Intellectual Capital, Information Asymmetry and Cost of Equity Capital of Listed Consumer Goods in Nigerian Exchange Group

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Abstract

The objective of this study is to investigate statistically the influence of intellectual capital disclosure (IC) on cost of Equity capital. The study focused on listed consumer goods companies in Nigerian Exchange Group. The ex-post facto research approach was employed, using panel data sourced from published yearly financial reports of selected firms. The study covered 10 years from 2011 to 2020. Descriptive and inferential statistical tools were used in analyzing the data. The findings confirmed our hypotheses that specify the presence of a substantial and negative relationship between intellectual capital reporting with its four mechanisms (Physical capital, human capital, structural capital and Relational) and the cost of equity). The study found that intellectual capital reporting had significant effect on cost of equity capital of listed consumer goods in Nigerian Exchange Group ($AdjR^2 = 0.3733$; F-Stat. = 1.122; p = 0.034). Nonetheless, the results also showed that the controlling effects of information Asymmetry has a positive and insignificant influence on the Cost of common stock capital of consumer goods firm in Nigeria. The outcomes of this study are of great significance to rule formulators and organizations. Precisely, the knowledge of the influence of Intellectual capital reporting on cost of common stock of capital benefits policy formulators in the assessment of the costs and gains of disclosure. Furthermore, in relation to executives of companies, the findings revealed the advantage of improved IC reporting concerning the lessening in their cost of capital. This paper provides pragmatic confirmation of the relationship between Cost of equity capital and the extent of reporting in the four separate intellectual capital classifications (Physical, human; relational and structural capital).

1. Introduction

Globally, there have been an increasing interest of accounting and finance researchers in the economic implications of information disclosed in the financial statement. Corporate entities are under obligation to publish financial statements to enable investors and other stakeholders make useful decisions. Financial statements are company's financial information that describes the performance of a company in a certain period, useful in making economic decisions in business (Oktaria, 2019). Standard Setters and policy makers also require such information (Boujelbane & Affes, 2013, Christensen et al, 2007).

Knowledge of financial implication of figures disclosed can offer impetus for assessing the costs and benefit of information disclosures in the financial reporting (Boujelben & Affes, 2013, Leuuz & Verrcchia, 2000, Verrcchia, 2001), which is a crucial factor to be considered in setting accounting Standards. (Botosan, 2006). In determining the extent of disclosures of information in the financial statements, organization will consider if the entity will derive economic benefits concerning the formation of value and reduction in the cost of capital. This, has, however, remains a debatable phenomenon in the literature, following the conflicting results from different researchers.

Several researchers have made attempts to find answers to the problem, but results generated so far have been mixed and conflicting. Some findings revealed a negative effect, while others indicate a positive and significant effect (Baimukhamedova & Luchaninova, 2017, Castello- Marino, et al, 2014, Amir, Syed, & Sand, 2022, Botosan, 2006). To enable the reconciliation of these inconsistent findings, numerous scholars had used divergent kind of disclosure, namely; Sustainability disclosures (Gholami, Sands & Shames, 2022). Integrated

reporting (Adegbyegun, Alade, Egbiide & Ademola, 2020; Hurghis, 2015; Asein, Adegbie & Akintoye, 2020, Adegbie, Akintoye & Olusanjo, 2019; Anne & Gruning, 2017). IFRS disclosures (Muteanu, 2019, Ojianwuna, Adegbie & Ogundajo, 2019). Corporate social responsibility disclosures (Dhaliwal, Zhen, Tsang, & Yang, 2019) and intellectual Capital disclosures (Mangena, Pike & Li, 2010; Mehdi, Seyyed, 2013; Oktaria, 2019, Appuhami, 2017; Berzkalne & Zelgalve, 2013, Barus & Siregar, 2014; Yu & Wang, 2016). These researchers opined that a company should report intellectual capital in order to reduce the risk associated with information asymmetry, to lessen the risk of insider dealings, and assist in improving the financial reporting. In addition, the higher the volume of information concerning to intellectual capital reported, the greater the interest of the capital providers, and the lesser investment risk appraisal and information lopsidedness. Consequently, it can shrink the corporation's Cost of equity capital. Kazemi and Rahmani (2013) document that capital providers for companies, are concerned in evidence surrounding the intrinsic risks and return on their investment. They require evidence that would enable them take informed decisions regarding whether to purchase new investments, holding the exiting investments or disposal of stocks and assessing business performance, particularly in terms of payments of dividends. Companies with enhanced degree of disclosure will decrease information gap and, hence, lower costs of capital. Utami (2010) opined that cost of capital is the rate of return that should be produced by the organization on capital outlay to preserve value in the market place. Cost of capital could also be viewed as the rate of return anticipated by the provider of capital to commit their finance into the business (Choiriah & Gunawan, 2018). Thus, cost of capital in a firm has a notable effect due that fact that risk in investment is connected to shares of a company.

The study of Botosan (2006) supported negative relationship between greater disclosures and cost of equity capital. He contended that enhanced disclosures increases equities liquidity in the market, hence would decrease cost of equity capital. Boujelbene & Affes (2013) discovered a negative significant association between two constituents of disclosures in intellectual capital- Structural Capital Efficiency and Human Capital Efficiency. Botosan (2006), had suggested further study to expand the frontier of knowledge on the influence of several kinds of disclosures on firms' cost of equity capital.

