

Board Diversity and Intellectual Capital Efficiency of Listed Consumer Goods Firms in Nigeria

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ABSTRACT

This study examines the effect of board diversity on the intellectual capital efficiency of listed consumer goods firms in Nigeria. The ex-post facto research design was adopted, and secondary data was extracted from the annual reports of the listed consumer goods firms in Nigeria. The population of the study consists of twenty-one (21) companies and the sample size consists of seventeen (17) companies arrived at using filtering technique. The study covers a period of 10 years from 2013 to 2022. Multiple regression analysis was employed in analyzing the data collected. Findings revealed that the presence of female directors positively but insignificantly affect the intellectual capital efficiency of listed consumer goods firms in Nigeria. Board nationality has been found to have negative and significant effect on intellectual capital efficiency of listed consumer goods firms in Nigeria. Conversely, board financial expertise shows a positive and significant effect on intellectual capital efficiency of the listed consumer goods firms in Nigeria. The study concludes that board gender diversity and board nationality does not necessarily lead to effective intellectual capital efficiency. The study further concludes that the cost-conscious and professionalism of directors with financially related professional training may effectively improve the intellectual capital utilization of consumer goods companies. The study recommends a holistic approach to appointment of board of directors that goes beyond mere gender diversity and nationality. The study further recommends considering the diverse skills of certified financial experts in appointing board of directors.

INTRODUCTION

Intellectual capital (IC) is a broad term that encompasses the intangible assets of a company. Intellectual capital entails the collective knowledge, competencies, and intangible assets that an organization possesses, such as brand, right, patent and goodwill (Smriti & Das, 2022). This intangible wealth is generally believed to be an important asset that contributes to competitive advantage and long-term sustainability of businesses (Adegbite, 2023). Today, the rapid change in consumers' preferences which evolve at an unprecedented pace makes market conditions to fluctuate more often than usual, this in turn prompt companies to be in constant strive on a race to enhance their intellectual capital resources to stay relevant in the market. Most companies rely heavily on their brands, reputations, and customer relationships to compete effectively (Abdallah & Abdallah, 2020).

Therefore, efficiency in managing this intellectual capital becomes essential as it strengthens firms' ability to adapt to changing market environment and achieve sustainable growth (Yahaya, 2022). Intellectual capital efficiency (ICE) simply relates to how effectively a firm utilizes its intangible assets to generate value and innovation (Sathish & Irala, 2023). Zhao and Abeyseker, (2023) argue that intellectual capital efficiency can lead to better product development, streamlined operations, and sustainable competitive advantage. One key aspect that complements the quest for intellectual capital efficiency is board diversity. The diverse state of a company's board of directors is recognized as a critical determinant of its strategic decision-making processes (Mustapha, 2022).

Board diversity encompasses variations in gender, age, expertise, nationality and cultural background among board members; it is seen as a potential source of intellectual capital efficiency (Antonio et al., 2023). A diverse board can bring a broader range of perspectives, knowledge, and networks, which may positively influence the firm's ability to manage and leverage its intellectual capital (Ayunda & Doddy, 2022). Without diverse perspectives, experiences, and knowledge, decisions may be shortsighted or based on incomplete information (Yahaya, 2023). Empirical findings (Muhammad & Naeem, 2023) suggested that diverse boards can lead to an efficient creation, utilization, renewal and protection of intellectual capital. This connection, as observed in various industries (Ibrahim & Mohammed, 2022; Lawal et al., 2022; Tulung & Ramdani, 2018; Vishnu & Gupta, 2014; Wakeel et al., 2022) suggests that board diversity might not only nurture innovative thinking but also enhance the organization's ability to utilize its intellectual capital resources efficiently.

Consumer goods firms in Nigeria struggle with limited intellectual capital efficiency which impedes their effort of innovating and developing new products that align with evolving consumer preferences (Lawal et al., 2022). The limited expertise and specialized knowledge of the firms often lead to their failure in introducing sustainable consumer goods options in line with the rising demand for nutritious and organic products (Seema & Victoria, 2023). To put this into perspective, Mannir et al., (2023) reported that the leading consumer goods firms in Nigeria comprising BUA foods, Cadbury Nigeria, Dangote Sugar Refinery, Guinness Nigeria, International Breweries Plc, Nestle Nigeria, Unilever Nigeria and Vitafoam Nigeria have in total ₦1.04 billion as human development expenditure in financial year 2022, in the same fiscal year 2022, Guarantee Trust Bank alone in the Nigerian financial service sector allocates ₦2.01 billion for staff training and development initiatives. Contrastingly, the same fiscal year 2022 Seplat energy in the Nigerian oil and gas sector expended a whopping ₦2.83 billion for staff development which dwarf the total expenditure of the consumer goods sector into insignificance.

