recognition of intellectual property right protection, the managers might consider to establish knowledge management system to enhance sharing of customer feedback.

The results and findings indicated that human resource managers can improve the pharmaceutical firm's business performance through following aspects. First, from human capital construct, pharmaceutical firms should create an environment where employees can brainstorm for creativity freely in order to improve firm's business performance. The pharmaceutical firms need to check their per transaction costs among the industry players. Second, from relational capital construct, employee should be

trained to understand the firms target market more. Also, the idea that good business performance comes from satisfying customer's needs and capitalizing on their wants should be encouraged in the firms. Additionally pharmaceutical firm's needs to learn and add value through its partners, and lastly the company should introduce knowledge management system to enrich the share of competitor information.

The domestic pharmaceutical firms in Kenya need to develop an intellectual capital accounting strategy and it is important to consider the relative importance of the variables within each variable for example research and development is fundamentally the most important measure within the independent variable structural capital.

5.4.1 Implications of the study to practice

When developing intellectual capital accounting strategy, it is important to consider the relative importance of variables with each construct. For example when considering human capital, learning and education, experience and expertise, innovation and creation are fundamentally the most important measures within human capital. Systems and programs, research and development and intellectual property rights are important measures of structural capital. Optimal procedure for Kenyan pharmaceutical firms is to focus their efforts on managing all the three components of intellectual capital accounting in order to increase their business performance.

Kenyan pharmaceutical firms should recognize and account intellectual capital in financial statement so that the management monitors this phenomenon as they prepare intellectual capital reports and financial statements. This intellectual capital accounting model yields useful practical applications wherever business performance is intentional. Business consultants, advisors, pharmaceutical firms managers will all benefit from a better understanding of how intellectual capital accounting can be practiced within their organizations and how it can yield competitive advantage to the firms at large.

When comparing these Kenyan results with other studies, it is important to note that relational capital was the lowest significant construct within Kenya as well as across most other countries. The implication here is that Kenyan pharmaceutical firms must increase their investments in strategic alliances, licensing and agreement and specifically deal with the following; the pharmaceutical firms need to pride themselves on being partnership oriented, they need to make useful and updated information system in use, also the need to appreciate that their strategic alliances affect company productivity. In respect to customer and supplier relations there is need to appreciate that the pharmaceutical firm's relationship with customer supplier affect market value.

Finally in respect to customer knowledge, it is Important for the pharmaceutical firms to share knowledge with partners and continually meet customers to find out what they want. If these considerations are put into practice by the pharmaceutical firms as

supported by the results and findings, then the pharmaceutical firms in Kenya will appreciate their competitive advantage over other international competitors in the market.

It is recommended that pharmaceutical firms identify key people and assign them the role of intellectual capital accounting champion. This individual would be responsible for preparing a plan for managing intellectual capital and accounting and linking it to the pharmaceutical firm's strategic goals. At the same time, they need to make a consideration of establishing the post of chief intellectual capital management officer. There should also be initiation of leadership development and training programs within Kenyan pharmaceutical firms and they should include a focus on the issue of intellectual capital measurement and management.

5.4.2 Implications of the study to methodology

The studies that have been done on this research area are in the developed economies and all of them have adopted multiple linear regression analysis as their major model of the relationship. However, in the Kenyan context the multiple linear regression models failed to arrive at better results.

Logarithmic linear regression model was therefore used to arrive at the best model of the study indicating that business performance as a result of combination of human capital

and structural capital. Never the less the univariate models indicated that the three components of intellectual capital accounting significantly and positively influences business performance of the pharmaceutical firms in Kenya.

As a result of the multiple logarithmic regression equation being used it was evident that the corporate value does not arise directly from any of its intellectual capital accounting factors, but only from the interactions among all the three (human capital, structural capital and relational capital). No matter how strong an organization is in one or two of this intellectual capital accounting factors, if the third factor is weak or misdirected that firm has no potential to turn its intellectual capital into corporate value (business performance. Therefore a firm needs to build on these particular strengths in order to produce a higher value asset.

A unique contribution of this study was the testing of intellectual capital accounting concepts within Kenya and the use of confirmatory factor analysis to test the conceptual model and the relationships among independent variables and dependent variable and also report the fit indices and their paths as indicated on appendix iv

5.4.3 Recommendations for further research

The study focused on pharmaceutical industry and therefore there is an opportunity to study other knowledge intensive industries in Kenya. Further empirical work is needed

to test the degree to which the findings can be generalized to other industries. The study did not use the provision of control variables in the conceptual model and therefore there is an opportunity for other scholars to introduce these variables e.g. the size of the pharmaceutical firms and establish whether the findings can be generalized.

The study used sales growth, profit growth as the measures of profitability in business performance. Further empirical work is needed to test other measures for example return on capital employed, return on assets, and assets turnover among other variables for business performance.

The study was directed towards the human resource managers and their deputy managers in the pharmaceutical firms in Kenya and as such, data was collected from this specific level of managers. To test the robustness of the findings, it would be better considering other managerial staff as well as the board members. Another researcher can also explore the usefulness of studying other possible variables that would influence intellectual capital accounting such as gender empowerment. Subsequent studies should consider all the target population not necessarily those that are licensed by the pharmacy and poisons board.

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APPENDICES

APPENDIX 1

QUESTIONNAIRE

A. General Information

This questionnaire is meant to test the relationship between intellectual capital accounting and business performance in pharmaceutical firms in Kenya. Specifically it involved aspects intellectual capital accounting components.

