

## The impact of busy director on the relationship between intellectual capital and performance of manufacturing companies: Evidence from Indonesia

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### Abstract

**Purpose:** The purpose of this study is to investigate and analyse the influence of intellectual capital on manufacturing company performance, as well as the impact of busy directors on the relationship between intellectual capital and manufacturing company performance in Indonesia.

**Design/methodology:** This study analyse secondary data from the Indonesia Stock Exchange and the official websites of manufacturing companies for the 2016-2020 period. To test the hypotheses, this study used a quantitative method with panel data regression to investigate the relationship between intellectual capital and company performance and the moderating effect of busy directors on the relationship between intellectual capital and company performance.

**Findings:** The results show that intellectual capital has a positive effect on company performance and that busy directors enhance this effect.

**Research limitations/implications:** Indonesian companies are characterised by concentrated ownership and lower investor protection so the result may not be generalised in other contexts.

**Practical implications:** The public-listed Indonesian company should consider the board of commissioners with multiple directorships to strengthen the positive relationship between intellectual capital and company performance.

**Originality/value:** This study highlights and examines the impact of the board of commissioners with multiple directorships on the relationship between intellectual capital and the financial performance of manufacturing companies in Indonesia. Therefore, this study provides a better understanding of the importance of board competency as reflected in multiple directorships that affect the relationship between intellectual capital and company performance.

**Keywords:** Company performance, Intellectual capital, Busy director, Manufacturing companies

**Jel Codes:** G32, G34

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## 1. Introduction

Globalisation is an established part of the modern world and impacts businesses in many different ways. The entity of business that decides to take on international expansion will gain benefits including lower costs for products and the spread of technology and innovation. Hence, many companies must readjust their business strategy that focuses on knowledge based, i.e. more investing in intellectual capital. Intellectual capital (henceforth, IC) is information, knowledge, experience, and intellectual property that contribute to achieving competitive advantages in the future (Stewart, 1997; Sawarjuwono, 2003).

Further, companies are also beginning to change their focus away from tangible items toward offering services that benefit people. Current market demand requires the development of novel products and services that can be realised through research and development. This forces businesses to recognize the significance of successfully managing and exploiting current resources, notably human resources, which are regarded as the primary driver of any innovation. Berzkalne and Zelgalve (2014) explain that IC has emerged as one of the most valuable assets and investments for companies to enhance competitive advantage and company performance (i.e. company's financial performance).

Many extant studies also show company performance improvement must be supported with good corporate governance practices (Alkurdi, Hussainey, Tahat & Aladwan, 2019). Related to board structure, many companies are induced to have a two-tier structure, so strategy and service are executed by the Board of Directors (henceforth, BOD) while the supervisory board is handled by the Board of Commissioners (henceforth, BOC). Therefore, a two-tier structure mitigates a CEO from serving a dual role as the chairman of the supervisory board. CEO duality tends to increase agency problems and is detrimental to shareholders' wealth (Utama & Utama, 2019). Blanco-Alcántara, Díez-Esteban and Romero-Merino (2019) define the board as a source of IC owned by the company that contributes to the company's value creation. The board is considered as intangible resource (knowledge, experience, skills, and network) with the potential to generate economic benefits and create company value (Berezinets, Garanina & Ilina, 2016). Further, boards with multiple directorships in other companies (busy directors) are seen as an advantage to the company since they have extensive connections that can aid in the formation of new alliances and the expansion of corporate opportunities, hence improving the company performance. On contrary, Hamdan, Buallay and Alareeni (2017) explained that boards who serve in several companies would have a lot of commitment and tend not to have much time, which makes their accuracy in exercising their oversight function, contributing to decision making, and encouraging the practice of IC within the company could not be optimal, which will decrease the company performance.