This lack of investment in human capital is reflected in the operational inefficiencies of the consumer goods firms, as the companies are currently struggling with higher costs which might be owing to inefficient production processes (Al-Matari & Al-Sartawi, 2023). The low human capital efficiency so much inhibits the ability of the consumer goods firms to compete with more innovative brands which lead to their stagnation and inefficient intellectual capital efficiency. This further explains why consumer goods firms face difficulty in retaining top talent and nurturing employee growth (Adegbite, 2023).

A thorough review of the literature on board diversity and intellectual capital efficiency (ICE) revealed a mixed of findings as some studies (Muhammad et al., 2017; Tajedo-Romero et al., 2017; Wakeel et al., 2020; Wasiu et al., 2022) identified a positive and significant effect of board diversity constituents including age, gender, nationality, ethnicity and experience on intellectual capital efficiency, while others (Carla et al., 2022; Duho and Onumah, 2019; Kumar and Omar, 2018; Zhao & Abeysekera, 2023) found a negative and insignificant effect of board diversity constituents including gender, expertise and experience on intellectual capital efficiency. This inconsistency in findings suggest that the relationship between board diversity and ICE is complex and may be influenced by several factors, such as the specific type of board diversity being examined, the context and domain in which the study is conducted, and the methodology

used. In addition, none of the identified studies was conducted on the consumer goods sector alone.

The studies (Carla et al., 2022; Duho and Onumah, 2019; Kumar and Omar, 2018; Zhao & Abeysekera, 2023) identified in the literature do not encompass the financial year 2022. Additionally, they have not adequately accounted for potential control variables that could strengthen the effect of board diversity on intellectual capital efficiency. Furthermore, they have not performed sufficient robustness checks to ensure the reliability of their findings. Hence, this study addresses these gaps by conducting several robustness checks, such as alternative model specifications. To this end, the question is how board diversity affects the intellectual capital efficiency of listed consumer goods firms in Nigeria. In this regard, the objective of the study is to examine the effect of board diversity on the intellectual capital efficiency of listed consumer goods firms in Nigeria. To achieve this objective, the following null hypotheses are formulated:

H_{01} : Board gender diversity has no significant effect on the intellectual capital efficiency of listed consumer goods firms in Nigeria.

H_{02} : Board nationality does not have significant influence on the intellectual capital efficiency of listed consumer goods firms in Nigeria.

H_{03} : Board financial expertise does not have significant effect on the intellectual capital efficiency of listed consumer goods firms in Nigeria.

This study's time horizon span from 2013 to 2022 and mainly secondary data was used. The study is significant in several respects. Stakeholders such as management, regulators, policy makers and researchers stand to benefit from the findings of the study. Also, the study contributes to the literature on concepts, empirics, models, methods and theories. The rest of this study is literature review, methodology, result, discussion, conclusion and recommendations.

LITERATURE REVIEW

Intellectual capital efficiency is the capability of an organization to effectively leverage its intangible assets, including human capital, structural capital, and relational capital, to create value, achieve sustainable competitive advantage, and adapt to the evolving business environment. According to Tajuddin et al., (2022), intellectual capital efficiency encompasses various dimensions which comprises of intellectual capital creation efficiency, intellectual capital utilization efficiency, intellectual capital renewal efficiency and intellectual capital protection efficiency. Without the necessary knowledge and expertise, a company may struggle to develop new products, services, or processes because intellectual capital often serves as a key source of competitive advantage (Neha & Niladri, 2022).

Board diversity on the other hand refers to the representation of individuals with varied backgrounds, experiences, and perspectives on the board of directors. The diversity of the board can lead to more informed decision-making, enhanced problem-solving, and a deeper understanding of the organization's stakeholders (Lawal et al., 2022). Board diversity has been empirically associated with positive effect on decision-making (Adznan et al., 2022; Lawal et al., 2022; Tulung et al., 2018; Yahaya, 2022). When the board comprises individuals with different perspectives and experiences, a more comprehensive and well-rounded approach to decision-making is enhanced. Enveloped within the scope of board diversity are various dimensions which include board gender diversity, board nationality, board ethnicity, board experience, board age, board financial expertise, and board political affiliation among others, but the most conspicuous dimension that gained so much attention lately is the distribution of gender on the board of firms.