The present research explores the role of disclosures in the cost of finance of a firm. specifically, the paper investigates the influence of intellectual capital disclosures on firms cost of equity capital. The paper also investigates the moderating influence of information Asymmetry on the relationship between intellectual capital disclosures and cost of equity capital. The selection of the intellectual capital reporting is inspired firstly, by the benefit of higher disclosures of intellectual capital on in the process of value creation, secondly, because of increasing need of this type of evidence and, lastly, the intellectual capital disclosures help in the ameliorating the inadequacies of the traditional financial reporting system, which largely focused on financial.

The advancement of knowledge based economy within the past two decades has triggered huge attention in the function of intellectual capital in corporations. It appears that there is overall agreement that intellectual capital is an essential fragment of the processes organizations undertake to create value and its relevant for producing and sustaining competitive edge (OECD, 2006; Holland, 2006). Certainly, businesses commit their resources in non- physical assets, for example, brand development, research and development, employee development, franchises and customer-centric creation. Nevertheless, these assets created internally are usually written off as expense in the financial statement immediately and/or amortized and, hence, not recognized in the financial report. Intellectual capital disclosure encompasses three classifications: structural capital and relational capital and human capital (Boujelbene& Habib Affes, 2013). Human capital, encapsulates the understanding, expert abilities, know-how and the ability to innovate by staff within an entity. Structural capital entails the configurations and procedures staff created and organized, so as to be to be efficient, effective and creative, whereas relational capital encapsulates the understanding of market networks, client and contractor interactions, and governmental or business linkages.

Despite the global acceptance of intellectual capital in the knowledge economy, there are limited empirical evidence to validate its influence on cost of Equity capital in sub Saharan Africa, predominantly in Nigeria. The present paper attempts to focus on this shortcoming in the literature by building a model for evaluating the relationship of the mechanisms of intellectual capital, and Cost of Equity Capital. Based on our understanding, there are shortage of research papers that focused on the impact of Intellectual capital on Cost of equity capital on the listed consumer goods in Nigeria. Therefore, this paper intends to fill these topical and methodological gaps. In recent years, the influence of financial reporting on cost of equity capital has been empirically and theoretically examined by several scholars. Empirical and theoretical findings revealed that the disclosure lessens information asymmetry, and hence diminishes companies' cost of equity capital. The crux of the present study is to offer further evidence in the subject argument by considering the relationship between the cost of equity capital and intellectual capital reporting by listed consumer goods in Nigeria, and also to test the controlling effect of information Asymmetry on the relationship between intellectual capital and cost of equity capital.

Therefore, this study tends to address the following fundamental questions:

RQ1: To what extent do Intellectual Capital Components significantly and negatively affect the Cost of Equity capital in listed Consumer Goods Firm in Nigerian Exchange Group?

RQ2: To what extent does the moderating effects of Information Asymmetry influence the association between intellectual capital and cost of equity capital of listed Consumer Goods in Nigerian Exchange Group?

The remaining part of the study is organized as follows: Section 2 reviews previous literature and development of hypotheses. Section 3 discusses the research methodology, section 4 presents empirical findings and analysis. Section 5 shows the conclusion and offers recommendations for additional study.

2. Literature Review and Hypothesis development

2.1.1. Cost of Equity Capital

The cost of capital has been defined as the minimum rate of returns required on the investment of funds in a project that causes the current shareholders' wealth not to change (Akinsulire, 2006). It therefore signifies a financial benchmark for apportioning the company's finances made available by the shareholders and creditors to the several projects in more profitable way. It represents the returns available to shareholders if dividends were paid out as cash. The notion of capital cost is akin to the idea of essential rate of return which could be perceived from two ways, such as the provider of funds and the business (Setiawati & Agustina, 2016). Based on the investors' perspective, greater requisite rate that captures the extent of the risk of the resources possessed. Whereas from the entity's perspective, that employs the monies, the volume of prerequisite rate of return is the cost of capital that should be raised to source for the funds (Selpiani, 2013). An entity's commitment of funds into a project is viewed as beneficial if and only if the foreseeable capital inflow is greater than the capital cost. The reason concerning this argument is that business should be able to generate sufficient profit for the owners which, subsequently increases the value of the company (Nadya & Hatene, 2019). Therefore, the cost of owners' capital is the minimal rate of return which the provider of common stock is expected to receive from the business.

2.1. 2 Intellectual Capital

There is a general acceptability that Intellectual Capital(IC) is that inherent feature typically gained by an entity, that propels the company on the pedestal of value creation and value addition. Consequently, various scholars and researchers have suggested numerous explanations. Essentially, the idea of Intellectual Capital emanated from the explanation of active influence of persons; the 'Intellect' (Sveiby, 2000). Thomas Stewart, the inventor of the concept, gave the first definition of the concept. In his article titled, Brain Power, in 1997, described Intellectual Capital(IC) as the total of the whole thing every person in a company is aware of, that gives the organization a competitive advantage in the market place. He went ahead and explained that IC is that known-how that translates raw inputs and creates valuable, adding that for any information to be labeled 'IC', the knowledge should have the capability of being able to create value for the organization. Another dimension of intellectual capital relates to those known as "concealed," with special features and overlaps in the composition of all assets, as well as the organizational culture and their long-term influence on the performance of the organization (Ruz, 2011). The collection of these concealed nonphysical assets has been known as intellectual capital. According to Brooking (1997), he posits that an entity is made up of physical resources and intellectual assets, noting that intellectual capital entails the blend of non-tangible assets which empowers the corporation to carry out its business. Alama, Martín de Castro and Lopez (2006) explained intellectual capital as the class of non-physical properties possessed by a firm which can give the firm economic advantage over time, if properly managed.