Since Indonesia is using a two-tier board system, this study will analyze the BOC with multiple directorships as busy director. According to the Financial Authorities Regulation (Otoritas Jasa Keuangan or OJK) of listed companies in Indonesia No. 33/POJK.04/2014, regarding the multiple directorships, member of the BOC must comply with article no. 24, i.e. if a member of the BOC does not hold a position at the same time as a member of the BOD, the member of the BOC concerned may be a member of the BOC of up to four other listed companies. Members of the BOC may serve on up to five committees of a listed company at the same time, where the person concerned concurrently serves as members of the BOC or members of the BOD. Therefore, it is an intriguing issue whether the existence of a BOC with multiple directorships will increase or decrease the company performance. One might assume that the company chose this form of the board because of their capacity to provide value to the organisation (through experience, knowledge, relationships, etc.). However, we cannot help but question if they will have enough energy and time to serve all of the companies to their full

potential. To find the answer to this question, we investigate the indirect impact of busy directors on company performance or the impact of busy directors on the relationship between IC and company performance. With the networks, experiences, and knowledge they have, busy director may affect the IC development and enhance company performance eventually.

Previous studies show mixed results regarding the impact of IC on company performance. For example, Ozkan, Cakan and Kayacan (2017) and Wang and Chang (2005) elaborate on the positive influence of IC on company performance. However, a study done by Maditinos, Chatzoudes, Tsairidis and Theriou (2011) fails to find the influence of intellectual capital on company performance. Likewise, previous studies also have mixed results regarding the impact of busy directors on company performance. For example, Lu, Wang and Dong (2013) show that busy directors have a negative influence on company performance. On the other hand, Lee and Lok (2020) explain that busy directors positively affect company performance. While Yasmin and Utama (2020) fail to find the busy directors' impact on company performance.

Based on the above explanation, this study aims to investigate the impact of IC on company performance and the moderating impact of busy directors (i.e., multiple directorships of the BOC) on the relationship between IC and company performance. Most previous studies investigate the direct impact of busy directors on company performance and IC, but do not consider the indirect impact (i.e. moderating impact) of busy directors on the relationship between IC and company performance. Further, the extant studies focus on the impact of the busy board in unitary boards and the impact of busy director in a two-tier structure are still rare. Thus, understanding multiple directorships of the BOC as one of the board's characteristics will provide more insights into their role in oversight function, especially related to IC development.

We use observations of Indonesian companies that follow the two-tier structure and have a unique setting, i.e. company characterised by concentrated ownership and lower investor protection. In addition, Indonesia is a country that contains great economic potential and is included in the ten largest emerging markets and developing economies. Hence, we expect that our study will contribute and provide most accurate insights to other emerging markets with these characteristics as well. Harymawan, Nasih, Ratri and Nowland (2019) explained that Indonesia has a market where many BOCs and BODs of Indonesian listed companies hold many outside positions which makes the majority of them classified as busy directors.

To test the hypotheses, this study used a quantitative method with panel data regression to investigate the relationship between IC and company performance and the moderating effect of busy directors on the relationship between intellectual capital and company performance. Furthermore, we found that intellectual capital has a positive effect on company performance and that busy directors enhance this effect.

The remainder of this study is organised as follows: Section 2 briefly reviews the literature related to this study is explored and hypothesis development. Section 3 presents the data collection, sample, variables, and empirical method used in this study. Section 4 and 5 report on the empirical analysis and Section 6 closes the study.

## **2. Literature review and hypothesis development**

### **2.1. Resource-Based Theory**

Wernerfelt (1984) developed the Resource-Based Theory, which outlines how a company's strategy is formed from two perspectives: market-based and resource-based. Following that, these two points of view were combined to form a new concept known as knowledge-based, which explains if the strategy formulation of a company is already based on knowledge (Sutanto & Siswantaya, 2014). The knowledge-based theory assumes that one of the most essential resources in a company is knowledge possessed by humans as part of IC. In addition, knowledge will benefit the company if it is supported by other components of IC (i.e. structural capital and customer capital) which will create value and improve performance. Assume the company can effectively manage its IC. In that instance, the company can improve its competitive advantage to boost its investor value and increase its performance that will help it meet the needs of its stakeholders (Ulum, 2008).

