Board Diversity and Intellectual Capital Disclosure In Listed Firms In Nigeria: The Moderating Role Of Ownership Concentration

Muhammad Aminu Isa[1] , Tajudeen Lawal[2] and Lukman Ojedele Lawal[3]

[1]Professor of Accounting, Department of Accounting, Bayero University Kano, Nigeria.
[2]PhD Scholar, Bayero University Kano and Lecturer, Department of Accounting and Finance, Kwara State University Malete, Kwara State, Nigeria.
[3]Senior Lecturer, Department of Accounting, Gombe State University Gombe. Gombe State, Nigeria.

Corresponding Author: E-mail: Ltajudeen@yahoo.com, tajudeen.lawal@kwasu.edu.ng (+2348165255556)

Abstract

This study examines the moderating role of ownership concentration on the relationship between board diversity and intellectual capital of forty-four listed non-financial services firms in Nigeria during the period of ten years from 2011-2020. The descriptive statistics tool was used to obtain summary statistics for the variables in the study. Similarly, random effects regressions with generalised least square (GLS) were employed to assess the study's hypotheses. The finding of the study revealed that board education had a significant impact on ICD.. In addition, board nationality was discovered to have a significant negative impact on ICD. The study indicated, however, that board ownership has no effect on ICD. The findings from the moderated model revealed that board education and board ownership have significant negative impact on ICD. The finding also revealed that ownership concentration increased the negative impact of board education and board ownership on intellectual capital disclosure. The study recommends that board education background should be given top priority in order to ensure quality decision concerning IC. Likewise, in order to ensure quality decision making, foreign members on the board should attend meeting regularly. Also, there should be regulation as to the percentage of shares held by directors. Finally, management should consider the multiple role of the concentrated ownership and board diversity when constituting the board. This will enable the management to carefully select, nominate, and appoint members of the board with great diversity.

Keywords: Board Diversity, Board Education, Board Nationality, Board Ownership, Intellectual Capital Disclosure, Ownership Concentration

Introduction

The world has transitioned from an industrial to a knowledge-based economy, in which intellectual capital (IC), communication, and information technology have replaced physical capital and traditional manufacturing methods. In a knowledge-based economy, a company's economic value is derived from the development and manipulation of intellectual capital rather than the production of physical things (Guthrie, Petty, Yongvanich & Ricerri, 2004). Intellectual capital research is becoming a more appealing area for academic and professional investigators from a variety of perspectives. Previous researchers such as Oba and Bature (2013), Alfraih (2017) and Rahman, Sobhan and Islam (2020), have revealed that IC has successfully contributed to firm economic capital generation. However, financial statements, unfortunately, fail to capture and reflect IC's contributions, resulting in information asymmetry between firms and other stakeholders.

Intellectual capital disclosure (ICD) is a method of describing the nature of the company's intangible assets. Voluntary intellectual capital disclosure procedure provide stakeholders with important information that is necessary in making investment decisions and, as a result, has a positive impact on firm financial performance (Oba, Ibikunle & Damagun, 2013). The ability of a company to disclose intellectual capital aids it in increasing its value, gaining a competitive edge, improving internal

controls, increasing asset management capabilities, enriching the features of information provided, and reducing risk-related decisions (Ranani & Bijani, 2014; Al-Sartawi, 2017). As a result, the disclosure of intellectual capital in annual reports is critical if stakeholders of enterprises are to be able to make crucial investment decisions in Nigeria, as it is envisaged that via this disclosure, stakeholders will be able to make more informed decisions.

Board diversity is part of corporate governance mechanisms. The board is viewed as a monitoring and controlling instrument whose function is to analyze and evaluate management's effectiveness in running the company, with the ultimate goal of maximizing shareholder wealth and minimizing agency concerns. Due to previous financial scandals and a higher risk of company failure, there has been a rise in interest in increasing board performance through sound corporate governance. It is widely considered that having a diverse board of directors, increases cognitive flexibility, increasing the knowledge, ideas, and approaches accessible to the company's board of directors and, as a result, improving the quality of decision-making. Board diversity (education, nationality, and ownership) was considered in this study to be a method for increasing such efficacy and, as a result, improving firm ICD.