Gender diversity emphasizes on the inclusion of both men and women on corporate boards. It recognizes the

value of diverse perspectives and leadership styles that can contribute to more effective decision-making and improved intellectual capital efficiency (Muhammad & Muhammad, 2019). Strides have been made globally to increase gender diversity on boards, with various initiatives promoting greater representation of women in executive and non-executive roles (Yahaya, 2023). Board nationality is another important dimension of board diversity that emphasizes the significance of having directors from different national backgrounds. Diverse national backgrounds contribute to a richer pool of cultural perspectives and global insight; this gives a room for innovation, adaptability, creativity in decision making processes, continuous learning and growth, better risk management and reputation of diversity inclusivity (Al-Numani & Al-Haddad, 2018).

Financial expertise is also another dimension of board diversity that underscores the importance of having directors with diverse financial backgrounds, including expertise in accounting, finance, and risk management. Such diversity ensures a comprehensive understanding of financial and economic situations of the companies, which facilitate more informed and strategic financial decision-making (Saruchi et al., 2019). Financially trained and experienced directors on boards can lead to a well-balanced blend of prudent decisions and improved structural capital (Anifowose et al., 2017). Collectively, these dimensions of board diversity contribute to the creation of more inclusive, resilient, and forward-thinking boards, the result of which might be an enhanced intellectual capital efficiency.

Wasiu et al., (2022) explore the connection between board gender diversity and intellectual capital efficiency of listed deposit money banks in Nigeria. Utilizing panel data from 11 banks between 2011 and 2020, the study finds that board gender diversity has significant negative impact on intellectual capital efficiency, both with and without considering the moderating effect of international authorization. This finding suggests that board gender diversity may not directly improve intellectual capital efficiency. However, the small number of banks sampled may limit the generalizability of the findings. Further to that, the study's time horizon covered up to an including only 2020. This necessitates further studies to examine the post Corona Virus condition of the firms.

Oktaviano and Wibowo, (2022) study the relationship between board diversity, intellectual capital efficiency, and firm performance in Indonesian listed companies using system generalized method of moments (SYS-GMM) regression analysis from 2013 to 2019. The study found that board nationality diversity has a positive and significant impact on both intellectual capital efficiency and firm performance. However, nationality diversity alone might not fully capture the complexities of board diversity. The study did not account for other dimensions like gender, experience, or financial expertise of the boards.

Muhammad and Naeem, (2023) investigates the moderating effect of intellectual capital on the relationship between board characteristics and firm performance in non-financial firms listed on the Pakistan Stock Exchange from 2010 to 2019. The study employs a modified value-added intellectual capital (MVAIC) model to assess intellectual capital efficiency. Findings reveal that board independence and gender diversity have a significant negative impact on intellectual capital. Additionally, intellectual capital is found to have a significant positive relationship with profitability. However, the choice of the specific time frame in the study might not capture potential changes in the current market and therefore up-to-date research needs to be carried out and cater for such.

Seema and Victoria, (2023) study the correlation between board gender diversity and human capital efficiency. The study utilizes dataset comprising 2700 firm-year observations from Australian listed companies spanning 2008 to 2019, the study reveals a positive link between female board representation and human capital efficiency. Intriguingly, this association is more accentuated in loss-making firms compared to profit-making counterparts. Furthermore, the study unveils the moderating effect of workforce environment quality on the relationship between gender diversity and human capital efficiency. This moderation is notably more pronounced in loss-making firms than in profit-making ones. The study focuses

solely on Australian listed companies. The findings may not be generalizable to other industries or Nigerian context, this limits the broader applicability of the result.

Neha and Niladri, (2022) investigates the influence of board gender diversity on intellectual capital performance of 272 Indian firms listed on the National Stock Exchange during 2007- 2019. Employing the modified value-added intellectual coefficient (MVAIC) methodology to measure intellectual capital performance and utilizing two step system-generalized method of moments panel data regression analysis, the study finds that female representation on boards has a significant positive impact on MVAIC. Specifically, capital employed efficiency shows the strongest association with female directors on board, followed by structural capital efficiency and human capital efficiency. However, relational capital efficiency exhibits no significant effect. While the study employs the two-step system-generalized method of moments (GMM) panel data regression analysis, the method requires that error terms in the model should be serially uncorrelated, however no serial autocorrelation test was found in the study to justify the utilization of the GMM. More studies need to be carried out that will diagnose for such.