## 2.2. Resource Dependence Theory

Pfeffer and Salancik (1978) developed Resource Dependence Theory, which explains that the board's connections with other companies will improve company performance because these boards will bring prestige, knowledge, and experience into the company. According to this theory, the board's connections will provide a mechanism for the company to have access to vital resources, such as advice and information, which can help the company reduce uncertainty. Furthermore, busy directors play a vital role in facilitating access to significant resources gained from the external environment or outside the company. Busy directors are thought to be able to have a positive impact on identifying, evaluating strategies and alternatives, and creating relationships with the external environment (Singh, 2007).

## 2.3. Intellectual capital and company performance

In today's economic situation, company's capital has expanded from tangibles to intangibles, which made IC becomes a crucial factor in a firm's long-term profit and performance in a knowledge-based economy (Albertini & Berger-Remy, 2019). Stewart (1997) defines intellectual capital (IC) as experience, knowledge, information, and intellectual property that helps the company acquire its competitive advantage. IC is divided into three main components, which are human capital, structural capital, and customer capital (Bontis, 1998; Martín-de-Castro, Delgado-Verde, López-Sáez & Navas-López, 2011). The combination of knowledge, skills, abilities, experience, and expertise, are referred to as human capital. Structures, organisational procedures, and systems that contain intangible components such as management processes, organisational charts, business strategies, and firm databases are referred to as structural capital. All intangible assets that manage relationships with other parties, such as suppliers, customers, and other stakeholders, are referred to as customer capital (Martín-de-Castro et al., 2011; Mondal & Ghosh, 2012).

Pulic (1998) deploys the value added intellectual coefficient (VAIC) to measure IC. The VAIC approach is used to assess the effectiveness and efficiency of creating and adding value to intangible and tangible assets within the company. VAIC is calculated by adding the three components of the ratio that may be found in a company's reports: human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE). HCE measures human capital's ability to create value through skills, competencies, intelligence, and knowledge. SCE measures the ability of structural capital (such as company culture and information technology) to support human capital's ability to create value. CEE, on the other hand, measures the value-added generated by physical capital and financial resources (Shahwan & Fathalla, 2020).

Furthermore, the company has short and long term objectives for the benefit of its members and stakeholders. Its performance has the potential to influence the achievement of those objectives. Performance can be described as the outcome of work done by an individual or a group of individuals in a company, under their various responsibilities and authorities to meet the company's objectives (Ramadhani, Maiyarni & Safelia, 2014). According to Gaol and Jimmy (2014), company performance is a picture that depicts the company's state over time and is the result attained by the company, which is influenced by the company's operational actions in utilizing all of its resources. Financial ratios, particularly profitability ratios, can be used to assess a company performance using information from its annual report and financial statements (Madininos et al., 2011). In addition, company performance could be affected by financial and non-financial variables, such as leverage, liquidity, firm size, firm age, independent commissioner, tenure, etcetera (Yasmin & Utama, 2020).

Berzkalne and Zelgalve (2014) explain that IC has become one of the most essential assets and investments for companies to increase competitive advantage and performance. Al-Musali and Ismail (2014), Bayraktaroglu, Calisir and Baskak (2019), Mondal and Ghosh (2012), and Ousama, Hammami and Abdulkarim (2020) find that IC measured by VAIC positively influenced company performance. According to resource-based theory (1984), the knowledge-based view assumes that knowledge plays a significant role for the company. Companies develop and formulate business strategies using knowledge-based business and invest in all their assets, including intangible assets (IC) to yield competitive advantage and competitiveness. Finally, the company operating activities and performance will increase as well. In addition, as business competition will become tighter in the future, companies must consider how to effectively and efficiently use all of their resources, including intangible

assets, to gain and maintain their performance. Based on the above argument, we propose the first hypothesis as follows.

*H1: IC has a positive effect on company performance*

#### **2.4. Moderating effect of Busy Director on intellectual capital and company performance relationship**

Al-Musali and Ismail (2014) define that busy director (henceforth, BD) as someone who serves on the board of one company while also serving on other companies. There are two hypotheses that can be used to describe the influence of BD on company performance. First, is the *reputational hypothesis* which states that BD can obtain valuable experience and build professional relationships from those positions. To defend their reputation, they will work to improve the company performance. Second, the *busyness hypothesis* (Ferris, Jagannathan & Pritchard, 2003) argues that BD will increase their workload and become too busy, leaving them with less energy and time to adequately monitor and advise the company's management. As a result, the company performance will decrease. Following these arguments, this study aims at analysing the moderating effect of busy director on the relationship between IC and company performance as there was no previous study have analysed this effect.