Because intellectual capital (IC) is a relatively new concept, there has been very little study on the impact of board diversity on the level of intellectual capital disclosure by Nigerian firms. The current research is based on two primary factors. To begin with, there are few studies in this field in Nigeria. Few research on ICD in Nigeria employed data from a small number of enterprises over a short period of time. For instance, Oba *et al*, (2013) examined the impact of board mechanisms on IC disclosure of ten firms in Nigeria for a period of four years. This study has a much larger sample size and period for analyzing ICD in Nigerian non-financial services firms. Second, most Nigerian researches have overlooked the importance of a moderating variable in the link between board diversity and intellectual capital disclosure. The distribution of power and influence of shareholders on the company's functioning is reflected in the share ownership structure. Concentrated owners can use their expertise and resources to improve a company's resource endowment (Carney & Gedajlovic, 2001). Because large shareholders have a large stake in the company, they will actively participate in its decision-making to ensure that it engages in value-adding activities. As a result, an effort is undertaken to close the gap in understanding the specific influence of ownership concentration on the relationship between board diversity and ICD.

2. Literature Review

The Concept of Intellectual Capital
Many academics define the term according to their own perspectives; hence there is no commonly accepted meaning. Edvinsson (1997) defined intellectual capital as the possession of practical experience, knowledge, professional abilities, organizational technology, and customer contacts that allow a company to compete in the market. It is also regarded as a substantial value creator and a strategic component in boosting a company's competitiveness (Lerro & Schiuma, 2013).

The Concept of Intellectual Capital Disclosure

Wee and Chua (2015) described intellectual capital disclosure as information on an organization's IC that is made available to stakeholders. The key characteristic of an intellectual capital statement, based on the perspective of White, Lee and Tower (2007), is that it seeks to disaggregate information that is not generally provided in a firm's statement of financial position.

Board Educational Level Diversity and Intellectual Capital Disclosure
Ruigrok, Peck, Tacheva, Greve and Hu (2006) define educational level diversity as the differences in knowledge or skill among board members that would aid in the creation of the best option for resolving challenges and formulating and evaluating strategic decisions. Cardi, Mazzoli and Severini (2018) investigated the impact of corporate governance on intellectual capital disclosure in 70 Italian companies' initial public offerings (IPOs) between 2004 and 2014. The study's findings demonstrated

that board education had no significant impact on a company's intellectual capital disclosure. As a result, the following hypothesis is proposed:

H_{01}: Board education does not have a significant impact on intellectual capital disclosure.

Board Nationality Diversity and intellectual capital Disclosure

Incorporating foreign directors onto the board is a technique to bring in human resources who are familiar with the worldwide business environment. This is done in order for them to make better investment and operational decisions, assist the organization in accessing international resources, and expand their business potential. Furthermore, foreign directors may reflect differing perspectives on the board's control role, particularly if they originate from nations with more robust shareholder rights. Othman, Abdul Rashid and Husin (2018) investigated whether board characteristics influenced the disclosure of innovation capital in 68 publicly traded businesses on Bursa Malaysia's main market over a five-year period between 2011 and 2015. The finding of the study revealed that the presence of foreign directors on the board had a significant impact on the level of innovation capital disclosure. In a separate study, Rahman, Sobhan and Islam (2019) looked at the factors that influence intellectual capital disclosure in Bangladesh's pharmaceutical and chemical industries from 2016 to 2017. The findings of the study revealed that board ownership had a significant negative impact on ICD. Thus, this study hypothesizes that:

H_{02}: board nationality has no significant impact on the level of intellectual capital disclosure.

Board Ownership and intellectual capital Disclosure

The allocation of control and ownership is referred to as a company's ownership structure. The identification of the equity owners, as well as the allocation of equity in terms of votes and capital, determine the ownership structure. If managers own a larger percentage of equities, their interests and those of stakeholders will be more aligned. To avoid the market from lowering their wealth, firms whose directors are also shareholders would willingly divulge additional information to signal to the market that they are not making suboptimal decisions. Siala and Moalla (2017) looked at how ownership structure affected the voluntary disclosure of intellectual capital information by 50 Canadian companies listed on the Toronto Stock Exchange. The finding of the study revealed that managerial ownership had no significant impact on the extent of intellectual capital disclosure. Given the foregoing, the following hypothesis is proposed:

H_{03}: board ownership does not have significant impact on ICD.