Al-Musali & Ismail, (2012) examined the level of intellectual capital performance of listed banks in Arab Gulf Cooperation Council (GCC) Countries using VAIC model and investigated the impact of some corporate governance attributes on intellectual capital performance. Findings revealed that independent directors have a significant relationship with IC performance, and the nationality of directors also plays a significant role in enhancing the intellectual capital efficiency of banks in GCC countries. However, the study uses VAIC model in measuring intellectual capital performance which is currently considered as obsolete model. Currently, M-VAIC model is considered more holistic and all encompassing.

Antonio et al., (2022) delve into the influence of human capital diversity, focusing on gender and nationality diversity within boards of directors, on the innovation dynamics of university spinoffs (USOs) within their entrepreneurial ecosystem. The study posits that the correlation between board diversity and USOs' innovation follows a non-linear pattern. The study employed zero-inflated Poisson regression modeling; the study scrutinizes a dataset encompassing 827 Italian USOs spanning from 2009 to 2018. The research finds that only a small contingent of foreign-born directors brings significant intellectual capital from a globally interconnected entrepreneurial milieu, this advantage dwindles with a higher number of foreign-born directors due to challenges in communication and coordination. However, the study focuses on gender and nationality diversity within boards of directors as proxies for human capital diversity. While these proxies are commonly used in literature, they may not capture the full spectrum of human capital diversity, such as educational background, professional experience, or cognitive diversity.

Theoretical Review

This study is anchored on two theories namely cognitive diversity theory and upper echelons theory. This is because the combination of cognitive diversity theory and upper echelons theory provides a comprehensive frame for understanding the effect of board diversity on intellectual capital efficiency. Cognitive diversity theory explains how diverse thinking styles and perspectives can enhance collective problem-solving and innovation, while upper echelons theory emphasizes the role of top executives in translating these diverse perspectives into effective strategic decisions. Together, these theories provide a strong foundation for investigating the mechanisms through which board diversity can lead to improved intellectual capital efficiency.

METHODOLOGY

The ex-post facto research design was employed in carrying out this research. Data for the study were collected from the audited annual reports of the listed consumer goods firms which were obtained from the Nigerian exchange Group (NGX) for ten years (2013-2022). The population of the study consists of 21

listed consumer goods firms on Nigerian Exchange as at 31st December 2022. The study's sample consists of seventeen (17) publicly traded consumer goods firms, which were arrived at after applying filtering technique. The filters criteria are that a company must be listed on the Nigerian Stock Exchange as at 31st December 2013 and must remain listed up to 31st December 2022. Financial statement of the company must be readily available and that shares of the company must be traded on the floor of Nigerian exchange within the timeframe of the study. The study used multiple regression analysis to analyze the panel data and the model used in this study was a modified form of Tajuddeen et. al. (2022). The original model relates board diversity with intellectual capital efficiency as follows:

$$ICE_t = f(BDC_t, BON_t, BSZ_t, FS_t)$$

Where: ICE_t = Intellectual *capital* efficiency

BDC_t = Board composition

BON_t = Board ownership

BSZ_t = Board size

FS_t = Firm size

However, to test the assumptions of this study, the Tajuddeen et al. (2022) model was modified as follows:

$$ICE_{it} = \beta_0 + \beta_1 BGDR_{it} + \beta_2 BNAT_{it} + \beta_4 BFEX_{it} + \beta_5 \text{LogFSZE}_{it} + \beta_6 FGRT_{it} + \beta_7 FAGE + e_{it}$$

Where:

ICE = Intellectual capital efficiency

BGDR = Board gender

BNAT = Board nationality

BFEX = Board financial expertise

LogFSZE = Firm size

FGRT = Firm growth

FAGE = Firm age

e = Error term

β = Constant

i = firm ($i=17$)

t = time ($t=10$)

The Intellectual Capital efficiency was measured using Modified Value Added Intellectual coefficient (M-VAIC) as in Tajuddeen et al., (2022) introduced by Vishnu and Gupta, (2014) which is an improvement over the early model of Pulic, (1998). The computation of M-VAIC follows a two-stage procedure. The initial phase involves calculating the Value Added, while the subsequent steps entail the computation of the

various components of intellectual capital efficiency. The determination of Value Added is derived according to equation i

$$VA = \text{Staff Cost} + \text{Operating Profit} + \text{Depreciation} \dots \dots \dots i$$

Whereas, the M-VAIC model is expressed in equation ii

$$M\text{-VAIC} = \text{HCE} + \text{SCE} + \text{CEE} + \text{RCE} \dots \dots \dots ii$$

HCE is an indicator of value-added efficiency of Human Capital (VA/HC);

Where HC = total salaries and wages.

