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The Effect of intellectual capital on financial performance of listed firms in Kenya: the moderating role of firm size.

Kiminda, Caroline Nyambura
Strathmore Business School
Strathmore University

THE EFFECT OF INTELLECTUAL CAPITAL ON FINANCIAL PERFORMANCE OF LISTED FIRMS IN KENYA: THE MODERATING ROLE OF FIRM SIZE

CAROLINE NYAMBURA KIMINDA

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the thesis contains no material previously published or written by another except where due reference is made in the thesis itself.

Signature.  Date. 27/05/2024

Caroline Nyambura Kiminda

SUPERVISOR'S DECLARATION

This research thesis has been submitted for examination with my approval as the University supervisor.

Signature.  Date: 27/05/2024

Dr Erastus Mbithi.

ABSTRACT

The Nairobi Securities Exchange (NSE) plays a crucial role as a platform for capital raising and investment facilitation within Kenya's dynamic economy. Despite this, many firms listed on the NSE struggle with inadequate financial performance. This research aimed to explore the relationship linking intellectual capital to the financial performance of NSE-listed firms in Kenya, focusing on the prevalent issue of underperformance. Additionally, it investigated how firm size moderates this relationship. The study was based on three theoretical frameworks: The Resource-Based View theory, Social Capital Theory, and Dynamics Capabilities Theory, within a positivist philosophical stance. Both primary and secondary data were analyzed, with primary data being collected using structured questionnaires. The study followed a descriptive and cross-sectional research design, descriptive and inferential statistics were used to analyze the data. Correlation and multiple linear regression, were used to establish variations and associations between the variables.The study established that human capital has a positive relationship with financial performance of NSE listed firms. This was shown by the regression and correlation results which support the results as there existed a positive relation between human capital and ROA. The findings on structural capital and relational capital and financial performance similarly yielded a positive result establishing a positive relationship between structural capital and ROA and a positive relation between relational capital and ROA return on assets. The combined effect of intellectual capital positively affects financial performance measured in ROA.

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LIST OF ABBREVIATIONS

FP	Financial Performance
IC	Intellectual Capital
NSE	Nairobi Securities Exchange
MANOVA	Multivariate Analysis of Variance
VAIC	Value Added Intellectual Capital Coefficient
RBV	Resource Based View

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DEDICATION

This thesis is dedicated to my late parents, Simon Kiminda Maina and Angela Wangui Kiminda. Your love, wisdom and sacrifices have shaped who I am today. Though you are no longer with us, your guidance and unwavering support continue to inspire and motivate me. This achievement is a testament of your enduring legacy. Thank you for everything.

DEFINITION OF TERMS

Financial Performance: Financial performance the outcome in the financial accounting context, gauged by indices relating to profitability (Cindiyasari et al., 2022)

Human Capital: Human capital refers to the knowledge, skills, and expertise of an organization's employees, as well as their ability to collaborate and innovate (Bontis, 2020).

Relational Capital: This refers to the intangible networks a firm possesses with its employees clients cusytomers and suppliers Cindiyasari et al., 2022)

Structural Capital: Structural capital refers to the knowledge and intellectual property that is embedded within an organization's systems, processes, and infrastructure (Debarliev et al., 2022). Structural capital includes databases, patents, trademarks, organizational culture.

Intellectual Capital: These are the intangible assets of a company, including its knowledge, expertise,human capital, innovation, and intellectual property (Alipour &Mohammed 2012). It is also an intangible knowledge embedded within a company that originates internally or externally and can generate value for the company.

CHAPTER ONE:
INTRODUCTION

1.1 Background of the Study

In the current era of globalization, evolving customer demands, shifts in political and economic structures and emerging technologies, the importance of financial performance cannot be overstated (Abanga et al., 2022). The social-economic transformations and the rise of the knowledge economy have intensified competition among organizations, as companies fromdifferent parts of the world can now easily enter new markets and compete for customers(Arokodare et al., 2020). In this highly interconnected and dynamic environment, financial performance serves as a crucial measure of success and sustainability (Muciri et al., 2022).

Financial performance is a metric used to assess how well a business is managing its assets, obligations, and costs. Cindiyasari et al. (2022) described financial performance as the outcome in the financial accounting context, gauged by indices relating to profitability. Profitability serves as a crucial measure of a company's sustainability and financial health (Fatihudin, 2018). Financial performance provides valuable insights into how well the organization is generating revenue, managing its expenses, and creating value for its stakeholders, including shareholders, employees, customers, and suppliers (Barauskaite & Streimikiene, 2021). Stakeholders can analyze the organization's capacity to create returns and manage risks and, as a result, make better informed judgments about their investment possibilities by assessing financial performance parameters (Raghavan & Yu, 2021).

There are various factors influencing firm financial performance. According to Irungu (2019), the pivotal factors influencing financial success include the firm’s age and its capital structure. Firm age stands for the operational period during which the firm has been in existence (Pollet, 2009). The older firms have been well enmeshed in the environment and thus, they are more active in comparison to new firms (Irungu, 2019). Akben-Selcuk (2016) suggested that there exists a convex connection linking firm age to financial performance meaning that firms in their nascent stages are characterized by a decrease in profitability, while older firms become more profitable as they continue to grow and age.

The mix of a firm’s capital structure influences the overall cost of capital and shapes the

firm's overall risk profile (Dao & Ta 2020). Companies with high leverage or debt tend to be in a favorable position to lower their available free cash flow under the control of the management (Mukumbi et al., 2020). By being highly levered, firms minimize the likelihood of fund misappropriation while simultaneously incentivized to improve operational efficiencies. Similarly, having more debts, firms increase their tax shield but increase the present value of financial distress (Mukumbi et al., 2020). Attaining an optimal capital structure of a firm balances the tax benefits against the cost of financial distress. The study incorporated firm's age and capital structure as control variables to minimize endogeneity problem in the data.

High-performing organizations are better positioned to attract investment, secure partnerships, and expand their market reach. As per Ndiaye et al. (2018), they can leverage global opportunities, adapt to changing customer demands, and stay ahead of competitors. On the other hand, firms that are financially distressed may not easily access funds, they face difficulties in attracting investors and creditors. As a result, layoff and wage freeze occur making it impossible for firms to operate forcing them to consider market exit (Nyamiobo, 2023). Specifically, in Kenya some firms have experienced declining fortunes releasing profit warnings (Nyamiobo, 2023).

Firm size has gained acceptance as a moderator in financial performance research suggesting that the relationship between intellectual capital and financial performance may vary across different-sized firms (Corvino et al., 2019). A company's size can be expressed in terms of the number of employees,capital investment, value of revenue and asset base, this may then result in classifying these businesses as large or small. (Younis et al., 2020). A research by Ghafoorifard et al. (2015) reveals that there is a significant relationship between firm size and financial performance. Further research by Sari (2023) in the Indonesian Stock Exchange indicates that company's size influence financial performance. Large corporations have an advantage over small firms as a result of economies of scale evidenced through financial performance (Onsongo, 2019).

According to Elhamma (2015) larger organizations have the capacity to leverage intellectual capital more effectively due to their scale and resources. In contrary, Farooq et al. (2021) argues that as a company grows in size, executives could find it more challenging to attain the appropriate degree of dedication resulting to poor financial performance. (Younis et al., 2020) posits that smaller firms operate with constrained financial resources restricting their ability to invest in comprehensive knowledge management systems, cutting-edge technology, and employee training programs.

Consequently, small firms may struggle to fully develop and capitalize on their intellectual capital, hindering their financial performance potential.

To boost financial performance, firms globally are increasingly recognizing the value of intellectual capital (IC) as a critical resource (Ousama et al., 2020). This is an outcome of the economy moving from being production-based to being knowledge-driven. Rather than tangible assets like land, machinery, and money, intellectual assets—which include information, talents, values, and methods—have emerged as the main "economy wealth-creation production factor" (Bayraktaroglu,2019). By harnessing their knowledge, skills, and intangible assets, companies are leveraging intellectual capital to drive innovation, improve productivity, and enhance competitiveness (Aldarmaki, 2023).

Kenya, like many countries, aspires to achieve sustainable economic growth and development. Efforts are being made to invest in education and skills development to nurture human capital, foster research and development activities, promote knowledge transfer and collaboration (Mose,2021). Moreover, there is an emerging startup and entrepreneurial ecosystem in various African countries, driven by young innovators who are leveraging intellectual capital to develop and scaleinnovative solutions to address local challenges (Astuti et al., 2022). Intellectual capital, includingknowledge, innovation, and skills, can play a crucial role in enhancing financial performance of NSE listed firms (Githaiga et al., 2023). It can drive innovation, enhances operational efficiency, strengthens customer relationships, and attracts top talent.

Intellectual capital refers to the intangible assets of a company, including its knowledge, expertise, human capital, innovation, and intellectual property (Alipour &Mohammed 2012). Cindiyasari et al., (2022) defines intellectual capital as a resource, or an intangible knowledge embedded within a company that originates internally or externally and can generate value for the company. Heightened interest with IC stems from a wider array of socio-economic shifts linked to more discerning and sophisticated consumers, the rapid expansion of service-centric sectors, evolving trends in social interactions, and the rise of the interconnected digital and virtual network society.

There are generally three main types of intellectual capital namely; human capital, structural capital, and relational capital (Nirino et al., 2022). Human capital refers to the knowledge, skills, and expertise of an organization's employees, as well as their ability to collaborate and innovate (Bontis, 2020). Structural capital refers to the knowledge and intellectual property that is embedded within an organization's systems, processes, and infrastructure (Debarliev et al.,

2022).Structural capital includes databases, patents, trademarks, organizational culture. Sarges (2022) argues that relational capital refers to the knowledge and intellectual property that is embedded within an organization's relationships with stakeholders such as customers, suppliers, and partners. Each of these types of intellectual capital is important for the success of an organization, and they often interact with each other (Youndt & Snell, 2020).

Intellectual capital, encompassing knowledge, skills, and intangible assets, is a valuable resource that can positively influence financial performance in multiple ways (Al Darmaki, 2023). First, intellectual capital fosters innovation and creativity within organizations, enabling the development of new products, services, and processes. This innovation-driven approach can provide an edge for competition, increased market share, and improved financial performance (Xu & Liu, 2021). Additionally, intellectual capital enhances operational efficiency by improving internal processes, knowledge sharing, and problem-solving capabilities, resulting in cost savings, higher productivity, and improved overall performance (Onofrei, 2019). Furthermore, intellectual capital contributes to enhanced customer relationships, brand reputation, and loyalty, leading to increased customer acquisition, retention, and market expansion (Midiantari & Agustia, 2020).

However, there can be potential negative effects or limitations associated with intellectual capital.First, Xu et al. (2022) noted if intellectual capital is not effectively managed or harnessed, it may remain underutilized or isolated within certain individuals or departments, failing to contribute tofinancial performance. Lack of knowledge sharing, poor communication, and inadequate collaboration can hinder the realization of the full potential of intellectual capital (Xu et al., 2022).

Secondly, excessive reliance on a particular set of intellectual capital or overemphasis on certain knowledge domains may result in a lack of diversification and agility, making the organization vulnerable to changes in the market or technological disruptions (Dhar, 2019). Thirdly, intellectual capital, particularly when it involves proprietary knowledge or intellectual property, can be subjectto risks such as unauthorized disclosure, infringement, or misappropriation, which can negativelyimpact financial performance, reputation, and competitiveness (Chowdhury et al., 2019).

Empirical studies have linked intellectual capital to financial performance with the correlation expected to be predominantly positive. However, these studies have not provided consistent and conclusive evidence on how intellectual capital can enhance financial performance. For example,a study of pharmaceutical companies in Kenya by Ngari et al. (2011), demonstrated that the performance

was positively impacted by the isolated impacts of intellectual capital components. Quite the reverse; Amedieu and Vivian's (2010) study on the influence of intangible capital on the financial and commercial performance of the French wine industry showed that intangible capital and financial performance were negatively correlated.

There are a number of factors that are attributed to the conflicting strands. Firstly, the studies useda homogenous population. Secondly, the studies focused on businesses that primarily depended on intellectual capital, there are concerns about generalizing from them because they do not provide a means of explaining the effects across industries. Thirdly, researchers and practitioners are deprived of the chance to determine the true mechanism by which value creation takes place when they focus on the independent impact of intellectual capital components. Lastly, the studies have employed different measures of intellectual capitaland varied analysis methodologies making it challenging to compare findings across different sectors and contexts.

The current study addressed these limitations by adopting a selection of companies listed on the Nairobi Stock Exchange that is more representative. By examining the combined impact of intellectual capital components on financial performance, this study also aligned with the claims made by the Resource Based View (RBV) Theory. Additionally, the study's aim was to determine how business size affects the correlation between financial success and intellectual capital.