2.1.3 Information Asymmetry

Information asymmetry is a circumstance of inequity of information amongst the business executives and other stakeholders (Suhendah ,2012). Managers who are the insiders, and have more information than outside participants, usually use information at their disposal to their own advantage especially profit maximization in order to earn more compensations. The presence of information gap creates a conflict of interests between managers who are in this case, agents, and the principals- stockholders, providers of funds, lenders, etc. Information Unevenness can be minimized by compelling the managers to regularly submit financial reports to the shareholders. According to Scott (2012,). Information Asymmetry can generally be classified into two major types. Firstly, adverse selection is a form of information disproportionateness wherein one or various individuals on a business dealings have an edge of information over other parties. The second one is known as Moral hazard. This form of information Asymmetry arises when one or two participants for some business dealings can fulfil their own part of in business dealings, but the other party failed to fulfil his own part of the contract. Once there are information gaps, managers' decisions can impact stock share prices because disparity of information amongst more knowledgeable investors and less-knowledgeable financiers results to transaction costs and decreases the anticipated market liquidity for entity's shares. Equity capital is very sensitive to information and typically related with the greatest adverse selection cost. Thus, the needed adverse selection risk premium by

financiers would be greater for shares.

2.1. 4. Intellectual Capital Disclosures and Cost of Equity Capital

In the recent years, several scholars have empirically and theoretically investigated the influence of Intellectual reporting on cost of equity capital. Nevertheless, there have been conflicting results from these empirical studies due principally to the measures for common stock cost and intellectual capital proxies (Espinosa & Trombetta, 2007). In today's economy that is characterized with knowledge and free flow of information, intellectual capital is playing a critical function in the process of value creation (Zeghal & Maaloul, 2011; Guthrie et al, 2012; OCDE, 2008;). Several researches had concentrated largely on the non-mandatory disclosures concerning these intangible assets. Singh and Van der Zahn (2007) statistically investigated the relationship between the underpricing and intellectual capital reporting drawing samples from 334 Singapore initial Public offerings brochures for a period of 1997 to 2004. The findings revealed that there was a positive association between underpricing and the level of intellectual capital reporting, contrary to the theoretical expectations. However, this paper adopted underpricing in Initial Public Offerings instead of using directly the cost of capital. As a result, it was difficult to generalize that the evidence relating to intellectual capital affects the cost of capital. Similar research was carried out by Kristandl and Bontis (2007) wherein he examined the impacts of intellectual capital reporting on the cost of capital of selected 95 incorporated company in Denmark, Germany, Australia and Sweden. In the paper, non- mandatory disclosure was classified into forward looking information and historical information. As theoretically expected, the findings revealed a negative relationship between the extent of forward-centric information and Cost of equity Capital, and an unpredicted positive link was observed between the extent of past evidence and Cost of equity capital.

In the United Kingdom, Mangena et al. (2010) examined the relationship between intellectual capital disclosures and the cost of equity capital of listed firms in the UK, using data drawn from 126 sampled corporations listed in London Stock Exchange. The findings revealed a negative relationship between cost of capital and Intellectual Capital across all classifications. Several decisions made by businesses are influenced by the information disproportionateness that occurs amongst the investors and the firm (Myers, 1977). In this situation, managers have the tendencies to have a well and accurate expectation concerning the entities in general, however, this is not applicable to the providers of funds (Fosu, Danso, Ahmad & Coffie, 2016). Stakeholders who do not have adequate knowledge concerning the operations of the business are unable to create a detailed evaluation of its capabilities to create wealth in the future (Li, Pike & Haniffa, 2007). This makes the market participants to undervalue the firm because the providers of funds are not capable of making a definite assessment of its value (Li et al., 2007). Previous researches for example;(Fosu et al., 2016); Dadbeh et al., 2013; Shiri & Ebrahimi, 2012) provided insight that information asymmetry has a negative significant influence on the value of the firm, meaning that when there is a minimal information Asymmetry, it becomes probable that the value of the firm will proliferate and vice versa.

Mehdi and Seyyed(2013) investigated the impact of intellectual Capital reporting on cost of equity capital using data obtained from 80 firms listed in Tehran . The outcomes from the empirical analysis indicate a positive and substantial relationship between COEC and Intellectual capital reporting. Further to the above, the outcomes revealed that the impact of the two constituents of the intellectual capital – human capital and structural capital disclosure on the Cost of equity, are insignificant, however, the effect of Physical capital disclosure on the COEC was positive and significant. The outcomes of the investigation are not consistent with the discovery of Bujalban and Affes (2013) which revealed a negative and significant association between intellectual capital reporting with its two constituents (structural capital and human) and the cost of common stock and negative influence of physical capital disclosures.