SCE is an indicator of value-added efficiency of structural capital (SC/VA);

Where SC = VA-HC or (value added) – (total salaries and wages).

CEE is an indicator of value-added efficiency of capital employed (VA/ CE);

Where CE = total net asset

RCE is an indicator of value-added efficiency of relational capital (VA/MSA)

Where MSA = marketing, selling, and advertising expenses

Variables Definition, Measurement and Sources

Table 1: Summary of Variables Definition, Measurement and Sources

Variables	Definition	Type	Measurement	Source
ICE	Intellectual capital efficiency	Dependent	M-VAIC	Tajudeen et al., (2022)
BGDR	Board gender	Independent	Measured as number of female directors divide by total directors on board.	Yahaya, (2023)
BNAT	Board nationality	Independent	Measured as total foreign directors divide by total directors on board.	Nguyen & Pham, (2023)
BFEX	Board financial expertise	Independent	Measured as number of directors with accounting and finance related professional certificates divide by total director on board.	Ayunda & Doddy, (2022)
FSZE	Firm size	Control	Natural log of total asset	(Smriti & Das, 2022)
FGRT	Firm growth	Control	Measured as percentage of total asset growth from previous year total asset.	(Louloui, 2023)
FAGE	Firm Age	Control	Measured as the age of firm since incorporation	Lawal et al., (2022)

Source: Author’s Compilation (2024)

RESULTS AND DISCUSSION

The statistical breakdown of the collected data, its analysis and interpretation is presented in this section.

Table 2: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
ICE	170	16.211	22.748	-31.123	163.460
BGDR	170	0.199	0.142	0.000	0.494
BNAT	170	0.151	0.112	0.000	0.397
BFEX	170	0.069	0.056	0.000	0.356
FSZE	170	7.466	0.989	4.758	8.967
FGRT	170	0.173	0.507	-0.333	5.902
FAGE	170	49	20	8	94
Source: Stata 13 Output (2024)					

The observation of 170 from Table 2 represents the total of 17 sampled firms with data for 10 years each for every company. The mean value of ICE is 16.211 which was followed by a relatively larger standard deviation of 22.748. This suggests a considerable variability in the ICE distribution across the sample as the range of minimum and maximum is between -31.123 and 163.460 which further reflects the dispersion of the data. Furthermore, on average, board gender diversity is relatively moderate with a mean of 0.199, which suggests that in general, there is a conservative presence of female directors on the boards of the consumer goods firms in Nigeria. The mean value of 0.151 for board nationality indicates a reasonable level of diversity in terms of the nationality of board members. The standard deviation of 0.112 suggests some variability in the nationality diversity of the boards across the sample. The mean value of 0.069 for board financial expertise suggests a relatively low presence of board members that have professional certificates in accounting and finance related subjects. The standard deviation of 0.056 further indicates some variation in financial expertise across the sample. This necessitates the use of robust heteroskedasticity using Cameron & Trivedi's decomposition of IM-test which is presented along with multicollinearity, Lagrangian Multiplier and Hausman specification test in Table 3.

Table 3: Specification/Diagnostic Test

Variables	Statistics	P-value
Mean VIF	1.31	
Heteroskedasticity	26.89	0.470
Xttest0	33.46	0.000
Hausman Test	46.19	0.000
Source: Stata 13 Output (2024)		

Table 3 revealed that there is absence of heteroskedasticity in the error terms as indicated by the Cameron & Trivedi's decomposition IM-test Chi2 of 26.89 and p-value of 0.470 which is insignificant, this indicates the presence of homoscedasticity within the error terms. The mean VIF of 1.31 suggests the absence of multicollinearity among the independent variables. Furthermore, the Breusch and Pagan Lagrangian multiplier test for random effects gave a p-value of 0.000 which indicate panel effect in the dataset. This suggest that panel regression is the most appropriate regression for the model of this study which obliges the application of Hausman specification test to determine whether fixed or random effect is the most

appropriate for the panel regression and the p-value of the hausman specification test stood at 0.000 which indicate that fixed effect is appropriate for the model.