1.1.4 Firms Listed at the Nairobi Securities Exchange.

The Nairobi Securities Exchange (NSE) is a leading Securities Exchange in East and Central Africa that is based in Nairobi Kenya (Nairobi Securities Exchange, 2022). The exchange has a seven-decade history since its establishment in 1954, listing debts and equity securities. The bourse is the primary stock exchange in Kenya and hosts a diverse range of firms across various sectors.It has 13 sectors with 65 listed firms (Appendix III) (NSE, 2022). NSE listed firms encompass both local companies and international firms with secondary listings.

The NSE provides a platform for firms to raise capital, enhance their visibility, and facilitate investment opportunities for both local and international investors. The security exchange plays a vital role in the development of the Kenyan economy, averagely contributing 18% of revenue to Gross Domestic Product (GDP) annually, providing opportunities for growth, fostering investor confidence, and contributing to the overall development of the capital market in

Kenya (Karunguet al., 2020). According to a report by World bank (2022), Kenya's economy is among the fastest-growing in Africa, and also functions as the gateway to the East African market. Consequently,enhancing the financial performance of NSE listed firms will serve as a blueprint for other African economies to benchmark and emulate.

The current state of financial performance among companies at the NSE is mixed. Some institutions areperforming well, while others are struggling (Walale et al., 2022). High-performing firms at the NSE exhibit strong financial results, effective management practices, market leadership, and a commitment to corporate social responsibility. Their performance contributes to market confidence, attracts investment, and fosters economic growth, making them key drivers of the overall success and stability of the NSE (Walale et al., 2022). Firms such as Standard Chartered Bank Kenya, Williamson Tea, Kapchorua Tea, I&M
Group, Co-operative bank and BAT Kenya all have yields above 12% as of July 2023 (NSE, 2023).

Conversely, certain firms have exhibited subpar financial performance over an extended period. For instance, in the year 2019, seventeen firms released a profit warning, fourteen in 2020, nineteenin 2021 and eleven in 2022 (NSE, 2022). Table 1.1 summarizes the Nairobi Securities Exchange's major data about the volumes and values of shares traded during a four-year period (2018-2022).

Table 1.1: Key Market Performance Indicators

Indicators	2018	2019	2020	2021	2022
NSE 20 Share Index	2,801	2,654	1,868	1,903	1,676
Total no of Shares Traded (Million)	6,336	4,832	5,264.5	4,051.1	3,081.0
Total Number of deals	305,597	247,815	263,907	277,611	272.936.0
Average Market Capitalization (Ksh Billion)	2,102.0	2,540.0	2,336.7	2,592.9	1,986.1
Total bond turnover (Ksh Billion)	562.7	651.7	691.8	957.0	741.9

Source: Economic Survey (2023).

From the Table 1.1, the NSE 20-share index dropped by 11.9% from 1,903 in 2021 to a low of 1,676

in 2022. Market capitalization decreased by 23.4% to 1,986.1 billion ksh in 2022 while number of transactions reduced by 1.68% to 272,936 in 2022. The firms attribute the headwinds to a number of factors including the COVID-19 pandemic, the war in Ukraine, and rising inflation. These challenges have had a negative impact on some firms, but others have been able to weather the storm and continue to perform well.

Intellectual capital represents a valuable asset that these firms can leverage to drive sustainable growth, create a competitive advantage, and enhance their overall financial performance in the securities exchange market (Ali & Anwar, 2021). It plays a crucial role in enhancing the innovation capabilities, operational efficiency, and customer relationships of NSE-listed firms, enabling them to navigate the dynamic and competitive market environment (Alvino et al., 2021).

Some studies have shown that intellectual capital has a positive impact on productivity, profitability, and marketvalue. However, there is still room for improvement. As an illustration, businesses should concentrate on developing their human capital, as this has been shown to have the greatest impact on market value. By making sure companies have appropriate mechanisms and processes that enable them to monitor their actions, they might also improve their structural capital (Alvino et al., 2021).

1.2 Statement of the problem.

Financial performance among NSE listed firms is undeniably crucial as it contributes to overall economic growth, job creation, and investor confidence (Onsongo et al., 2020). Statistical evidence points to several indicators of underperformance, such as declining profitability, low return on investment, and limited market capitalization growth (Walale et al., 2022). For instance, more than ten firms have issued profit warnings over the past five years. A recent study by Kemboi et al. (2023) found that a significant number of NSE listed firms experienced a decline in profitability by an average of 5% over the past 5 years. This sub-optimalperformance jeopardizes investor confidence, hampers economic development, and limits job creation. If left unaddressed, it can lead to reduced capital inflows, market stagnation, and hindered sectoral growth. Nevertheless, addressing the issue of sub-optimal performance among NSE listed firms offers potential solutions, with intellectual capital emerging as a crucial variable to consider.

Intellectual capital, encompassing knowledge, skills, and intangible assets, has the potential to enhance financial performance by driving innovation, operational efficiency, and customer

relationships (Panayotova et al., 2021). By effectively managing and leveraging intellectual capital, firms can overcome the challenges and improve their performance, thereby mitigating the negative consequences and unlocking the economic potential of NSE listed firms.

Crucially, the existing research landscape paints a complex and fragmented picture, underlining a conspicuous lack of consensus about the contribution of intellectual capital to enhancing businesses' financial performance (Kariuki, 2014). Notable research conducted by Rufus et al. (2022) in Nigeria, Gupta et al. (2022) in India, and Uslu (2022) in Turkey discovered a favorable correlation intellectual capital to financial performance among listed firms. These findings differ from those conducted by Sheikh and Wepukhulu (2019) and Githaiga et al. (2022) as they found that intellectual capital has no significant effect on performance.

Furthermore, the particular setting of Kenyan NSE listed enterprises has a significant empirical gap. A limited number of research have particularly examined NSE listed enterprises and the distinct economic environment of Kenya, despite the fact that some have looked into the influence of intellectual capital upon business performance generally. For example, Ngari et al. (2013) focused on pharmaceutical firms, whereas Oyok and Muganda (2020) only looked at commercial banks that were listed. Ngugi et al. (2012), on the other hand, concentrate their study on small and medium-size enterprises (SMEs). This restriction is intended to be addressed by the current study by the integration of a more inclusive and broad sample of Kenyan enterprises from various sectors.

In addition, this study's aim was to fill these gaps by examining the relationship between intellectual capital and financial performance specifically among NSE listed firms in Kenya. By doing so, it aim was to not only illuminate the multifaceted dimensions of intellectual capital but also to shed light on how each component—human, structural, and relational capital—interacts with financialperformance. In addition, the study incorporated two controlling variables, age and capital structure and a moderating variable, firm size that shapes the connection linking intellectual capital to financial performance. The results will offer practical insights for enhancing the economic potential of NSE listed firms in Kenya, which are crucial drivers of the economy contributing an average of 18% of revenue to Gross Domestic Product from 2017 to 2020 (NSE. 2021)

1.3 Objectives of the Study.

1.3.1 General Objective

The broad objective of this research was to determine the effect of intellectual capital on financial performance of NSE listed firms in Kenya.

1.3.2 Specific Objectives

The specific objectives of this study were:

1. To establish the effect of human capital on financial performance among NSE-listed firms in Kenya.
2. To determine the effect of structural capital on financial performance among NSE-listedfirms in Kenya.
3. To establish the effect of relational capital on financial performance among NSE-listed firms in Kenya
4. To establish the moderating effect of firm size on the relationship between intellectual capital and financial performance of NSE-listed firms in Kenya.

1.4 Research Questions

The study addressed the following research questions:

1. What is the effect of human capital on financial performance of NSE listed firms in Kenya?
2. What is the effect of structural capital on financial performance of NSE listed firms in Kenya?
3. What is the effect of relational capital on financial performance of NSE listed firms in Kenya?
4. How does firm size moderate the relationship between intellectual capital and financial performance of NSE listed firms in Kenya?

1.5 Significance of the Study

1.5.1 Practitioners

The study's findings will directly benefit companies that are listed on the Nairobi Securities Exchange providing evidence-based guidance for their strategic decision-making processes. The results can inform management practices and resource allocation, helping firms identify and prioritize

the dimensions of intellectual capital thathave the greatest impact on financial performance. By understanding how intellectual capital drives performance, firms can develop tailored strategies to enhance their intellectual capital management, knowledge-sharing practices, talent development, and customer relationship management. Ultimately, this enables them to navigate the competitive landscape more effectively and pursue sustainable

1.5.2 Policy makers and regulatory bodies

The study's conclusions will be very helpful to regulatory agencies and legislators who are influencing Kenya's business and economic climate. The creation of laws and policies that support the efficient use and management of intellectual capital will be guided by an understanding of how intellectual capital affects the financial performance of NSE listed companies. The study's conclusions can be used by policymakers to establish a supportive atmosphere that promotes innovation, knowledge exchange, and investments in human capital development. This will increase the competitiveness and overall performance of NSE listed companies, which will in turn promote regional economic growth and stability.

1.5.3 Scholars.

This research aims to enrich scholarly understanding of the correlation between intellectual capital and financial performance, considering firm size as a moderating factor. By examining the specific context of NSE listed firms in Kenya, this research gives empirical evidence that adds to the theoretical understanding of how intellectual capital impacts financial performancein an emerging market setting factoring in firm size. The findings will help refine and expand theoretical frameworks related to intellectual capital, including the Social Capital View, Resource-Based View, and Dynamics Capabilities theories. This expansion of knowledge not only enhances the academic discourse but also paves the way for more comprehensive and tailored to specific context. Moreover, it provides a foundation for further research, offering researchers a platform from which to explore the intricacies of intellectual capital in emerging market settings, contributing to the global knowledge pool in this crucial area of study.

1.6 Scope of the study.

This research focused on how intellectual capital affects financial performance of NSE listed

firms in Kenya relying on research-based theory. The selection of NSE was motivated by role the firms play in attracting more investment, creating opportunities and wealth within the Kenyan economy which serves as a benchmark for other African economies (Zack et al., 2019). The study was limited to the human capital, structural capital, and relational capital. The study was cross-sectional and limited in scope to cover the 65 NSE listed firms in Kenya. The study adopted a descriptive and cross-section designs and relied on both primary data collected using structure questionnaires and secondary data. Data as analyzed using both descriptive and inferential statistics. The study was conducted for the period between February 2024 to April 2024.

1.7 Chapter Summary.

The section provides an introduction to the study focusing on the crucial role of financialperformance in the modern global economy. The chapter delves into the various factors influencing financial performance focusing on age and capital structure. The chapter further discusses the significance of intellectual capital encompassing three dimensions, human, structural and relational capital, in enhancing financial performance. The moderating variable, firm size is introduced depicting its' influence on financial performance. The research problem wass stated, by addressing the existing gaps in literature regarding the connection linking intellectual capital to financial performance focusing on NSE-listed firms in Kenya. Significance of this research was evaluated, acknowledging its potential impact on practicing institutions, among policymakers, regulator as well as existing literature

CHAPTER TWO

LITERATURE REVIEW.

2.1 Introduction

This chapter introduces the study's theoretical foundation and provides a synthesis to existing research on intellectual capital and financial performance. It encompasses a theoretical overview, controlling variables, literature review summary, identification of research gaps, and a conceptual framework that depicts the study variables' relationships. The examination of prior studies which aided in identifying controversies and unanswered questions in intellectual capital's impact on financial performance.

2.2Theoretical Framework

Many theories may be used to explain the connection between financial success and intellectual capital; however, for the purposes of this study, the theories of resource-based view, social capital, and dynamic capacities are evaluated.

2.2.1 Resource Based View Theory

Barney (1991) was the pioneer of this notion. According to the resource-based view (RBV) hypothesis, a company's distinct assets and competencies—as long as they are valued, uncommon, distinctive, and non-substitutable—are the main sources of long-term competitive advantage (Hanifah et al., 2022). A firm's resources may be divided into two groups, tangible and intangible, based on this notion (Egbu, 2018). Financial resources, physical assets, and technology resources are examples of tangible resources since they are easily quantifiable and have a physical aspect. Conversely, intangible resources—such as reputation, brand equity, and staff expertise—are hard to measure and are a part of the company's culture, knowledge, and human capital (Valliere, 2019). Additionally, the RBV theory contends that in order to produce value and preserve a competitive advantage, a firm's resources must be in line with its strategy and the needs of the external environment (Donnellan & Rutledge, 2019).

According to the hypothesis, the collective influence of the many components of intellectual capital has a greater impact on financial performance than the individual contributions of structural, relational, and human capital. Moreover, the combined impact of intellectual capital on business success outweighs the impact of any predictor variable alone (Kariuki, 2014). According to Kariuki (2014), competitive advantage results from a synergistic impact rather than from a collection of individual approaches. This argument questions the notion that a competitive advantage may be obtained by depending just on one factor, such as human capital, which has received significant attention in the literature. The fundamental tenet of RBV is that resources should interact to provide greater value than the sum of their separate components.