Ownership Concentration and intellectual capital Disclosure

Ownership concentration is a mechanism through which shareholders can exert control over and influence over the firm's management in order to safeguard their interests. A limited number of large, dominating shareholders control the majority of the stock and have a vital role in managerial oversight. The impact of corporate governance procedures on the degree of intellectual capital (IC) disclosure across companies listed on the Kuwait Stock Exchange was investigated by Alfraih (2018). The study discovered that organizations with a higher amount of block holder ownership had a higher level of IC disclosure. These findings show that substantial shareholders play a monitoring management role in reducing a company's agency concerns by influencing voluntary disclosure procedures. As a result, the following hypothesis is proposed in this study:

H_{04}: Ownership concentration does not moderate the relationship between board diversity and intellectual capital disclosure.

3. Methodology

This study employed correlation and descriptive research designs, as it empirically examines the impact of the board diversity on intellectual capital disclosure of listed non-financial services firms in

Nigeria. The population covers five sectors largely in accordance with NGX classification. Data for this study were obtained from annual reports and accounts of selected firms from the website of Nigerian Exchange Group during the period January, 2011 through December 2020. Stratified sampling technique was used in arriving at the sample size (sectoral selection) of this study. Therefore, for firms to be part of this study, some criteria were employed which are: (i) firms must have been quoted on the Nigerian Exchange Group as at 1st January, 2011 (ii) firms must have not been delisted from the floor of Nigerian Exchange Group during the period of study (iii) firms must have not been taken over or merged during the period of study. By applying the above filters, forty-four (44) firms were adjudged to have met the criteria. Three techniques of data analysis was used to analysed the secondary data collected from annual reports and accounts of the listed non-financial services firms in Nigeria. These are descriptive, correlation and multiple regression. Table I presents the sectoral distribution of firms and sample used in the study.

Table I: Population and Sample Size

S/no	Sector Distribution		Population	Delisted/Quoted After 2011	Sample
1.	Consumer Goods		21	4	17
2.	Health Care		10	2	8
3.	Industrial Goods		15	6	9
4.	Information Communication Technology (ICT)	&	7	2	5
5.	Conglomerates		6	1	5
	Total		59	15	44

Source: Authors' Compilation, 2022

Table I presents the sectoral distribution of firms and sample used in the study. There are fifty-nine firms in all. Forty-four firms were selected while fifteen firms did not meet the criteria either for the fact that they were delisted during the study period or were not quoted as at 1st January 2011.

Variable Measurement

The Dependent Variable
Intellectual Capital Disclosure (ICD)
This is the quantity of information that companies reveal about their intellectual property. Content analysis was used to acquire the data for this proxy from the narratives in financial statements. The quantity of information on the IC included in the annual reports of the firms was measured using a disclosure index following the works of prior researchers such as (Ax and Maton, 2008; Salman, Dandago & Isa, 2013).

A 0 and 1 coding method was utilized. That is, if a particular index item is found, a 1 is recorded, and if the provided item is not found in Nigerian firms' annual reports, a 0 is recorded. The extent of disclosure was determined by dividing the number of recorded information items in yearly reports by the maximum number of information items in the disclosure index (Yi & Davey, 2010, Alshhadat, 2017; Al-Sartawi, 2017). The following formula is used to calculate the extent of an ICD:

$$ICD_j = \frac{TADS_j}{MRDI_j}$$

Where ICD_j is intellectual capital disclosure, $TADS_j$ is the total actual disclosure score for a company j and $MRDI_j$ is the maximum relevant disclosure items of the company j.

Thirty-three items were utilized in previous investigations (Bozzollan, Favotto & Ricceri, 2003; Abeysekera, 2010). (human capital 11 items; structural capital 12 and relational capital 10). However, we developed an intellectual capital framework/index for this study based on the information accessible to the researchers from past investigations and the Nigerian context.

Thus to examine the factors influencing the level of IC disclosure, this study used the count of IC related words as the unit of the content analysis. The study then aggregated the disclosure frequencies of occurrence to determine the quantity of IC disclosure using the content analysis conducted earlier.