Intellectual Capital has often been described as the difference between what a firm's market value is and the cost of replacing its assets. Therefore, this (often-positive) difference can be described as those things that we normally cannot put a price tag on such as expertise, knowledge, and a firm's organizational learning ability.

There are three elements encompassing Intellectual Capital accounting: 1) Human capital can be described as the firm's collective capability to extract the best solutions from the knowledge of its individuals, that which is in the minds of individuals; 2) Structural capital can be thought of as the firm's organizational capabilities to meet market requirements, what is left after employees go home for the night; 3) Relational

(customer) capital refers to firm's relationships e.g. with the customers, suppliers and partners.

Business performance (Human productivity, profitability and market valuation), just to remind you: Productivity means the relationship between what is put in to the business (inputs) and the final result are (outputs). In human resource input measures include investment in training, remuneration; output measures include profit per employee. Profitability shows the degree to which a firm's revenue exceeds over the costs. Market valuation means the value of the whole organization or stock value.

B - Questionnaire Items

The following 90 items tap into intellectual Capital accounting and its effect on business performance. Please, answer these questions based on actual and current situation and not on beliefs.

[1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) based on how you feel about the statement.

Human Capital

1	Learning and Education	1	2	3	4	5
1	The competence of company's employees as a whole is equal to the most ideal level (matching with their work requirements and responsibilities)					
2	The company gets the most out of its employees when they cooperate with one another in team tasks.					
3	Company's employees undergo continuous training programs every year.					
4	Company's employees continuously learn from others (colleagues and outsiders).					
5	The ratio of educated personnel is on average compared with industry (no. of PhD, Master and Bachelor degrees compared with what should be).					
6	Company devotes a lot of time and effort to update and develops employees' knowledge and skills.					
7	Company's market share has been continually improving over the past few years.					

8	Employees' learning and education affect company's productivity.					
9	Employees' learning and education affect company's profitability.					
10	Employees' learning and education affect company's market value (stock value).					

(Continued)

2	Experience and Expertise	1	2	3	4	5
1	Company's employees are experts in their respective areas.					
2	Company's employees consistently perform at their best.					
3	Company's employees generally give it their all, which makes this company different from others in the industry.					
4	Company's employees have worked for many years in the firm (employee turnover is very low)					
5	The company prides itself on being efficient.					
6	The staffs are highly professional.					
7	The company has the lowest costs per transaction of any in					

	the industry.					
8	Employees' experience and expertise affect company's productivity.					
9	Employees' experience and expertise affect company's profitability.					
10	Employees' experience and expertise affect company's market value (stock value).					

(Continued)

3	Innovation and Creation	1	2	3	4	5
1	Company's employees are considered creative and bright compared with other companies in the industry.					
2	Company's employees are keen to voice their opinions in group discussions.					
3	Company's employees usually come up with new ideas.					
4	Large numbers of new products are launched compared with competitors.					
5	Company's employees are continuously encouraged to					

	bring new knowledge and ideas to the business and share their knowledge with their colleagues.					
6	Company's employees are satisfied with their company's innovation policies and programs.					
7	Company's employees are highly motivated and committed to share new great ideas within the company, as it should be.					
8	Employees' innovation and creation affect company's productivity.					
9	Employees' innovation and creation affect company's profitability.					
10	Employees' innovation and creation affect company's market value (stock value).					

(Continued)

Structural Capital

1	Systems and Programs	1	2	3	4	5
1	The company has succession training programs for each and					

	every post/position (major positions)					
2	The company's culture and atmosphere are supportive and comfortable.					
3	The company's recruitment programs are comprehensive; and dedicated to hiring the best candidates available.					
4	The company has a well-developed reward system related to performance.					
5	The company supports their employees by constantly upgrading their skills and education whenever it is necessary.					
6	Staff has sufficient influence over decisions made within the company.					
7	The company is not a "bureaucratic nightmare".					
8	Company's systems and programs affect company's productivity.					
9	Company's systems and programs affect company's profitability.					
10	Company's systems and programs affect company's market value (stock value).					

(Continued)

2	Research & Development (R&D)	1	2	3	4	5
1	The company is considered a research leader.					
2	The company continuously develops work processes.					
3	The company continuously develops and re-organizes itself based on R&D (e.g. structure and responsibilities).					
4	The company follows up and adopts the latest scientific and technical development around the world.					
5	The systems and procedures of the company support innovation.					
6	The company determines appropriate and adequate budget for R&D.					
7	The company's board of management highly trust and support the R&D department.					
8	Company's R&D affects company's productivity.					
9	Company's R&D affects company's profitability.					
10	Company's R&D affects company's market value (stock value).					

(Continued)

3	Intellectual Property Rights (IPRs)	1	2	3	4	5
1	The company sets clear strategies and procedures for IPRs management					
2	The company monitors performance of the IPRs portfolio.					
3	The company pursues a multiple strategy of licensing IPRs, spinning out new organizations or disposing of them to other parties.					
4	The company actively encourages and rewards creation and extended use in order to maximize the income from IPRs.					
5	IP is a key intellectual asset for top management, which is considered for value creation.					
6	The company utilizes the IPRs to maximum level.					
7	The company has high number of IPRs per year compared with competitors.					
8	Company's IPRs affect company's productivity.					
9	Company's IPRs affect company's profitability.					
10	Company's IPRs affect company's market value (stock					

	value).					
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(Continued)

Relational Capital

1	Strategic Alliances, Licensing and Agreements	1	2	3	4	5
1	The company is currently working on joint projects with many other organizations.					
2	The company has diverse distribution channels.					
3	High ratio of company's business is done with strategic alliances.					
4	The company has many and diverse alliances (R&D, manufacturing, marketing, distribution)					
5	People from outside the company are consulted when decisions are made within the company.					
6	The company is able to learn and add value through its partners.					
7	The company prides itself on being partnership-oriented.					
8	Company's strategic alliances affect company's					

	productivity.					
9	Company's strategic alliances affect company's profitability.					
10	Company's strategic alliances affect company's market value (stock value).					