RBV assumes that firms possess unique and heterogeneous resources and capabilities. Not all resources are equally valuable or rare. Some resources can be a source of competitive advantage while others cannot (Collins, 2021). The RBV theory has its detractors, including Bontis (2020) and Sinay, Carter & de Sinay (2020), who contend that because it mostly depends on qualitative evaluations of a firm's resources and skills, it is challenging to evaluate experimentally. This has caused some academics to doubt the reliability of the RBV theory's capacity to explain prolonged competitive advantage as well as the validity of the VRIN criterion. The RBV theory offers a framework for locating strategic resources, but it could not offer enough direction for cultivating and utilizing such resources. Because of this, Ghasemzadeh et al. (2022) contend that the RBV theory is inadequate for providing businesses with long-term competitive advantage with prescriptive guidance.

This theory suggests that a firm's resources, including intellectual capital, can be a source of sustained competitive advantage. According to RBV, firms that have valuable, rare, inimitable, and non-substitutable (VRIN) resources are likely to outperform their competitors. For NSE firms, intellectual capital, including unique knowledge, expertise, and innovation capabilities are valuable and unique resources which can be difficult for competitors to imitate or replicate, giving firms a competitive advantage globally.

2.2.2 Social Capital Theory

Social capital theory was first introduced by Pierre Bourdieu in his book "The Forms of Capital," published in 1986. However, the concept was further developed and popularized by James

Coleman in his 1988 article "Social Capital in the Creation of Human Capital." Social capital theory postulates that status, social networks and relationships between individuals and groups can create valuable resources that can be leveraged for personal and collective benefit (Sarges, 2022). Social capital is seen as a form of capital that can provide access to information, opportunities, resources, and support. There are several criticisms of social capital theory. One critique is that it can be difficult to measure social capital, and there is no clear consensus on how to operationalize the concept (Ghasemzadeh, et.al, 2022). Another criticism is that social capital can be used for both positive and negative purposes, and it is not always clear which direction it will take (Bontis (2020). Additionally, Chen (2021) argues that social capital theory does not sufficiently account for power dynamics and how they shape social networks and relationships.

This theory suggests that the relationships and networks that firms build with their stakeholders, including customers, suppliers, and employees, can be a source of competitive advantage. NSE listed firms that have strong relationships with their employees, customers, and other stakeholders are likely to have a better understanding of their needs and preferences, and therefore be better positioned to create value.

2.2.3 Dynamic Capabilities Theory

The Dynamic Capabilities Theory was first proposed by David J. Teece in 1997. According to the Dynamic Capabilities Theory, a company's capacity for innovation and adaptation is essential to its long-term survival in a business environment that is changing quickly (Bontis, 2020). According to the thesis, a company's capacity to adapt and integrate its resources and skills in response to shifting market conditions gives it a competitive edge rather than only being dependent on its assets or talents (Egbu, 2018). According to Egbu (2018), a firm's dynamic capabilities are its capacity to recognize and adapt to changes in its external environment, to grasp opportunities, and to reorganize its skills and resources in order to forge new competitive advantages.

Beske et al. (2018) contend that the theory is hard to convert into useful advice for managers because it is very nebulous and lacks a defined framework for action. The idea is also criticized for emphasizing internal organizational variables too much and not enough on the outside sufficient attention to outside variables like industry changes and market competitiveness (Sarges, 2022). Lastly, Fallon-Byrne & Harney (2017) contend that the theory is overly general and inclusive, making it challenging to

implement in particular situations or sectors.

This theory suggests that a firm's ability to adapt to changing market conditions and opportunities is critical to achieving sustained competitive advantage. According to this theory, firms that have the ability to identify and exploit new opportunities, and to adapt their resources and capabilities to changing market conditions, are likely to outperform their competitors. In the case of intellectual capital, NSE-listed firms that are able to continuously improve the human and structural capital i.e. continuously innovate, learn, and improve their knowledge and expertise are likely to be better positioned to achieve sustained competitive advantage.

2.3 Empirical Framework

2.3.1 Intellectual Capital and Financial Performance

Numerous empirical investigations have been done both locally and internationally to demonstratethe connection between intellectual capital and financial performance, but the findings have been varied. For instance, Fire and William (2003) examined 75 publicly traded companies in South Africa, revealing a negative relationship between structural, physical, and human capital and financial performance. The study focused on the direct relationship of the variables without factoring in the internal environment of the firms. Conversely, Riahi-Belkaouli (2003) studied 81 multinational firms in the United States, finding a positive correlation. The study focused solely on companies listed in Forbes Magazine's "Most International 100 American Manufacturing service," potentially biasing the results. Additionally, the use of trademark application as the sole indicator of intellectual capital contradicts the broader understanding proposed by Marr et al. (2004), which encompasses human, social, and organizational capital.

Samiloglu et al. (2006) studied the link between market value to book value and the value added intellectual capital coefficient (VAIC) in the Turkish banking industry. Regression analysis and correlation were used in the study to examine the link. The research solely looked at the banking industry and employed a homogenous population. The results of the investigation showed that there was a strong positive association between the factors. These findings are similar to those of Tan et al. (2007) in Singapore Stock Exchange who similarly used Value added Intellectual Coefficient to measure intellectual capital, earnings per share as the indicator of performance and partial least squares (PLS) for the data analysis. Both studies

focused on the direct relationship of the variables without incorporating a moderating factor.

The use of homogeneous data is evident in existing literature. For instance, Muhammad and Ismail (2009) used panel data analysis to look at the relationship linking intellectual capital and firm success in the Malaysian banking industry between 2002 and 2006. Return on assets (ROA) and profitability were used to gauge financial success, and the findings showed a favorable correlation between intellectual capital and business performance. Another study by Amedieu and Vivian (2010) to investigate the extent to which Intangible assets affect financial performance on French wine companies. Through the application of multivariate analysis of variance (MANOVA), and the production function approach, the researchers established that intangible capital negatively affected the firm's financial performance. The contradicting results could be attributed to the different sectors in different contexts being analysed.

In Kenya, Ngari et al. (2013) conducted research on pharmaceutical firms to ascertain the connection between the elements of intellectual capital and corporate success. A Pearson correlation test was used to evaluate three possibilities. The results show that intellectual capital improves the success of businesses. Ikapel (2016) examined how intellectual capital affected Kenyan commercial banks' financial results. Regression analysis was performed to examine the data, and the VAIC was utilized to quantify intellectual capital. The results demonstrated that, as determined by net interest margin, IC significantly impacted business performance. Thisuse of homogenous data raises concerns on the ability to draw broad generalizations on inter- industry impact.

In order to determine the impact of intellectual capital on the financial performance in Yaoundé, Cameroon, Baye et al. (2014) conducted a research akin to that of Muhammad and Ismail (2009) in the banking sector. Similar to Muhammad and Ismail (2009), Baye et al. (2014) used regression analysis to evaluate the relationship between intellectual capital and financial performance as well as VAIC to quantify intellectual capital. From the study's outcomes, the researchers discovered that human capital and structural capital demonstrate no significant effect while capital employed is positively significant to profitability, differing from the earlier finding of Muhammad and Ismail (2009) who had established a positive association between all the variables. The study of intellectual capital in similar sectors but different context account for the difference in findings. In Kenya, Otor (2015) conducted a study on the role of intellectual capital and business performance of small and medium enterprises in Mombasa county. The results

showed that technical expertise and management experience had a big impact on small and medium-sized businesses' success. Moreover, the expansion of SMEs was impacted by the encouragement of entrepreneurship. Similarly, Cleary et al. (2016) investigated Irish SMEs to determine the impact of intellectual capital on business performance using cloud-based finance and accounting infrastructure. The results show a strong positive correlation between business performance and the three IC components. Both Otor (2015) and Cleary et al., (2016) focused soley on SME's making it difficult to generalize the findings to large companies.

A study conducted within the Indian software sector by Bansal and Singh (2020). Data from 71 software businesses were sampled for the empirical study. Intellectual capital (IC) and its constituent parts were measured using the Value Added Intellectual Coefficient model. The data was analyzed using both the Pearson and Panel Regression models. The results demonstrated that VAIC considerably and favorably predicts the firms' profitability. It did not, however, indicate a comparable effect on production.

Likewise, Gupta (2022) sought to investigate the nature and intensity of the correlation between intellectual capital and financial performance of pharmaceutical companies listed in India. The study employed a comparative model of both the VAIC and the e-VAIC framework. The findings showed a significant association between intellectual capital and financial performance. The results generally contradict the analysis conducted by Castro et al. (2021) to look into the connection between IC and the financial performance of Colombian banks that were listed between 2010 and 2016. The link between financial indicators, such as ROA, MTB, and Tobin's Q, was examined using the VAIC model, and the efficiency of intellectual capital was examined using the econometric model. The study's conclusions show that there are a variety of relationships between intellectual capital and financial success, and no consistent pattern could be found.

Jordão et al. (2022) study on the impact of IC on financial performance found that overtime, IC contributes to a systematic increase in economic financial performance . The study was carried out on Brazil Stock Exchange's listed firms in which different sectors of the economy were considered but failed to incorporate a moderating variable. In the Chinese context, Xu, et al. (2023) investigated the influence of IC and its constructs on FP in different life cycle stages focusing on listed Chinese manufacturing firms. The study's findings showed that the effects

of IC on FP vary depending on the stage of the life cycle. In particular, the three dimensions of IC have a positive effect on FP at the nascent stage and maturity stage. At the revival stage human capital and structural capital play a vital role while at the weakening stage only human capital positively affects FP. By studying manufacturing firms only, the study limits the generalization of the findings to other industries such as service industry

Kim et al. (2023) undertook a research on the connection linking intellectual capital to the business performance of SMEs in Vietnam. The components of intellectual capital were measured using the VAIC methodology, and the connection between the pieces was examined using panel data estimation techniques. The study's findings showed that intellectual capital has little effect on the profitability of SMEs in Vietnam; instead, they primarily rely on financial and physical capital. Notably, it was discovered that human and structural capital had little bearing on the success of businesses. The study did not factor in the internal environment of the enterprising as moderating the relationship between the variables.

Likewise, Githaiga (2023) employed VAIC to measure intellectual capital components in a research aimed at establishing if income diversity across East African banks mitigates the relationship connecting intellectual capital with bank performance. A hierarchical regression model is used to evaluate the assumptions. The results showed that intellectual capital had a considerable impact on bank performance, in contrast to Kim et al.'s (2023) findings, even if income diversification decreased the overall effect of intellectual capital efficiency on bank performance. This study used a homogenous population by focusing only on the banking sector of the economy.

2.3.2 Human capital and Financial performance.

Tran et al. (2020) reviewed Vietnamese firms across various sectors, finding a positive relationship between human capital efficiency and firm performance. However, the study overlooked other components of intellectual capital, potentially limiting the depth of their findings. Felicio et al. (2014) focused on small and medium-sized enterprises in Portugal, revealing a strong influence of human capital, particularly through the cognitive ability of managers, on organizational performance. Yet, the narrow focus restricted the generalizability of the results beyond Portuguese SMEs. Agyabeng-Mensah et al. (2021) explored the connection linking green human capital to financial performance in Ghanaian manufacturing SMEs, finding a significant influence. The study's

context-specific nature and reliance on a particular national context may limits the applicability of their findings to broader contexts or larger firms.

2.3.3 Structural capital and Financial Performance.

Three studies, Al-Hawajreh (2013), Beltramino et al. (2020), and Rahim et al. (2011), collectively shed light on the relationship between structural capital (SC) and business performance across different industries and countries. Al-Hawajreh (2013) concentrated on Jordanian Pharmaceutical Manufacturing (JPM) companies and found a positive correlation between SC and business performance. However, the study's focus on a single industry restricts the generalizability of its findings beyond the pharmaceutical sector.

Beltramino et al. (2020) expanded this inquiry to SMEs in Argentina and identified a positive relationship between structural capital, particularly innovation capacity in processes, and organizational performance. Nonetheless, the study's reliance on a single data source and its exclusive focus on one country and industry limit the broader applicability of its conclusions.

Rahim et al. (2011) delved into the influence of structural capital on organizational performance within Telekom Malaysia Berhad (TM) using a mixed-method research approach. The findings highlighted the importance of structural capital in driving TM's performance. However, the study's narrow focus on a single organization impedes its transferability to other enterprises or sectors.

2.3.4 Relational capital and Financial Performance.

Several empirical studies explore the intricate relationship between different forms of relational capital and firm performance across various contexts. Lazzono et al. (2018) shed light on the importance of both internal and external relational capital in enhancing firm performance, particularly emphasizing the significance of nurturing internal relationships. This finding echoes with the broader theme observed in Abd-Elrahman et al.'s (2022) study, which highlights the positive impact of customer and supplier relations on organizational performance within the Egyptian telecommunications sector.