Independent Variables

The board diversity which includes board education, board nationality and board ownership are the independent variables in this study. The ratio of board members with accounting, finance, management, and economic education backgrounds compared to all board members is used to quantify educational background variation (Rasmini, 2014). Also, board nationality is measure as the number of foreign directors divided by the total number of board members (Abdul Rauf, Johari, Buniamin & Abd Rahman, 2012; Talavera, Yin & Zhang, 2018). Board ownership is measured as the proportion of executive share ownership to the total number of shares in a company (Noradiva, Parastou & Azlina, 2016; Hatane, Wijaya, William & Haryanto, 2017).

Moderating Variable

Ownership Concentration: This is referred to as mechanism that allows owners to control and influence the firm's management in order to safeguard their interests. Ownership concentration is measured as the percentage (%) of ordinary shareholders, who own more than 5% of the total share outstanding (Ferreira, Branco & Moreira, 2012; Isa, 2014).

Control Variables

In this study, four control variables are used. They are firm size, auditor type, profitability, and firm age. Kamath (2008) stated that firm size is a crucial component that has a significant impact on the amount of IC disclosure by corporations. It is measured as natural logarithm of Total Assets (Ferreira *et al.*, 2012; Alshhadat, 2017).

Auditing is a cost-cutting tool for enterprises. As a result, the type of auditor who investigated an entity's books of accounts may push them to release more information about IC, particularly if they are audited by one of the major four audit firms. As a result, the information asymmetry gap between the entity and outsiders may be reduced. For the type of auditing firm, a dummy variable was used, with a value of 1 if the auditor is a Big 4 accounting firm (that is, Deloitte & Touche, Ernst & Young, KPMG, and Price Waterhouse Coopers, or for the purposes of this study, when a local audit firm is affiliated with one of the Big Four accounting firms) and 0 if not (Barde, 2009).

Profitability is an important indicator of a company's success. It has been used as an important element in determining IC in previous studies. It is measured as the ratio of net profit after tax to total assets (Alshhadat, 2017)

The date of a company's incorporation may be important in determining how disclosures differ. Number of years passed since incorporation is used to measure this (Barde, 2009; Damayanti & Budiyanawati, 2009).

Validity and Reliability

Validity: the validity of the data collection instrument (disclosure index) was established by following certain steps to ensure that the current disclosure index achieves the desired goal of assisting the researcher in gathering the necessary data for the study. These are the measures:

1. Based on a preliminary analysis of the annual reports, adopting a disclosure index from the literature and customizing it to the study setting by deleting extraneous or non-applicable information.

2. Following the development and finalization of the disclosure index, it was sent for review to professional and academic specialists with vast experience in disclosure and familiarity with the Nigerian financial markets, who provided significant value to the research.

Reliability: The disclosure index's reliability, also known as its degree of trust, requires that it produce the same results when reproduced by the same researcher at a different time or simply by another researcher (s). In this study, the researcher repeated the exercise on ten firms, and the recoded results were identical. Similarly, the researchers invited some colleagues to undertake the coding for one firm in order to confirm the findings, and the results corroborate with the researchers' findings.

Model Specification

Model Specification for Intellectual Capital Disclosure
The following regression model was used to examine the impact of board diversity variables on ICD.

$$ICD_{it} = \beta_0+\beta_1BED_{it}+\beta_2BND_{it}+\beta_3BON_{it}\ \beta_4ONC_{it}+\beta_5FSZ_{it}+\beta_6ATP_{it}+ \beta_7PRT_{it} + \beta_8FGE_{it} + \varepsilon_{it}$$ ---------- Model 1

Model Specification for the Explanatory and Moderating Variables
The following regression model was used to examine the moderating role of ownership concentration on the relationship between board diversity and ICD.

$$ICD_{it}=\beta_0+\beta_1BED_{it}+\beta_2BND_{it}+\beta_3BON_{it}+\beta_4BED_{it}*ONC_{it}+\beta_5BND_{it}*ONC_{it}+\beta_6BON_{it}*ONC_{it}+\beta_7ONC_{it}+\beta_8FSZ_{it} + \beta_9ATP_t + \beta_{10}PRT_{it}+ \beta_{11}FGE_{it} + \varepsilon_{it}$$ ---------Model 2

ICD_{it} = Intellectual Capital Disclosure of firm i in period t

BED_{it} = Board Education of firm i in period t

BND_{it}= Board Nationality of firm i in period t

BON_{it}= Board Ownership of firm i in period t

ONC_{it} = Ownership Concentration of firm i in period t

FSZ_{it} = Firm size of firm i in period t

PRT_{it} = Profitability of firm i in period t

ATP_{it} = Auditor Type of firm i in period t

FGE_{it} = Firm Age of firm i in period t

ε_{it} = Error term

β_0 = Constant

β_1= Constant

4. Results and Discussions

Descriptive statistics
The descriptive statistics of all the variables used in the study is presented in table II.