Based on Law no. 1 of 1995 concerning Limited Liability Companies, Indonesia is a country that utilizes a two-tier board system where the company has two separate boards, the BOD (management board) and the BOC (supervisory board). The BOD will manage the company under the guidance and supervision of the BOC. Utama and Utama (2019) explained that the BOC is a key element of corporate governance practices that may improve management oversight and reduce agency problems. In a one-tier board system, independent directors who are not members of the company's executive team or independent party are accountable for supervising management (Fich & Shivdasani, 2006). Therefore, independent directors in the unitary board have a similar function as the BOC in a two-tier system.

Al-Musali and Ismail (2014) state that from the perspective of resource dependence theory, BD is one of the mechanisms by which companies can access external resources such as ideas, information, network, connection, and so on. Hence, BD will serve as a good conduit for the exchange of ideas and knowledge, as well as for the creation and facilitation of IC development in the company, particularly human capital. Ribeiro and Colauto (2016) also stated that BD with concurrent positions or multiple directorships are considered could help improve the experience of members of boards by exchanging ideas and knowledge with members in other companies. Consequently, they will minimize errors, give advice to the company's management, and get the best strategy for the company's IC development. The development, realisation, and implementation of IC are expected could improve the company performance. This makes the companies to consider corporate governance mechanisms, especially the characteristics of the board that has multiple directorships to gain better performance. Thus, we argue that BOC who have multiple directorships will strengthen the positive relationship between IC and company performance. Therefore, we assert the second hypothesis as follows.

*H2: multiple directorships of the BOC strengthen the positive relationship between IC and company performance*

### **3. Methods**

#### **3.1. Sampling and data collection**

This study used observations of Indonesian manufacturing companies. As an emerging market, Indonesian companies follow the two-tier structure and have a unique setting, i.e. companies characterised by concentrated ownership and lower investor protection. Hence, we expect that this study will provide better insight for other emerging markets with similar characteristics as well.

The Indonesia Stock Exchange (IDX) had 194 manufacturing businesses listed at the end of 2020). Companies will be eliminated if they use currencies other than rupiah in their financial statements; do not have complete financial or annual reports and variable data used; and have negative equity, HC, and SC values (Ferris et al., 2003). Based on this criterion, we obtained 77 manufacturing companies between 2016 and 2020, resulting in 385 firm-year observations. This study used secondary data that was manually gathered from the company's annual



report and financial statement from IDX and company websites. The sample selection process employed in this study is shown in Table 1.

No	Criteria	N
1	Manufacturing companies listed in Indonesia Stock Exchange during 2016-2020	194
2	Using currencies other than rupiah in their financial statements	(30)
3	Does not have complete financial or annual reports and variable data used	(60)
4	Have negative equity, human capital, and structural capital values	(27)
	<b>Total Companies</b>	<b>77</b>
	<b>Total firm-year observations = 77 x 5</b>	<b>385</b>

Table 1. Summary of Sample Selection Procedure (2021)

### 3.2. Research framework and measurement of operational variables

#### 3.2.1. Research framework

This study used company performance as the dependent variable, intellectual capital as the independent variable, and busy director as the moderating variable. Furthermore, this study also used leverage, firm size, firm age, independent commissioner, and COVID-19 as control variables with framework as follows.

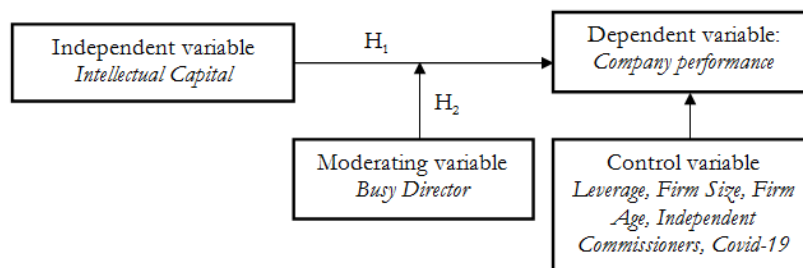


Figure 1. Research framework (2021)

#### 3.2.2. Dependent Variable

Maditinos et al. (2011) use the profitability ratio, which consists of return on assets (ROA) and return on equity (ROE) as proxies of company performance. To calculate ROA, we need to divide the current year's net income (net loss) by total assets and to calculate ROE, we need to divide the current year's net income (net loss) by total equity.