Fernandez-Olmos et al. (2021) delved into the realm of family wineries in Spain, revealing the vital role of relational social capital, particularly across generations, in influencing firm performance. The

notion of intergenerational influence on relational capital aligns with the sequential impact observed in the study. However, the generalizability of these findings is limited due to the study's specific focus on a particular industry and region. Pant et al. (2024) contribute to this body of research by examining the detrimental effects of over-reliance on buyer-supplier relational capital on firm performance, particularly in the emerging market context of India. Despite the specificity of the study's focus, the findings indicate that balance and diversification in relational capital positively influences firm performance.

2.3.5 Firm Size

Some existing research underscore the significance of the internal environment within a firm as a determinant of financial performance. Corvino et al. (2019), who looked at the relationship linking relational capital to company performance while taking firm size into account, provide considerable support for this viewpoint. Regression models were employed in the data analysis. The results showed that the association between relationships and several factors related to company performance is moderated by firm size. Similar to this, Farooq et al. (2021) proposed that the link between innovation orientation—a component of intellectual capital—and company success is moderated by firm size, as shown by the number of workers. They did discover, however, that the association between innovation orientation and company performance is not moderated by firm size as determined by investment. By examining the individual effect of intellectual capital elements, Corvino et al. (2019) and Farooq et al. (2021) neglects practitioners and scholars the chance to understand the actual mechanisms of value creation.

2.4 Research Gaps

Table 2.1 : Summary of Knowledge Gaps

Authors	**Focus of the study**	**Main Findings**	**Knowledge Gaps**	**Focus of current study.**
Firer and William (2003)	Structural capital, physical, human capital and corporate	The relationship was negative.	-Study did not examine the interaction of intellectual capital	Examined the interrelationship amo the intellectual capita

	performance of 75 public traded firms in South Africa		components - Focused on homogenous population	components -Focused on a heterogeneous population
Riahi-Belkaouli (2003)	Intellectual capital (trademark application) and firm performance of 81 USA Multinational firm	Intellectual capital has a positive and significant relationship on firm performance	The study focused on trademark application as only component of intellectual capita	-Incorporated human capital, social and organization capital - Studied NSE which i more representative population
Samiloglu et al. (2006)	Intellectual capital (VAIC) and financial performance (MV:BV) within the Turkish Banking sector	Intellectual capital had a positive relationship of bank performance.	The study used a homogeneous population	The study focuses on listed firms which is more representative population
Jordão et al. (2022)	Impact of IC on financial performance on Brazil Stock Exchange's listed firms	Intellectual capital has a positive and significant relationship on firm performance	Failed to take into account the moderating effect of firm size	Includes firm size as moderating variable.
Xu, et al. (2023)	Influence of intellectual capital and its constructs on financial performance in different life cycle stages	The impact of IC on FP is different across life cycle stages	The study focused on manufacturing firms leaving out the service industry	The study encompass broad range of firms including both manufacturing and service providing firm
Kim et al. (2023)	The influence of intellectual capital on business performance of SME in Vietnam	Intellectual capital no impact on business performance	The study focused on SMEs only	The study focuses on listed firms

Githaiga (2023)	The role income diversification in moderating the association between intellectual capital and bank performance among East African banks.	Intellectual capital significantly influences bank performance although income diversification reduced the overall impact of intellectual capital efficiency on bank performance.	The study used a homogeneous population and failed to consider firm size as the moderating variable	The study focuses o more representa population incorporates firm siz a moderating variabl
(Beltrami no et al, 2020)	Structural Capital and the performance of industrial SMEs in Argentina	Structural capital has a significant effect on performance.	The study primarily emphasizes relying on a singular source of information: consultations at the managerial level within the company overlooking other pertinent variables that could effectively gauge the company's structural capital	The study employs diverse array indicators, includ databases, proces patents, trademarks, systems, to ass structural capital.
(Corvino et al , 2020)	The moderating effect of firm size on relational capital and firm performance	The size of the firm moderates the relationship between relational capital and firm performance.	The study focuses on a sample of European publicly traded companies, typically intertwined with various market connections. Top of Form	The research centers listed companies wi an emerging ma context.

The empirical studies that have been evaluated indicate that there are a number of obvious knowledge gaps in the literature about the connection between financial success and intellectual capital. First, there is a wealth of research on the relationship between intellectual capital and financial success that shows a wide variety of results in various situations. Studies by Uslu (2022) in Turkey, Gupta et al. (2022) in India, and Rufus et al. (2022) in Nigeria discovered favorable correlations between listed organizations' financial success and intellectual capital. These results are in contrast to those of Sheikh and Wepukhulu (2019) and Githaiga et al. (2022), who discovered no discernible relationship between intellectual capital and performance.

Secondly, there is a notable lack of consensus on how to measure intellectual capital, and different studies often use different metrics. For instance, Smriti et al. (2018) utilized System Generalized Method of Moments (SGMM) estimator was used to analyze the variables, Bansal and Singh (2020) used the Pearson and Panel Regression model while Babajee and Seetanah (2022) use dynamic panel vector error correction model (PVECM). This can make it difficult to compare andsynthesize findings across studies.

Thirdly, studies have centered on the individual or independent impact of intellectual capital aspects upon financial performance, depriving academics and professionals of the opportunity to understand the true dynamics of value generation. The study demonstrated that intellectual capital is a component of interaction by evaluating intellectual capital as a composite index that includes human, social, and organizational capital according to the firm's return on investment.

Lastly, the studies have used a homogeneous population giving rise to concerns regarding the ability to make broad generalizations on inter-industry impact. While they have researched the direct correlation between financial performance and intellectual capital, they have not sufficiently looked into other factors that may influence the link. Apart from Kenya, the majority of these investigations were conducted in other nations with diverse circumstances. The above-mentioned research on Kenya did not concentrate on the financial performance of companies registered on the Nairobi Stock Exchange.

The current study intended to bridge these gaps by investigating the correlation between intellectual capital and financial performance, focusing on a more extensive and inclusive companies spanningthe various sectors in Kenya. In addition, the study incorporates two controlling variables, age

and capital structure and a moderating variable, firm size, that shapes the correlation between intellectual capital and financial performance. The study also intended to shed light on how the individual and integrated components of intellectual capital interact with financial performance, providing insights to enhance the economic potential of NSE-listed firms in Kenya.

2.5 Conceptual Framework

The foundation of this conceptual framework was derived from theoretical principles of RBV and is informed by the empirical literature that has dredged up knowledge gaps emphasizing the paramount importance of resource integration for attaining a competitive advantage. The model shows expected connection among research variables. Human capital, structural capital and relational capital were the independent variables. Financial performance was the dependent variable which the research attempted to explain.

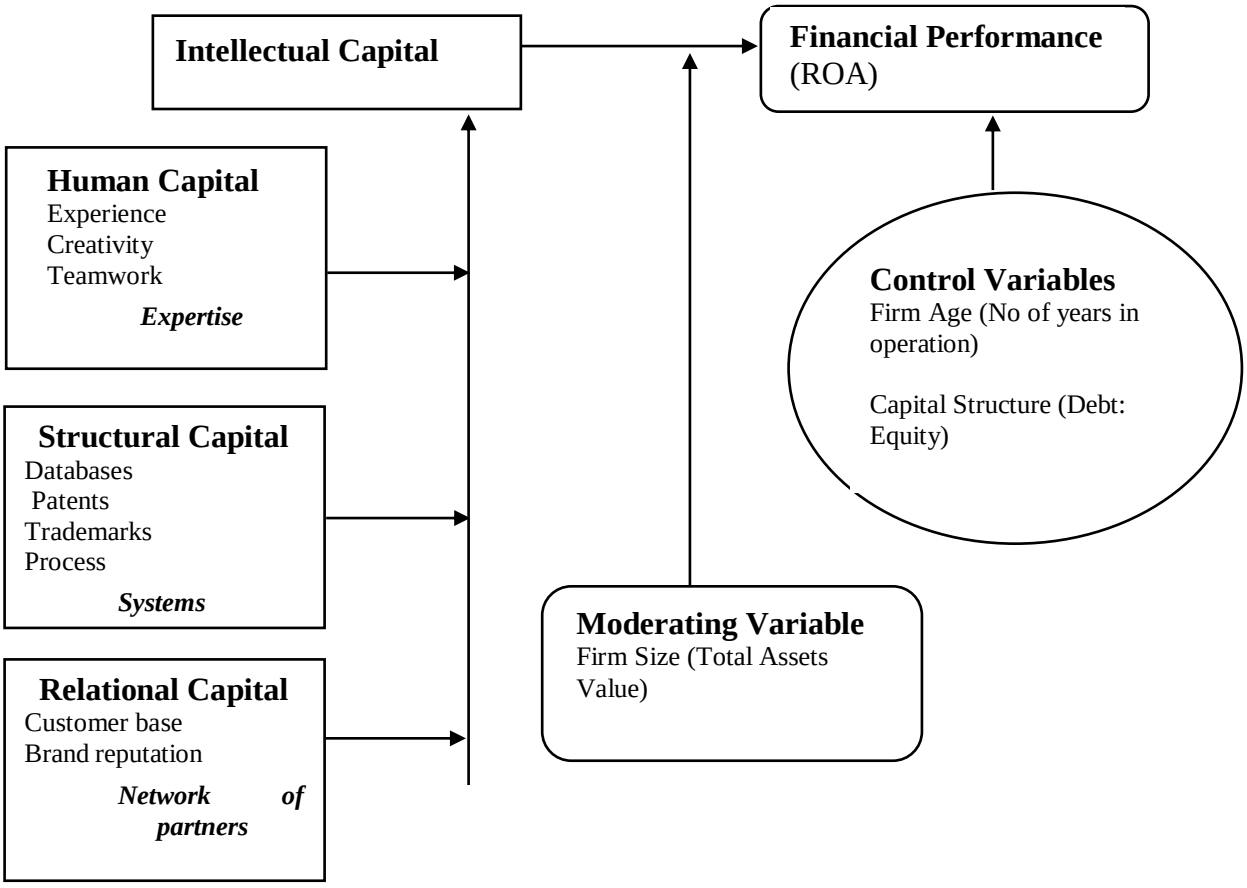

Figure 2.1 Conceptual Framework

2.6 Operationalization and Measurement of Variables

Table 2.1 Operationalization And Measurement Of Variables.

Variable	**Operational Construct.**	**Indicators**	**Measurement Scale**
Financial performance (Dependent variable)	The measure of a company's effectiveness in utilizing its financial resources. (Bananuka et al., 2023).	ROA	Secondary Data

Human-capital (Independent variable)	The value or cost to an organization of employees with high levels of skill, knowledge and experience. (Zane, 2024)	Experience Creativity Teamwork Expertise	Likert Scale
Structural capital (Independent variable)	Extent to which systems (non-physical infrastructure) allows access and sharing of information amongst employees and customers, supporting business operations to make growth possible. (Gogan, 2015)	Databases Patents Trademarks Process Systems	Likert Scale
Relational capital (Independent variable)	Internal networks Employees relationship maintained within the organization. (Duparc, 2012) External networks – The value of establishing and maintaining contacts outside the organization. (Bianchi, 2016)	Customer base Brand reputation Network of partners	Likert Scale
Firm's Size (Moderating variable)	A quantifiable measure of a business's scale and operating capacity. (Farooq et al,. 2021)	Firms Total Assets	Secondary Data

Firm's age (Controlling variable)	Firm's age is measured by the number of years in operation (Tauringana, 2023)	No of years the firm has been in existence	Secondary Data
Capital Structure (Controlling variable)	The mixture of debt and equity that the firm employs to finance its productive assets, operations and future growth. (Dao et al., 2020).	everage ratios. ebt: Equity ratio	Secondary Data

2.7 Chapter Summary

This Chapter entails an extensive literature review on the relationship between intellectual capital and financial performance. It introduced the theoretical underpinnings, including Resource-Based View, Social Capital Theory and Dynamic Capabilities Theory. Empirical framework draws on diverse studies that reveal varied findings. Research gaps were discussed, such as measurement discrepancies and lack of consensus. The chapter concluded with the conceptualization and operationalization of variables setting the stage for a detailed analysis of the dynamic correlation linking intellectual capital to financial performance.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

A thorough research approach that was be modified for this investigation is described in this chapter. It includes information about the target population, sampling frame, sample, sampling procedure, and study strategy. It also describes the methods, tools, and processes used in gathering, processing, and analyzing data. Moreover, this chapter underscores the ethical underpinnings taken to ensure the integrity, confidentiality and respect for the rights of the participants.

3.2 Research Philosophy.

Research philosophy, plays a crucial role as it forms the foundational belief system guiding the research and development endeavors within the chosen field of study (Tronvoll et al., 2024). This study adopted a positivism philosophy. According to Kekeya (2021) positivism is a study technique and approach that is based on the ontological idea and principle that truth and reality are free and unaffected by the observer and viewer. Positivists argue that reproducible observations and the isolation of events are essential components of their theory.

