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The Mediating Effect of Business Model on the Relationship Between Intellectual Capital Disclosure and Value of Listed Companies: Empirical Evidence from Kenya and South Africa

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Abstract

Listed companies in Kenya have experienced firm value volatility over a considerable period of time. Whereas, disclosures in corporate reports have been linked to firm value, examination of non-financial information related aspects in integrated reports has not been explored fully. One of the non-financial related component contained in the <IR> framework is intellectual capital. This research investigates the relationship between intellectual capital disclosure and value of listed companies in Kenya and South Africa, and examines whether business model mediates this relationship. The study relied on Positivist research philosophy and grounded on the stakeholder theory, legitimacy theory and agency theory. The study design was both exploratory and confirmatory. Out of a population of 209 companies, the study purposefully selected a sample of 137 companies comprising 19 firms from NSE, Kenya, while, 118 companies were from JSE, South Africa, considered integrated reporting adopters for the period 2018-2020. Utilizing secondary data obtained from audited integrated reports and annual financial statements of the sampled companies, the study used descriptive statistics to summarize the data, with Pearson correlation methods applied to inspect variable associations. The hypotheses were tested using stepwise regression analysis on the basis of Baron and Kenny (1986) four step mediation process. The results reveal negative and statistically significant effect of intellectual capital disclosure on value of firms listed in NSE, while, the effect was positive and statistically significant in respect to JSE, listed companies. Furthermore, the effect of intellectual capital disclosure on business model was positive and statistically significant for both countries. Finally, the mediating effect of the business model on the relationship between intellectual capital disclosure and value of firms listed in NSE and JSE was established. However, Kenyan listed companies reported inconsistent mediation, as, South African companies data exhibited complete/full mediation. The study recommends that managers in these organisations should embrace intellectual capital and business model disclosures for the purpose of improving firm values and legitimization objectives.

Keywords: Intellectual capital disclosure, Integrated reporting, Corporate disclosures, business model, firm value, Tobin's Q, Kenya, South Africa

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1.1 Introduction

Integrated reporting <IR> is described as a procedure which takes into account and combines wholly significant facts about a company's accomplishments, its strategy and resource allocation and corporate governance in such a manner that represents social, environmental and commercial circumstance inside which the entity functions (International Integrated Reporting Council (IIRC), 2011). It is a comprehensive report that combines both financial and non-financial details in a sole report (Abeysekera, 2013; Churet *et al*., 2014; Fernando *et al*., 2017). In respect to views of IIRC, integrated reporting is a move toward accounting change aimed at evolving company reporting which not only subsumes but transcends the kinds of particulars reported in the organization's financial statements at present (IIRC, 2014a). Thus, Dhingra *et al*. (2014) opine that traditional financial reports have a number of limitations that consequently call for a new format of reporting expected to incorporate adequate and relevant information in relation to social, governance and environmental aspects in a single report presented as integrated report. On this note, Zhou *et al*. (2017) assert that the advent of <IR> is respectively intended to address the limitations of traditional reporting whose main criticism has been on the basis of information overload and disconnectedness of facts as furnished in the accounting reports annually. The framework upon which the thought of <IR> has evolved is on the tenets of multiple capitals whose proposition rests on the presentation of an organization's performance and future expectations on the basis of six capitals (financial, manufactured, intellectual, human, social and relationship and environmental) and an explanation on how the aforementioned capitals are applied as inputs in the entity's business model to create value. This study

contemplates an inquiry on intellectual capital disclosures being one form of the multiple capitals and its effect on company value.

1.1.1 Intellectual capital

Intellectual capital (IC) represent an organization's knowledge-based intangibles, in the form of intellectual property entailing, rights, copyrights, patents and licenses, information technology software and "organizational capital" such as implicit knowledge including organizations systems and protocols (IIRC,2013b). Accordingly, De Villiers and Hsiao (2018) posit that of the <IR> framework's six capitals three reflect IC. Thus, according to the IIRC framework there is a distinction among human, social and relationship, and intellectual capitals. The human, intellectual, and social and relationship capitals presented in the integrated reporting framework as intangible capitals align well with the three IC constituents identified as structural, human and relational capitals respectively in traditional reporting. In addition, both IC and the integrated reporting framework are geared toward communicating the creation of value (Dumay, 2016). According to Schaper *et al*.(2017) disclosing IC as a separate report by companies has not been given prominence against the reality that there is heightened interest in IC management. The authors' claim sensitivity of information as the main reason. Low levels of disclosure of IC are also noted by (Dumay, 2016; Al-Hajaya, 2019). Thus, through <IR> on studying and communicating a firm's story of creating value, the IC framework is aligned well with the resource based view theory of the firm as one of the inputs to the business model.

1.1.2 Firm value

Firm value is positioned on the market perception about an entity's performance, and accounting information disclosure enacts an indispensable intention in the formation of such perception. It is reflected in the company's share prices. An increase of the price of the share is a demonstration of trust bestowed to the company by its investors and willingness to pay more with anticipation of increased returns. The existing financial reporting practices basically report on financial performance which meets the financial capital providers information needs. However, to make accounting facts more value relevant, companies should disclose both financial along with non-financial aspects in their financial statements for the purpose of meeting information needs of providers of all variants of capital that can guide in making informed decisions (Asein *et al*., 2019). The purpose of value is to provide an insight into the measurement of performance taking into account both the shareholders and stakeholders short-term and long-term interests in the company (Mckinsey, 2010). Short-term performance is assessed by accounting earnings from the perspective of shareholders, while, long-term value is relevant to all stakeholders. Value creation is realized when proper investments of the capital resources such as intellectual capital generate future cash flows to the company in form of return on investments that exceed the cost of using such capital resources.

Firm value measurement can be done using either accounting-based measures that rely on accounting numbers as reflected on the financial statements using indicators including, Returns on Equity (ROE), Returns on Assets (ROA), Price Earnings Ratio (PER) and Price to Book Value (PBV), or market-value based measures using Tobin's Q. While, linear price-level models have been put into use by researchers interested in value relevance aspects of accounting information whenever a firm's market value of equity and earnings and book values relationship is sought (Loprevite *et al*., 2018). In this research Tobin's Q will be used as an alternate measure of firm value. Tobin's Q reflects the valuation the market places on the assets of the firm relative to their book values (Lang & Maffett, 2011). By this feature, Tobin's Q is a more suitable proxy measure of firm value for this study since many of the intangible integrated reporting capitals including social and relationship ,intellectual, human, and environmental capitals are given either only partial or totally no recognition in the book values of assets. The study aimed at establishing whether intellectual capital disclosure has any relationship with firm value beyond financial statement contents.

1.1.3 Business model reporting and firm value

In the contexture of IIRC Framework, the system chosen by the organization to aid in the process of organizing inputs, business activities (processes), outputs and outcomes with the aim of creating value in the short, medium and long term comprise the entity's Business Model (BM) (IIRC, 2013). It is the rationale relative to which a company creates, conveys and captures value (Osterwelder & Pigneur, 2010). Accordingly, the IIRC's <IR> framework has positioned the BM at the centre of the six capitals (i.e. financial, manufactured, intellectual, human, social and relationship and natural capital). These declares the resources of value that underlie the value creation process of companies by elucidating how financial and non-financial elements are connected (IIRC, 2013; Tweedie *et al.*, 2018). Accordingly, Chesbrough (2007) study on business model innovation, claims that by presenting, describing and explaining the entity's business model effectively provides an opportunity to bring out its approach to coordinate and interrelate resources. Fundamentally, the ultimate objective of representing the BM is to put visible the unique course by which the business resources are coordinated toward attainment of corporate objectives. Having this in mind a BM that is adequately presented act as a critical element for the entity. By bringing it into perspective, all the business relationships are clearly shown creating awareness of the role and contribution of all the stakeholders within the system (Zott & Amit, 2010). However, the study by Bin

et al. (2016) on examining BM disclosure in UK listed companies strategic report, considered the entangling of intellectual capital in the process of creating value, argue that BM model disclosure as a mandatory requirement does not provide enough of the required information, as its description in the strategic report contained limited elements, specifically, the firms resources and value proposition with no focus on how the same are transformed in the value addition procedure. In Kenyan context, Injeni *et al*., (2019) on analyzing current financial reporting and how it relates with integrated reporting for Kenyan listed companies, discovered that the element of BM with a logical narration of the flow of business was given limited attention by the studied companies in their annual reports.

1.2 Statement of the problem

Integrated reporting concept grounded on the six capitals framework point at fostering reporting a firm's value through a more holistic picture that integrates both financial and non-financial information in a single report. Central to the company's value creation process is the business model which integrates the capital resources of value, thus providing a clear communication of the potential of the firms future value creation that will enhance value of listed companies.

However, in Kenya, firm value as measured by market-to-book value of listed firms has been fluctuating over the last 5 years as evidenced by large differences between firm market values and book values (NSE, Handbook 2017-2018). Further this is demonstrated by NSE 20 market performance index that has been fluctuating from as high as 6161.46 points to as low as 1004.70 percentage points between 1997-2022 (NSE, 2022). According to Cytonn report (2022), the market performance index on average has witnessed a declining trend from 3323.88 in 2018 to 1799.52 in 2022. A firm is considered to be appropriately valued when the market-to-book value ratio equal to 1. Accordingly, Musiega *et al*.(2013) and Dominic and Memba (2015) studies report a market-to-book ratio values of greater or less than 1 respectively for Kenyan listed firms. A value greater than 1, suggest overvaluation, whereas a value less than 1, is an indicator of undervaluation of such firms by the capital market. Further, Nyasha and Odhiambo (2014) in their study exclaim that volatility of firm value as indicated by market capitalization and NSE 20 Share index, makes it risk to hold such securities.

Earlier research on integrated reporting capitals disclosure and firm value has reported mixed results (Suttipun 2017; Adegbie *et al.* 2019; Pillay, 2019; Anifowose *et al*., 2020). While studies by Anifowose *et al*., (2020) reported positive and significant effects of intellectual capital disclosure on company sustainable value, Adegbie *et al.* (2019) study on the Nigerian quoted manufacturing companies reported negative and significant effect of intellectual capital disclosure on firm value. On the other hand, Suttipun (2017) found no significant effect between intellectual capital disclosure and corporate financial performance. Whereas, the study by Pillay (2019) failed to consider intellectual capital disclosure. None of this studies considered the mechanism through which the effect of <IR> capitals in form of intellectual capital disclosure is transmitted to the value of the firm. The intent of this study was to assess how disclosure of non-financial information contributes to company valuation in the context of integrated reporting. In particular, the investigation was zeroed on the effect of intellectual capital disclosure on value of listed companies between Kenya and South Africa, focusing on the role of the business model on this relationship.

1.3 Objectives of the study

This study compares the mediating effect of business model on the relationship between intellectual capital disclosure and value of listed companies in Kenya and South African within the integrated reporting context.

1.4 Specific Objectives

i) To compare the effect of Intellectual capital disclosure on value of listed companies between Kenya and South Africa.
ii) To estimate the role of business model on the relationship between intellectual capital disclosure and value of listed companies when comparing Kenya and South Africa.

1.5 Research Hypothesis

i) **H_{01}:** Intellectual capital disclosure has no statistically significant effect on value of listed companies between Kenya and South Africa.
ii) **H_{02}:** Business model has no statistically significant mediating effect on the relationship between intellectual capital disclosure and value of listed companies when comparing Kenya and South Africa.

2. Literature Review

In this section the theoretical review, empirical review and conceptual framework is presented.

2.1 Theoretical Review

2.1.1 Stakeholder Theory

The stakeholder theory was published by Freeman in 1984. The theory identifies the various groups or individuals who hold various interests in the company and how they can be dealt with. From the works of Freeman, the term stakeholder means any individual or group who can impact or can be impacted by the organization in the process of attaining its goals. In this context the IIRC (2013) emphasize that stakeholders are individuals who can be anticipated to be reasonably impacted significantly by the entity's business activities, outputs or outcomes or whose operations can be expected to reasonably impact significantly the entity's short, medium and long-term value creation ability. Thus, through <IR> entities are required to report how they affect and are affected by stakeholders (investors, shareholders, society, suppliers relationship, governments, customers etc.) as part of the annual report.

The theory assumes that the organization engages in associations with diverse groups which captivate on or are allured by the company. Further, it assumes equality of interests in the sense that no exclusive overruling category of interests (Bosse & Coughlan, 2016). Thus, the theory's essential tenets are on the accountability of the organization to their stakeholders and that the managements proper objective is to balance the conflicting interests of stakeholders. On this note, Camara *et al.,(*2009) states that the purpose of the stakeholder theory is to provide an explanation on the response of the management to the ever changing demands from the stakeholders'.

The validity of Stakeholder theory as a general approach, is criticized on grounds that the clarity of the meaning of the term 'stakeholder' is mixed, following Freeman's seminal conception that it includes everyone who is or was impacted by the organization. A major challenge lies on the recognition of stakeholders and effective management of their interests without the interference of the management (Bello & Abu, 2021). Further, criticism lies on the dynamism of the pool of stakeholders which keep on changing over time as a result of variation of current stakeholders interests and dealing with new interests that may emerge from the new stakeholders (Nwanji & Howell, 2007).

The relevance of this theory in this evaluation is on the premise that the company's accountability to stakeholders is reflected in the stakeholder theory. Thus, the theory therefore, informs on the first six objectives that are associating various integrated reporting capitals to firm value. Each disclosed form of capital can be attached to a specific stakeholder who will be interested in a particular information disclosure in the financial statements.

2.1.2 Legitimacy theory

The propounder of the legitimacy theory is Suchman who started it in 1995 and claimed that the existence of an entity is pegged on its value that is perceived to match with that of the larger society in which it undertakes its operations. According to Suchman, legitimacy theory postulates that an organization's operations thrive within a system that is socially constructed, defined by norms and values meant to maintain organizational legitimacy (Linthicum *et al*. 2010).