(Continued)

2	Customer and Supplier Relations	1	2	3	4	5
1	A poll of company's customers shows them to be loyal to the company, and would indicate that they are generally satisfied.					
2	When it comes to new business, the company's customers have increasingly selected company's products versus competitors' customers over the past few years.					
3	The company capitalizes on customers' wants and needs by continually striving to make them satisfied.					
4	The company devotes considerable time to select suppliers.					
5	The company maintains a long-standing relationship with					

	suppliers.					
6	The company has greatly reduced the time it takes to resolve a customer's problem.					
7	The company feels confident that their customers will continue to do business with it.					
8	Company's relationship with customer and supplier affects company's productivity.					
9	Company's relationship with customer and supplier affects company's profitability.					
10	Company's relationship with customer and supplier affects company's market value (stock value).					

(Continued)

3	Customer Knowledge	1	2	3	4	5
1	It is important for the company to share knowledge with its partners.					
2	The company gets as much feedback out of customers as it possibly can under different circumstances.					

3	Customer knowledge is widely distributed throughout the company.					
4	Data about customers are continuously updated.					
5	The company has relatively complete data about the suppliers.					
6	The company continually meets with customers to find out what they want from it.					
7	The company has a useful and updated information system in use.					
8	Company's knowledge about customers and suppliers affects company's productivity.					
9	Company's data about customers and suppliers affects company's profitability.					
10	Company's knowledge about customers and suppliers affects company's market value (stock value).					

C - Questionnaire Items

The following 10 items are about the **company's performance** related to key competitors in the industry over the last few years and will be used for administrative and comparative purposes only. If you are not absolutely sure about an item, please just

approximate. [**1 = bottom, 5= top**] based on the number that best corresponds to your answer.

How do you rank your company compared to the competitors:

1	Human Productivity	1	2	3	4	5
1	Employee productivity					
2	Process (transaction) productivity					
3	Success rate in new product launches					
4	Industry leadership					
2	Market valuation	1	2	3	4	5
1	Future outlook					
2	Overall response to competition					
3	Overall business performance and success					
4	Company's market valuation (stock value).					
3	Profitability	1	2	3	4	5
1	Sales growth					
2	Profit growth					

Thank you for completing the questionnaire

APPENDIX II

Pharmaceutical Firms in Kenya under the Pharmacy and Poisons Board 2010-2011

LOCAL PHARMACEUTICAL MANUFACTURERS

NAME OF COMPANY	POSTAL ADDRESS	PHYSICAL ADDRESS	CO. PHARMACIST
AESTHETICS LIMITED	BOX 18171 NBO	PEMBE STREET, INDUSTRIAL A.	DR. SEKHAR
AUTOSTERILE (E.A) LTD	BOX 27726-00506 NBO	AIRPORT NORTH RD. EMBAKASI	DR. ROBERT K. CHEPKWONY
BENMED PHARMACEUTICALS	BOX 22128-00400 NBO	AIRPORT NORTH RD. IND. AREA	DR. BENJAMIN MWANGI
BETA HEALTHCARE,INT. LTD	BOX 42569-00100 NBO	BONDO ROAD	DR. ANN MAINA
BIODEAL LABORATORIES LTD	BOX 32040-00600 NBO	LUNGALUNGA RD. IND. AREA	DR. MWAMUZI C.K.
COMET HEALTHCARE	6293-0030 NBO	LR.209 HOMABAY ROAD	DR. PETER ASINGO
COOPER (K) BRANDS	BOX 40596-00100 NBO	KAPTAGAT ROAD KABETE	DR. CHARLES NDUNGU
COSMOS LIMITED	BOX 414333-00100 NBO	RANGWE RD.	DR. LARRY KIMANI
DAWA LIMITED	BOX 16633-00620 NBO	BABA DOGO ROAD, RUARAKA	DR. KINYWA
ELYS CHEMICAL INDUSTRIES LTD	BOX 40411-00100 NBO	ROAD 'B' OFF ENTERPRISE ROAD	DR. SARAH VUGIGI
GESTO PHARMACEUTICALS LTD	BOX 43375 NBO	BUTERE ROAD, IND. AREA NBO.	DR. J.K. MWANIKI
GLAXOSMITHKLINE LTD (GSK)	BOX 78392-00507 NBO	LIKONI ROAD	DR. MWATU. W.
INFUSION KENYA LTD	BOX 30467-00100 NBO	MOGADISHU RD. IND. AREA	DR. S.N. MUIGAI
IVEE AQUA EPZ LTD	BOX 47536, NBO	EPZ NBO	DR. NJENGA
LABORATORY AND ALLIED LTD	BOX 42875-00100 NBO		DR. E.F. ODHIAMBO
MACS PHARMACEUTICALS LTD	BOX 43912-00100 NBO	OFF SHIMO LA TEWA IND. AREA	DR. WILLY KIRAGU
MEDIVET PRODUCTS LTD	BOX 47951-00100	RUIRU TOWN	DR. MUKASH SHAH N.
NERIX PHARMA LTD	BOX 25453-00603 NBO	ALPHA CENTRE, MOMBASA ROAD	DR. J.M. WANYAGA
NORBROOK KENYA LTD	BOX 1287-00606 NBO	OLD LIMURU ROAD	DR. DAVID RUTERE
NOVELTY PHARMACEUTICALS LTD	BOX 42708-00100 NBO	THIKA,OPP. BIDCO OIL REF.	DR. DHIRAJLAL SHAH
PHARMACEUTICAL MANUFACTURING CO.	BOX 47211-00100 NBO		DR.CHANDANI K.B.
OSS CHEMIE	BOX 68502-00622 NBO	MOMBASA ROAD	DR. KIBATHI
RECKITT & COLMAN (IND) LTD	BOX 78051 NBO	LIKONI ROAD	
REGAL PHARMACEUTICALS	BOX 44421-00100 NBO	OFF BABA DOGO RD. RUARAKA	DR. R. ATEBE
SPHINX PHARMACEUTICALS	BOX 69512-00400 NBO	OLD AIRPORT NORTH RD.	DR. KOPIYO
UNIVERSAL COOPERATION LTD	BOX 42367-00100 NBO	KIKUYU	DR. G. MURIITHI
HITECH PHARMACEUTICALS & REAEARH LTD		RACE COURSE, NAKURU	DR. NGETHE
ULTRAVETIES E.A LTD		NANYUKI ROAD NEXT TO TWIGA	DR. NYAGA
SKYLIGHT			
GLOBAL MERCHANTS			
CONCEPT (AFRICA) LTD			