In order to find patterns in and establish connections between some of the basic components of the social environment, this frequently entails manipulating reality with changes in just one independent variable. As a result, positivist scholars continually employ logical and reasonable research methods in their pursuit of objectivity. (Eden & Nielsen, 2020). Accordingly, being objective is an essential aspect of competent study. With this paradigm, the researcher is independent of and neither affects nor is affected by the subject of the research (Lo, 2020). Quantitative methods usually dominate this type of research and this technique was adopted in this study to establish causal relationships among quantitative variables.

The chosen paradigm aligned with the positivist research philosophy, also referred to as empiricism. Positivists assert that reality is observable and observable in an objective manner without interfering with the phenomena under investigation (Gray et al., 2015). Consequently, the researcher assumed a neutral stance and did not possess the ability to modify the data acquired by data gathering instruments. Instead, the researcher operated within the bounds of observed reality. The researcher maintains independence from the research process. This independence ensured that the researcher neither influences nor was influenced by the subjects under study, thereby upholding the integrity and

objectivity of the research endeavor.

3.3 Research Design

A research design refers to the framework outlining the systematic approach for data collection methods, analysis procedures, interpretation strategies and a guide to the process of yielding plausible answers to the research questions (Huntigon-klein, 2021). This study utilized a descriptive and cross-sectional research designs. A Cross-sectional design examines data from a population at a particular point in time (Wang et al., 2020). The cross-section research design was used in collecting data in a moment in time captured from a huge number of reaction units. Therefore, it was appropriate for the study to enhance uniform data collection at a particular point in time. Scholars such as Kaawaase et al. (2021), Kyere et al. (2021) and Orobia (2020), used cross-sectional study design and came up with plausible findings.

A descriptive research seeks to identify a phenomenon's what, where, and how (Nassaji, 2015). Descriptive research design was appropriate as the research tried to have a precise description of intellectual capital and financial performance. This design was also be used to establish the effect and interrelationship among the selected study variables. The design's implementation followed research studies such as those conducted by Kianto et al. (2017) and Inkinen et al. (2017).

3.4 Population and Sampling

According to the NSE guidebook for 2022–2023 (appendix II), the study population consisted of the 65 Kenyan companies that were listed at the NSE as of December 2022. Given the limited size of the target population, the survey was essentially a census of all 65 listed enterprises. The mid-level finance mananger, human resources manager, and operations manager in each company, a total of 195 respondents served as the observational unit. The selected respondents are considered knowledgeable regarding the issues being investigated, as they pertain directly to their areas of responsibility. The choice of respondents followed prior studies such as (Bananuka et al., 2022: Salehi et al., 2022: Alrowwad et al., 2022)

3.5 Data Collection Methods.

This research utilized both primary data and secondary data. The primary data was collected via a structured questionnaire according to Kaawaase et al., (2020) who argued that it was ideal for capturing perception in the shortest time possible over a large scale. The questionnaires consisted of closed ended questions adapted from existing studies such as

Bananuka et al. (2022) and Syrov, & Spicka (2023). (See Appendix I). Closed questions were designed in a specified sequence with response options. The questionnaire was divided into four sections, namely demographic information, human capital, structural capital, and relational capital in line with Bananuka et al. (2022).

The researcher administered the questionnaire to the human resource managers in each of the 65 firms. The human resource managers were well conversant with the human capital through which the researcher accessed data related to structural and relational capital. The choice of respondents was based on earlier studies such as (Bananuka et al., 2022: Salehi et al., 2022: Alrowwad et al., 2022).

The researcher contacted the respondents through the company address and self-administer the questionnaire to selected respondents through google forms. Participants received the URL via short messaging services and email.Two weeks were provided to the respondents to complete the questionnaire. When the respondents failed to reply to the questionnaires within the two-week period, extensive follow up procedures were initiated. These included emails and telephone calls.

NSE handbooks, CMA annual reports, and audited financial statements of listed businesses were the sources of secondary data on financial performance. The most recent publication's ROA were included in the statistics. Bagire (2012) and Osoro (2013) have backed the use of both primary and secondary data, arguing that their combination solves issues with data aggregation from surveys.

3.6 Data Analysis

The field data was manually processed, with editing and categorization being part of the process. Both inferential and descriptive statistics were used. To determine variances and correlations among the variables, inferential statistics were employed. More precisely, the relationship, association, and link was established by multiple linear regression analysis and correlation. Diagnostic checks for linearity, normality, and homoscedasticityof residuals, were performed to ensure the validity of the regression models and the interpretationof results borrowing from Asiesi et al. (2018) study. The analysis aimed at establishing how intellectual capital influences financial performance. The statistical software, Statistical Package for Social Sciences (SPSS) version 27, was utilized for the study's analyses in line with Asiesi et al (2018).

The general model for financial performance subject to intellectual capital and its dimensions in

consideration of the control and moderating variables is represented by the equations below:

$FP=\Lambda(\alpha k+\beta 1HC+\beta 2SC+\beta 3RC+\beta 4FS+\beta 5FA+\beta 6CS+\beta 7FS\cdot HC+\beta 8FS\cdot SC+\beta 9FS\cdot RC)$

Where;

FP = Financial performance,

Λ = is the cumulative distribution function

αk - Is the regression constant or intercept,

β_1, β_2, β_3, β_4, β_5, and β_6– Are regression coefficients or change induced in FP by each HC, SC, and RCthat are predictor variables. FS, was the moderating variable, FA and CS were the control variables.

HC– Human Capital,

SC – Structural capital,

RC– Relational capital,

FS – Firm size,

FA – Firm age,

CS– Capital Structure

3.7 Research Data Quality

Reliability and validity are the two most important quality control objects in research. The following explains validity and reliability in studies as well as how this study used them.

3.7.1 Reliability

Test of reliability is carried out to check the internal consistency of the data measurement instrument (Amirrudin et al., 2021). This study subjected the research instrument to a reliabilitytest. The dependability of the research instrument was determined using the Cronbach alpha. According to Bananuka et al. (2022), the Cronbach alpha coefficient (α) assesses the extent to whichthere is consistency and reliability across various levels through which different items measuring the same variable yield consistent outcomes. A researcher can determine if an

instrument will yield dependable and consistent results even if identical questions are substituted for the original ones by using Cronbach's Alpha (Hussey, 2023). If a variable yields comparable answers to a comparable set of questions, it is considered stable. The values of the real score, commonly known as "Alpha," range from 0 to 1. Additionally, reliability surveys with rating scales may be expressed using it. High reliability is indicated by a high score, and an acceptable coefficient of reliability, or value of Alpha, is 0.7.

3.7.2 Validity

The capacity of an instrument to measure the concept as intended determines its validity. This study subjected the research instrument to a validity test. Construct validity was utilized in testing whether the operational definition of variables is an actual reflection of the truetheoretical definition of concept (Esposito et al., 2022). Diagnostic checks for linearity, normality,and homoscedasticity of residuals, were be performed to ensure the validity of the regression models and the interpretation of results borrowing from Asiesi et al. (2018) study. For this study,the development of the questionnaire was based on similar early studies (Bananuka et al. 2022: Syrov, & Spicka 2023) that have been modified to meet the study objectives. The supervisor also checked the document to make sure theoretical dimensions were similar to those conceptualized.

3.8 Ethical Consideration

Since obtaining the necessary permissions, consent, and approvals is a need for study ethics, it will be done before any data is collected. As the organization in the nation tasked with approving and supervising research in Kenya, NACOSTI wascontacted in order to receive a research authorization/permit letter and authority to conduct the study from the school. Lastly, management consent was requested in order to conduct the study in the NSE listed businesses, granting access to workers and offices for the purpose of conducting research. Once the validity and reliability of the study-specific data collecting method were established, the lead investigator distributed the questionnaires. These were self-administered, allowing participants to provide their own answers. By allowing respondents to complete the questionnaire in private and not having to identify anything on it, confidentiality and privacy was upheld.

3.9 Chapter Summary

Chapter three lays out the research methodology for examining the correlation linking intellectual capital to financial performance within NSE-listed firms. It addresses the research design, target population, sampling framework, and ethical considerations. The chapter expounds on the chosen research designs combining descriptive and cross-sectional to analyze a census of the 65 NSE- listed firms. Further, the chapter details primary data collection process using structured questionnaires which will be administered to themed level financial managers, , human resource managers and operations manager as the respondents. In data analysis phase the chapter incorporates descriptive and inferential statistics, employing tools like correlation and multiple linear regression analyses through SPSS.Reliability and validity test are shown as quality control mechanisms. In conclusion the chapter underscores ethical considerations that involve obtaining necessary permits, consents, and approvals, with a commitment to confidentiality and the preservation of participants' rights throughout the research process.

CHAPTER FOUR
DATA ANALYSIS FINDINGS

4.1 Introduction

The Objective of the study was to determine the effect of intellectual capital on financial performance among listed firms at the Nairobi Securities Exchange with firm size as the moderating variable. The specific objectives were to determine the effect of human capital, structural capital and relational capital on financial performance, with firm size as the moderating variable and firm age and capital structure as the control variables. This chapter presents the results from the descriptive and inferential statistics.

4.2 Response Rate

The response rate is determined through a comparison of the number of completed responses against the total responses by a researcher in a study. This rate is also called the completion rate or return rate, and is normally given in the form of percentages. Table 4.1 below illustrates the completion rate for the study.

Table 3.1 Response Rate

Response Rate	**Frequency**	**Percent**
Completed	158	81%
Incomplete	37	19%
Total	**195**	**100**

From Table 4.1, from the total of 195 questionnaires, 158 were filled and returned hence there was a response rate of 81%. The response rate was considered suitable for making inferences from the collected data. As indicated by Kothari (2016), a response rate above seventy percent is considered adequate for data analysis and reporting while a response rate above 70% is considered to be adequate for data analysis purpose. Hence, the response rate of this study was within the acceptable limits for drawing conclusions and making recommendation.

4.3 Background Information

In the first section of the questionnaire, the background information of the respondents was obtained. This included the gender of the respondents, their age, their level of education, their professional

membership association, the number of years they have worked in their current employer and the number of years their firm has been in existence. The results are presented below.

4.3.1 Gender of Respondents

From the responses, the researcher was interested in establishing the gender representation among the respondents. This is because the gender variable has significant implications for the study. The integration of gender analysis improves the quality of a research as it incorporates diversity of responses. The gender analysis is shown in table 4.2 below.

Table 4.2 Gender of Respondents

Gender	Frequency	Percent
Male	86	54.4%
Female	72	45.6%
Total	**158**	**100**

From the responses, there were 86 male individuals representing 54.4 percent while the female responses were 72 representing 45.6 percent of the responses. From the results, there were more female than male participants but the study established an acceptable balance in the diversity of responses.

4.3.2. Age of Respondents

From the background information, the researcher was interested in establishing the age of the respondents included in the study. The age factor in a research study is significant as a person's knowledge and experience about a topic or subject may be influenced by his or her age. Table 4.3 below indicates the age variance among the respondents.

Table 4.3 Age of Respondents

Age	Frequency	Percentage
18-29 Years	47	30%
30-39 Years	62	39%
40-49 Years	37	23%
Above 50 years	12	8%
Total	**158**	**100%**

From the results of the analysis, majority of the respondents were between 30-39 years (39%) and 18-29 years (30%), closely followed by those between 40-49 years (23%). Finally, those above 50 years were 8% and From the analysis, it can be established that majority of the respondents were below 40 years on average.

4.3.3. Level of Education

The researcher was also interested in establishing the highest level of education of the respondents in the study. The findings are illustrated in table 4.4 below.

Table 4.4 Highest level of Education

Education Level	Frequency	Percentage
Diploma	12	8%
Bachelor Degree	85	54%
Postgraduate	40	25%
PhD	21	13%
Total	**158**	**100%**

From the analyzed responses, majority of the respondents were degree holders (54%) while those with a postgraduate degree were 25% of the respondents. They were followed by those with a PhD level of education at 13%. The least number of the respondents (8%) had a Diploma as their highest education level.

4.3.4. Professional Membership Association

The researcher was also interested in establishing their respective membership within relevant professional Associations. The findings are illustrated in table 4.5 below

Table 4.5 Professional Association

Association	Frequency	Percent
CPA	124	78.5%
ACCA	34	21.5%
Total	**158**	**100%**

From the analyzed responses, majority of the respondents had a Certified Public Accountancy (CPA) membership at 78.5%. The rest of the respondents had ACCA as a membership association. The results therefore established that all respondents interviewed were qualified accountants.

4.3.5. Years with Current Employer

The number of years with the current employer was also a factor that the study considered. The findings for years with the present employer are presented in table 4.6 below.

Table 4.6 Years with Current Employer

Age	Frequency	Percentage
1 year and below	9	6%
2-3 Years	38	24%
4-5 Years	47	30%
6-7 Years	36	23%
Above 8 years	28	17%
Total	**158**	**100%**

From the analyzed responses, majority of the respondents had been with their current employer for approximately 4-5years while those with between 2-3 years with their present employer were 24%. Those with between 6 and 7 years of experience were 23% while those with above 8 years of experience were 17%. Finally, those with less than a year of experience with their present employer accounted for 6% of the respondents.