The theory assumes a social concurrence between the entity and society that it ought to report to, as the organization exerts influence on the society in which it operates and the organization gets influenced socially by the society. Thus, the organizational legitimacy concept, grants an organization the opportunity to undertake its operations in a contract with the interests of the society. Corporations therefore, pursue to function within the aspirations and norms of the respective communities where they are domiciled. The reasoning behind the legitimacy theory is that companies survival is dependent upon them operating within the framework of the society's norms and values (Deegan, 2014). The theory then explains the decision taken by firms to effectively disclose non- financial information so as to gain legitimacy (Dube & Maroun, 2017). Accordingly, Greiling and Grub (2014) on this aspect opine that organizations must be accountable for their actions.

The theory's criticism lies on the assumption that organizations perceive the legitimacy status to be under a threat. For this reason, whatever that is disclosed in annual reports and financial statements is all about the perception of the management other than being accountable to the stakeholders and is meant to advance their self-interest or purposefully for survival (Deegan, 2014).

The relevance of this theory in this study is on the premise that the annual report has been spotted as a salient source of legitimization. This theory therefore, makes the foundation for fifth, sixth and seventh objectives to inform on social and relationship capital and environmental capital disclosure respectively, since the concept of legitimacy as discussed emphasize the provision of an explanation of the disclosures with regard to the social and environmental behavior of organizations.

2.1.3 The agency theory

The theory of agency was propounded by Jensen and Meckling in 1976.The agency relationship is deemed to exist whenever there is a separation between management and ownership. Managers are appointed by the principals who are the owners and are authorized to act on their behalf in decision making. Due to the fact that

managers are prone to more information than the principals, agency problems usually occur (Brown & Hillegeist, 2007).

The agency theory is instituted on the assumption of individuals self-interest, existence of a contractual covenant between the principals and agents for a limited or unlimited future that is regarded uncertain, a consideration that the problem of agency can be eliminated by contracting, and that managers are opportunistic in total disregard of their competencies (Daily *et al*., 2003).

Agency theory has not been without criticism, the theory is criticized on the ground that it is a one sided theory skewed toward the agent, meaning that it is observed as principal-agent problem and not the other way round. On this notion, the information failure problem may originate from the principal's end. The theory of agency does not put into focus opportunistic principals who may be deceiving, shirking and exploitative by coercively engaging the agents to work in environments' that are not conducive in order to advance their own interests (Bendickson, 2016).

The theory is relevant to this research as declaration of both financial and non-financial information by companies is aimed at minimizing the problem of information failure since such report aligns the managers interests with the owners interests. Agency theory can therefore be applied to support integrated reporting disclosure by providing a way of communicating reliable and credible information to the market by managers who access company operations and private information. On the basis of the agency theory <IR> disclosure acts as a monitoring mechanism on the company value creation process. Since the fundamental premise of this theory is on the principles of agency and taking shareholders as providers of financial capital will have their interests that they would like the managers acting as agents to uphold, the theory informs on the first objective to complement the stakeholder theory.

2.1.4 Theoretical framework

Though both theories have their own merits, together they elucidate how corporate actions affect the various constituents of the firm or stakeholders. While, the agency theory focuses on the agent's fiduciary responsibilities, legitimacy theory stresses on the firm's interest and society, as the broad perspective of the stakeholder theory addresses the concern of all the stakeholders. The theoretical framework is as presented in Figure 1 below;

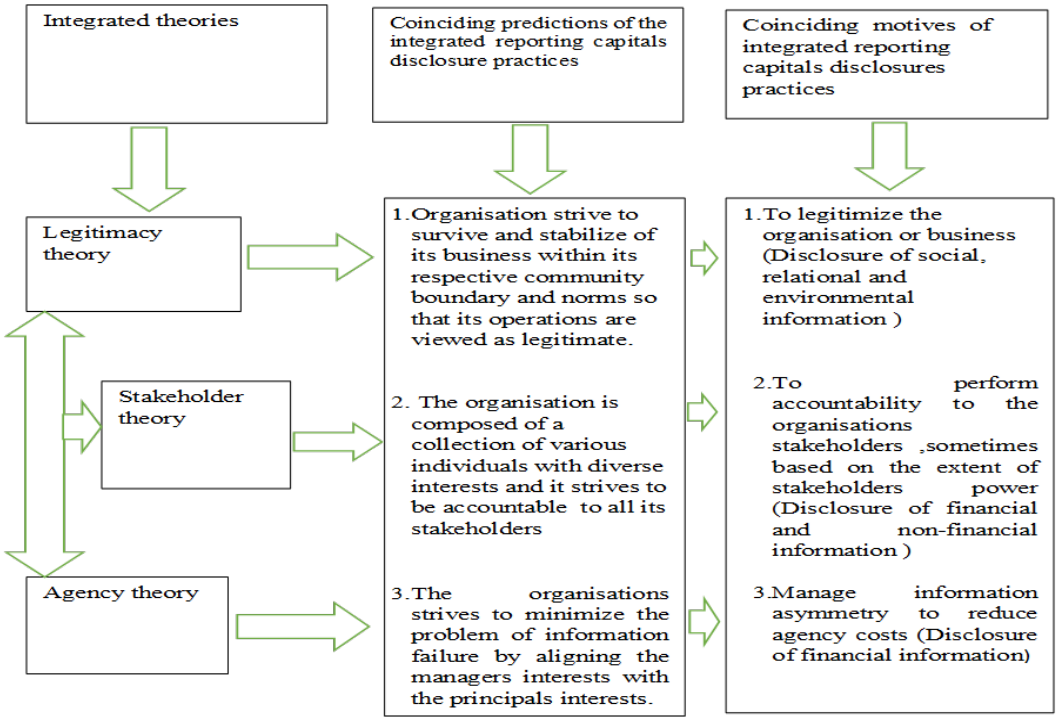

Figure 1: Theoretical framework
Source: Researcher, 2024

2.1 **Empirical review**

Ngari and Gichira (2013) study on structural capital and the performance of the businesses concentrated on Kenya's pharmaceutical industry. The study specifically was set to address how influential systems and programs, intellectual property rights and research and development was on business performance of pharmaceutical Kenyan companies. Adopting a descriptive research design, the 89 pharmaceutical companies as

per the manufacturers directory formed the population of the study out of which 31 local pharmaceutical manufacturing companies were identified as the study sample. Primary data was accumulated by the help of a structured questionnaire, administered to human resource managers or their deputies that saw 19 firms responding. Multiple linear regression technique was exploited for analyzing the data. The findings provide an indication that aspects of research and development and systems and programs had the greatest impact on organizational performance of Kenyan pharmaceutical firms and that intellectual capital influenced organizational performance.

Kariuki *et al*. (2015) did a survey on intellectual capital and performance of quoted firms on the NSE. The survey purposed to inspect the effect of social capital, human capital, and organizational capital aspects of intellectual capital on organizational performance of designated firms and assess the combined impact of intellectual capital on the performance of the organization. Anchoring the paper on the resource-based view, 50 firms were purposefully identified from a population of 55 firms quoted on the NSE by 2014. Using a questionnaire data was obtained from the sampled companies and regression methods employed to probe the data. From the study detection it is proven that the impact of social capital and organizational capital on non-financial performance is more significant than the human resource when examined individually, while, the combination of the constructs as intellectual capital have a higher effect than individual effect on non-financial performance. Nonetheless, the connection between intellectual capital and organizational performance was recorded as weak.

Beattie and Smith (2013) paper reviews literature on the process of creating value and business model by refocusing on the debate of intellectual capital. The review identified and discussed the key features in relation to narrative reporting and the linkages that conceptually exist between intellectual capital, business models and value creation. Employing interviews, the paper gathered evidence from eleven company cases. From the review the business model is viewed as a powerful concept from which intellectual capital can be refocused as being holistic, multi-leveled, boundary-spanned and continuously changing. Thus, the study supports disclosure around the central business model story through integrated reporting.

Ikapel (2016) analyzed intellectual capital and financial performance of Kenyan commercial banks by concentrating on putting into perspective the value added coefficient of intellectual capital. The specific aims of the analysis were to evaluate how various forms of efficiency (capital employed, structural capital and human capital efficiencies) affect net interest margin and examine the effect of value added intellectual capital on the net interest margin of selected commercial banks. By employing descriptive research design, 5 top quoted commercial banks formed the study sample identified on the basis of their ranking criteria as determined by the asset base. Secondary data was assembled from annual reports of the identified firms for the period 2010-2014 and analysis effected by content and regression analyses. The aftereffect reveal that capital employed efficiency had the greatest impact on firm performance as per the net interest margin.

Altal (2016) conducted an empirical investigation on the influence of intellectual capital disclosure on market value of Jordanian pharmaceutical manufacturing companies quoted on the Amman Stock Exchange. The investigation set to examine whether the components of intellectual capital classified as (human, structural, and relational capitals) as disclosed by listed companies and as a combination with return on assets and trading value has any effect on market value. Putting into use exploratory research design, all the 6 pharmaceutical processing firms quoted on the Amman stock exchange, Jordan, before and 2012 formed the population of this study which again comprised the study sample. A composition of primary and secondary data was extracted from varied sources including journal papers, books, magazines, annual reports and financial statements from company websites. Extent of intellectual capital disclosure was assessed by examining annual reports and financial statements using content analysis while multiple regression was preferred as a tool for analyzing and testing the hypothesis to establish the impact of disclosure. The examination of findings unearth that the implication of intellectual capital components revelation on market value was positive and significant. However, the study was limited to the pharmaceutical sector that constituted a limited number of firms to allow for generalization of results and further, the study failed to bring out the theory upon which it was grounded.

Anifowose *et al*. (2016) paper raised a concern on disclosure of intellectual capital and information asymmetry, as evidenced from the Nigerian economy. Mainly the paper sought to look into the association between quality of intellectual capital information disclosure (human, relational, innovation, protected and process capitals) and information asymmetry. Grounding the paper on information signaling theory and survey research design, a sample of 91 firms was purposefully identified from a population of 178 firms listed on the Nigerian stock exchange as of January 2010. Content analysis was employed to analyze the disclosure levels, descriptive statistics, and Pearson correlation to analyze data for 2010-2014 or sampled firms annual reports. In overall, the results unveil that intellectual capital disclosure impact on share price volatility is negative and significant. However, individual disclosure of intellectual capital particulars relating to human capital, relational capital, and innovation capital components are negatively linked with share price volatility, while process capital and

protected capital information disclosure positively affect share price volatility. Thus, the more the intellectual capital information disclosure is, information asymmetry declines causing lower share price volatility.

Anuonye (2016) while visualizing on intellectual capital studied how it affects the return on assets of Nigerian insurance companies. The study gauged the interconnection between intellectual capital (structural, relational, and human) and asset returns. The ex-post facto research design was employed for the investigation and a sample of 18 companies identified using purposeful sampling criteria. Both primary and secondary data was utilized for the study and regression methods exercised for data analysis. The study results from primary data sources indicate a positive and insignificant association between structural capital and return on assets, as relational and human capital depicted a positive effect, while the aggregated secondary sources showed a significant association with return on assets. However, the research is limited in the sense that it focused only on the insurance sector and not all sectors.

Santis *et al*.(2018) article empirically analyzed the intellectual capital components disclosure in integrated reporting. The study objective was to find out how information describing intellectual capital components is revealed by firms in the integrated report and its linkage with the process of creating value. Employing a content analysis methodology, data was analyzed on 135 reports sampled from firms in the financial services sector. The results exhibit a low degree of information disclosure and linkage of intellectual capital disclosure and the task of creating value by the studied firms.

Suseno *et al*. (2019) research focus was on the relationship of intellectual capital and financial performance by examining the effect through the use of measurements of value added intellectual capital coefficient comprising of; human; structural and capital employed efficiencies on financial performance based on return on assets. Employing causal method, data collected from financial statements of a Sharia bank covering the period 2013-2015 was analyzed using the double regression method. Based on the overall empirically analyzed information it can be substantiated that intellectual capital and financial performance aspects are associated with capital employed efficiency exerting the most significant impact. The weakness of this study lies on the adoption of case study approach focusing on only one company in the banking sector calling for cautious generalization of the results. The theory upon which the study is anchored has not been disclosed.

Farah *et al*. (2019) attempted to examine how intellectual capital caused Kenyan savings and credit cooperative societies to be sustainable financially. The scrutiny focused on the influence of four aspects of intellectual capital in the composition of (human, customer, relational, and structural capitals) on financial sustainability of the studied organizations. Hinging the study on the resource based theory, stakeholder theory, human capital theory and legitimacy theory, descriptive research design was considered. All the 1737 management staff of the entities under scrutiny comprised the population of the examination from where a sample of 315 managers was selected. Using a closed ended questionnaire discharged by way of drop and pick later approach, primary data was collected. Both descriptive and inferential statistics comprising correlations and multiple regression methods were employed for data analysis. The greatest effect was caused by relational capital in terms of supplier integration and collaboration and business networks having the greatest influence, while moderate influence was caused by employee relations. On human capital employee competence and qualification was found to be most influential, while, employee commitment and strategic leadership moderately influenced financial sustainability. On the other hand under structural capital, integration of systems of communication and automation of functions greatly influence sustainability financially as the impact of management hierarchy is moderate. and customer, with structural capital causing the least impact. On customer capital, ability to compete in the market, levels of customer retention and loyalty and the aspect of customer relationship management integration had a strong influence on financial sustainability. In overall, relational, human, and customer capitals positively influenced financial sustainability, while structural capital had a negative impact.