In Indonesia, Prabowo(2017) analyzed the influence of intellectual capital reporting and information Asymmetry on cost of Equity capital and share prices. Findings from the study revealed that Capital Employed Efficiency and Human Capital Efficiency do not indicate a significant association on COEC and price of stocks. This result is consistent with some past researches (Boujelbene & Affes, 2013; Kuryanto & Syafruddin, 2009; and Mangena et al., 2011). Though, the influence of Information asymmetry measured by bid–ask deviation is not significant on COEC, but was significant on price of shares. Appuhami(2007) considered the influence of efficiency of value creation on funds provided and capital appreciation on stock price. Samples of listed financial institution (Insurance, finance house and banks) from Thailand's stock market were used. The study used and Pulic's (1998) Value Added Intellectual Coefficient as the proxies of IC and multiple regression model was developed to analyze the collected data. The outcomes of the study showed that intellectual capital has a significant positive association with the capital gains of the investors on their stocks. Erna and Djoko(2021) examined the intervening impact of information asymmetry on the relationship between intellectual capital and cost of equity capital. Results from the study showed that the extent of intellectual capital reporting minimize the cost of equity capital by decreasing information gap. The findings support the debate that executives can decrease the cost of capital of their firms by minimizing information asymmetry by enhanced disclosure of voluntary information. Likewise, Yuniarti and Arsyiy(2021) investigated the effect of Information Asymmetry

on COEC of Indonesian listed manufacturing firms for the period 2017-2019. Results from the study showed that information asymmetry has a positive and significant impact on the cost of equity capital, meaning that if the asymmetry rises, the cost of equity capital will also rise.

Based on the description above, we hypothesize:

H_01: There is no significant negative influence of Intellectual Capital disclosures on the cost of Equity capital in listed Consumer Goods Firms in Nigerian Exchange Group

H_03: The moderating effects of Information Asymmetry does not influence the relationship between intellectual capital and cost of equity capital of listed Consumer Goods Firm in Nigerian Exchange Group

2.2 Theoretical Consideration
2.2.1 Resource Based Theory
Wernerfelt propounded the resource- based theory in 1984 and referred to as one the strategic management theories. This theory is extensively cited especially owing to the fact that its applicability is relevant to present day management practices. The Resource-based Theory recommends that business organization will have a competitive edge over their rivalries and display improved financial performance by having, controlling, and applying essential and critical assets, which can either be physical and nonphysical in nature (Wernerfelt, 1984). Resource based theory is a tactical management model that contends that organizations will display greater performance while they are in possession of high quality and enormous resources at their disposal to play with, more than their counterparts (Sholikhah, et al., 2010). Therefore, flowing from the resource based theory, we conclude that resources at the disposal of a business entity, influence their performance and, hence reduce their cost of capital.

2.2.2 The Theory of Knowledge-Based View
The theory of Knowledge Based View originated from the tactical management works and an extension of Resource based theory, which was initially popularized by Penrose (1959) and subsequently extended by other scholars (Wernerfelt 1984, Barney 1991, Conner 1991). This knowledge is entrenched and conveyed via several ways, which include firm's ideology and uniqueness, policies, procedures, forms, structures, and workforces. The knowledge-based theory of an organization contemplates knowledge as the most strategically important resource possessed by the firm. The supporters of the theory contend that due to the fact that knowledge-based capitals are typically difficult to imitate, it gives a firm economic advantage and hence reduce its cost of capital.

2.2.3 *The Human Capital Theory*
The theory of Human Capital was propounded by Gary S. Becker in 1964 and aims to integrate both its primary and ancillary impacts on firms' performance. The human capital theory advises that persons with greater or superior human assets accomplish greater performance when implementing jobs (Becker 1964). Human capital embraces the composition of information and talents that individuals possess. In specific term, human capital includes the distinctive intuitions, abilities, intellectual features and talents of industrialists (Ventakaraman 1997). It also comprises accomplished qualities, accrued work and customs that could have a positive or adverse influence on productivity (Becker 1964). Human capital epitomizes a resource that is unrelated and diversely dispersed across persons and is therefore fundamental to appreciating changes in opportunity determination and manipulation (Shane and Venkataraman 2000). This present study viewed firms' performance as part of productivity. To the extent that human capital can be seen an input resource, which can reduce the cost of capital of an entity.

2.2.4. Information Asymmetry Theory
George A, Akerlof introduced his theory of markets under asymmetric information in his paper in 1970. Asymmetric information exists whenever one group has superior information than the counter party in some commercial dealings. Agency theory involves information asymmetry amongst executives as agents and principals- shareholders. The issue of Information unevenness occurs when business executives have superior knowledge about the internal affairs of the company and the forthcoming projections of the firm than the stockholders and other interested participants. Healy and Palupe (2000) argued that the problem of information Asymmetry can be solved by imposing a regulation that mandates managers to disclose fully their private information. Murwaningsari's (2012) argues that Asymmetry of Information Impacts Cost of Equity Capital resulting into increase in transaction cost which represent bid ask dispersion.