4.3.6. Firm Existence in Years

The researcher was interested in establishing the number of years that the firm had been in operation. The findings for years in existence are indicated in table 4.7 below.

Table 4.7 Firm Existence

Age	Frequency	Percentage
1-20 Years	93	59%
21-40 Years	43	27%
Above 40 Years	22	14%

Total	**158**	**100%**

From the analyzed responses, majority of the firms in that were associated with the respondents has been in existence for a period of between 1 and 20 years (59%). Those in existence for a period of between 21 and 40 years were 27% and lastly those in existence for over 40 years were 14% of the sample.

4.4 Descriptive Statistics

The following sub-section discusses the descriptive findings base on every variable adopted in the study, and presents them in form of percentages, means and standard deviations. Descriptive statistics for the independent variables are presented based on each specific objective of the study.

4.4.1 Human Capital

The first objective of the study was to determine the effect of human capital on financial performance. For human capital, the standard deviation and mean of the individual attributes of the variable are in Table 4.8. From the table, the variable for human capital had an overall mean score of 3.76 with a standard deviation of 0.51

Table 4.8 Descriptive Statistics for Human Capital

Statements	N	Mean	Std. Dev
Employees in your organization possess significant experience that enhances overall operational effectiveness	158	3.44	1.06
Creativity is actively encouraged and valued within your workforce.	158	3.82	0.65
Teamwork is fostered and recognized as a key element in achieving organizational objectives	158	3.72	0.81
The expertise of your employees is acknowledged and contributes to organizational success	158	3.82	0.90
Employees in your organization are well educated compared to peers in the industry	158	3.87	1.02

Employees undergo continuous training programs	158	3.78	0.80
Employees are able to focus on delivering quality work	158	3.89	0.89
Employees are highly skilled at their job	158	3.65	1.09
The employees are motivated and self-driven	158	3.87	0.90
Overall mean Score	**158**	**3.76**	**0.51**

A closer look at the individual variable factors associated with the human capital variable reveals more insights on the companies. From the sampled means, the respondents noted that they were able to focus on delivering quality work. This individual variable had the highest mean of 3.89 which indicated that the respondents agreed with the statement. This was closely followed by the education factor in which the respondents agreed that employees in their organizations were more educated than their peers in the job industry and the overall motivation of the employees which registered a mean of 3.87 respectively. The third most favorable factor was on creativity an expertise which registered a mean of 3.87 respectively showing that the respondents agreed with the statement. Team work was also a desirable aspect of human capital with a mean value of 3.72 which indicated that the respondents moderately agreed with the statement while the skills factor registered a mean of 3.65 indicating that respondents were neutral on this aspect. The least favorable aspect of human capital was the effect of overall experience on operational performance which registered a mean value of 3.44 showing that respondents were neutral to te statement.

4.4.2 Structural Capital

The second objective of the study was to determine the effect of structural capital on financial performance. For this variable, the standard deviation and mean of the individual attributes of the variable are in Table 4.9. From the table, the variable for structural capital had an overall mean score of 3.95 with a standard deviation of 0.51

Table 4.9 Descriptive Statistics for Structural Capital

Statements	**N**	**Mean**	**Std. Dev**
Your databases play a crucial role in supporting day-to-day	158	3.83	0.85

operations			
The presence of patents in your organization contributes to your overall knowledge base.	158	3.97	0.90
Trademarks associated with your products/services positively impact your organizational identity	158	3.91	0.98
Your organizational processes significantly enhance your operational efficiency	158	3.90	0.96
Systems in place contribute to the overall success and growth	158	3.92	0.74
The information-sharing infrastructure in your organization is effective in supporting operational objectives	158	3.94	0.78
Your company has a great deal of useful knowledge in documents and databases	158	4.16	0.80
Your organization possess work methods and procedures in support of innovations	158	3.99	0.72
Overall mean Score	**158**	**3.95**	**0.51**

For the individual factors associated with structural capital, the respondents agreed with the statement that their company has a great deal of useful knowledge in documents and databases. This was the most desirable factor with a mean value of 4.16. This was closely followed by the availability of work methods and processes that support innovation with a mean value of 3.99 showing the respondents agreement with the statement. Closely following was the presence of organizational patents which contribute to overall knowledge base as it scored a mean value of 3.97 indicating that respondents agreed with the statement. The respondents also were in agreement with the statement that their organizations had a supportive information-sharing infrastructure with a mean value of 3.94 and that the systems in place contribute to overall success and growth (Mean = 3.92). Finally, the respondents agreed that the organizational processes enhance their operational efficiency (mean = 3.90) and lastly, they agreed that existing databases support their day-to-day- work.

4.4.2 Relational Capital

The final objective of the study was to determine the effect of relational capital on financial performance. For this variable, the standard deviation and mean of the individual attributes of the

variable are in Table 4.10. From the table, the variable for structural capital had an overall mean score of 3.76 with a standard deviation of 0.51

Table 4.10 Descriptive Statistics for Relational Capital

Statements	N	Mean	Std. Dev
The relationships within your internal networks contribute to a positive work environment	158	3.87	0.85
Your brand reputation reflects the values and principles of your organization.	158	3.99	0.90
The network of partners maintained enhances collaboration and knowledge exchange	158	3.84	0.77
Customer relationships are actively cultivated to strengthen connections	158	3.98	0.96
Customer feedback guides your activities	158	3.94	0.74
Employees are well aware of your customers' needs	158	4.05	1.01
Your organization values the positive impact of a reputable brand	158	3.89	0.87
Establishing and maintaining relationships with suppliers is a priority for smooth operations	158	3.92	0.72
The way your company operates is characterized by an atmosphere of trust	158	4.09	0.90
Collaborating with government entities is part of our commitment to broader engagement	158	4.01	0.87
Alliances with partners are formed to foster mutual understanding and cooperation	158	3.92	0.74
We keep your promises to your stakeholders	158	4.04	0.83
This organization is keen on developing long-term relationships with its stakeholders	158	3.63	0.85
Overall mean Score	**158**	**3.94**	**1.13**

For the individual factors associated with relational capital, the respondents agreed with the statement

that their company's operations is characterized with a high level of trust. This was the highest rated factor with a mean value of 4.09. This was closely followed by the employee awareness of customer needs with a mean value of 4.05 showing that respondents agreed with the statement. Closely following were the promises kept to customers as it scored a mean value of 4.04. The mean score showed that the respondents agreed with the statement. The respondents also were in agreement with the statement that their brand reputation reflects the values and principles of their respective organizations (3.99) and that customer relationships are actively cultivated to strengthen connections with a mean value of 3.98. Establishing and maintaining relationships with suppliers was a priority for smooth operations (Mean = 3.992) showing that there was a general agreement with the statement among the respondents as well as the value placed on having a positive impact of a reputable brand (Mean = 3.89). The respondents agreed that the relationships within their internal networks contribute to a positive work environment (Mean = 3.87) and that the network of partners maintained enhances collaboration and knowledge exchange. Finally, they agreed that their organizations were keen on developing long-term relationships with stakeholders (Mean = 3.63)

4.4.3 Descriptive Statistics for Moderating, Control and Dependent Variables

Table 4.11 Summary of Descriptive Statistics of Study Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Firm Size	158	8.888	11.577	10.26102	.745221
Firm Age	158	1	3	1.54	.719
Capital Structure	158	0.78	1.419	.49266	.262782
Financial Performance	158	-.540	.420	.06892	.128269
Valid N (listwise)	158				

Source: Research Findings (2024)

Descriptive statistics for the secondary data was also computed as shown in the above table 4.11. The statistics include maximum and minimum values, mean values and standard deviations for the moderating, control and dependent variables. From the table, it can be observed that the mean firm size was 10.26102. The average age of the firm stood at 1.54 while the average capital structure for the firms was 0.49266 indicating more firms are funded by debt equity than equity capita. Finally on

financial performance, the mean ROA for the firms stood at 0.06892. The standard deviations which stood below 0.75 for all the variables indicated a low variability in the range of values reported.

4.5 Diagnostic Test Results

When establishing the statistical values of variables under study using inferential measures, these models are based on the assumptions that the data used has a normal distribution. However, most of these statistical analyses have errors that need to established. For this study, the normality, linearity and homoscedasticity tests were used to confirm the existence or non-existence of these errors. The absence of such errors confirms the data is suitable to be modelled. Normality was established using Shapiro-wilk's test, linearity by comparing means of dependent and independent variables the test and homoscedaticity test was determined through a scatterplot of the regression residuals The findings of these tests are below.

4.6.1 Tests of Normality

In testing for normality in the dataset, the Shapiro-Wilk test was used. The purpose of this test is to establish the magnitude of data normalcy by determining if the data is skewed. The Shapiro-Wilk statistics are between 0 and 1, with a value above 0.05 indicating data normalcy. A value less than 0.05 is indicative of data significantly deviating from a normal distribution. This test was used in the study to confirm normality, and from the findings, all the variables had a p-value above 0.05. Table 4.12 shows the test results.

Table 4.12 Test of Normality

	Shapiro-Wilk		
Study variables	**Statistic**	**Df**	**Sig.**
Human Capital	.709	158	.432
Structural Capital	.769	158	. 301
Relational Capital	.815	158	. 035
Firm Size	.855	158	. 675
Firm Age	.947	158	. 121
Capital Structure	.938	158	.232
ROA	.894	158	.655

From Table 4.12 above all the p values are above the standard limit of 0.05 thereby confirming that all data used was from a population with a normal distribution.

4.6.2 Tests of Linearity

The linearity assumption is critical to correlation and regression analysis. It determines whether there is a linear relationship between the independent and dependent variables. The results of the linearity test are shown in table 4.13 below.

Table 4.13 Test of linearity

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
ROA * Capital structure	Between Groups	(Combined)	2.407	143	.017	1.337	.277
		Linearity	.199	1	.199	15.827	.001
		Deviation from Linearity	2.208	142	.016	1.235	.343
	Within Groups		.176	14	.013		
	Total		2.583	157			

Table 4.13 indicates the linearity assumption. From the table, the deviation from linearity has a P-value of 3.43 which is greater than 0.05. this means that the dependent and independent variables are linearly related. A value below 0.05 would indicate that the relationship is not linear.

4.7 Inferential Statistics

4.7.1 Correlation Analysis

The Pearson correlation was used in the study to establish a link between intellectual capital and the level of financial performance. The results are in the above indicate the r coefficient which indicates nature of the relationship and the p value which indicates the overall significance. A 0.138 correlation coefficient and a 0.005 P-value was established in the correlation analysis between human capital and ROA which indicates a weak, positive, relationship between human capital and ROA. This is an indication that human capital as a variable is a determinant of Return on Assets. A positive, but moderate relationship exists between structural capital and ROA, following a 0.270 correlation

coefficient and 0.003 P-value finding in the correlation analysis. This is a sign that structural capital is a weak determinant of ROA among listed firms in Kenya. Furthermore, a 0.373 correlation and a 0.001 P-value, were established between relational capital and ROA indicating a moderate, positive, relationship. This is a sign that relational capital is a significant ROA determinant. Also, a 0.640 correlation coefficient and a 0.000 P-value relationship, was found between firm size and ROA showing a significant, positive relationship between firm size and ROA. the two control variables i.e firm age and Capital structure showed weak positive and negative correlation with ROA at 0.142 and -0.278 correlation coefficients and 0.000 P-Values respectively.

Table 4.14 Correlation Analysis

Correlations

		Human Capital	**Structural Capital**	**Relational Capital**	**Firm size**	**Firm Age**	**Capital structure**	**ROA**
Human Capital	Pearson Correlation	1						
	Sig. (2-tailed)							
Structural Capital	Pearson Correlation	.335**	1					
	Sig. (2-tailed)	.000						
Relational Capital	Pearson Correlation	.016	.359**	1				
	Sig. (2-tailed)	.842	.000					
Firm size	Pearson Correlation	-.051	-.073	.057	1			
	Sig. (2-tailed)	.521	.360	.479				
Firm Age	Pearson Correlation	-.025	.258**	.180*	-.055	1		

	Sig. (2-tailed)	.754	.001	.024	.492			
Capital structure	Pearson Correlation	.017	-.051	-.117	.084	-.072	1	
	Sig. (2-tailed)	.831	.526	.143	.295	.367		
ROA	Pearson Correlation	.138	.270*	.372	.038	.155	-.278**	1
	Sig. (2-tailed)	.005	.003	.001	.004	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.7.2 Regression Analysis.