Murimi *et al*. (2019) studied on the association between intellectual capital and performance of Kenya's small and medium sized enterprises. Grounding the study on the resource based theory, the research applied descriptive and explanatory research designs. A sample of 183 enterprises was identified from a population of 350 enterprises in this category as per the Kenya bureau of statistics. Primary data gathering was enhanced by the administration of questionnaires that were semi-structured and analysis effected by descriptive and inferential statistics. The study findings indicate an insignificant effect of intellectual capital on the performance of SME's.

Rahman *et al*. (2020) empirically examined how firm performance is impacted by intellectual capital disclosure of the Bangladeshian companies in the pharmaceutical and chemical industry. The study mainly intended to assess the interconnection between the performance of the firm and disclosure of intellectual, and figure out the disclosure pattern of intellectual capital in the annual reports of corporations in the pharmaceutical and chemical industry. Drawing from the agency theory and institutional and legitimacy theory, 21 firms were identified from a population of 32 firms registered under the pharmaceutical and chemical industry quoted on the stock exchange of Dhaka. Secondary data was acquired from annual reports of the selected firms for 2016 and 2017 making 42 firm year observations. Data was analyzed using content analysis, descriptive statistics and pooled

cross-sectional method. The study findings evidences that disclosure level of intellectual capital is still low, and that an important and positive connection exist between firm performance and disclosure of intellectual capital, as firms with a higher disclosure level tend to perform better and vice versa. The study weakness relate to the study sample covering only 2 years and being limited to the pharmaceuticals and chemical sector. Also, the checklist was not comprehensive on the aspect of the number of intellectual capital disclosure indicators . This hampers the generalizability of the study findings.

Almulhim (2020) undertook a study concerning tacit knowledge and organizational learning and how it swayed the performance of firms hailing from the service industry based in Eastern and Northern regions of Saudi Arabia. The paper was intended to address the nature of relationship existing among the three variables; tacit knowledge, organizational learning and financial performance. The research population incorporated 256 service organizations from which primary data was gathered by the help of questionnaires and interviews. The know-how of structural equation modeling was applied for the aim of data analysis. From the aftereffect it was discovered that the relationship of all the two factors and financial performance is direct and significant. The study is limited to the extent that it considered only two regions of the country making an assumption that all the regions are homogeneous, but this may not be the case.

Salvi *et al*.(2020) work interrogated the effect of disclosure of intellectual capital on the value of the firm. The study emphasized on establishing the connection between overall intellectual capital information quality reporting and firm value and how the various intellectual capital disclosures categorized as structural, human and social and relationship faired with firm value. On the persuasion of the agency and the resource-based view theories, the study used a sample of 110 international companies obtained from the leading practices and <IR> reporters sections of the IIRC website. The data analysis was done by means of content analysis, descriptive statistics and research hypothesis tested using linear regression analysis. The findings signal that exceptional intellectual capital disclosure in integrated reports innovatively improves the value of the firm.

Putra and Ratnadi (2021) interrogated intellectual capital disclosure and intellectual capital effect on firm value of listed companies from the banking industry sector of Indonesia. The study considered the effect of intellectual capital (structural, external and human) disclosure on firm value and to analyze the influence of intellectual capital on firm value. Anchoring the study on the on signaling theory and resource dependence theory, the paper utilized a sample of firms selected using purposeful sampling from the a population of all listed firms in the banking sector. Data from Secondary sources was accumulated from company annual reports that were downloaded from the company websites. The methods of data analysis used entailed; content analysis and multiple regression analysis. The findings establish that, intellectual capital disclosure positively influence firm value, while, intellectual capital does not influence firm value.

Luthfiani and Suryani (2022), investigated on the impact of intellectual capital disclosures both voluntary and involuntary on value of banks listed in the stock exchange of Indonesia. The research objective specifically assessed the influence of voluntary and involuntary disclosures of intellectual capital via social media and annual reports on firm value and whether involuntary intellectual capital disclosure positively impacted the value of the firm. On the basis of the agency theory, a sample of 32 banks was selected purposefully. The data was obtained from company annual reports. Correlation and multiple regression analysis was used to analyze the data. The results indicate that, intellectual capital disclosure via social media negatively influence firm value, as intellectual capital disclosures made through annual reports showed a positive influence on firm value.

Cam and Ozer (2022) study tried to investigate the effect of intellectual capital and firm value of manufacturing firms listed on Turkish stock exchange. The main objective was to interrogate whether intellectual capital led to higher firm values of Turkish listed companies. Supplementary objectives looked into the association between intellectual capital components(human capital, relational capital, innovation capital and process capital) and firm value. The population of the study composed of all the listed companies on the Turkish stock exchange. Firm level data was fetched from the FINNET data base for the period 2005-2017. A sample of 1540 firm year observations was arrived at winsorisation, emanating from 148 listed manufacturing companies over the 2005-2017 period. Descriptive statistics, correlation and an extended Ohlson (1991) model were employed as data analysis tools. From the findings the study established that; Human capital measure, relational capital measure, innovation capital measure and process capital positively and significantly affected company stock prices, hence increased firm value. Overall, intellectual capital had a positive and significant influence on firm value.

2.2.1 Summary of Literature gaps

On the basis of the empirical studies reviewed, the findings are mixed. This can be ascribed to the difference in the materials and methods, a focus on different units of analysis, differences in sample sizes, industry types and countries on which the studies are based. Most studies have considered the direct effects of intellectual capital disclosure and firm value (Salvi *et al*., 2020; Putra & Ratnadi, 2021; Cam & Ozer, 2022, Luthfiani & Suryani, 2022). Limited studies were available considering the mechanism through which this direct relationship is accomplished (Beattie & Smith, 2013). This acts as a motivation to the researcher to carry out a comparative study from a developing country context, Kenya and South Africa with the aim of providing additional insight on

the mediating role of the business model on the relationship between intellectual capital disclosure and value of listed companies in the <IR> context

2.3 Conceptual Framework

The mediating effect of business model disclosure on the association between intellectual capital disclosure and the value of companies listed on the NSE and JSE is conceptualized as portrayed in Figure 2 below;

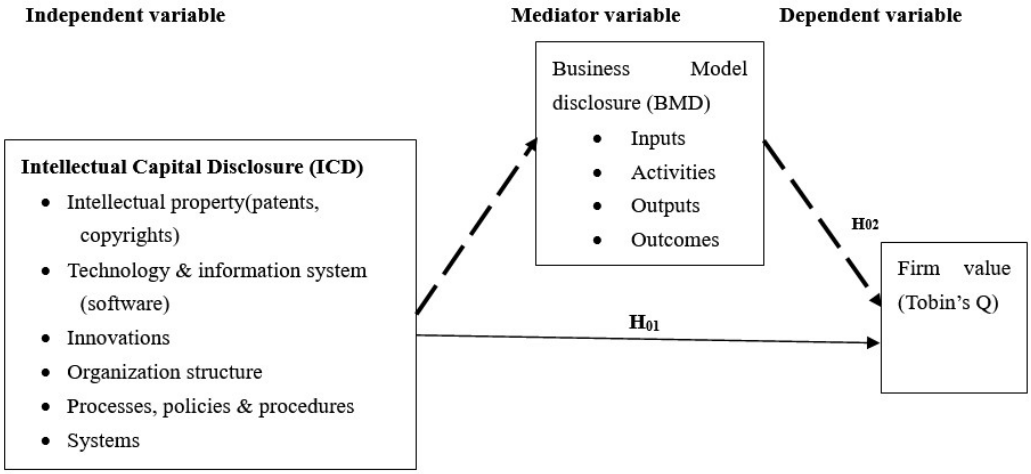

Figure 2: Conceptual model

Source: Researcher, 2024

Intellectual capital disclosure reflect part of the intangible resources of the firm and when collaborated with other resources may lead to value creation that will eventually improve the value of the firm.

3.0 Materials and Methods

3.1 Research design

The study adopted both exploratory and confirmatory research design. Exploratory studies are usually conducted in order to comprehend the essence of the problem in situations where few or scanty studies have been done in that area (Sekaran & Bougie, 2016). Exploratory researches also are fundamental where there exist known facts but there is need for more information to aid in developing a theoretical framework that is viable. It was aimed at unveiling the possible relationships between the study variables. This was complemented by the confirmatory research design that helped in hypothesis testing so as to ascertain whether the presented theoretical framework as specified by the hypotheses is supported by the data. From the foregoing discussion, both designs were appropriate for this study since integrated reporting that champions multiple capitals and business model disclosure is relatively new and not much literature was available. So far, knowledge on these concepts is scant hence an in-depth understanding was sought since very little has been documented if any from Kenyan context compared to South Africa where integrated reporting is already obligatory. Prior studies that have utilized exploratory research design include (Altal, 2016), while confirmatory research design has been applied by (Miocevic, 2016).

3.2 Population of the study and Sample Selection

The study gave consideration to a population of 209 companies comprising 64 and 145 firms listed on NSE and JSE respectively. For accurate analysis, the researcher trimmed the population through the following ways to enable the testing of the research hypothesis, 13 firms that failed to have complete audited published integrated reports on their website, or having been delisted, discontinued from trading their shares in the stock exchanges during the period 2018-2020 were excluded. Consequently, the number of dropped by 39 firm year observations from 411 to 372 firm year observations contained in 124 firms that were used in the analysis. The companies were categorized using the industry sector classification criteria prescribed by the Global Industry Classification Standard (GICS) according to 11 sectors namely; communication services, consumer discretionary, consumer staples, energy, financials, health care, industrials, information technology, materials, real estate and utilities. This classification was adopted for this inquiry as presented in Table 1 below;

Table 1:Target Population by Industry Sector

Industry sector	Kenya	South Africa	Total
Communication services	4	5	9
Consumer discretionary	7	22	29
Consumer staples	11	10	21
Energy	1	4	5
Financials	23	33	56
Health care	-	4	4
Industrials	10	15	25
Information technology	-	10	10
Materials	4	32	36
Real estate investments	1	9	10
Utilities	3	1	4
Total	**64**	**145**	**209**

Source: Researcher, 2024

3.3 Sample and Sampling Design

Patton (2002) exclaim that purposeful sampling as a method finds its application in research for the motive of identifying and selecting cases that are rich in certain required information for optimal use of scarce resources. On this basis the sample comprised of listed firms from the various industry sectors that had adopted <IR> for Kenya, and for South Africa firms contained in the IIRC's website, <IR> examples database, as <IR> reporters and listed on the JSE by December, 2020 were considered. Prior studies by (Melloni *et al*., 2016; Stefan & Branislav, 2016; Kilic & Kuzey, 2018; Yusof, 2018) have applied the same method for sample selection.

3.3.1 Sampling Size

Listed firms that were better placed in providing the requisite information on <IR> capitals and business model disclosures were included in the sample. Thus, the sample size for this study was 137 listed firms. The sample size was determined by applying the formular below as advanced by Yamane (1967).

$$n = N/ [1 + N (e)^2]$$

Where; n = Sample Size and N = Population size

Thus, assuming 95% level of confidence the study sample size of 137 firms will be determined as;

$n = N/ [1 + N (e)^2] = 209 /[1+209(0.05)^2] = 137$ firms

This comprised of 19 and 118 listed firms from Kenya and South Africa respectively across the various industry sectors as presented in Table 2 below;

Table 2: List of sampled <IR> companies for Kenya and South Africa

Industry sector	Kenya A	Firm years B (A*3)	South Africa C	Firm years D(C*3)	Total firms E(A+C)	Total Firm years F(B+D)
Communication services	-	0	3	9	3	9
Consumer discretionary	1	3	16	48	17	51
Consumer staples	2	6	10	30	12	36
Energy	-	0	3	9	3	9
Financials	14	42	24	72	38	114
Health care	-	0	4	12	4	12
Industrials	1	3	9	27	10	30
Information technology	-	0	9	27	9	27
Materials	-	0	31	93	31	93
Real estate investments	-	0	9	27	9	27
Utilities	1	3	-	0	1	3
Total	**19**	**57**	**118**	**354**	**137**	**411**

Source: Researcher, 2024

3.3.2. Sampling Procedure

The study employed criterion sampling strategy in which firms to be included in the sample had to be listed, adopted integrated reporting, prepared integrated reports between 2018 to 2020, for the case of Kenya where <IR> is voluntary. For South Africa, where <IR> is compulsory, firms that had adopted integrated reporting,

prepared integrated reports between 2018 to 2020 and whose reports were contained in the IIRC's website, <IR> examples database, as <IR> reporters and listed on the JSE qualified for inclusion in the sample. Prior study by Anuonye (2016) applied this sampling strategy.

3. 4 Data collection

Secondary sources were the main source of data for this study. Published annual report and financial statements or integrated report and financial statements were obtained from the listed companies' websites or hard copies.

3.4.1 Instrumentation

A checklist was the main data collection instrument for this study. This was structured around the variables of interest (intellectual capital and business model) and the specific disclosures aspects required in the published integrated reports and financial statements. Intellectual capital and business model aspects were subdivided into disclosure indicators based on the IIRC's (2013) framework and CIMA; IFAC; PwC (2013) business model background paper for <IR> consisting 41 items of disclosure across intellectual capital and business model categories; intellectual capital (6 items), BM identification (2 items), BM inputs (8 items), BM business activities (12 items), BM outputs (3 items) and BM outcomes (10 items). A 4-point likert scale scoring method was employed to provide a reflection of the extent of disclosure. A score of 0 indicates non-disclosure of an item, meaning no information is provided on the aspect, while, a score of 1 indicates limited disclosure, meaning the item is only mentioned in the report, a score of 2 indicates a mention of the aspect with brief explanation of specific information, and a score of 3 as a reflection of full disclosure involving detailed discussions incorporating the actions of the company and quantification of the aspect in monetary terms.