3. METHODOLOGY
The object of this paper is to explore the statistical association between intellectual capital disclosures and Firm cost of equity capital of listed consumers good in Nigeria. In achieving the objective, the ex-post facto research design approach was deployed in this paper. To this end, secondary data were collected from the yearly financial reporting of ten (10) listed Consumer Goods Firms for a period of 10 years (2011-2020). Samples of ten(10) firms were purposefully selected from the entire population of 21(Twenty-one) listed companies on the Nigerian Exchange Group. To accomplish the aim of this research, three variables were identified and discussed in this

section. These are: dependent variable which is denoted by firms' cost of equity capital (COEC). Independent variable are the constituents of intellectual capital measures: Capital Employed Efficiency(CEE)Human Capital Efficiency (HCE), Structural Capital Efficiency(SCE); and Relational Capital Efficiency (RCE). The control variables are firm Size(FZ) and Information asymmetry.

3.1. 1. Measurement of the Dependent Variable- Cost of Equity Capital

Botasan (2006) described the cost of equity capital as the least rate of return to shareholders for investing funds into a business. Numerous methods for measuring cost of equity capital have been put forward by various scholars in the literature which include Capital Asset Pricing Model (CAPM), which adopts fixed cost risk elements to yield to estimate cost of equity. Another method is the one that predict the cost of equity capital by measuring the internal rate of return that equates the expectation of the market's cash flows in the future to present price of shares. Some of the key approaches in this category include (1) the abnormal earnings growth (AEG) model (Gode & Mohanram, 2003) (2.) the residual income (RIV) model (Gebhardt et al., 2001); and (3) the price-earnings growth (PEG) model (Easton, 2004)

In this study, we adopted the Eston(2004) price-earnings growth(PEG)model. The justifications for using the PEG model for the estimation of the cost of equity capital in this paper are because the approach does not pose difficulties in terms of data requirements, but only needs data on price and earnings growth to calculate the cost of capital. Again, another reason for adopting the PEG Model approach is that several researches revealed that the cost of equity capital prediction derivable from other alternative methods (AEG, PEG and RIV) are the same and positively connected, however, the PEG approach is more superior when compared to other models. Further, the reason for adopting this model is because of general acceptability and availability of data. Several scholars have adopted this model in their previous researches for example, (Managene, Pike & Li, 2010; Munteanu, 2011; Castillo- Merino,Carlota & Neus, 2014)

The model has the following form:

Easton (2004) Price-earnings Growth Model(PEG)

$$r_{PEG} = \sqrt{\frac{eps2 - eps1}{P_O}}$$

Where:

r PEG = Cost of equity capital of the company

eps$_2$ = Average value of all two-year-ahead analysts' consensus earnings
forecast after twelve-monthly report publication date

eps1 = Average value of all one-year-ahead analysts' consensus earnings
forecast after yearly report publication date

P$_0$ = Stock price at yearly report publication date (time = 0

3.1.2. Independent Variables (Measurement of Intellectual Capital

This study adopted the modified form of Pulic's (1998) Value Added Intellectual Coefficient(VAIC) as a proxy for Intellectual Capital(IC) and its four(4) components – CEE, HCE, RCE, and SCE are employed as the explanatory variables. Generally, the M-VAIC approach gives further clarifications on the contribution of Intellectual Capital on productivity of an organization (; Kamath, 2017; Basuki & Kusumawardhani, 2012; Nazari & Harremans, 2007). Therefore, in order to encapsulate the influence of IC and its mechanisms more accurately on cost of capital, the M-VAIC model espoused by Nazari's and Harremans(2007) were adopted in the present paper. Detailed below are the procedures to compute the M-VAIC and its components:

1. *Value Added (VA) = OP + D + A + C (Nikmah & Irsyahma, 2016; Mondal, 2014; Chu et al., 2011; Kamath, 2017; Xu & Wang, 2018)*
2. *Human capital efficiency (HCE) specifies additional value generated by a firm as a result of commitment of one unit of fund on the personnel of the organization. It can be derived by dividing the value added (VA) of the company by its human capital (HC). Empirically, HCE = VA/HC.*
3. *Structural capital efficiency (SCE) stipulates the portion of structural capital in the value creation process. This can be computed by the structural capital (SC) of the of the organization divided by the organization value added (VA). Mathematically denoted by SCE = SC/VA.*
4. *Capital employed efficiency (CEE) demonstrates value accumulation in an entity by the commitment of one unit of funds of unit of capital employed. CEE can be computed by dividing the value added (VA) to the organization by its capital employed (CE). It can be denoted mathematically as CEE = VA/CE*
5. *Relational capital (RC) specifies the relationship between the firm and outside participants that have interest in the firm such as clienteles, contractors and vendors of the firm which enables the organization to carry out commercial transactions in an effective and efficient way. In specific term, RC indicates the capability of the corporation to intermingle with its prospective outside stakeholders in the business. This*

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can be computed by dividing the Marketing and Selling Expenses by Value added. RCE = M&S / VA,