Table II: Descriptive statistics of the variables

Variables	Observation	Mean	Std. Dev.	Min.	Max.
ICD	440	0.8424	0.2964	0.1	1.34
BED	440	0.6313	0.0944	0.2	0.88
BND	440	0.2716	0.1946	0	.67
BON	440	0.1119	0.1535	0	0.92
ONC	440	0.5912	0.1825	0.18	0.94
FSZ	440	7.0168	0.8575	4.6999	9.2611
ATP	440	0.6127	0.4876	0	1
PRT	440	0.1132	0.1851	-1.2695	0.7927
FGE	440	44.5425	20.8321	4	96

Source: Generated by the Author from Annual reports data of sampled firms 2021

Table II revealed that overall; the mean ICD score for the sampled non-financial services firms in Nigeria has an average information disclosure of about 0.84. The minimum disclosure level is 10% and maximum disclosure level of 134%. The standard deviation is 0.31. Board education recorded a minimum value of 0.20 and a maximum value of 0.88. Meanwhile, on the average, the number of board members with accounting, business and economics background was 63%. The standard deviation is 0.10.

Also, board nationality diversity has a minimum value of 0 and a maximum value of 0.67. The mean value is 0.2716 and the standard deviation is 0.19 Board ownership had a minimum value of 0 and a maximum value of 0.92. On average, board ownership had a mean value of 0.112 and the standard deviation is 0.15. The mean value of the ownership concentration of the sampled firms is 0.6023. The minimum value is 0.18 and the maximum value is 0.94. The standard deviation is 0.18.

Firm size has a mean of 7.02, with a minimum of 4.70 and maximum of 9.26. However, the standard deviation of 0.87 suggests a high level of dispersion in the total assets among the sampled firms. The mean profitability was about 7.9% with a minimum loss of 84% and maximum profit of 81%. The standard deviation is 0.16. The mean auditor type was 0.60. The minimum value is 0 and the maximum value is 1. The standard deviation of 0.49 shows that no significant dispersion among the sampled firms. Finally, age has a mean value of 46.11 years. The minimum value is 6 years, while the maximum value is 97 years respectively.

Table III: Summary of Generalised Least square Regression of Intellectual Capital Disclosure

Variables	Unmoderated variables				Moderated variables			
	Coefficients	Std Error	t-stat.	Prob.	Coefficients	Std Error	t-stat	Prob.
Cons	0.2915	0.2269	1.28	0.199	0.2759	0.2237	1.23	0.217
BED	0.3285	0.133	2.47	0.000	1.1661	0.4275	0.73	0.006
BND	-0.2013	0.0808	-2.51	0.012	-0.0553	0.2839	-0.20	0.843
BON	-0.0882	0.0877	-1.01	0.315	0.8043	0.3445	2.33	0.020
ONC	-0.2146	0.0731	-2.94	0.003				
BEDONC					-1.2682	0.7261	-1.75	0.081
BNDONC					-0.2183	0.4374	-0.50	0.618
BONONC					-1.4085	0.7262	-2.65	0.008
FSZ	0.1223	0.0206	5.91	0.000	0.1185	0.0208	5.70	0.000
ATP	0.0792	0.0324	2.44	0.015	0.0815	0.0343	2.37	0.018
PRT	0.1034	0.0829	1.25	0.213	0.1189	0.0829	1.44	0.151
FGE	0.0026	0.0007	3.92	0.000	0.0025	0.0007	3.74	0.000

R-square within = 0.3193
      Between = 0.7101
      Overall = 0.3228

R-square within = 0.3460
      Between = 0.6647
      Overall = 0.3488

Wald chi2 = 204.00
Prob. Chi2 = 0.0000

Wald chi2 = 226.61
Prob. Chi2 = 0.0000

Source: Results Output from STATA 16

Table III revealed that the percentage of board members with accounting, finance, business and economics background on the board for unmoderated variables have a coefficient value of 0.3285 and a probability value of 0.000, which is significant at 1% level of significance. This means that education background of board members has a significant impact in influencing the intellectual capital disclosure of the firms. This connotes that an increase in the numbers of members with accounting, finance, business and economics background on the board will increase the level of intellectual capital disclosure positively and significantly. This may be as a result of the fact that directors with accounting and management background know the importance of intellectual capital disclosure and as such encourage their firms to disclose it voluntarily in the annual reports. Hypothesis one states that board education does not have significant impact on intellectual capital disclosure. However, based on the results of the regression which is significant at 5%, we therefore reject the null hypothesis. This finding is in contrast to the finding of Cardi *et al* (2017).