It is a useful tool for evaluating the required information from the published integrated reports and financial statements. The same instrument has been applied by prior studies for the purpose of data collection (Zhou *et al*., 2017; Dyduch, 2017; Smit *et al*.,2018; Anifowose *et al*., 2020)

3.4.2 Data Collection Procedures

The research used secondary data that was compiled from audited integrated report and financial statements of the quoted companies covering the period 2018-2020. The three-year period is consistent with previous works (Smit *et al*.,2018; Suseno *et al.* ,2019; Szewieczek *et al*., 2021; Simoni *et al*., 2022) to test after implementation effects. This period was chosen as it represents a time when the adoption of <IR> has started to gain momentum in various jurisdictions and most Kenyan listed firms started preparing integrated reports from the year 2018.

Tobin's Q a market based performance measure was used as a proxy for firm value (Lee & Yeo, 2016; Nofianti *et al.,*2018), computed as market value of equity plus book value of total liabilities divided by book value of total assets. Where, Market value of equity (market capitalization= market price per share*shares outstanding at the balance sheet date) was determined by establishing the market value per share taken as an average value 5 months after the financial year end multiplied by shares outstanding at the financial position date. The 5 month period is within the period applied by prior studies Verbeeten (2014) and (Baboukardos & Rimmel, 2016; Simoni *et al.,* 2022) which considered the impact of disclosures on market value at 3 and 6 months after the fiscal year respectively, to allow for the time-lag effect between disclosure and use of information by investors.

3.5 Data analysis methods

3.5.1 Descriptive statistics

The profile of the various companies that were utilized in the study was presented using frequency tables. The actual disclosure of the various items as categorized on the checklist was summarized using the mean in order to establish the average disclosure level under each category and overall for the 3 years. While, standard deviations were employed to inform on the variability of the data points in the data set. Minimum and maximum scores were also used. The descriptive analysis provided the degree or extent to which <IR> practices relating to capitals and business model had been adopted in corporate reports. This methodology has been employed by previous researchers involved in similar studies (Soni & Bhanawat, 2016).

The disclosure level for Integrated reporting capitals and business model components was computed according to the following un-weighted disclosure index.

$$DI_{IR} = \frac{\sum d_i \text{ effectively disclosed}}{n}$$

Where;

DI_{IR} =*Disclosure index of respective <IR> variable*

d_i = *Disclosure score for various indicators of disclosure in respect to <IR> variable*

n = Number of indicators that characterize the variable of disclosure based on the IIRC's (2013) framework and CIMA; IFAC; PwC (2013) business model background paper for <IR>

Prior studies by (Bhuyan *et al.,* 2017; Smit *et al*.,2018; Hieu *et al.,* 2022; Simoni *et al*, 2022) applied the same method to establish disclosure index for corporate social disclosure, <IR> guidelines application, human resource accounting disclosure and business model disclosure respectively. The range of disclosure index values

for individual <IR> variables and overall were between 0 and 3. The average disclosure indices computed on the various variables were then linked to firm value measured by Tobin's Q.

3.5.2. Inferential statistics

Pearson's correlation coefficient was used to assess the association between intellectual capital disclosure, business model and firm value measured by Tobin's Q. The effect-size of the correlation coefficients was evaluated using Cohen's *q* and Fisher's *r* to *Z* transformation methods.

Direct relationships of the effect of <IR> capitals in form of Intellectual capital disclosure on firm value as hypothesized in $\mathbf{H_{01}}$, was conducted through simple linear regression analysis. Cohen's f^2 was used to assess the effect-size of regression models .

Mediation analysis was conducted on the basis of Baron and Kenny's (1986) approach to establish the mediating effect of business model on the relationship between intellectual capital disclosure and firm value. According to Baron and Kenny (1986), to establish a mediating effect, four conditions must be satisfied: Condition 1: the independent variable and the dependent variable must be related in the absence of the mediator. Condition 2: the independent variable must affect the mediator. Condition 3: the mediator has to have an effect on the dependent variable.

Further, to test hypothesis $\mathbf{H_{02}}$ the study employed stepwise regression analysis proposed by Judd and Kenny (1981), as presented in equations (1)-(3) below;

$$Y = i_1 + cX + \varepsilon_1 \quad (1)$$
$$M = i_2 + aX + \varepsilon_2 \quad (2)$$
$$Y = i_3 + c^1X + bM + \varepsilon_3 \quad (3)$$

Where

In equation (1), *'c' represents the total (unmediated) effect of the exposure variable X on the outcome variable Y.*

In equation (2), *'a' represents the effect of the exposure variable X on the mediator variable M.*

In equation (3), *'c^1' represents the direct effect of the exposure variable X on the outcome variable Y, and b represents the effect of the mediator variable M on the outcome variable Y.*

In all three equations, *i represents the intercept and ε represents the error term*

3.5.3 Mediation analysis Steps

The existence of mediation effect was tested by sequentially verifying the four conditions as proposed by Baron & Kenny (1986) for the determination of the total effect and indirect effects.

Step 1 : Testing for the total (unmediated) effect *'c'*

To satisfy condition 1 of mediation analysis in which independent variables (intellectual capital) and the dependent variable (firm value) must be related in the absence of the mediator, simple linear regression analysis was applied. This established the regression weight *'c'* an estimation of the total effect.

Equation (1) linear regression model was applied to show the causal effect of the intellectual capital disclosure on firm value. Hypothesized as;

$$Y = i + cX + e \quad \text{.....(1)}$$

Where;

i =constant term

c= regression coefficient relating X to Y

e= random errors (the part of Y that isn't explained by X)

To test for the total effect *'c'* modelled as;

$$FV_{it} = i_1 + cICD_{it} + e_1 \quad \text{.....(i)}$$

To test for the direct and indirect effects that are critical for determining mediation, Barony and Kenny (1986) proposed satisfaction of two conditions;

Step 2 : Testing for the indirect path *'a'*

To satisfy condition 2 of mediation analysis in which independent variables (intellectual capital disclosure) and mediator variable (business model) must be related, the study used the following linear regression analysis of M over X to test for the indirect path *'a'*, stated as;

$$M = i_2 + aX + e_2 \quad \text{.....(2)}$$

Where;

i = constant term

a=regression coefficient relating X to M

e=random errors(the part of M that isn't explained by X)

Step 3: Testing for the indirect effect path *'b'* and direct effect 'c^1'

To satisfy condition 3 of mediation analysis in which the mediating variable (Business model) and the dependent variable (Firm Value) must be related on controlling the effect of X, the study employed multiple linear regression analysis of Y over X and M to determine the indirect effect path '*b*' and direct effect 'c^{l}'.

Thus; $Y = i_3 + c^{l}X + bM + e_3$.....(3)

Where;

i = constant term

c^{l} *= regression coefficient relating X to Y on controlling for M.*

b= regression coefficient relating M to Y on controlling for X.

e= random errors (the part of Y that isn't explained by X and M)

Step 4: Determining the existence and nature of mediation

Condition 4 of mediation analysis provide that the relationship between the independent variable (intellectual capital disclosure) and dependent variable (firm value) must be reduced significantly when controlling for the effect of the mediating variable (business model). That is, the coefficient c^{l} (direct effect) must be smaller than coefficient *c* (total effect). Baron & Kenny (1986) point out explicitly that "the strongest mediation demonstration is when c^{l} is zero". For this purpose the unstandardized beta coefficients c^{l} (direct effect) and *c* (total effect) were compared to establish existence of mediation.

Step 2 and 3 were then conducted in order to establish the direct effect 'c^{l}' and indirect effects *'a'* and *'b'* using the following models to test hypothesis $\mathbf{H_{02}}$.

To test hypothesis $\mathbf{H_{02}}$ the mediation role of business model disclosure on the relationship between intellectual capital disclosure and firm value on the basis of the two equations restated as;

$BMD_{it} = i_2 + aICD_{it} + e_2$.....*(ii)*

$FV_{it} = i_3 + c^{l}ICD_{it} + bBMD_{it} + e_3$..... *.(iii)*

On the basis of the above relationships Barony and Kenny (1986) specified a statistical mediation path diagram as presented in Figure 3 below, which satisfies the stepwise regression process to test mediation effect.

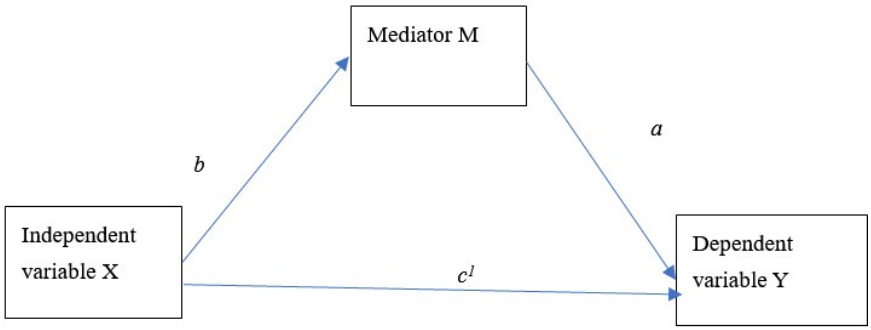

Figure 3: Mediation analysis model

Source: Adopted from Baron and Kenny (1986)

Total mediation is claimed if the relationship between independent variable (intellectual capital disclosure) and dependent variable (firm value) completely disappears when controlling for the mediator (the coefficient c^{l} is zero), while, partial mediation occurred when the association between independent variables (intellectual capital disclosure) and the dependent variable (firm value) is significantly reduced when mediator is controlled but does not completely disappear (i.e. when the absolute value of coefficient c^{l} is small than *c* and greater than zero at the same time). The direct effect is determined as the *c-ab*= c^{l} (the beta coefficients of *c* total effect already established in equation 1 minus the product of coefficient *a* and *b* established in equations 2 & 3).

However, Kenny *et al*. (2003) post an argument that not all the conditions must be satisfied in order to claim mediation. Accordingly, MacKinnon *et al*.(2007) referred to this context as inconsistent mediation. Inconsistent mediation is said to occur if the coefficient of the direct effect *'c^{l}'* were opposite in sign to indirect effects *'ab'*. In this scenario the mediator is considered as a suppressor variable. This explains why some conditions may fail to be met yet mediation is still reported. Further, Kenny *et al*.(1998) expound that with inconsistent mediation, sometimes the direct effect 'c^{l}' is even larger than the total effect '*c*'.

Further, to assess the variance accounted for in the mediation models identified above the study adopted R^2 effect-size measures of mediation analysis proposed by Fairchild *et al.* (2009) stated as;

$R^2_{med} = r^2_{YM} - (R^2_{Y,MX} - r^2_{YX})$

Where;

R^2_{med} = *Portion of variance explained by the mediated effect*

r^2_{MY} = *The squared correlation of Y and M*

r^2_{XY} = *The squared correlation of Y and X*

$R^2_{Y,MX}$ = *The squared multiple correlation of Y jointly explained by M and X*

This measure was considered appropriate to complement other regularly applied effect-size measures such as proportion mediated and mediation ratio that are considered unstable in cases where several parameters are combined and are predominantly biased to small sample sizes as the methods tend to perform better with samples > 500 (MacKinnon *et al.,* 2007). While, partial r^2 and standardized regression coefficients focus on the relation between two variables in the mediation model. R^2 effect-size measures offers a means to carry out an evaluation of both component paths and the overall mediated effect in mediation models (Fairchild *et al.,* 2009).

3.5.4 Testing the significance of mediation effects through bootstrapping.

This was useful to confirm mediation in cases where the assumptions of large sample size and multivariate normality were found not to hold. Using the sampling distribution, the total effect and indirect effect between constructs was estimated by taking a sample size n from the dataset. A number of resampling taken between 1000 and 5000 times (Preacher & Hayes, 2008). The mean and standard error was computed for every sample that led to the development of a resampling distribution for the estimates. At the 95% confidence interval, values for the total effects, direct effects and indirect effects were tabulated. Thus, the bootstrapping results were then compared with the conventional mediation test results for confirmation. The results most often are expected to be the same. However, if a variation occurs, then bootstrapping results prevail. Process Macro as proposed by Hayes (2013) was utilized in SPSS version 21.0)

3.5.5 Mediation Testing Assumptions

In testing for mediation it is assumed that; the Mediator lies on the causal pathway between the exposure and the outcome such that the predictor causes the mediator and the mediator causes the outcome. There is a possibility to manipulate the exposure and mediator theoretically, as a minimal condition for claiming causal mediation. There should be no confounding if causal mediation is to be claimed in the sense that there is no third variable influencing the independent and mediator, independent and outcome and mediator and outcome variables relationships. No interaction is expected between variables. Usual model assumptions for linear or logistic regression apply.

4.0 Data Analysis

The results of the study are as discussed in the sections that follow**;**

4.1 Response rate

The study targeted a sample of 137 companies of which data was collected from audited annual integrated reports covering the period 2018-2020. The final study sample comprised 124 companies of which, 18 (13.13%) were from Kenya and 106 (77.37%) in relation to South Africa. This represents overall 90.5% of the targeted firms. 13 companies were eliminated from the analysis due to either lack of complete data, or suspension from stock exchange, or acquisition. The final sample response rate is as presented in Table 3 below.

Table 3: Response rate

Industry sector	Kenya	Percent	South Africa	Percent	Total	Overall Percent
Communication services	-	0.0%	3	2.19%	3	2.19%
Consumer discretionary	1	.73%	14	10.22%	15	10.95%
Consumer staples	2	1.45%	9	6.57%	11	8.02%
Energy	-	0.0%	2	1.45%	2	1.45%
Financials	13	9.49%	22	16.06%	35	25.55%
Health care	-	0.0%	4	2.92%	4	2.92%
Industrials	1	.73%	8	5.84%	9	6.57%
Information technology	-	0.0%	8	5.84%	8	5.84%
Materials	-	0.0%	27	19.71%	27	19.71%
Real estate investments	-	0.0%	9	6.57%	9	6.57%
Utilities	1	.73%	-	0.0%	1	0.73%
Total	**18**	**13.13%**	**106**	**77.37%**	**124**	**90.50%**
Observation years	3		3		3	
Number of research observations	**54**		**318**		**372**	

Source: Research Data, 2024

The pertinent data was investigated for a 3 year period, translating into a total of 54 (18*3) and 318 (106*3) firm-year observations for Kenya and South Africa respectively. Overall 372 observations.