6. *Compute M-VAIC = CEE + HCE + RCE + SCE*

3.1.3 Mediating Variable-Information Asymmetry

The presence of information asymmetry in the financial disclosures made by managers can impact the share prices of the organization due to the fact that information lopsidedness between less knowledgeable investors increases the cost of transaction and decreases the expected market liquidity of the shares of the entity (Komalasari, 2000). The decrease in the transactions will result in reduced demand for the stock by potential investors which will increase the shareholders cost of equity of the entity. Adriani (2013) suggests that information unevenness leads to enhanced risk of disclosures that could impact on the increase cost of finance assigned by the organization. Knowledgeable stakeholders who have superior information are in a better position to influence the market share price culminating to dispersion in bid-ask (Salehi et al., 2014). The bid-ask dispersion can be computed as detailed bellow as supported by (Lu & Chueh, 2015; Prabowo, 2017, Siti and Itjang, 2018; Setiawati & Agustina, 2016)

$$SPREAD_{i,t} = (ask_{i,t} - bid_{i,t}) / \{(ask_{i,t} + bid_{i,t}) / 2\} \times 100$$

Where:

$Ask_{i,t}$ = highest ask value of the firm i share that happen on t day (on annual report published date)

$Bid_{i,t}$ = lowest bid price firm share i happen on day t (on annual report released date)

3.1.4. Control Variables

Firm size, which is measured by the natural log of the NBV of total assets was adopted as the control variable in the present research to control for their impact on the cost of Equity Capital. Prior studies revealed that cost of capital has a negative relationship with firm size (Botosan, 1997; Sengupta, 1998; Riahi-Belkaoui, 2003; Brown et al., 2004; Hail,). Small sized firms have more difficulties in terms of supervision, leading to greater level of information gap and the resultant high cost of capital.

3.2. Model specification

To accomplish the objective of the present research, the regression models are proposed as follows:

Cost of Equity Capital(COEC) = f (IC disclosure (M-VAIC, HC, RC, SC, RC), ASYM, FS,)

$$COEC = \beta_0 + \beta_1 M\text{-}VAIC_{it} + \beta_2 ASYM_{it} + \beta_3 FS_{it} + \varepsilon_{it} \text{ ------- Model (1)}$$

$$COEC = \beta_0 + \beta_1 CEE_{it} + \beta_2 HCE_{it} + \beta_3 SCE_{it} + \beta_4 RCE_{it} + \beta_5 ASYM_{it} + \beta_6 FS_{it} + \varepsilon_{it} \text{ ------- Model (2)}$$

Where:

COEC: Cost of Equity Capital adopting price –earnings growth(PEG) Model

HCE: Human Capital Efficiency disclosure

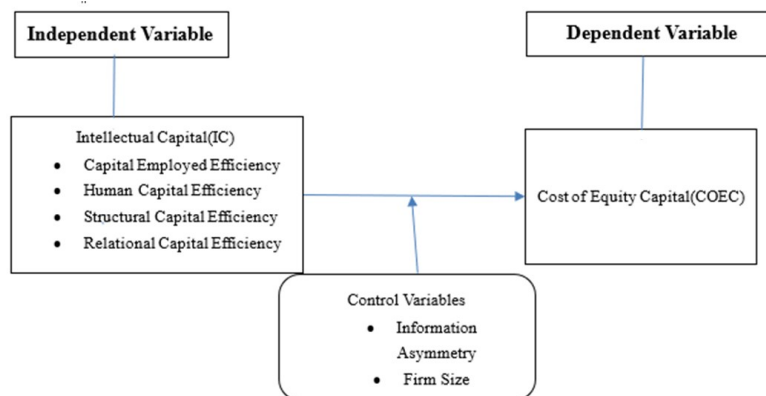**SCE:** Structural Capital Efficiency Disclosure

CEE: Capital Employed Efficiency

RCE: Relational Capital Efficiency

ASYM: Information Asymmetry

FZ: Firm Size

3.3. Conceptual Model

4. Empirical Results

4.1.1 Descriptive Statistics

Table 1 shows the graphic indicators of the chosen variables adopted in this research. The mean figure of COEC is 0.566, signifying that on an average, Nigeria Consumer goods companies have moderate Cost of Equity

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Capital. The mean figure of M-VAIC is 11.456 with a highest figure of 103.599 and a lowest value of -0.676. The negative value of M-VAIC indicates that the commitment of funds in processing IC are relatively on a higher side than its impact in the process of reducing cost of equity capital. Though, the outcomes indicate that the Nigeria consumer goods companies publish a relatively high degree of Intellectual capital information on their annual financial statements. This result is in tandem with the result obtained by Boujelben et al.(2013) and Orens et al (2009). The mean value of RCE, i.e., 6.616 and HCE (3.75) are greater relative to the mechanisms of IC, which suggest HCE and RCE are the major drivers of cost of equity capital among all the IC components. It should be noted that the mean value 0.462 for CEE is relatively low compared to other IC components, meaning that physical capital is not the major driving force in reducing cost of equity capital in Consumer goods corporations in Nigeria. The mean value of Information Asymmetry(ASYM) is 4.66, which indicates that the information Asymmetry of the Nigerian Consumer goods firms is on a higher side. In addition, the average figure of FS is 18.290, which shows that normally, the Nigeria Consumer goods corporations are resilience and matured firms.