The study was based on the assumption of a relationship between the various elements of intellectual capital and financial performance as measured by the return on assets. To analyze the relationship between these variables, a simple multiple linear regression analysis was conducted between the independent and dependent variables to determine the individual effects of the independent variables on the dependent variable. This was the first regression analysis which was the unmoderated regression. The Baron and Kenny's (1986) steps for testing the moderating influence were applied:

Step 1 (Model 1) estimates the relationship among the dependent and independent variables. The relationship should be significant

Step 2 (Model 2) using the regression model and the Hausmann test, the association among the independent, the moderating variable and the dependent variable is tested. The model should be statistically significant.

Step 3 (Model 3) multiply the centered predictor and centered moderator to determine the interaction term.

In step 1 (Model 1), regression analysis estimated the relationship between financial performance and each of the intellectual capital indicators (Human capital, Structural capital and Relational capital).

Table 4.15: Intellectual Capital and Financial performance

Financial Performance	Coef.	Std. Err.	P>t
Human Capital	.122*	0.021	0.004
Structural Capital	.270*	0.022	0.000
Relational Capital	.122*	0.022	0.001
Firm Age	.117*	0.014	0.003
Capital Structure	-.129*	0.037	0.000
_cons	.058*	0.115	0.000
Model Summary			
R-squared	0.119		
F(5, 152)	4.099		
Prob > F	0.002		
Observations	158		
ID	5		

p<0.05*

Source: Research Findings (2024)

Table 4.16: Regression results for the Influence of Intellectual Capital on Financial Performance

Coefficients							
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
						Tolerance	VIF

		B	Std. Error	Beta				
	(Constant)	.107	.110		1.146	.260		
	Intellectual Capital	.710	.151	.600	4.839	.000	1.000	1.000

The overall model was statistically significant because the F-test statistic was statistically significant ($F(5, 152) = 4.99$, $p<0.05$). The results indicate that human capital, social capital and organization capital combined lead to improved financial performance. Moreover the results offer compleling evidence supporting the notion that the collective effect of intellectual capital on performance is greater than individual effect of human capital, social capital and structural capital. In addition, the results provide sufficient statistical evidence to support the relationship between intellectual capital and financial performance. This relationship is represented by the following model: $Y(\text{ROA})=0.710*\text{intellectual capital}$

The study findings show that human capital ($= 0.122$, $p<0.05$) of listed NSE firms moderately predict financial performance of listed firms, suggesting that for every unit rise in human capital, the financial performance increases by 0.122 units. The findings further showed that structural capital ($\beta = 0.270$, $p<0.05$) is also a significant predictor of financial performance. This suggests that for every unit rise in structural capital, the financial performance improves by 0.270 units. Lastly, the results showed that relational capital ($\beta = 0.122$, $p<0.05$) is also a moderate predictor of financial performance. This suggests that for every unit rise in relational capital, the financial performance improves by 0.122 units.

The overall regression equation before considering the moderating effect of firm size can therefore be written as follows

$$FP = 0.058+0.122HC+0.270SC+0.122RC+0.117FA - 0.129CS$$

Where;

FP = Financial performance

HC– Human Capital,

SC – Structural capital,

RC– Relational capital,

FS – Firm size,

FA – Firm age,

CS– Capital Structure

4.7.3 Moderated Regression Equation

The final regression model was established after moderation. The results are as shown in table 20 below

Table 4.17: Regression (Moderated) between intellectual Capital and Financial Performance

Financial performance	Coef.	Std. Err.	P>t
Human Capital	.169*	0.309	0.001
Structural capital	.155	0.342	0.002
Relational Capital	.018	0.313	0.000
Firm Size	.071	0.153	0.527
Firm Age	.017	0.014	0.004
Capital Structure	-.136	0.038	0.000
HC*FS	.014	0.030	0.314
SC*FS	.210	0.033	0.001
RC*FS	.002	0.030	0.189
_cons	.801*	1.586	0.001
R-squared	0.128		
F(9, 148)	2.412		
Prob > F	0.005		

* $p<0.05$

Source: Research Findings (2024)

After accounting for the moderation effect of firm size on the relationship between the independent and dependent variables, a final regression model was established. From the regressed values, The various elements of intellectiual capital (Human, Structural and Relational Capital) indicated a significant effect on financial performance. From the table value the R-square value was 0.128 indicating tha 12.8% changes in financial performance can be attributed to changes in intellectual capital. This value was different from the unmoderated value in Table 4.14 which yielded a R-square value of 0.119 or 11.9% which was an overall improvement. On the interaction between Human capital and firm size, the regression co-efficient was weak and insignificant as shown by the P-value of 0.314 which was greater than 0.05 (β= 0.014. P>0.05). Structural capital on the other hand showed a significant interaction with firm size as shown by the co-efficient (β= 0.210. P<0.05). The P-value of 0.01which was lower than 0.05 indicated that firm size significantly moderates the relationship between structural capital and financial performance. Finally, the interaction between relational capital and financial performance was also weak and insignificant as indicated by the low co-efficient of interaction and the P-value which was greater than 0.005 (β= 0.002. P>0.05). The results thus that the influence of intellectual capital on financial performance(ROA) is moderated by firm size.

4.8 Summary of Findings

This study examined the relationship between intellectual capital and financial performance specifically among NSE listed firms in Kenya not only to establish the multifaceted dimensions of intellectual capital but also shed light on how each component of intellectual capital i.e human, structural, and relational capital interact with financialperformance. The study incorporated two controlling variables, age and capital structureand a moderating variable, firm size which was to shapes the connection linking intellectual capital to financial performance.

From the descriptive statistics of the three types of capital, the values of the independent variables registered a high mean all across the analysis with mean statistics ranging from 3.50 to 3.90 showing that respondents tended to agree with the likert scale statements. The inferential statistics paint a similar picture. On the first variable which was human capital, the study established a positive correlation (0.138) between human capital and the return of Assets. Furthermore, a positive but weak causal relationship was established between human capital and ROA (β 0.122, P 0.000). These

findings concur with the findings established by Tran et al. (2020) who reviewed Vietnamese firms across various sectors, finding a positive relationship between human capital efficiency and firm performance. The findings are also similar to the findings of Felicio et al. (2014) focused on small and medium-sized enterprises in Portugal, revealing a strong influence of human capital, particularly through the cognitive ability of managers, on organizational performance.

Secondly, Structural capital which was the second independent variable registered a positive correlation with ROA (0.245). Furthermore, regression results established a weak but positive relationship between Structural capital and ROA (β 0.270, P 0.000). The findings on this variable agree with those of Al-Hawajreh (2013) in a study on Jordanian Pharmaceutical Manufacturing (JPM) companies who found a positive correlation between SC and business performance. Beltramino et al. (2020) also expanded on an inquiry on SMEs in Argentina and identified a positive relationship between structural capital, particularly innovation capacity in processes, and organizational performance. Finally on the third independent variable which was relational capital, a weak but positive correlation with ROA (0.372). Furthermore, regression results established a weak but positive relationship between relational capital and ROA (β 0.122, P 0.000). The findings agree with Lazzono et al. (2018) who emphasized the importance of both internal and external relational capital in enhancing firm performance, particularly emphasizing the significance of nurturing internal relationships. This finding also echoes with the broader theme observed in Abd-Elrahman et al.'s (2022) study, which highlights the positive impact of customer and supplier relations on organizational performance within the Egyptian telecommunications sector.

For the moderator variable which was firm size, a positive correlation was established with ROA (0.038) and a strong positive causal link was established between firm size and ROA. The study also had two controlling variables which included the firm age and capital structure. While firm age had a positive effect on ROA, the capital structure showed a negative relationship with Return on Assets. In addition to determine the causal relationships between the variables, the adequacy of the regression model was determined through a model fitness. This yielded a P-value of 0.00 which confirmed the adequacy of the regression model in determining the relationship between the dependent and independent variables. Upon an assessment of the moderating effect of firm size on the relationship between the independent and dependent variables, the study established that frim size mediate the relationship between intellectual capital and financial performance. However it does not mediate the

relationship between human capital and financial performance and between relational capital and financial performance. Significant values for the P-Value should be below 0.005 and this was established within the elements of intellectual capital.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter concludes the above study, it discusses the summary of the study, draws a conclusion in relation to the findings and proposes recommendations for policy interventions and for future research based on the outcomes of the objectives of the study. Lastly the chapter discusses the limitations encountered and suggestions for future studies based on these limitations.

5.2 Summary of Findings

The objective of the study was to determine the effect of intellectual capital on the financial performance of NSE listed firms in Kenya, with firm size as the moderating variable. More specifically, the study objective was to determine the effect of human capital, structural capital and relational capital on financial performance to moderate these variables, firm size was selected as the moderating variable over its influence on financial performance. The Descriptive design was suitable in achieving the study objectives outlined. The study targeted all the 65 NSE listed firms as the study population in which 158 respondents who included the mid level financial managers , human resources managers, and operations managers in each company respondents were selected.

The analysis yielded both descriptive and inferential statistics including mean scores and standard deviations. For the inferential statistics, the Pearson's correlation and regression analysis were applied.The inferential statistics from the above analysis establishes analysis for human capital, the study established a positive correlation (0.138) between human capital and the return of Assets. The findings on the positive correlation between human capital and financial performance concur withthe findings by Tran et al (2020) who established a positive correlation between human capital and financial performance of publicly traded company.

Findings on structural capital and performance similarly show a positive correlation between the two variables indicating that as structural capital increases, performance increases. The findings are similar to established findings by Beltramino et al. (2020), and Rahim et al. (2011), who , collectively establish a positive correlation between structural capital (SC) and business performance showing that an overall improvement in the efficiency of capital performance is highly correlated with performance as measured by ROA. Finally, the findings on structural capital are similar to findings by

Fernandez-Olmos et al. (2021) and Pant et al (2024) who revealed the vital role of relational social capital in influencing firm performance. They both establish a positive correlation between this form of capital and firm performance. Indicating that improved relations improve firm performance.

From the regression results, a positive relationship is established between the three dimensions of intellectual capital i.e human capital,structural capital,and relational capital and financial performance Lastly, the moderating effect of firm size on the various variables representing intellectual capital was assessed establishing that firm size as a moderating variable only moderates the relationship between structural capital and financial performance. These findings mirror the findings established by Buallay and Hamdam (2018) who established that firm size as a moderating variable enhances the relationship between intellectual capital and firm value.

The study findings reveal that different forms of capital have positive impacts on financial performance of the NSE listed firms. A positive relationship was established between intellectual capital and return on Assets.

5.3 Discussion of Results

The findings from the study have various theoretical implications and link to existing empirical literature on intellectual capital and financial performance. The study was based on three major theories i.e the resource based theory, the social capital theory and the dynamic capabilities theory. The findings from this study support the assumptions of this theory. For the resource based theory, the study has demonstrated the importance of the combined effect of the different forms of intellectual capital on the financial performance. The theory implies that a firm's resources can improve its financial advantage over other firms. As a critical resource, intellectual capital has been shown to have a positive influence on financial performance that can be harnessed by firms outperform their competitors as they are not likely to be imitated.

The social cost theory on the other hand, assumes that the status, social networks and relationships between individuals and groups can create valuable resources that can be leveraged for personal and collective benefit (Sarges, 2022). It is advantageous as it can provide access to information, opportunities, resources, and support. This theory suggests that the relationships and networks that firms build with their stakeholders, including customers, suppliers, and employees, is a source of competitive advantage. From the study, relational capital is formed through networks with customers,

suppliers and employees. The positive causal relationship established between relational capital and financial performance provide evidence in support of this.

Finally, the last theory on the dynamic capabilities, states that a company's capacity to adapt and integrate its resources and skills in response to shifting market conditions gives it a competitive edge rather than its dependence on resources and talents 2(Egbu, 2018). From the study, intellectual capital is considereda dynamic capability of firms listed in the NSE. From the establishment of a positive causal relationship between intellectual capital and performance. The assumptions of this theory are confirmed.

Apart from the link between the theories and the study results, the findings also support existing literature on intellectual capital and performance both globally and locally. For instance, the findings support the results established by Samiloglu et al. (2006) who studied the link between market value to book value and the value added intellectual capital coefficient (VAIC) in the Turkish banking industry. From his study, the banking industry in Turkey showed that there was a strong positive association between the factors. These findings are also similar to those of Tan et al. (2007) in Singapore Stock Exchange who similarly used Value added Intellectual Coefficient to measure intellectual capital, earnings per share as the indicator of performance and partial least squares (PLS) for the data analysis. Establishing a positive causal relationship between the two.

Locally, the findngs support results established by Ngari et al. (2013) who conducted research on pharmaceutical firms to ascertain the connection between the elements of intellectual capital and corporate success. The results showed that intellectual capital improves the success of businesses. Similarly, Ikapel (2016) examined how intellectual capital affected Kenyan commercial banks' financial results. Regression analysis was performed to examine the data, and the VAIC was utilized to quantify intellectual capital. The results demonstrated that, as determined by net interest margin, IC significantly impacted business performance.