4.2 Data screening and cleaning

Before conducting the analysis, data was screened and cleaned. For data entry errors frequencies were inspected, minimum and maximum values were also checked, to assess the accuracy in data entry. Any errors the researcher came across were corrected in the data file. Univariate outliers were analysed using the Z-score test. A few cases with extreme values were winsorised by recording the variable for the extreme case so that the case still contained the highest score but no longer one that is so extreme. However, outliers resulting from data entry errors were corrected. For Multivariate outliers Mahalanobis distance and Mahalanobis distance probability were calculated. No multivariate outliers were detected as the Mahalanobis distance probability was found greater than .001 for all the cases. For the case of missing data analysis The input in SPSS was checked for missing values either on individual indicators or period basis. Missing data was checked by use of frequencies and descriptive statistics. Where missing data was as a result of data entry errors it was input. In cases where the data was missing completely at random, such cases were eliminated from further analysis. As a result 13 (9.5%) responses were dropped from further analysis leaving 124 complete responses. Further, before analysis, normality tests were conducted to ensure that data was normal or relatively normal. Kolmogorov Smirnov test and Shapiro-Wilk test was found insensitive to large samples, however, checking on the skewness and kurtosis, normality was assumed as the values were within range.

4.3 Demographic characteristics of respondents

A frequency table was generated for the purpose of describing the distribution of the study sample by Country and Industry sector, as presented in Tables 4 and 5 respectively.

Table 4: List of sampled <IR> companies by Country

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Kenya	54	14.5	14.5	14.5
	South Africa	318	85.5	85.5	100.0
	Total	372	100.0	100.0	

Source: Researcher calculation, 2024

As shown in Table 4 majority of respondents were from South Africa consisting 85.5%, while, Kenya comprises 14.5 % of the total 372 firm year observations.

Table 5:List of sampled <IR> companies across Industry sectors

Industry Sector		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Communication Services	9	2.4	2.4	2.4
	Consumer Discretionary	45	12.1	12.1	14.5
	Consumer Staples	33	8.9	8.9	23.4
	Energy	6	1.6	1.6	25.0
	Financials	105	28.2	28.2	53.2
	Health Care	12	3.2	3.2	56.5
	Industrials	27	7.3	7.3	63.7
	Information Technology	24	6.5	6.5	70.2
	Materials	81	21.8	21.8	91.9
	Real Estate Investments	27	7.3	7.3	99.2
	Utilities	3	0.8	0.8	100.0
	Total	372	100.0	100.0	

Source: Research data, 2024

As indicated in Table 5, the financial sector made the largest composition of 105 observations (28.2%) of the total observations. The least observations relate to the utilities sector where a total of 3 observations were made accounting for 0.8% of the total observations.

4.4 Descriptive statistics

Descriptive statistics was conducted to unveil patterns within and between the dataset from which the observations were drawn.

4.4.1 Intellectual capital disclosure (X)

Intellectual capital disclosure was assessed to establish how it related to firm value to address objectives of the study. Information on this section was predicated on the following indicators of intellectual capitals disclosure; Intellectual property (patents, copyrights and trademarks), Technology and information, Innovations, Organisation structure, Processes, Policies and Procedures, and Systems.

The results of Intellectual capital disclosure across firms listed in the NSE and JSE are as presented in Table 6 below.

Table 1: Descriptive statistics of intellectual capital disclosure indicators.

COUNTRY		N	Min.	Max.	Mean	Std. Dev.
Kenya	C1-Intellectual Property	54	.00	3.00	1.3148	.79679
	C2-Technology & Information	54	1.00	3.00	2.2963	.66246
	C3-Innovations	54	.00	3.00	2.2778	.65637
	C4-Organisation Structure	54	.00	3.00	1.7778	.71814
	C5-Processes,Policies,Procedures	54	1.00	3.00	2.2963	.53657
	C6-Systems	54	1.00	3.00	2.0556	.62696
	Valid N (listwise)	54				
South Africa	C1-Intellectual Property	318	.00	3.00	1.4277	.90884
	C2-Technology & Information	318	1.00	3.00	2.2138	.56574
	C3-Innovations	318	.00	3.00	1.9277	.69094
	C4-Organisation Structure	318	.00	3.00	1.7956	.80557
	C5-Processes,Policies,Procedures	318	1.00	3.00	2.0409	.33918
	C6-Systems	318	.00	3.00	2.0063	.53280
	Valid N (listwise)	318				

Source: Research data, 2024

On the basis of Table 6 technology and information systems (software),processes, policies and procedures, and innovations aspects of intellectual capital are the most disclosed (*N*=54, *M* = 2.2963, *SD* = .66246) ,(*N*=54, *M* = 2.2963, *SD* = .53657), (*N*=54, *M* = 2.2778, *SD* = . 65637) in relation to Kenya. Conversely, least disclosures were identified on intellectual property (patents and copyrights) with (*N* =54, *M* = 1.4815, *SD* = .74582). Alternatively, in respect to South Africa, technology and information systems (software), and processes, policies and procedures aspects of intellectual capital were mostly disclosed (*N*=318, *M* = 2.2138, *SD* = .56574) and (*N*=318, *M* = 2.0063, *SD* = .23280) respectively . While, intellectual property (patents and copyrights) is least disclosed with (*N* =318, *M* = 1.4277, *SD* = .90884)

4.4.2 Business model disclosure (M)

The summary descriptive statistics of business model disclosure on the basis of country was examined. The comparative summary statistics is as provided in Table 7 below in respect to Kenya and South Africa respectively.

Table 7:Summary descriptive statistics of business model disclosure

COUNTRY		N	Min.	Max.	Mean	Std. Dev.	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Kenya	BMInputs	54	.00	3.00	1.9444	.70247	-.635	.325	-.310	.639
	BMActivity	54	1.17	2.83	2.1188	.41227	-.117	.325	-.722	.639
	BMOutputs	54	.67	3.00	1.7901	.75596	-.026	.325	-1.381	.639
	BMOutcomes	54	1.30	3.00	2.2889	.47011	-.503	.325	-.743	.639
	BMD	54	.81	2.85	2.0356	.49603	-.370	.325	-.846	.639
	Valid N (listwise)	54								
South Africa	BMInputs	318	.00	3.00	2.1358	.70086	-1.362	.137	1.576	.273
	BMActivity	318	1.08	2.75	1.8483	.32145	.311	.137	-.250	.273
	BMOutputs	318	.67	3.00	2.1960	.65901	-.670	.137	-.421	.273
	BMOutcomes	318	.70	3.00	2.2899	.36911	-.925	.137	1.578	.273
	BMD	318	1.03	2.92	2.1175	.38516	-.420	.137	-.270	.273
	Valid N (listwise)	318								

(BMInputs= Business model inputs; BMActivity =Business model activity; BMOutputs =Business model outputs; BMOutcomes= Business model outcomes; BMD =Business model disclosure)

Source: Research data, 2024

On the basis of Table 7, Kenya records business model outcomes component as the most disclosed with (*N*=54, *M* = 2.2889, *SD* = .47011). As disclosures in relation to business model inputs was least (*N* =54, *M* =1.7901, *SD* = .75596). This finding partially contradicts that of Simoni *et al*.(2022) which reported average disclosure of business model inputs.

Comparably, for South Africa, business model outcome component received most disclosure with (*N*=318, *M*=2.2899, *SD*= .36911). Whereas, disclosures in relation to business model activities was given least consideration of (*N* =318, *M* =1.8483, *SD* = .32145) by JSE listed companies. This result corroborates the finding of (Melloni *et al.,* 2016; Simoni *et al*., 2022) in which business model outcome components were

dominantly disclosed as less business model inputs, activities and outputs related components exhibited least disclosures. In addition, the overall business model disclosure was slightly greater for South Africa (*N* =318, *M* =2.1175, *SD* = .38516) compared to Kenya (*N* =54, *M* =2.0356, *SD* = .49603. Nevertheless, the variation in business model disclosure among the studied companies was greater for Kenya compared to South Africa as indicated by the difference in the standard deviation. The finding uphold the results by Szewieczek *et al.(*2021) in which same degree disclosures of overall business model components by integrated reporting firms and non-integrated report preparers was found.

Accordingly, in both countries business model outcomes is the most disclosed component of the business model. This can be ascribed to the fact that investors as major users of the information contained in integrated reports are mainly interested on the entities performance in terms of shareholders return, profit/(loss) generated, the entity's contribution to the economy in terms of improving the standard of living and customer satisfaction. This information is contained in the outcomes section of the entity's business model. Thus, managers tend to disclosure more of that information to meet the investor needs.

4.4.3 Firm value (Y)

The research also established the descriptive statistics of firm value in respect of firms listed in the NSE and JSE. The results are as presented in Table 8 below.

Table 8: Descriptive statistics of firm value

COUNTRY		N	Minimum	Maximum	Mean	Std. Deviation
Kenya	FV-Firm value	54	.42	2.98	1.3653	.58422
	Valid N (listwise)	54				
South Africa	FV-Firm value	318	.24	3.38	1.1044	.48269
	Valid N (listwise)	318				

Source: Research data, 2024

Table 8 provides the description of average firm value of (*N*=54, *M* = 1.3653, *SD* = .58422) for listed NSE companies. Whereas, average firm value of (*N*=318, *M* = 1.1044, *SD* = .48269) is revealed for JSE listed companies. Furthermore, the study uncovers that, the mean of firm values as proxied by Tobin's Q, Kenyan listed firms recorded on average value of 1.3653 with a standard deviation of 0.58422, unlike South Africa with an average value of 1.1044 with a standard deviation of 0.48269. This implies that, South African companies are more appropriately valued than Kenyan listed companies.

The results of the summarised descriptive statistics for Kenya and South Africa in relation to ICD, BMD and FV considered as the main variables of the study is as portrayed in Table 9 below.

Table 2: Descriptive statistics of study variable

COUNTRY		N	Min.	Max.	Mean	Std. Dev.	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Kenya	ICD	54	1.17	3.00	2.0710	.44227	.268	.325	-.607	.639
	BMD	54	.81	2.85	2.0356	.49603	-.370	.325	-.846	.639
	Valid N (listwise)	54								
South Africa	ICD	318	1.00	3.00	1.9832	.33605	.148	.137	.267	.273
	BMD	318	1.03	2.92	2.1175	.38516	-.420	.137	-.270	.273
	Valid N (listwise)	318								

Source: Researcher, 2024

According to Table 9**,** the average value of ICD, Kenya listed companies is (*N*= 54, *M* = 2.0710, *SD* = .44227), whereas, South Africa reported an average disclosure of (*N*= 318, *M* = 1.9832, *SD* = .33605). Further, average business model disclosure was lower for Kenya recording (*N*=54 , *M* = 2.0356, *SD* = .49603) in compared to South Africa (*N*= 318, *M* = 2.1175, *SD* = .38516).

4.5 Diagnostic tests

To test for linearity residual scatter plots were inspected. The scatter plots related to each of the intellectual capital disclosure against the dependent variable, firm value, proxied by Tobin's Q. The scatter plots were inspected relatively revealed the possibility of being modelled by a straight line $y = a + bx$, where *"a"* is the constant and *"b"* is the gradient or slope. Figure 2 below displays the results.

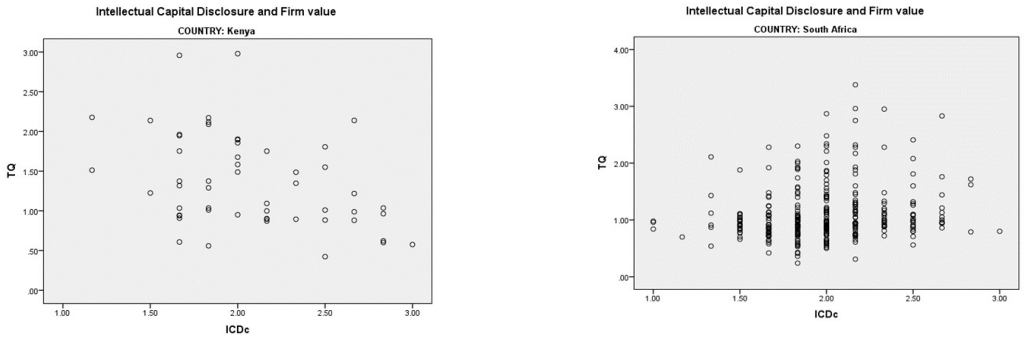

Figure 4:Scatter plots of intellectual capital disclosure and firm value
Source: Research data, 2024

Multicollinearity is said to occur when the values of the associations of the independent variables are equal or nearly equal. This was tested using the Variance Inflation Factor (VIF) and Tolerance statistics. The assumption was met as the VIF was well below 10 and Tolerance scores were above 0.2 as recommended. Kenyan data recording (VIF = 2.995 & Tolerance value = .334), while South Africa reported (VIF = 1.463 & Tolerance value = .683). The research further attempted to test for autocorrelation. This is an indication that the residual errors are dependent on each other. This is not desired as the presence of autocorrelation in error terms results in a reduction of the accuracy of the regression model. This was tested by use of Durbin-Watson statistic. This statistic varies between 0 and 4. A value of 2 or close to 2 is deemed appropriate. A value of 1.823 was reported. This is close to 2 and therefore, there is no autocorrelation in error terms. Using Skewness and Kurtosis test of normality for samples > 50 conducted (Table 4.15 above), results show that values of Skewness and Kurtosis fell within the recommended values of -2 to +2 and -3 to +3 for large samples as recommended by (Hair *et al.,* 2010; Byrne, 2010). On this basis the data was assumed to be normally distributed.