Table1

4.1.2 Descriptive Statistics of variable

variables	MEAN	MAX	MIN	Standard Deviation
COEC	0.5665	1.00	0.01844	0.4243
VAIC	11.4563	103.5994	-0.6769	14.2662
CEE	0.4627	1.5746	-1.2828	0.3571
HCE	3.7563	9.8993	0.4058	2.088
SCE	0.6202	0.8989	-1.4637	0.3263
RCE	6.6169	94.566	0.3039	13.0038
ASYM	4.6625	196.09	-5.8519	19.5987
FS	18.2903	19.9947	16.02193	1.01847

Source: Researcher's Work (2023)

4.1.3 Correlation Analysis

The correlation analysis, is displayed in Table2. It provides insights on the association amongst the explanatory and the dependent variables used in this paper. The analysis indicates that COEC is negatively interrelated with M-VAIC, CEE, HCE, SCE, and RCE. This indicates that if the Intellectual Capital disclosures increase, it will have a negative effect on the cost of finance, leading to the reduction in the COEC. However, COEC is positively associated with information Asymmetry. This indicates that when the information asymmetry increases, the cost of equity capital will also rise, because equity investors would demand more premium and returns on their investment. More so, the findings establish that the relationship amongst all the independent variables is marginal and less than 0.80. This is an indication that there is no presence of multi-collinearity problem among the independent variables adopted in this study.

Table2 Correlation Matrix

	COEC	*M-VAIC*	*CEE*	*HCE*	*SCE*	*RCE*	*ASYM*	*FS*
COEC	1							
M-VAIC	-0.15515	1						
CEE	-0.03458	0.012068	1					
HCE	-0.17134	0.613245	-0.05971	1				
SCE	-0.18962	0.340309	0.14977	0.631851	1			
RCE	-0.13699	0.989739	-0.0084	0.49799	0.242678	1		
ASYM	0.074679	0.647219	0.004052	0.196573	0.08473	0.676472	1	
FZ	0.052648	0.239093	-0.00012	0.195256	0.153554	0.227101	0.144683	1

4.1.4 Regression Results from estimated Model 1

Table 3 shows the results from the regression analysis of model 1 adopted in the paper. The results show that the co-efficient of M-VAIC is significant but negative (β= -0.0163;P =0.0412), this is an indication that companies that discloses more information relating to IC, have more competitive advantage in decreasing their cost of equity capital. The outcome depicts that a unit rise in M-VAIC, will result to 0.0163 reduction in the cost of equity capital of consumer goods companies in Nigeria. Thus, this discovery is consistent with the findings of (Mangene et al, 2010; Boujelbene & Affes, 2013; and Modal & Ghosh, 2020). From the regression result, Information Asymmetry(ASYM) indicates a positive and insignificant relationship with Cost of Equity Capital. From the result in model 1, a unit rise in information Asymmetry, will lead to 0.0210 rise in cost of equity Capital of consumer goods listed in Nigerian Exchange Group. Firm size shows a positive and insignificant association with cost of equity capital with beta coefficient of a 0.039 with a p- value of 0.355. However, with

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the joint result of the model: (AdjR^2 = 0.3733; F-Stat. = 1.122; p = 0.034), the figures show that the model is capable of explaining almost 37.3 per cent variance in the dependent variable. The study therefore confirms hypothesis one and concludes that there is a statistical evidence that Companies with greater IC reporting would likely have their cost of equity capital reduced.

Table 3

$COEC_{it} = \beta_0 + \beta_1 MVAIC_{it} + \beta_2 ASYM_{i,t} + \beta_3 FS_{it} + \varepsilon i,t$ -----------Model(1)				
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.0981	0.7806	-0.1256	0.4002
MVAIC	-0.0613	0.0039	-1.552	0.0412***
ASYM	0.0210	0.0028	0.3557	0.5227
FS	0.0399	0.0430	0.9285	0.3554
Adj R-Squared	**0.3733**			
F-Stat	**1.1224**			
Prob(F-Stat)	**0.034***			
Observations	**100**			

Note: * p < 0.1, ** p < 0.05, *** p < 0.01(Dependent Variable: CSG: Source: Researcher's Work (2023)

4.1.5 Regression Results from estimated Model 2

From the regression results in Table 4, Capital Employed Efficiency (CEE), exhibits a negative but insignificant impact on firms cost of equity capital with (β= -0.0200;P =0.087). Therefore, this study concludes that Capital Employed Efficiency is a major driving force in cost of equity capital reduction, particularly the consumer goods firm in Nigeria. Similarly, Human Capital Efficiency (HCE) revealed a significant and negative influence on firms Cost of equity capital with (β= -0.0873;P =0.0271), The discovery is consistent with the findings of (Mangene et al, 2010; Boujelbene & Affes, 2013; and Modal & Ghosh, 2020), who discovered a negative association between Human Capital disclosures and cost of cost of equity capital. We therefore conclude that Human Capital Disclosures is an important driver in cost of equity capital reduction of listed consumer goods firm in Nigeria. The sense behind this reasoning is that the Consumer goods firms in Nigeria conceivably have a balance between physical assets and human assets in a quest to accomplish a competitive advantage. The regression coefficient of Structural Capital Efficiency (SCE) and Relational Capital Efficiency(RCE), are -0.1819 and -0.0026 in that order which revealed the existence of negative relationships of SCE and RCE with the COEC of the sample companies. Conversely, the negative association of Structural Capital reporting is insignificant while that of Relational Capital Disclosure is significant with p-value of 0.048. It implies that reporting of structural and Relational capital disclosures in the annual financial report, decrease information Asymmetry, leading to the lessening of cost of equity capital of a firm.