APPENDIX 111

FACTOR ANALYSIS EXTRACTION OF VARIABLES

1. HUMAN CAPITAL

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.991	36.792	36.792	6.991	36.792	36.792	3.408	17.936	17.936
2	2.914	15.339	52.131	2.914	15.339	52.131	3.185	16.764	34.700
3	2.099	11.048	63.179	2.099	11.048	63.179	3.068	16.147	50.847
4	1.392	7.324	70.503	1.392	7.324	70.503	2.643	13.908	64.755
5	1.240	6.526	77.029	1.240	6.526	77.029	2.332	12.273	77.029
6	.896	4.715	81.744						
7	.778	4.093	85.836						
8	.668	3.515	89.352						
9	.524	2.758	92.110						
10	.401	2.108	94.218						
11	.311	1.637	95.855						
12	.253	1.329	97.184						
13	.201	1.056	98.240						
14	.131	.689	98.929						
15	.124	.650	99.579						
16	.044	.233	99.812						
17	.024	.125	99.937						
18	.012	.063	100.000						
19	-	-1.739E-16	100.000						
	3.303E-17								

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.991	36.792	36.792	6.991	36.792	36.792	3.408	17.936	17.936
2	2.914	15.339	52.131	2.914	15.339	52.131	3.185	16.764	34.700
3	2.099	11.048	63.179	2.099	11.048	63.179	3.068	16.147	50.847
4	1.392	7.324	70.503	1.392	7.324	70.503	2.643	13.908	64.755
5	1.240	6.526	77.029	1.240	6.526	77.029	2.332	12.273	77.029
6	.896	4.715	81.744						
7	.778	4.093	85.836						
8	.668	3.515	89.352						
9	.524	2.758	92.110						
10	.401	2.108	94.218						
11	.311	1.637	95.855						
12	.253	1.329	97.184						
13	.201	1.056	98.240						
14	.131	.689	98.929						
15	.124	.650	99.579						
16	.044	.233	99.812						
17	.024	.125	99.937						
18	.012	.063	100.000						
19	-3.303E-17	-1.739E-16	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix^a					
	Component				
	1	2	3	4	5
HC Company's market share continually improve over past few years	.222	.880	-.005	.147	-.099
HC Employees learning and education affect company's market value	.671	-.382	-.388	.098	-.020
HC Company devotes a lot of time effort update and develop employees knowledge and skills	.409	-.085	.693	-.092	.284
HC Ratio of educated personnel on average compared with industry	.811	.031	-.014	-.232	.101
HC undergo continuous training program to employees annually	.676	-.317	.214	.312	.080
HC Competence of company employee	.687	.222	.068	.366	.189
EE Company employees consistently perform their best	.336	.676	-.115	.152	.432
EE Company employees are experts in respective areas	.734	-.154	-.131	-.098	.215
EE Company has lowest cost per transaction of any in the industry	.291	.611	-.369	-.219	-.229
EE Employees experience and expertise affect market value	.566	-.471	-.063	-.156	.463
EE Staff are highly professional	.526	-.282	.107	.550	-.296
IC Company employees encouraged new ideas and knowledge	.444	.029	.776	-.209	.068
IC Company employees highly motivated and committed to share new great ideas	.872	.162	-.249	.298	-.118
IC Large numbers of new products are launched with competitors	.278	.720	.357	-.060	-.029
IC Employees innovation creation affect company market value	.585	-.041	-.632	-.089	.280
IC Company employees are keen to voice opinions in group discussions	.766	-.093	.019	-.358	-.275
IC Company employees are considered creative and bright compared to other companies in the industry	.757	.144	-.048	-.541	-.146
IC Company employees usually come up with new ideas	.605	-.308	.079	-.112	-.529
IC Company employees satisfied with company innovation policies and programs	.708	.103	.190	.285	-.186
Extraction Method: Principal Component Analysis.					
a. 5 components extracted.					