The findings also contrast other empirical findings that established a negative relationship between intellectual capital and financial performance. For instance, Fire and William (2003) examined 75 publicly traded companies in South Africa, revealing a negative relationship between structural, physical, and human capital and financial performance. However, their study focused on the direct relationship of the variables without factoring in the internal environment of the firms

hence the negative causal relationship between intellectual capital and financial performance.

5.4 Conclusion.

The first objective of this study was that what the correlation between intellectual capital and corporate performance. This was accomplished by evaluating whether the aggregate effect, measured as a composite index of predictor variables exerted more influence on performance relative to its single dimensions (human capital, structural capital and relational capital). The findings implied that intellectual capital led to significantly positively related with both financial performance and return on assets. Further, the outcomes revealed that interactions between intellectual capital sub-dimensions played a more significant role than single predictors which were somewhat consistent with recent literature supporting neither financial nor customer and internal process performance can be achieved without integrating these three constructs. This perspective is consistent with the resource-based view of the firm, that confounds effects are more synergistic than independent. Consequently, it can be concluded that the combined influence of intellectual capital factors produces a complexity which is hard to replicate thereby improving the financial performance of firms listed in Nairobi Securities Exchange.

The second to forth objective was to establish how the elements of intellectual capital (human, structural and relational capital) affect financial performance. The study found that human capital has a positive relationship with financial performance of NSE listed firms. As a form of intellectual capital, human capital is expected to increase productivity and efficiency which improves profitability. The findings on structural capital and relational capital and financial performance as well yielded a positive result establishing a positive relationship between structural capital and relational capital with return on assets. Structural capital particularly innovation capacity in processes, have a potential to improve financial performance. This is because innovations streamline processes and thereby they enhance efficiency of processes. This in turn have a potential to improve productivity enhancing positive performance. This was established in the study as structural capital had a positive effect on financial performance. Lastly, relational capital had a positive relationship with financial performance as measured by ROA. Relational capital refers to the ability to nurture internal relationships, customer relationships, build brand reputation and establish relationships with suppliers and strategic partners (Bananuka et al., 2022). All these networks build company reputation and performance. They therefore have a significant impact on financial performance.

The fifth objective was to determine whether firm size moderates the relationship between intellectual capital and financial performance. The study explored how firm size moderates the impact of various intellectual capital components on financial performance. Specifically, it determined that firm size only influences the relationship between structural capital and financial performance, indicating that larger firms benefit more from structural capital in enhancing financial outcomes. These findings are consistent with Buallay and Hamdam's (2018) research, which demonstrated that firm size, as a moderating factor, strengthens the relationship between intellectual capital and financial performance.

5.5 Recommendations for Policy and Practice.

The study revealed that the various forms of intellectual capital have positive effects on financial performance. For human, structural and relation capital, they had a positive impact on financial performance.

5.5.1 Recommendations for Listed companies

For NSE listed companies, the study recommends that these companies should invest in intellectual capital to boost financial performance. For human capital the benefits of productivity should be balanced with the cost of productive human capital as this will positively impact performance. For structural capital, companies should boost their innovative capacity as this will boost their performance. Additionally, information sharing structures and knowledge processes can boost innovation efforts as such investment in such areas will positively improve performance.

For relational capital continuous formation of strategic alliance and customer-centered decision-making should be emphasized to build relational capital which can positively influence performance.

5.5.2 Recommendations for Policymakers

Another recommendation from this study to the government and regulatory institutions is that they should create an enabling environment that favors the performance of NSE listed firms. These include passing legislation that support the innovation process such as ICT infrastructure, obtaining incentives such as taxation benefits and grants to innovative businesses. This will create a supportive innovative environment.

5.6 Limitations of the Study

In completing this study, the study adopted a cross-sectional research design which relies on data collected at a point in time. A time series analysis of data collected within an extended period of time like 5 years or 10 years may yield more insights on the relationships between the independent and dependent variables. The focus of this study was on some variables that are assumed to impact return on assets among NSE listed firms in Kenya. Specifically, the study focused on human capital, structural capital and relational capital. Realistically, there are other factors likely to impact financial performance among the firms like macroeconomic factors such as inflation, interest rates and rates of exchange.

To complete the data analysis process, the multiple linear regression model was utilized. The use of this model can at times generate erroneous and misleading findings resulting from changes in variables such as financial performance thereby making it impossible for the researcher to accurately generalize the study findings. Also, in the case that any data is added to the model, it may yield different results.

5.7 Suggestions for Further Research

Additional studies should focus on gaps discovered in this study. This study was on effect of intellectual capital on financial performance of NSE listed firms. Therefore, a similar investigation can be done on other firms in different sectors such as public sector or the NGO sector. Additionally, all the factors that influence ROA among NSE listed firms were not exhausted in the study, and therefore future studies should focus on other variables such as growth strategies, knowledge management, and macroeconomic factors among other variables. Determining how every variables affects ROA, will be useful to policy makers in implementing an appropriate mechanism to enhance financial performance.

Finally, the study used the multiple linear regression model to establish the objectives of the study. The model has limitations like errors and misleading findings in case of a change in one variable. Future researchers consider adopting other models like the Vector Error Correction Model (VECM) to explore the different relations between intellectual capital and financial performance.

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APPENDICES

Appendix I: Research Questionnaire

This questionnaire is structured to collect information on the impact of intellectual capital on financial performance of NSE listed firms in Kenya. Please carefully read the questions, marking the ones that apply to your knowledge and viewpoint in relation to the subject. Total confidentiality is guaranteed because the information gathered from this survey will only be utilized for educational reasons.

Part A: Background Information

1. Please indicate your gender:

   Male ( ) Female ( )

2. Please indicate your age:

   18- 29 ( ) 30 – 39 ( ) 40– 49 ( ) 50 and above ( )

3. Please indicate your highest education level:

   Diploma ( ) Bachelor Degree ( ) Postgraduate ( ) PHD ( ) Others ( )

4. Please indicate your professional qualification:

   CPA ( ) ACCA ( ) Others ( )

5. Please indicate your working experience with your current employer in years:

   1 and below ( ) 2 – 3 ( ) 4 – 5 ( ) 6–7 ( ) 8 and above ( )

PART B: FIRM AGE

1 For how long has the company been in existence?

1-20 years ( ) 21- 40 years ( ) above 40 years ( )

Part C: Human Capital

Please use the following scale to indicate how much you agree with each of the assertions about human capital in your company:

Scale: (Strongly agree=5, agree=4, Neutral=3, Disagree=2, strongly Disagree=1)

Statement	5	4	3	2	1
Employees in your organization possess significant experience that enhances overall operational effectiveness.					
Creativity is actively encouraged and valued within your workforce.					
Teamwork is fostered and recognized as a key element in achieving organizational objectives.					
The expertise of your employees is acknowledged and contributes toorganizational success.					
Employees in your organization are well educated compared to peers in the industry					
Employees undergo continuous training programs					
Employees are able to focus on delivering quality work					
Employees are highly skilled at their job					

The employees are motivated and self-driven					

Adapted from: (Bananuka et al., 2022)

Part D: Structural Capital

Please use the following scale to indicate how much you agree with each of the assertions about structural capital in your company.

Scale: (Strongly agree=5, agree=4, Neutral=3, Disagree=2, Strongly Disagree=1)

Statement	5	4	3	2	1
Your databases play a crucial role in supporting day-to-day operations.					
The presence of patents in your organization contributes to your overall knowledge base.					
Trademarks associated with your products/services positively impact your organizational identity.					
Your organizational processes significantly enhance your operational efficiency.					
Systems in place contribute to the overall success and growth					
The information-sharing infrastructure in your organization is effective in supporting operational objectives.					
Your company has a great deal of useful knowledge in documents and databases					
Your organization possess work methods and procedures in support of innovations					

Adapted from: (Bananuka et al., 2022)

Part E: Relational Capital

Please use the following scale to indicate how much you agree with each of the assertions about relational capital in your company:

Scale: (Strongly agree=5, agree=4, Neutral=3, Disagree=2, strongly Disagree=1)

Statement	1	2	3	4	5
The relationships within you internal networks contribute to a positive work environment.					
Your brand reputation reflects the values and principles of your organization.					
The network of partners maintained enhances collaboration and knowledge exchange.					
Customer relationships are actively cultivated to strengthen connections.					
Customer feedback guides your activities					
Employees are well aware of your customers' needs					
Your organization values the positive impact of a reputable brand.					
Establishing and maintaining relationships with suppliers is a priority for smooth operations.					
The way your company operates is characterized by an atmosphere of trust.					

Collaborating with government entities is part of our commitment to broader engagement.					
Alliances with partners are formed to foster mutual understanding and cooperation.					
We keep your promises to your stakeholders.					
This organization is keen on developing long-term relationships with its stakeholders					

Adapted from: (Bananuka et al., 2022)

Appendix II: NSE Listed Firms

Agricultural

1. Eaagads Ltd
2. Kapchorua Tea Co. Ltd
3. Kakuzi Plc.
4. Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Plc
7. Williamson Tea Kenya Ltd

Automobile and Accessories

8. Car and General (K) Ltd

Banking

9. Absa Bank Kenya PLC
10. Stanbic Holdings Plc.
11. I&M Holdings Ltd
12. Diamond Trust Bank Kenya Ltd
13. HF Group Ltd

14. KCB Group Ltd
15. National Bank of Kenya Ltd
16. NCBA Group PLC
17. Standard Chartered Bank Ltd
18. Equity Group Holdings
19. The Co-operative Bank of Kenya Ltd
20. BK Group PLC

Commercial and Services

21. Express Ltd
22. Sameer Africa PLC
23. Kenya Airways Ltd
24. Nation Media Group
25. Standard Group Ltd
26. TPS Eastern Africa (Serena) Ltd
27. Scan group Ltd
28. Uchumi Supermarket Ltd
29. Longhorn Publishers LTD

30. Deacons (East Africa) Plc

31. Nairobi Business Ventures Ltd

Construction and Allied

32. Athi River Mining Ord

33. Bamburi Cement PLC Ord

34. Crown Paints Kenya PLC.

35. E.A. Cables PLC

36. E.A. Portland Cement Ltd

Energy and Petroleum

37. Total Kenya Ltd

38. KenGen Ltd

39. Kenya Power & Lighting Co Ltd

40. Umeme Ltd

Insurance

41. Jubilee Holdings Ltd Ord 5.00

42. Sanlam Kenya PLC

43. Kenya Re-Insurance Corporation Ltd

44. Liberty Kenya Holdings Ltd

45. Britam Holdings Ltd

46. CIC Insurance Group Ltd

Investment

47. Olympia Capital Holdings ltd

48. Centum Investment Co Ltd

49. Trans-Century Ltd

50. Home Afrika Ltd

51. Kurwitu Ventures

Investment service

52. Nairobi Securities Exchange Ltd

Manufacturing and Allied

53. B.O.C Kenya Ltd

54. British American Tobacco Kenya Ltd

55. Carbacid Investments Ltd

56. East African Breweries Ltd

57. Mumias Sugar Co. Ltd

58. Unga Group Ltd

59. Eveready East Africa Ltd

60. Kenya Orchards Ltd

61. Flame Tree Group Holdings Ltd

Telecommunication and Technology

62. Safaricom PLC

Real Estate Investment Trust

63. Stanlib Fahari I-REIT

64. Laptrust Imara I-REIT

Exchange Traded Fund

65. New Gold Issuer (RP) Ltd

Source: NSE (2023)

Appendix III: Ethical Approval

Appendix IV: NACOSTI Approval

VT OMNES
VNVM SINT

12th March 2024

Ms Kiminda Caroline,
caroline.kiminda@strathmore.edu

Dear Ms Kiminda,

RE: Effect of Intellectual Capital on Financial Performance of Listed Firms in Kenya: The Moderating Role of Firm Size

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** research proposal. Your application reference number is **SU-ISERC2108/24.** The approval period is from **12th March 2024 to 11th March 2025.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
v. Clearance for the export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and obtain other clearances needed.

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC

STRATHMORE UNIVERSITY ETHICS AND RESEARCH SCIENTIFIC AND ETHICAL REVIEW COMMITTEE (SU-ISERC)
12-Mar-2024
Email:ethicsreview@strathmore.edu
P.O BOX 59857-00200
NAIROBI-KENYA

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **155571**

Date of Issue: **22/March/2024**

RESEARCH LICENSE

This is to Certify that Ms.. Caroline Nyambura Kiminda of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: EFFECT OF INTELLECTUAL CAPITAL ON THE FINANCIAL PERFORMANCE OF NSE LISTED FIRMS: MODERATING ROLE OF FIRM SIZE. for the period ending :22/March/2025.

License No: **NACOSTI/P/24/35414**

155571

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)

Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
    i. Endanger national security
    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and Innovation(NACOSTI),
Off Waiyaki Way, Upper Kabete,
P. O. Box 30623 - 00100 Nairobi, KENYA
Telephone: 020 4007000, 0713788787, 0735404245
E-mail: dg@nacosti.go.ke
Website: www.nacosti.go.ke