On testing for homoscedasticity that arises whenever the error terms in the relationship between the independent variable and the dependent variable is the same across all values of the independent variables, the study utilized the probability plots (P-P plot). No specific pattern was attached to the scatter plots (Figure 5). An observation of the width of the scatter, shows that as predicted values increase, it is roughly the same. So the homoscedasticity assumption was met.

The P-P plots and the respective scatter plots are as presented in Figure 5 and 6 below;

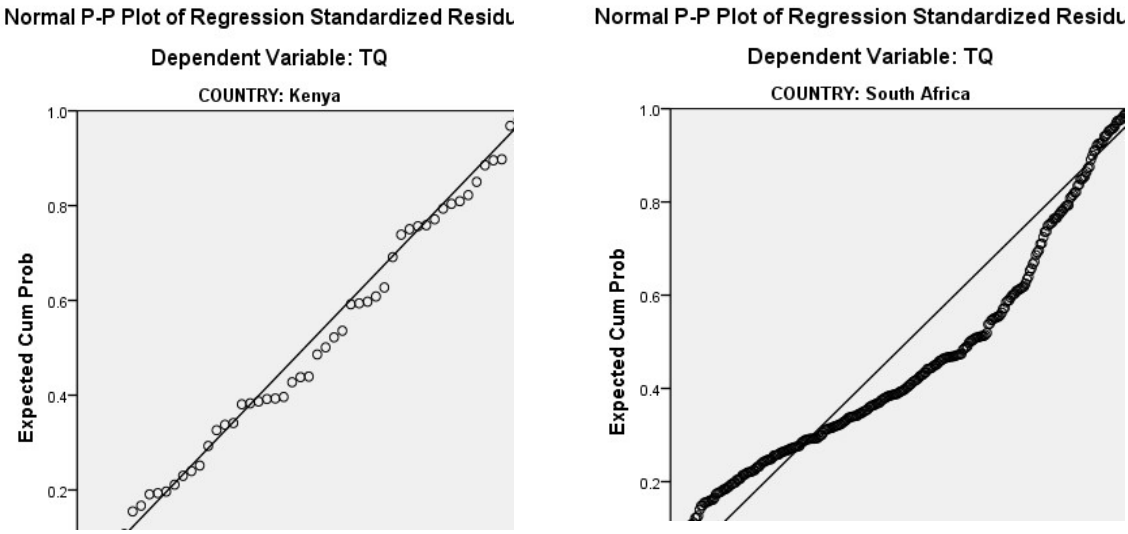

Figure 5: Normal P-P plot of Regression standardized Residual
Source: Research data, 2024

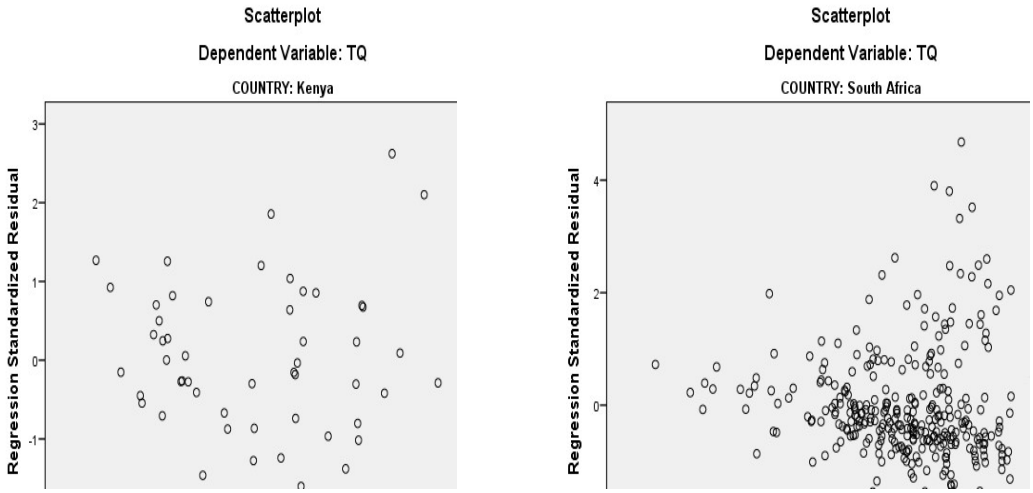

Figure 6: Scatter Plot of Dependent Variable
Source: Research data, 2024

4.6 Correlation analysis

The main variables of the study ICD, BMD and FV were correlated as provided in the table 10 below;

Table 10 Correlation Matrix

COUNTRY			ICD	BMD	FV
		Pearson Correlation	1		
	ICD	Sig. (2-tailed)			
		N	54		
		Pearson Correlation	.630**	1	
Kenya	BMD	Sig. (2-tailed)	.000		
		N	54	54	
		Pearson Correlation	-.385**	-.026	1
	FV	Sig. (2-tailed)	.004	.850	
		N	54	54	54
		Pearson Correlation	1		
	ICD	Sig. (2-tailed)			
		N	318		
		Pearson Correlation	.419**	1	
South Africa	BMD	Sig. (2-tailed)	.000		
		N	318	318	
		Pearson Correlation	.175**	.212**	1
	FV	Sig. (2-tailed)	.002	.000	
		N	318	318	318

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

Source: Researcher, 2024

Pearson correlation in relation to Kenya as exhibited in Table 10 above ICD and business model correlate positively and significantly (N = 54, r =.630, P = .000). However, the correlation between ICD and firm value was negative and statistically significant (N = 54, r = -.385, P = .004). Nonetheless, a negatively insignificant connection between the mediator variable business model disclosure and firm value of (N = 54, r = -.026, P =.850) was reported. To the contrary Simoni *et al.(*2022) reported positive non-significant association of business model disclosure and firm value.

Contradictorily, from South African context, ICD positively and significantly correlated with firm value (N=318, r =.175, P=.002). This is in agreement with the results of (Ngari & Gichira, 2013; Kapkiyai & Mugo, 2015; Altal, 2016; Salvi *et al*., 2020). Likewise, the mediator variable business model disclosure bonded positively and significantly with firm value (N=318, r =.212, P =.000). This opposes the finding of Simoni *et al.(*2022) in which a positive but insignificant association of the business model disclosure on firm value was exposed.

On the basis of the Pearson correlation analysis as contained in Table 10 in relation to Kenya and South Africa respectively, similarities and differences were noted. Following Hopkin's (2002) criteria for interpretation of correlations stated as (r < .1, trivial; .1 ≤ r < .3, small; .3 ≤ r < .5, moderate; .5 ≤ r < .7, large; .7 ≤ r < .9, very

large and .9 ≤ *r* < .1, nearly perfect) the resultant correlations were compared. Kenyan NSE listed companies exhibited a moderate negative and significant association between intellectual capital disclosures and firm value. Comparably, South Africa, JSE listed firms recorded a small positive and statistically significant association between intellectual capital disclosure and firm value. Further, the correlation differences between the two data sets was evaluated on the basis of Cohen's *q* and Fisher's *r* to *Z* transformation methods. The estimated effect-sizes and Z_{obs} statistic between the two correlations is as portrayed in table 11 below.

Table 11: Cohen's q effect-size and Fisher's Z_{obs} statistic of difference in correlations of integrated reporting capitals disclosure and firm value between Kenya and South Africa

Variable	Correlation (r_1) Kenya N=54	Correlation (r_2) South Africa N=318	Cohen's *q* (effect size)	Effect size interpretation	Fisher's $Z_{obs\ Statistic}$	*P*-value
ICD	-.385	.175	.583	Large effect	-3.86	.0001
BMD	-.026	.212	.241	Small effect	-1.59	.1096

Source: Researcher calculation, 2024

The interpretation of the different effect-sizes, followed the criteria provided by Cohen (1988) guidelines for social sciences; *q* < .1, no effect; .1 ≤ *q* < .3, small effect; .3 ≤ *q* < .5, medium effect; *q* > .5, large effect. On the basis of Table 11 the effect sizes ranged from small to large evidencing respective differences in the correlations reported between the two data sets.

Using the Fisher's *r* to *Z*-score transformation, the study tested whether the reported correlations differences between Kenya and South Africa were significantly different. Observed Z-score values (Z_{obs}) with *P* -values <.05 confirmed that the correlation of intellectual capital disclosures and firm value was significantly different between Kenya and South Africa. No significant difference was reported in case of business model disclosure and firm value between Kenya and South Africa data sets.

4.7 Mediation analysis

4.7.1 Step 1 : Testing for the total (unmediated) effect 'c'

H_{02}: Intellectual capital disclosure has no statistically significant effect on value of listed companies between Kenya and South Africa.(Total effect *c*)

Intellectual capital disclosure and firm value was regressed to examine how it related to firm value. The comparative regression model summary, ANOVA and coefficients between Kenya and South African listed companies data were as follows.

4.7.1.1 Model summary of intellectual capital disclosure and firm value

Intellectual capital disclosure and firm value was regressed to ascertain the breadth to which the variable explained firm value. The comparative results are as drawn in Table 12 below.

Table 12: Comparative model summary of intellectual capital disclosure and firm value

COUNTRY	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Kenya	1	.385[a]	.148	.132	.54442
South Africa	1	.175[a]	.030	.027	.47603

a. Predictors: (Constant), ICD

Source: Research data, 2024

From Table 12 it is expressed that intellectual capital disclosure illuminates the deviation in firm value of NSE listed firms to the extent of 14.8 % (R^2 = .148), leaving 85.2% of the variation as accounted for by other factors not covered in the model. Comparably, for South African firms intellectual capital disclosure elucidates discrepancy in value of JSE listed firms to the size of 3.0% (R^2 = .030), hence, 97.0% of the change results from other factors outside the presented model.

Pursuant to R^2 value, the effect-size of the variance in firm value caused by intellectual capital disclosure was medium to large effect for Kenya, while, it was small effect-size for South Africa.

4.7.1.2 ANOVA of intellectual capital disclosure and firm value

To ascertain the fitness of the models in predicting the relationship between intellectual capital disclosure and firm value of listed firms between Kenya and South Africa, ANOVA was performed. The comparative results are as rendered in Table 13 below.

Table 13: Comparative ANOVA of intellectual capital disclosure and firm value

COUNTRY	Model		Sum of Squares	df	Mean Square	F	Sig.
Kenya	1	Regression	2.677	1	2.677	9.032	.004[b]
		Residual	15.412	52	.296		
		Total	18.089	53			
South Africa	1	Regression	2.250	1	2.250	9.930	.002[b]
		Residual	71.606	316	.227		
		Total	73.856	317			

a. Dependent Variable: FV
b. Predictors: (Constant), ICD
Source: Research data, 2024.

Consistent with Table 13 the findings reveal ($F(1,52) = 9.032$, $P = .004$) and $F(1,316) = 9.930$, $P = .002$) in respect of Kenya and South Africa. This confirms the propriety of the models in predicting the association between intellectual capital disclosure and firm value.

4.7.1.3 Regression coefficients of intellectual capital disclosure and firm value

To discover how a unit variation in intellectual capital disclosure affected the value of listed firms between Kenya and South Africa, the researcher conducted regression analysis. The study findings are as compared in Table 14 below.

Table 14: Comparative regression coefficients of intellectual capital disclosure and firm value

COUNTRY	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Kenya	1	(Constant)	2.418	.358		6.755	.000
		ICD	-.508	.169	-.385	-3.005	.004
South Africa	1	(Constant)	.607	.160		3.794	.000
		ICD	.251	.080	.175	3.151	.002

a. Dependent Variable: FV
Source: Research data, 2024

Owing to Table 14 it is spelled out that all factors held untouched, the value of NSE listed firms is 2.418. Whereas, a change in intellectual capital disclosure by one unit significantly diminishes the value of the firms ($B = -.508$, $P = .004$) in respect to Kenya. Conversely, the value of JSE listed firms is .607 on holding all other things unchanged. A unit deviation in disclosure of Intellectual capital significantly increases firm value ($B = .251$, $P = .002$).

An assessment of the effect-size of the relationship between intellectual capital disclosure and firm value was done using Cohen's f^2 . The worked out f^2 values reported ($f^2 = .17$ & $f^2 = .03$) in respect to Kenya and South Africa. On the basis of Cohen's criteria of (.02, .15 & .35) for small, medium and large effects respectively, the results suggest a medium to large effect-size of intellectual capital disclosure on value of NSE listed firms, while the effect is small to medium in the case of JSE companies data. Thus, the following models were established;

$$Y_k = 2.418 - .508ICD_k + \alpha$$
$$Y_s = .607 + .251ICD_s + \alpha$$

The third objective was to evaluate the effect of Intellectual capital disclosure on value of listed companies between Kenya and South Africa. In this respect, the study findings conclude that, disclosure of intellectual capital has a statistically significant effect on value of NSE and JSE, listed firms. However, the effect is negative for Kenya, while, it is positive in relation to South Africa. This implies that, an upward rise in intellectual capital disclosure causes a decrease in value of firms in Kenya, while it increases the value of firms in South Africa.

On this basis the research rejects the null hypothesis that intellectual capital disclosure does not statistically affect firm value between the two countries. The results are in line with findings of Altal (2016) and, Putra and Ratnadi (2021) that found a positive and significant effect of ICD on firm value. On the same tone, a study by Salvi *et al.(*2020) documents improvement on the value of the firm as a result of incorporating intellectual capital disclosures in integrated reports. Equally, prior studies by Anifowose *et al*.(2016) and Farah *et al*.(2019) hold up negative effects of intellectual capital disclosure on firm performance

4.7.2 Step 2 :Testing for the indirect path 'a'

H_{02}: Business model has no statistically significant mediating effect on the relationship between intellectual capital disclosure and value of listed companies when comparing Kenya and South Africa.