2. STRUCTURAL CAPITAL

Total Variance Explained

Comp onent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.639	47.997	47.997	8.639	47.997	47.997	3.986	22.143	22.143
2	2.052	11.398	59.395	2.052	11.398	59.395	2.941	16.339	38.482
3	1.541	8.561	67.956	1.541	8.561	67.956	2.760	15.335	53.817
4	1.286	7.143	75.099	1.286	7.143	75.099	2.724	15.136	68.953
5	1.104	6.135	81.234	1.104	6.135	81.234	2.211	12.281	81.234
6	.819	4.549	85.782						
7	.707	3.929	89.712						
8	.518	2.877	92.588						
9	.442	2.454	95.042						
10	.371	2.063	97.105						
11	.181	1.006	98.111						
12	.129	.719	98.830						
13	.093	.519	99.350						
14	.079	.441	99.791						
15	.029	.159	99.950						
16	.007	.039	99.988						
17	.002	.009	99.997						
18	.001	.003	100.000						

Extraction Method: Principal Component Analysis.

Component matrix

	Component				
	1	2	3	4	5
SP Company has well-developed reward system related performance	.627	.235	-.564	.339	.066
SP Company recruitment programs are comprehensive and dedicated to hiring best candidates available	.648	.117	-.475	-.105	.456
SP Company supports their employees by constantly upgrading their skills and education	.724	.458	-.006	.269	.082
SP Company culture atmosphere are supportive and comfortable	.700	.097	-.353	.132	-.329
SP Staff have sufficient influence over decision made within company	.686	.030	.444	-.120	-.009
SP Company succession training programs each post	.788	.014	.042	-.119	-.357
RD Company continuously develops reorganizes itself based on R & D	.545	.527	.489	.257	.125
RD Company board of management highly trust and support the RD Department	.605	.453	.156	-.041	-.167
RD Systems and procedures of company support innovation	.694	-.069	-.266	-.349	-.344
RD Company continuously develops work process	.645	.447	-.067	-.438	.309
RD Company determines appropriate and adequate budget for R & D	.689	.006	.284	-.452	-.184
RD Company follow adopt latest scientific technical development around the world	.726	.217	.014	.208	-.284
RD Company considered a research leader	.710	-.124	-.105	-.391	.355
IPR Company pursues multiple strategy of licensing IPRs spinning new organizations	.647	-.646	.154	-.098	.127
IPR Company Monitors performance of the IPR portfolio	.840	-.411	.116	.107	.105
IPR Company actively encourages and rewards creation and extends use to maximize income	.756	-.443	.055	.183	-.144
IPR Company sets clear strategies and procedures for IPRs management	.751	-.457	-.228	.262	.016
IPR Company utilizes IPR to maximum level	.627	-.143	.388	.369	.321

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

3. RELATIONAL CAPITAL

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.182	30.480	30.480	5.182	30.480	30.480	3.477	20.456	20.456
2	2.582	15.186	45.666	2.582	15.186	45.666	2.592	15.245	35.701
3	2.043	12.018	57.684	2.043	12.018	57.684	2.277	13.395	49.096
4	1.736	10.213	67.897	1.736	10.213	67.897	2.221	13.066	62.162
5	1.312	7.716	75.613	1.312	7.716	75.613	1.895	11.144	73.306
6	1.223	7.193	82.805	1.223	7.193	82.805	1.615	9.499	82.805
7	.894	5.259	88.064						
8	.723	4.250	92.315						
9	.540	3.176	95.491						
10	.259	1.523	97.014						
11	.164	.966	97.980						
12	.155	.912	98.892						
13	.093	.545	99.437						
14	.050	.292	99.729						
15	.030	.176	99.905						
16	.013	.076	99.981						
17	.003	.019	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix

	Component					
	1	2	3	4	5	6
CK Company continually meets customers to find out what they want	.352	.287	.206	-.339	.513	.479
CK Is it Important for company share knowledge with partners	.140	.697	.085	-.344	.268	-.370
CK Company has useful and updated information system in use	.562	.057	.119	-.447	-.540	.030
CK Customer knowledge is widely distributed throughout company	.643	-.443	-.035	.045	.254	-.330
CSR A poll of company customers show them to be loyal to company would indicate that they are generally satisfied	.705	-.114	.276	.260	.427	-.172
CSR Company feels confident that will continue to do business with it	.558	.097	.448	-.252	.017	-.239
CSR Company maintains long standing relationship with suppliers	.620	-.222	-.153	.019	.395	.349
CSR Company relationship with customer supplier affect profitability	.468	.093	.630	.256	-.238	.284
CSR Company relationship with customer supplier affect market value	.281	.249	.729	.425	-.141	.086
CSR Company capitalize on customer wants and needs by continually striving to make them satisfied	.606	-.458	-.193	.292	.040	.128
RC Company currently working on joint projects with many other organizations	.717	.456	.048	.073	-.061	-.267
RC Company has many and diverse alliances	.673	.077	-.323	-.521	-.096	-.136
RC People from outside company are consulted when decisions are made within company	.628	-.378	-.075	.136	-.390	-.019
RC Company able to learn and add value through its partners	.715	-.024	-.308	-.300	-.134	.473
RC Company prides itself on being partnership - oriented	.717	.007	-.428	.362	-.039	-.288
RC Company strategic alliances affect company productivity	.071	.606	-.486	.532	.029	.115
RC Company strategic alliances affect company market value	.243	.859	-.292	.198	-.131	.156

Extraction Method: Principal Component Analysis.

a. 6 components extracted.