Similarly, board nationality, as shown in table III, has a coefficient value of -0.2013 which is significant at 5%. This indicates that board nationality has a negative and significant effect on intellectual capital disclosure of the firms. Hypothesis two states that board nationality does not have a significant impact on intellectual capital disclosure. However, based on the results of the regression which is significant at 5%, we therefore reject the null hypothesis. The finding concurs with those of Othman *et al* (2018) and Rahman *et al* (2019). But it is contrary to that of Alshhadat (2017)

Also, table III showed that board ownership has a coefficient value of -0.0882 which is neither significant at 1%, 5% nor at 10%. This indicates that board ownership has a positive but insignificant effect on intellectual capital disclosure of the firms. Hypothesis three states that board ownership does not have a significant impact on intellectual capital disclosure. Based on the results of the regression,

which is non-significant at 5%, we therefore fail to reject the null hypothesis. The finding is in line with those of Siala *et al* (2017).

Also, from Table III, it was observed that ownership concentration has a coefficient value -0.2146 with a probability value of 0.003 which means it is significant at 1% level. This means that ownership concentration can moderate the relationship between board diversity and intellectual capital disclosure. Hypothesis four states that ownership concentration does not moderate the relationship between board diversity and intellectual capital disclosure. However, based on the results of the regression which is significant at 1%, we therefore reject the null hypothesis. This finding is in Alfraih (2018).

For control variables, firm size recorded a coefficient value of 0.1223 which is significant at 1%. This indicates that large firms disclosed more intellectual capital voluntarily than smaller ones. As for the auditor type, the coefficient value is 0.0792 with a probability value of 0.001 which signifies its significance at 1% level. This implies that the type of audit firm that examined the book of accounts of the firms has a significant positive effect on their intellectual capital disclosure. In addition, profitability had a coefficient value of 0.1034 which is neither significant at 1%, 5% nor at 10%. This indicates that profitability has a positive but insignificant impact on intellectual capital disclosure of the firms during the period of study. Considering the control variable age, the finding indicates that age has a positive and significant impact on intellectual capital disclosure at 1% with positive coefficient estimation.

Hausman Specification Test

The Hausman specification test determines how closely statistical models match the facts under investigation. In panel data analysis, the Hausman specification test aids in determining whether a random effects or fixed effects model should be used. The Hausman specification test was conducted, and the results demonstrated that the random effects model was adequate in models one and two, with a significance level of greater than 5% (1.000).

The R^2 indicates the percentage of the variance in the dependent variable that the explanatory variables explain collectively. The R^2 of the variables were 0.3228 and 0.3488 in model one and two, respectively. The R^2 suggested that the model was capable of explaining about 32% and 35% of the systematic variation in the value of the dependent variable that could be traced to the explanatory variables as a measure of overall fitness.

Conclusion

The study concludes that having a large number of board members with background in accounting, finance, economics, or business is connected with a high degree of intellectual capital disclosure based on the findings, analysis, and interpretation. Furthermore, combining board education with ownership concentration has a significant impact on the extent and level of intellectual capital disclosure in publicly traded non-financial services companies. Furthermore, the presence of foreign board members in the boardroom has a significant impact on the disclosure of intellectual capital. Foreign director moderation with ownership concentration, on the other hand, does not appear to be a good mechanism of improving ICD because it has no significant effect on it. Furthermore, according to the study's findings, having a large number of shares owned by management does not ensure increased intellectual capital disclosure. When board ownership is moderated by ownership concentration, however, it has a significant impact on ICD levels.

The use of ownership concentration as a moderator fulfilled its goal admirably. As a result, the involvement of shareholders with more than 5% of the stock in monitoring the operations of managers in listed non-financial companies is important.

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