To test the mediating effect of the business model in the relationship between intellectual capital disclosure and firm value between Kenya and South Africa, the study analyzed a sequence of regression equations to establish the direct and indirect effects. This hypothesis sought to establish the direct path *(c^1),* the indirect path *(a)* and indirect path *(b)* .The effects were determined as follows.

4.7.2.1 Simple linear regression of intellectual capital disclosure and business model (Indirect effects path *'a'*)

Intellectual capital disclosure and business model was regressed to examine the extent to which the two variables connected with each other in order to establish the indirect effect path *'a'*. The model summary is as provided in Table 15 below.

Table 15: Model summary of intellectual capital disclosure and business model

COUNTRY	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Kenya	1	.640[a]	.410	.398	.36179
South Africa	1	.435[a]	.189	.186	.32878

a. Predictors: (Constant), ICD

Source: Research data, 2024

The results displayed in Table 15 evidences that intellectual capital disclosure explains the variation in business model of Kenyan listed firms to the extent of 41.0% (R^2 = .410) and therefore, 59.0% of the variation can be explained by other factors not included in the model.

On the other hand, 18.9% (R^2 = .189) explains the variation in business model of South African listed firms. 81.1% of the variation can be accounted for by other factors.

4.7.2.2 ANOVA of intellectual capital disclosure and business model

ANOVA was deployed in order to ascertain how fit the models were in predicting the relationship between intellectual capital disclosure and business model of listed firms between Kenya and South Africa. The results are as portrayed in Table 16 below.

Table 16: ANOVA of intellectual capital disclosure and business model

COUNTRY	Model		Sum of Squares	df	Mean Square	F	Sig.
Kenya	1	Regression	4.727	1	4.727	36.112	.000[b]
		Residual	6.806	52	.131		
		Total	11.533	53			
South Africa	1	Regression	7.964	1	7.964	73.672	.000[b]
		Residual	34.159	316	.108		
		Total	42.122	317			

a. Dependent Variable: BMD

a. Predictors: (Constant), ICD

Source: Research data, 2024

The reported findings in relation to NSE firms, (F(1,52) = 36.112, P =.000), while for JSE, (F(1,316) = 73.672, P =.000) was revealed. This confirms the suitability of the models in predicting the association between intellectual capital disclosure and business model.

4.7.2.3 Regression coefficient to predict business model from intellectual capital disclosure

To determine how a unit variation in intellectual capital disclosure influenced business model of listed firms between Kenya and South Africa, simple regression analysis was conducted. The study findings are as displayed in Table 17 below.

Table 17: Regression coefficient to predict business model from intellectual capital disclosure (Indirect effect path *'a'*)

COUNTRY	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Kenya	1	(Constant)	.691	.238		2.905	.005
		ICD	.675	.112	.640	6.009	.000
South Africa	1	(Constant)	1.151	.111		10.414	.000
		ICD	.472	.055	.435	8.583	.000

a. Dependent Variable: BMD

Source: Research data, 2024

As signified in Table 17 a significant effect of intellectual capital disclosure on business model for Kenya (B = .675, P = .000) is confirmed in respect to Kenya. Equally for South Africa, the effect of intellectual capital

disclosure on business model was positive and significant (B = .472, P = .000). This is the indirect effect *'a'*. The results suggest that intellectual capital disclosure has a stronger prediction of firm value for Kenya compared to South Africa. The resulting models are;

$BMD_k = .691 + .675ICD_k + \alpha$

$BMD_s = 1.151 + .472ICD_s + \alpha$

4.7.3 Step 3: Testing for the indirect effect path *'b'* and direct effect 'c^1'

Multiple regression analysis was conducted taking intellectual capital disclosure and business model as predictors of firm value. The purpose was to ascertain how firm value was predicted by intellectual capital disclosure and business model. This measured the direct effect path 'c^1' and the indirect effect path *'b'*, in order as per condition 3 of mediation analysis. The comparative regression model summary, ANOVA and coefficients between Kenya and South African listed companies data were as presented below.

4.7.3.1 Model summary of intellectual capital disclosure, business model and firm value

Intellectual capital disclosure and business model as predictors of firm value is as provided in Table 18.

Table 18: Model summary of intellectual capital disclosure, business model and firm value

COUNTRY	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Kenya	1	.452[a]	.204	.173	.53121
South Africa	1	.223[a]	.050	.044	.47201

a. Predictors: (Constant), BMD, ICD

Source: Research data, 2024

On account of Table 18 intellectual capital disclosure and business model as predictors explain the variation in NSE listed firms value to the extent of 20.4% (R^2 = .204) and therefore, 79.6% of the variation can be explained by other factors not contained in the model. While, for South Africa 5% (R^2 = .050) is explained, as 95% of the variation is caused by other factors outside the model.

4.7.3.2 ANOVA of intellectual capital disclosure, business model and firm value

ANOVA was deployed in order to ascertain how fit the models were in predicting the relationship between intellectual capital disclosure, business model and value of listed firms between Kenya and South Africa. The results are as portrayed in Table 19 below.

Table 19: ANOVA of intellectual capital disclosure, business model and firm value

COUNTRY	Model		Sum of Squares	df	Mean Square	F	Sig.
Kenya	1	Regression	3.698	2	1.849	6.552	.003[b]
		Residual	14.392	51	.282		
		Total	18.089	53			
South Africa	1	Regression	3.676	2	1.838	8.250	.000[b]
		Residual	70.180	315	.223		
		Total	73.856	317			

a. Dependent Variable: FV

b. Predictors: (Constant), BMD, ICD

Source: Research data, 2024

The reported findings in relation to NSE firms, (F(2,51) = 6.552, P =.003), while for JSE, (F(2,315) = 8.250, P =.000). This confirms the suitability of the models in predicting the association between intellectual capital disclosure and business model on firm value.

4.7.3.3 Regression coefficients of intellectual capital disclosure, business model and firm value

To determine how a unit variation in intellectual capital disclosure and business model influenced the value of listed firms between NSE and JSE, the researcher undertook a multiple regression analysis. The study findings are as displayed in Table 20 below.

Table 20: Regression coefficients to predict firm value from intellectual capital disclosure and mediating variable business model (Direct effect *'c^1'* and Indirect effect *'b'*)

COUNTRY	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Kenya	1	(Constant)	2.150	.377		5.710	.000
		ICD	-.770	.215	-.583	-3.584	.001
		BMD	.387	.204	.309	1.902	.063
South Africa	1	(Constant)	.372	.184		2.023	.044
		ICD	.154	.088	.107	1.762	.079
		BMD	.204	.081	.154	2.530	.012

a. Dependent Variable: FV

Source: Research data, 2024

From the findings in Table 20 it can be deduced that all factors remaining constant, the firm value of NSE listed firms is 2.150. Whereas, the direct effect signify a change in intellectual capital disclosure by one unit was found to significantly cause a negative variation in the value of the firm (B = -.770, P = .001). Whereas, a change in business model disclosure by one unit positively and insignificantly influence the value of the firm (B =.387, P = .063). This is the indirect path *'b'*.

Also, from the findings in Table 4.69 it can be deduced that all factors remaining constant, the firm value of JSE listed firms is .372. Whereas, the direct effect 'c^1' signify a change in intellectual capital disclosure by one unit would insignificantly cause a positive change in the value of the firm (B =.154, P = .079). On the other hand, a change in business model disclosure by one unit positively and significantly influences the value of the firm (B =.204, P = .012). This represents the indirect path *'b'*. The established models are;

$$FV_k = 2.150 - .770ICD_k + .387BMD_k + e$$

$$FV_s = .372 + .154ICDs + .204BMD_s + e$$

4.7.3.4 Step 4 : Determination of existence and nature of mediation (Kenya)

Using the results from the two regression models, the study compared the unstandardized beta coefficients of direct effect 'c^1' and total effect *'c'* to find out the presence of mediation. Whereas, the nature of mediation if any was determined by assessing the significance of the direct and indirect effects in respect of Kenya and South Africa. The Summary of unstandardized coefficients of the total, direct and indirect effects for Kenya based on the step 1-3 regression steps above is as contained on Figure 7 and Table 21 below.

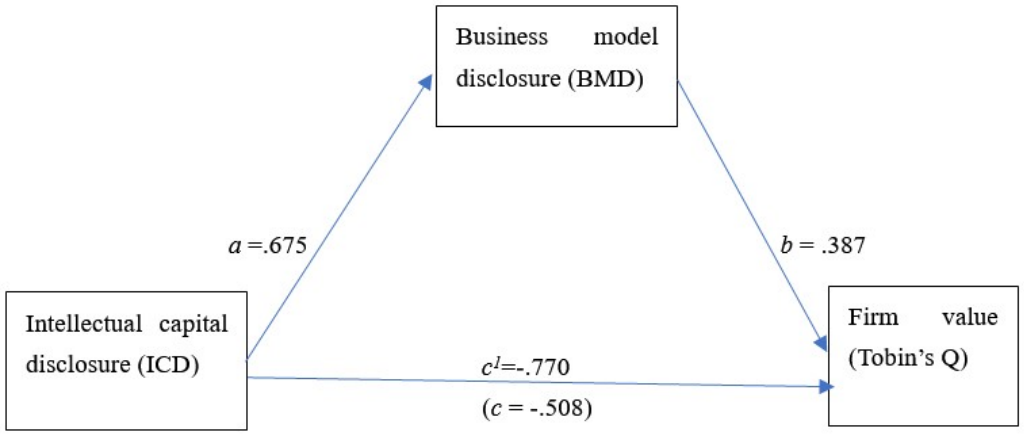

Figure 7: Mediation effect of business model in the relationship between intellectual capital disclosure and firm value for Kenya

Source: Research data, 2024

Table 21: The path unstandardized regression coefficient and its significance-Kenya

Construct	Path	Construct	Standardized Estimate	*P*-Value	Result
Total Effects					
Firm Value	<--	Intellectual capital disclosure	-.508	.004	Significant
Direct and Indirect effects					
Firm Value	<--	Intellectual capital disclosure	-.770	.001	Significant
Business model disclosure	<--	Intellectual capital disclosure	.675	.000	Significant
Firm Value	<--	Business model disclosure	.387	.063	Not Significant

Source: Research data, 2024

Mediation analysis was conducted to examine the mediating role of the business model on the linkage between intellectual capital disclosure and value of firms listed in the NSE. On the basis of Figure 7 and Table 21, it is revealed that the total effect '*c'* of intellectual capital disclosure on firm value was negative and significant (*B* = -.508, *P* = .004). With the inclusion of the mediating variable business model, the direct effect 'c^{l}' of intellectual capital disclosure on firm value was negative and significant (*B* = -.770, *P* = .001). The indirect path *'a'* was found to be positive and significant (*B* = .675, *P* = .000), while, a positive and non-significant indirect effect path *'b'* (*B* = .387, *P* = .063) was established. The value of indirect effects '*ab'* was .2612 (*a*b* = .675*.387). The proportion mediated was about 51% (*ab/c* = .2612/-.508). Comparison of the direct versus indirect paths (c^{l} = -.770 and *ab* = .2612) advocate that $c^{l} > ab$ in absolute value. The resultant mediation ratio was .339 (ab/c^{l} = .2612/-.770) Thus, since the direct effect remained significant on controlling for the mediator and the indirect effect path '*b'* reported non-significant results, business model does not mediate the link between intellectual capital disclosure and value of firms listed in the NSE. However, on testing the significance of the indirect effect *'ab'* through bootstrapping inconsistent mediation was affirmed.

To evaluate the magnitude of the indirect effect-size of intellectual capital disclosure on firm value through the business model, R^2_{med} was computed. The effect-size R^2_{med} value was -.055. The negative sign verifies suppression effect. The overall R^2_{med} value of -.055 allude that approximately 5.5% of the variance in the value of the firm is attributable to the indirect effect of intellectual capital disclosure through the business model. Considering that about 20% of the total variance in firm value is explained ($R^2_{multiple}$ = .204), out of this, 27% (-.055/.204) of the explained variance in the model was caused by the mediated effect.

4.7.3.5 Testing the significance of the indirect effect *'ab'* mediation analysis for Kenya

Following Hayes (2013) Macro process via bootstrapping method, the presence and significance of mediation if any, was tested. The bootstrap was set at 5000 samples, with a bias corrected confidence level of 95%. The results are as provided in Table 22 below.

Table 22: Bootstrapping mediation analysis summary-Kenya

Relationship	Direct Effect	Indirect Effect	Confidence Interval		*P*-value	Conclusion
			Lower Bound	Upper Bound		
Intellectual capital disclosure -→ Business model- →Firm value	-.7697 (.008)	.2615	.0127	.5375	<.05	Inconsistent Mediation

Source: Research data, 2024

As demonstrated in Table 22, the bootstrap conducted indicates that the direct effect is statistically significant (*B* = -.7697, *P* = .008). The indirect effect was equally statistically significant as the confidence intervals of lower bound and upper bound excluded a zero (*LLCI* = .0127, *ULCI* = .5375). Since the indirect effect is significant, and the direct effect is also significant but of opposite sign, the study confirms that the business model mediates the relationship between intellectual capital disclosure and value of firms listed in the NSE. The nature of mediation is inconsistent mediation.

4.7.3.6 Step 4 : Determination of existence and nature of mediation (South Africa)

By reason of the analysis of the three regression models above Figure 8 and Table 23 below summarizes the unstandardized coefficients of the total, direct and indirect effects.