4. BUSINESS PERFORMANCE

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.508	55.081	55.081	5.508	55.081	55.081	3.907	39.072	39.072
2	1.345	13.452	68.534	1.345	13.452	68.534	2.946	29.462	68.534
3	.798	7.982	76.516						
4	.682	6.820	83.336						
5	.529	5.286	88.622						
6	.431	4.308	92.930						
7	.378	3.776	96.705						
8	.165	1.646	98.351						
9	.115	1.146	99.497						
10	.050	.503	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix

	Component	
	1	2
RCCC Industry leadership	.822	.267
RCCC Future outlook	.469	.552
RCCC Overall response to competition	.295	.761
RCCC Success rate in new product launches	.419	.688
RCCC Overall business performance and success	.103	.722
RCCC Employee Productivity	.158	.834
RCCC Process productivity	.773	.188
RCCC Sales growth	.745	.423
RCCC Profit growth	.915	.208
RCCC Company market valuation	.850	.207

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotated Component Matrix

	Component	
	1	2
RCCC Industry leadership	.822	.267
RCCC Future outlook	.469	.552
RCCC Overall response to competition	.295	.761
RCCC Success rate in new product launches	.419	.688
RCCC Overall business performance and success	.103	.722
RCCC Employee Productivity	.158	.834
RCCC Process productivity	.773	.188
RCCC Sales growth	.745	.423
RCCC Profit growth	.915	.208
RCCC Company market valuation	.850	.207

Extraction Method: Principal Component Analysis.

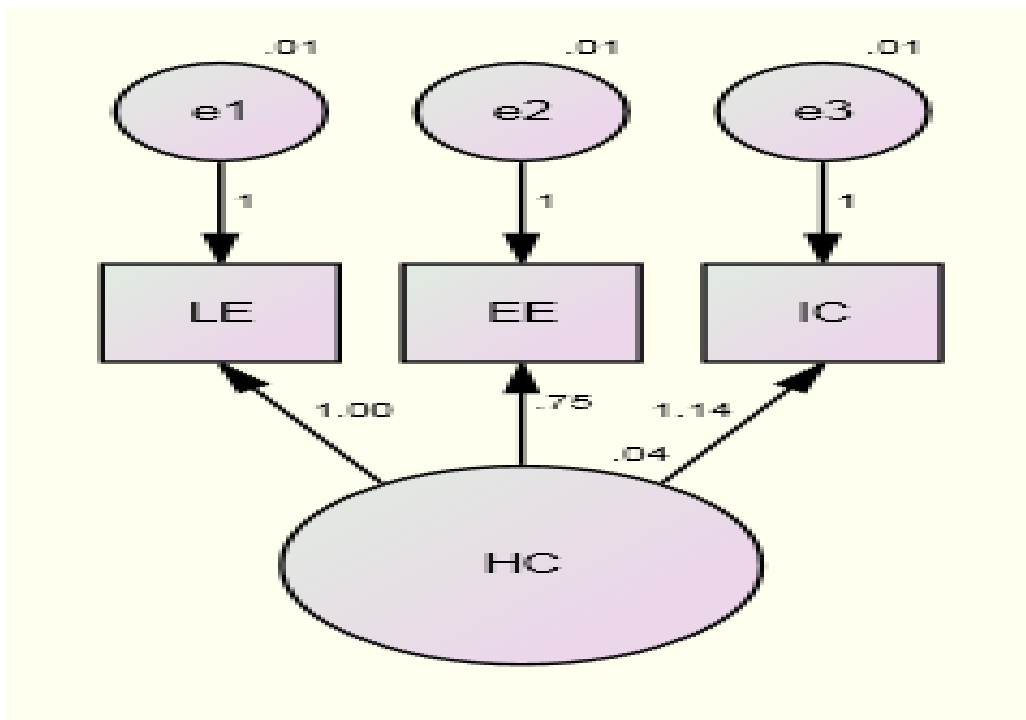
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

APPENDIX IV

Confirmatory factor analysis for independent and dependent variables and the overall model