Table 4: Regression Result

ICE	Coef.	Std. Err.	t	P>t
BGDR	19.043	11.524	1.65	0.101
BNAT	-40.788	15.209	-2.68	0.008
BFEX	89.281	33.882	2.64	0.009
FSZE	23.878	9.685	2.47	0.015
FGRT	-2.449	2.872	-0.85	0.395
FAGE	-0.563	0.668	-0.84	0.401
_cons	-137.648	53.734	-2.56	0.011
Number of Obs. =	170			
R-squared =	0.2695			
Prob > F =	0.000			
Source: Stata 13 Output (2024)				

The 170 number of observations shows the total number of data points in this study, which comprises 17 companies and 10 years period of coverage. The F-statistic of 0.000 suggests that the overall model is statistically significant and the R-squared of 0.2695 indicate that approximately 26.95% of the variability in the intellectual capital efficiency of the consumer goods firms is explained by the independent variables included in this study which comprises of board gender, board nationality, board financial expertise and the three control variables comprising firm size, firm growth and firm age.

Table 5 shows that the regression coefficient of board gender is 19.043 positive with a corresponding p-value of 0.101, which is greater than the significance level of 0.05. Therefore, board gender has a statistically insignificant effect on intellectual capital efficiency; hence this study fails to reject the null hypothesis one which says board gender has no significant effect on the intellectual capital efficiency of consumer goods firms in Nigeria. This result is in line with the findings of Wasiu et al., (2022) but contradicts the findings of Seema and Victoria, (2023), Neha and Niladri, (2022). The contradiction might be due to the specific measurement of board gender used, the context and domain in which the studies were conducted, and the methodology used. The coefficient of board nationality is -40.788 with a corresponding p-value of 0.008, this suggest that board nationality is negatively and statistically significant with intellectual capital efficiency, hence the null hypothesis two which state that board nationality has insignificant effect on the intellectual capital efficiency of listed consumer goods firm in Nigeria is rejected. This result conflicts with the findings of Oktaviano and Wibowo, (2022) and Al-Musali & Ismail, (2012). The contradiction might be attributed to the economic and political system of the countries in which the contradicting studies were carried out as all the contradicting studies were carried out outside Nigeria.

The board financial expertise is found to have statistically significant and positive effect on the intellectual capital efficiency of the sampled firms as it has a p-value of 0.009 which is less than the significance level of 0.05 hence; this study rejects the null hypothesis three which state that board financial expertise has no significant effect on intellectual capital efficiency of listed consumer goods firms in Nigeria. This finding is in line with the assumption of cognitive diversity theory which typically anticipates that a board with professionally financial experts could bring unique insights and analytical skills that would contribute positively to decision-making related to intellectual capital efficiency.

The coefficient for firm size (FSZE) is 23.878 and is statistically significant ($0.015 < 0.05$). This implies that larger firms tend to have more resources, expertise, and economies of scale, which is a plus to their intellectual capital efficiency. This suggests that firms can enhance their intellectual capital efficiency by increasing their size through mergers & acquisition and leveraging their resources more effectively. The coefficient for firm growth (FGRT) is -2.449 and is not statistically significant ($0.395 > 0.05$). This suggests that growth alone is not a sufficient condition for improving intellectual capital efficiency. Other factors, such as organizational culture and structure, may play a more significant role. Furthermore, the coefficient for firm age (FAGE) is -0.563 and is also not statistically significant ($p\text{-value} = 0.401 > 0.05$). This indicates that older firms do not necessarily have a higher or lower level of intellectual capital efficiency compared to younger firms. Thence, intellectual capital efficiency is not inherently tied to the age of a firm.

CONCLUSION RECOMMENDATIONS

This study concludes that gender diversity may not directly affect the efficient utilization of intellectual capital resources. Further, the negative coefficient of board nationality implies that increasing foreign directors on boards may not necessarily lead to better intellectual capital efficiency. This could be due to the extra cost of their remuneration and other logistics on top of other potential communication barriers, cultural differences, or difficulties in integrating diverse perspectives, which might hinder the effective utilization of intellectual capital. This study further concludes that board members with financial expertise can contribute to effective identification of potential risks to intellectual capital and implementing measures to mitigate them. This includes assessing the financial implications of intellectual property protection, talent retention strategies, and technological investments.

In light of the above, this study recommends a larger approach to appointment of board of directors that goes beyond mere gender diversity and nationality. Companies should prioritize strategies that transcend beyond superficial diversity metrics. This study further recommends companies to actively seek and appoint professionally certified directors in order to leverage their professional expertise to make informed decisions regarding the allocation of resources, investments in intellectual capital development, and strategic initiatives aimed at maximizing returns on intellectual assets.

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