In summary, the results indicate that IC and its components –Physical capital, Human Capital structural capital and Relational capitals are the major driving force in the lessening of Cost of Equity Capital of listed consumer goods in Nigeria. Further, it is pertinent to note that the Adjusted R^2 value (0.38) in Model 2 is slightly greater relative to the Adjusted R^2 value of Model 1 (0.37), signifying that separate mechanisms of IC disclosures contribute in no small measures to reducing firms cost of equity capital than the aggregate IC. This finding is consistent with the findings of (Mangene et al, 2010; Boujelbene & Affes, 2013; and Modal & Ghosh, 2020). The control variables in both models revealed that Information asymmetry (ASYM) displays a positive influence on the cost equity capital. The implication is that firms with higher information gap between the executives and financiers would most likely have higher cost of capital because equity investors would demand more returns on their investments. However, contrary to our expectation, firm's size (FS) has a significant positive impact on cost of equity capital, signifying that the larger and creative companies have the capability to achieve a competitive advantage and, hence, reduce their COEC than the smaller and mid-capitalized firms.

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Table 4

COECit = β0 + β1CEEit + β2HCEit + β3SCEit + β4RCEit+ β5ASYMit+ β6FSit εit ------- Model(2)				
	Coefficients	Standard Error	t Stat	P-value
Constant	0.7392	0.1109	6.6622	1.7489E-09
CEE	-0.0200	0.1231	-0.1629	0.0870
HCE	-0.0873	0.0301	-0.2913	0.0271***
SCE	-0.1819	0.1744	-1.0427	0.2997
RCE	-0.0026	0.0037	-0.7010	0.04849***
ASYM	0.0537	0.0030	0.0037	0.9970
FS	0.0449	0.0433	1.0375	0.3021
Adj R-Squared	0.3805			
F- Stat	1.1377			
Prob(F-Stat)	0.03435***			
Observation	100			

Note: * p < 0.1, ** p < 0.05, *** p < 0.01(Dependent Variable: CSG: Source: Researcher's Work (2023)

5. Conclusion

The purpose the present research was to investigate the relationship between intellectual capital disclosure and cost of equity capital. Also, the paper examined the controlling influence of information Asymmetry on the relationship between intellectual capital and cost of equity capital in listed consumer goods firm in Nigeria. Findings from this research revealed that that there is far-reaching disclosure of information concerning the intellectual capital by the listed consumer goods firm in Nigeria. Overall, the results confirmed our hypotheses that specify the presence of a significant and negative relationship between intellectual capital reporting with all the four components (Capital Employed Efficiency, Human capital, structural and Relational Capital) and the cost of equity. The results from this paper provide further evidence that intellectual capital (IC) as measured by modified VAIC model establishes a significant but negative influence on firms cost of equity capital. Notably, the outcomes also revealed that two predictive variables – Human Capital (HC) and Relational (RC) – exert negative and significant effect in explaining cost of equity capital of consumer goods firms in the Nigeria context. However, a negative and insignificant relationship was established between the Capital Employed Efficiency (CEE) and Structural Capital with cost of capital of listed consumer goods firm in Nigeria. From the combined results, it can be generalized that Intellectual capital and its components are the main driving force in the reduction of cost of equity capital of Consumer goods companies in Nigeria. The findings also showed that the moderating variable of information Asymmetry has a positive but insignificant impact on Cost of equity capital of consumer goods firm in Nigeria. Put differently, when there is an existence of greater information asymmetry, the investing public would request for higher cost of capital to compensate for the risks on their investments. The investors consider that the reduction in information asymmetry would decrease the cost of capital of the organization.

In accordance with economic model, information asymmetry could lead to high cost of capital of a firm because it results to adverse selection between counter parties, leading to the reduction of liquid of firms' securities. This research adds to the existing literature on intellectual capital and cost of capital by providing first insight on the influence of intellectual capital and its components on cost of capital of consumer goods in Nigeria. Policy makers and business managers would benefit in no small measures from the findings. Firstly, the results showed an extensive disclosure of intellectual capital information by listed consumer goods in Nigeria. Secondly, the findings showed that organization with higher tendency to disclose information on intellectual capital derived significant benefits from reduced cost of capital. Therefore, higher intellectual capital reporting would benefit various stakeholder because they would have sufficient information concerning the reporting entity which, in turn, reduce the cost of sourcing personal information. This insight is very essential because it would assist policy makers in the assessment of the costs/benefit of reporting. Further to the above, business managers can have insight into the categories of intellectual capital component that would be more essential to the investing public and in the valuation of the business. Thus, managers would be motivated if they realize that enhanced disclosure of IC would reduce their costs of funds. The present study can be extended further by considering other models of Intellectual Capital and Cost of finance. The sample and the scope of the study could also be expanded and also the control variables. Also, similar study can be conducted in other sector of the of the Nigerian economy.

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