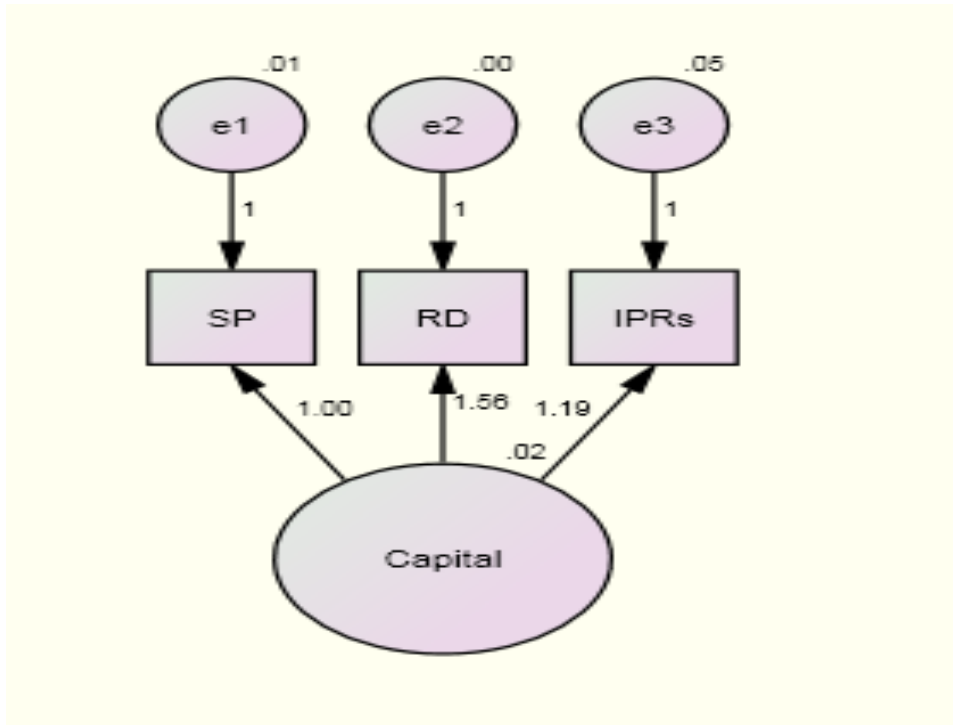
Human Capital



Comparative Factor Index (CFI) = 1.00 GOOD fit (≥ 0.90)

Root Mean Square Error of Approximation (RMSEA) = 0.0544 - good Fit (≤ 0.06)

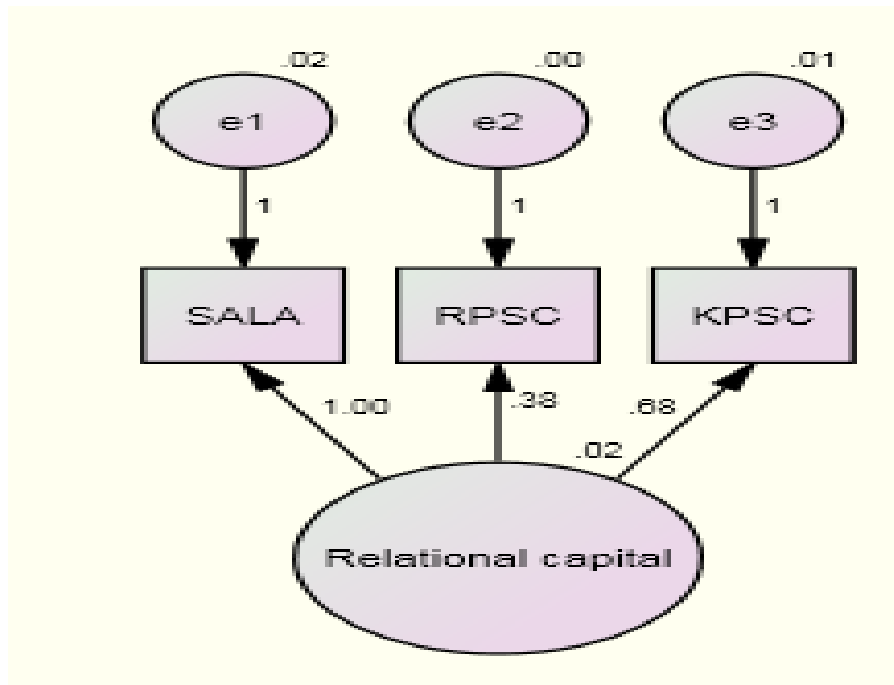
Structural Capital



Comparative Factor Index (CFI) = 1.0 good fit (≥ 0.90)

Root Mean Square Error of Approximation (RMSEA) = 0.0597 - good Fit (≤ 0.06)