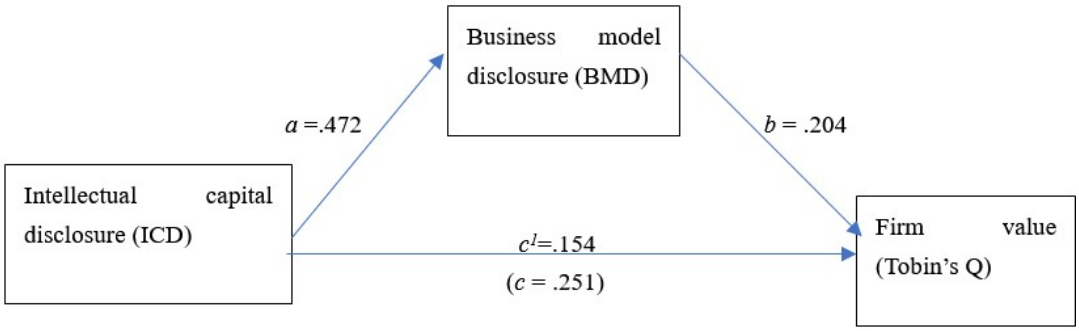

Figure 8: Mediation effect of business model in the association between intellectual capital disclosure and firm value for South Africa

Source: Research data, 2024

Table 23: The path unstandardized regression coefficient and its significance-South Africa

Construct	Path	Construct	Standardized Estimate	*P*-Value	Result
Total Effects					
Firm Value	←	Intellectual capital disclosure	.251	.002	Significant
Direct and Indirect effects					
Firm Value	←	Intellectual capital disclosure	.154	.079	Not Significant
Business model disclosure	←	Intellectual capital disclosure	.472	.000	Significant
Firm Value	←	Business model disclosure	.204	.012	Significant

Source: Research data, 2024

The mediating role of the business model in the relation between intellectual capital disclosure and value of firms listed in the JSE was elucidated by enforcing regression analysis. Based on Figure 8 and Table 23 the results unearth that the total effect '*c'* of intellectual capital disclosure on firm value was positive and significant (B = .251, P = .002). On incorporating the mediating variable business model, the direct effect 'c^{l}' of intellectual capital disclosure on firm value decreased and was non-significant (B = .154, P = .079).

The indirect path '*a'* was positive and statistically significant (B = .472, P = .000) and a significant indirect effect path '*b'* (B = .204, P = .012) was established. The resulting indirect effects '*ab'* was .0963 (*a*b* = .472*.204). The proportion mediated was found to be 38% (*ab/c* =.0963/.251). Contrasting of the direct versus indirect paths (c^{l} = .154 and *ab* =.0963) propound that $c^{l} > ab$. In effect the mediation ratio was .625 (ab/c^{l} = .0963/.154). Accordingly, since the direct effect remained non-significant on controlling for the mediator, $c^{l} < c$, and the indirect effects were both significant, business model mediates the relationship between intellectual capital disclosure and value of firms listed in the JSE. This upholds complete/full mediation.

To examine the magnitude of the indirect effect of intellectual capital disclosure on firm value through the business model, R^2_{med} was used. The effect-size of mediation calculated resulted to R^2_{med} value of .025. The overall R^2_{med} value of .025 allude that 2.5% of the variance in the value of the firm is attributable to the indirect effect of intellectual capital disclosure by way of business model. Considering that about 5% of the total variance in firm value is explained ($R^2_{multiple}$ = .050), out of this 50% (.025/.050) of the explained variance in the model was due to the mediated effect.

4.7.3.7 Testing the significance of the indirect effects *'ab'* mediation analysis for South Africa

Following Hayes (2013) Macro process via bootstrapping method, the presence and significance of mediation if any, was tested. The bootstrap was set at 5000 samples, with a bias corrected confidence level of 95%. The results are as provided in Table 24 below.

Table 24: Bootstrapping mediation analysis summary- South Africa

Relationship	Direct Effect	Indirect Effect	Confidence Interval		*P*-value	Conclusion
			Lower Bound	Upper Bound		
Intellectual capital disclosure -→ Business model- →Firm value	.1543 (.0791)	.0964	.0333	.1666	<.05	Complete/full Mediation

Source: Research data, 2024

As demonstrated in Table 24, the bootstrap conducted indicates that the direct effect is not statistically significant (*B* =.1543, *P* = .0791). The indirect effect was statistically significant as the confidence intervals of lower bound and upper bound excluded zero (*LLCI* = .0333, *ULCI* = .1666). Since the indirect effect is significant and the direct effect is not statistically significant after considering the mediator into the relationship, mediation effect is confirmed. On the fact that direct effect being insignificant (*P* =.0791) and indirect effect was also significant (*P* = < .05) then partial mediation is construed.

4.7.4 Overall Summary of tested hypothesis

The overall summary of the tested hypothesis is as portrayed in the Table 25 below.

Table 25: Results summary on hypotheses testing based on unstandardized coefficients

Hypothesized relationship	**Country**	**Unmediated effect**		**Mediated effect**				**Mediated effect-size**		**Nature of mediation**
		Total effect		Direct effect		Indirect effect		Effect-size	$R^2_{med}/R^2_{Multiple}$	
		'*c*'	*P*-value	'$c^{1'}$	*P*-value	'*ab*'	*P*-value	R^2_{med}	Percentage	
ICD→BMD→FV	Kenya	-.508	.004	-.770	.001	.2612	<.05	-.055(5.5%)	27%	Inconsistent mediation
	South Africa	.251	.002	.154	.079	.0963	<.05	.025(2.5%)	50%	Complete mediation

Source : Researcher compilation, 2024

From Table 25 it is affirmed that the relationship between intellectual capital disclosure and firm value was statistically significant (unmediated effect *'c')* for both countries data. However, the effect was negative for Kenya while it was positive for South Africa. On considering the mediator business model into the relationships, the total effect *'c'* was decomposed into the direct effect '$c^{1'}$ and indirect effect '*ab'*. Further, it is confirmed that the business model provides a mechanism through which intellectual capital transmits its effect on firm value. The effect-size provide the practical significance of the business model in firm value determination. The effect-size was greater for Kenya 5.5% (R^2 med =.055) compared to South Africa 2.5% (R^2 med =.025). However, the explained variance due to the mediated effect ($R^2_{med}/R^2_{Multiple}$) was greater for South Africa where <IR> is mandatory compared to Kenya where <IR> is voluntary. This shows that in both cases the results are practically important.

5. Summary of Findings, Conclusions and Recommendations

5.1 Summary of Findings

On this study objective, the study findings are twofold; a negative and statistically significant relationship was reported for Kenya, as, a positive and significant relationship was established between intellectual capital disclosure and firm value in respect of South Africa. This imply that unveiling intellectual capital publicly involves a trade-off between the costs and economic benefits of disclosure. Negative association can be alluded to erosion of competitive advantage resulting from voluntary intellectual capital disclosure. Such disclosures may be harmful to companies owing to the exposure of key practices that companies employ to attain competitive edge to competitors. This publicly released information may be used to the detriment of the releasing company, and this may lead to a decline in firm value. Another possibility of negative effects can be attached to uncovering bad information in relation to intellectual capital which in the eye of the investors may be perceived as risk to the company future prospects which can apparently lead a reduction in firm value. The finding in relation to Kenya is consistent with that of Luthfiani and Suryani (2022). While, the finding in the context of South Africa data is consistent with that of (Altal, 2016; Putra & Ratnadi, 2021) in which a statistically significant positive effect of intellectual capital information on firm value was established. Equally, a study by Salvi *et al*.(2020) register a significant and positive link of disclosing intellectual capital in integrated reports to innovatively improve value of International companies. Contrary, (Anuonye, 2016; Murimi *et al*., 2019; Luthfiani & Suryani, 2022) document positive and insignificant results.

The research further sought to estimate whether the business model played a mediating role on the relationship between intellectual capital disclosure and value of listed companies when comparing Kenya and South Africa. The study results in respect of the data sets from both countries, show statistically significant mediating effect of the business model on the association between intellectual capital disclosure and value of listed companies between Kenya and South Africa. The findings echo the emphasis made by Beattie and Smith (2013), that explored the linkage between intellectual capital, business model and value creation, in which the business model was viewed as a powerful concept around which intellectual capital can be refocused. The study supports disclosure of intellectual capital around the central business model to enhance value creation. Further, the finding is consistent with that of Asemokha *et al.,*(2019) that documents a positive and significant mediating effect of the business model between entrepreneurial orientation and performance among SME's operating internationally in Finland.

5.2 Conclusions

While <IR> has been advocated as a change to the reporting landscape of corporate entities, it is important to understand how disclosure of different forms of capital affect the value of listed companies and the role played by the business model on this relationship from a voluntary and mandatory setups. The study findings demonstrate a link between intellectual capital disclosure and firm value, and that business model plays a mediating role on this relationship.

With Kenyan listed companies exhibiting inconsistent mediation and South African firms expressing complete/full mediation. The findings expressed in this work circumstantiates the message by the IIRC, (2013) view of the relevance of adoption of <IR> framework by corporate entities. Further, the findings of this research provide a new perspective that will enable companies to gain an understanding of intellectual capital disclosure in influencing company value through the business model.

5.3 Implications and recommendations of the study

5.3.1 Implication for Theory

The study relied on stakeholder theory as the main theory complemented by the legitimacy theory and agency theory in explaining the effect of <IR> capitals disclosure on firm value with business model taken as the mediating factor. The findings of this study align with the theories as follows;

This study post a positive association between intellectual capital disclosure and firm value for South African listed companies, while, Kenyan listed firms exhibited a negative association. This advocates that companies that utilize their intellectual capital efficiently and effectively accord such companies competitive advantage that can lead to improved firm value. However, poor disclosures or lack of awareness of the entity's intellectual capital by the investors may humper the predictive ability of the investors about the value of the company's intellectual capital resulting into a negative impact on firm value. On the basis of this finding the stakeholder theory has been empirically demonstrated to explain the effect of intellectual capital disclosure on firm value. Non-financial information such as intellectual capital disclosure is important for all the stakeholders and can be a useful tool for business decision making by all stakeholders. Equally, reporting of intellectual capital by companies is one way of disclosing activities to the expectations of the communities in which they operate for the purpose of meeting societal benefits. This will lead to legitimization of such companies as informed by the legitimacy theory. Further, it is postulated that intellectual capital disclosure is value relevant as it reduces information asymmetry on the capital market which is associated with high firm value as contended from the agency theory viewpoint.

5.3.2 Implications for Management Policy and Practice

On the practical implication, the results suggest possible impacts on managers and policy makers interested in value of listed companies

Intellectual capital disclosure and firm value indicated a negative and statistically significant effect on value of listed companies in Kenya, while for South Africa listed companies a positive and significant effect was revealed. On this basis it is recommended that the management of companies must contemplate about the kind of voluntary intellectual capital disclosure to be reported in annual financial statements and integrated reports as this may have benefits that will enhance firm value and costs that could be detrimental to firm value.

By articulating the significance of business model disclosure on value of listed firms, the results of this study would motivate managers to proactively engage in business model disclosure as a way of enhancing value of listed firms. This is important as business model is not a permanent aspect in corporate reporting, it can always be revised to address stakeholders unmet needs, improve the logic with which the entity does its business and achieve value creation in the short, medium and long term that will improve firm value. To optimize the value of business model disclosure, managers of entities should embrace <IR> capitals disclosure because of its positive influence on business model, which in turn affect firm value. Managers, should be informed that reporting on <IR> capitals in their annual reports and financial statements without focusing on the logic with which the resources are transformed to create value may not be sufficient in enhancing the value of firms.

5.3.3 Limitations of the Study

Notwithstanding the achievement of the study objectives, this study findings should be interpreted with the following identified limitations in mind that may also provide direction to future research.

The study utilized a small sample size and covered a short period subject to the number of companies that were preparing integrated reports in Kenya between 2018 and 2020. While, for South Africa the focus was on firms whose reports were contained in the IIRC, <IR> Examples data base. Therefore, the application of the study results broadly is constrained.

Mediation analysis in this study accounted for only one factor, the business model. Nonetheless, the study results suggest existence of other possible mediators, since the effect of intellectual capital disclosure on firm value was not absolutely transmitted through the business model. Thus, the mechanisms through which <IR> component of intellectual capital affect firm value might have not been explored exhaustively.

Further, the study focused on the effect of <IR> component of intellectual capital on firm value, taking the business as the mediator variable in the theoretical context of Stakeholder theory, legitimacy theory and agency theory. No consideration was given on the factors that influence <IR> adoption level by the studied organisations.

Furthermore, the study was based on only two countries, Kenya and South Africa. Thus, the study findings may not be considered as containing other firms outside the study area.

5.3.4 Recommendations for Future Studies

The investigation explicitly gave thought to companies that had embraced <IR> and were quoted in the NSE, Kenya and <IR> firms whose reports were deposited in the IIRC, <IR> examples data base as integrated reporters, and quoted in JSE, South Africa. Future researchers may take into consideration a larger sample sizes covering longer periods and extending the research to <IR> companies that are not quoted to contrast the results.

The current study put into perspective only one variable business model as mediator, future researchers may explore other possible mediating and moderating factors by investigating the role played by other <IR> content elements including; organizational overview and external environment, risks and opportunities, strategy and resource allocation, governance, performance, outlook and, basis of preparation and presentation and extend the study by conducting a multiple or moderated mediation analysis to gain more insight into how or why <IR> capitals in form of intellectual disclosure influence firm value.

Owing to the fact that the scope of the current study did not cover the factors influencing <IR> adoption level by the studied organisations, future research should probe the factors that dictate <IR> disclosure level on the foundation of institutional and contingency theories. This will unmask the cause of the witnessed variation in the level of disclosures of <IR> capitals and business model aspects by different firms.

Finally, as the study examined data extracted from companies listed in NSE, Kenya and JSE, South Africa, future researchers might contemplate expanding the research to listed firms in other jurisdictions across the African continent, so as to assess the extent to which African countries have embraced <IR>, and particularly how intellectual capital disclosures relate to company value.

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