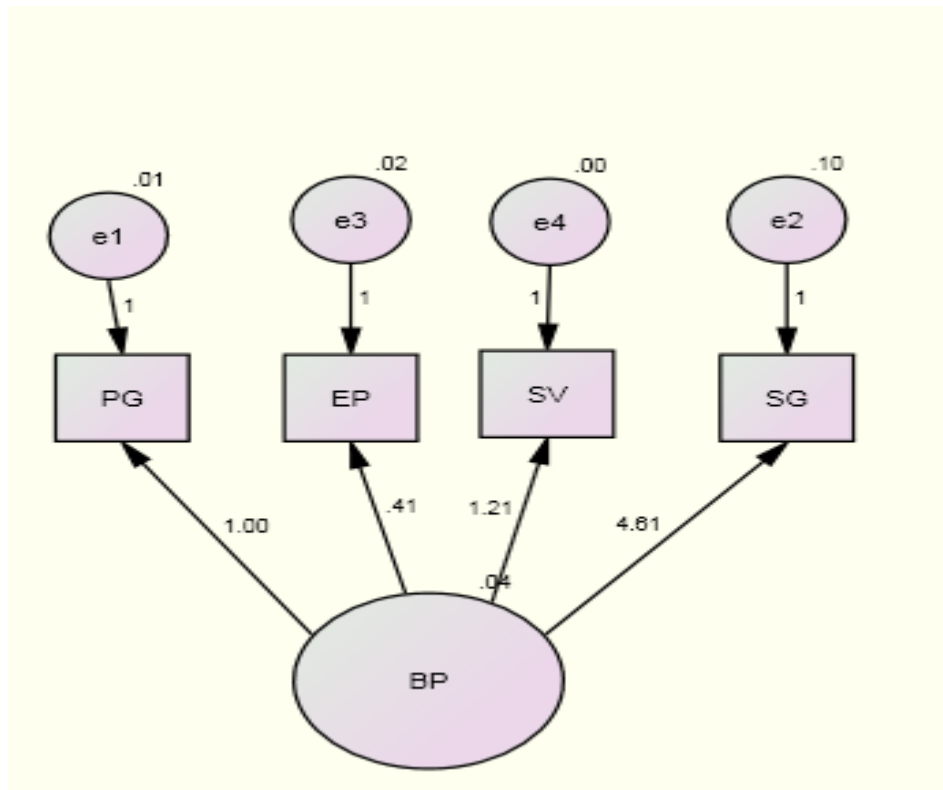
Relational capital



Comparative Factor Index (CFI) = 1.0 GOOD fit (≥ 0.90)

Root Mean Square Error of Approximation (RMSEA) = 0.0363 - good Fit (≤ 0.06)

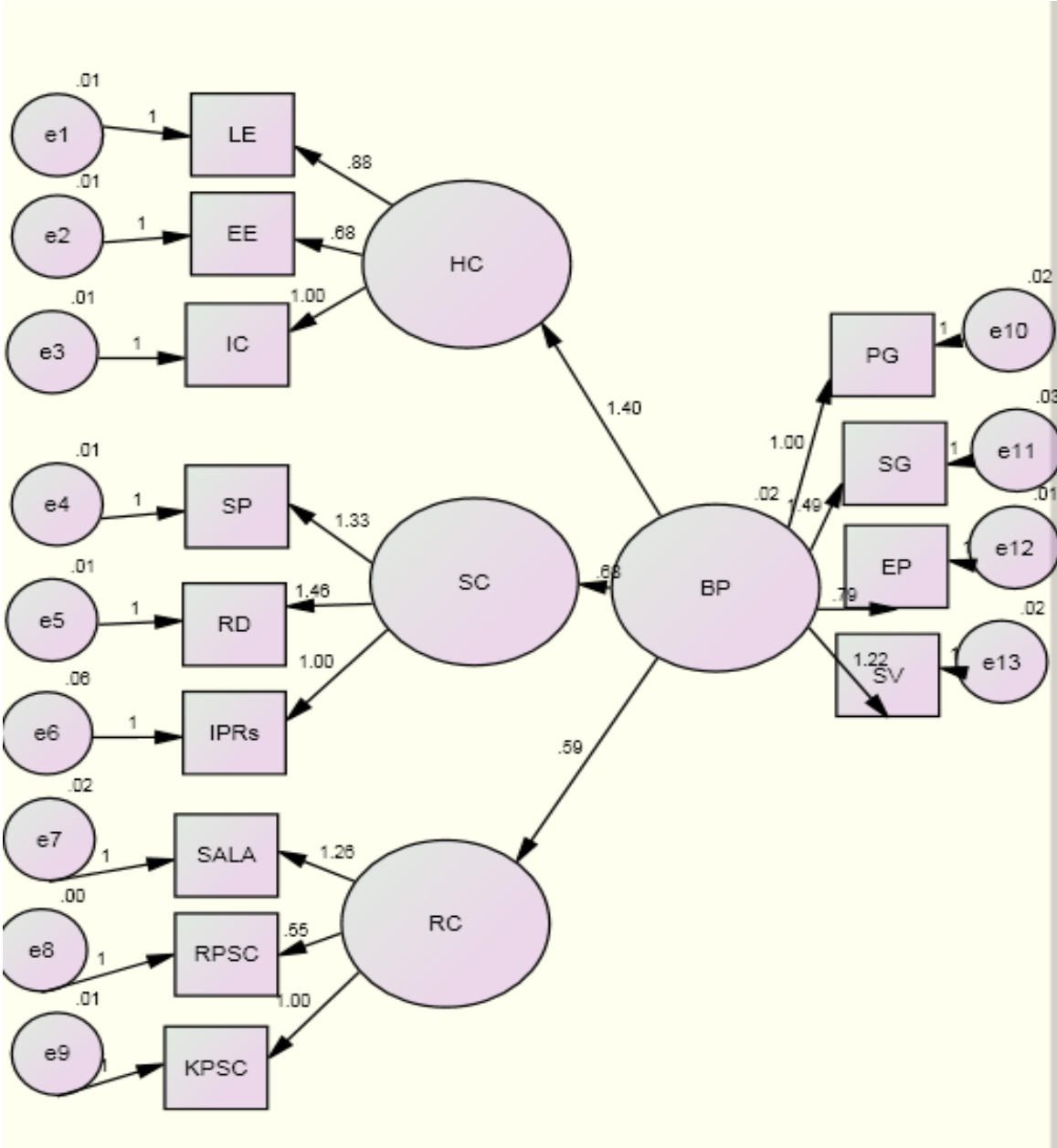
Business Performance



Comparative Factor Index (CFI) = 1.0 GOOD fit (≥ 0.90)

Root Mean Square Error of Approximation (RMSEA) = 0.0425 - good Fit (≤ 0.06)

Confirmatory factor analysis of the overall model after combination of factors retained for independent and dependent variables together with their sub variables.



RMR, GFI of the overall model

Model	RMR	GFI	AGFI	PGFI
Default model	.009	.928	.639	.186
Saturated model	.000	1.000		
Independence model	.100	.340	-.100	.204