#### 3.2.3. Independent Variable

To measure the efficiency of intellectual capital, this study used value added intellectual coefficient (VAIC) proposed by Pulic (1998, 2000a, 2000b, 2004a, 2004b, 2008) which is a more objective alternative to traditional measures, such as EBITDA, and entirely consistent with the knowledge-based economy. Pulic explained that the increase in VAIC shows that the company's resources in general, especially its employees, have become more efficient in their knowledge and thus the ability to create new economic value. VAIC is calculated as follows (Pulic, 1998, 2000a, b, 2004a, b, 2008; Mondal & Ghosh, 2012; Ozkan et al., 2017):

$$VAIC = HCE + SCE + CEE \quad (1)$$

VAIC refers to the company's value-added intellectual coefficient, HCE refers to the human capital efficiency, SCE refers to the structural capital efficiency, and CCE refers to the capital employed efficiency. To calculate these variables, the total value-added (VA) created by companies must first be calculated. The following formula is used to determine total VA:

$$VA = OP+EC+D+A \quad (2)$$

VA refers to the total value-added created by the companies, OP refers to the company's operating profit, EC refers to the company's employment cost, D refers to the company's depreciation, and A refers to the company's amortisation. Following that, the VAIC components (CEE, HCE, and SCE) are calculated.

$$HCE = VA/HC \quad (3)$$

$$SCE = SC/VA \quad (4)$$

$$CEE = VA/CE \quad (5)$$

HC refers to the personnel expenses of the companies (e.g. wages and salary, employees benefit, training, etc.), and SC refers to the difference between VA and HC. CE refers to the capital employed (book value of assets) of the companies, in other words, equity value of the companies.

#### 3.2.4. Moderating variable

The moderating variable, busy directors, is calculated by dividing the number of commissioners who have concurrent positions in other companies by the total number of commissioners in the sample companies (Zachro & Utama, 2021).

#### 3.2.5. Control variable

Leverage, firm size, firm age, independent commissioner, and the COVID-19 period were all used as control variables in this study. The ratio of total liabilities to total equity is used to calculate leverage. The natural log of total assets is used to calculate firm size. The natural log of a company's age is used to calculate firm age. Independent commissioner is obtained by dividing the total number of independent commissioners by the total number of commissioners in the company. A dummy variable is used to calculate the COVID-19 variable: 1 for the COVID-19 period and 0 otherwise.

This study uses leverage, firm size, firm age, independent commissioner, and COVID-19 as control variables because most of the previous studies found that these variables impacted company performance significantly. Shahwan and Fathalla (2020) and Mishra and Dasgupta (2019) found that leverage negatively impacted company performance. Hamdan et al. (2017) found that firm size and firm age positively impacted company performance. Anggilia and Rinaldo (2015) found that independent commissioners negatively impacted company performance. Lastly, Shen, Fu, Pan, Yu and Chen (2020) found that COVID-19 negatively impacted company performance.

### 3.3. Data analysis

The panel data regression method was employed in this study, which is a method that combines cross section and time series data to explain the relationship between the independent and dependent variables. We used balanced panel regression where all companies have the same number of time series observations. Gujarati (2003) explained that by combining time series and cross section observations, panel data will give more variability, informative data, degrees of freedom, efficiency, and less collinearity among variables. Panel data can enrich empirical analysis in ways that may not be possible if only use cross section or time series data. This method was employed to analyze the impact of IC on company performance. To perform test with panel data, Ajija, Sari, Setianto and Primanti (2011) explain that we must first determine the best model for estimating the regression, which can be either a common effect model, fixed effect model, or random effect model. After the best model is obtained, the analysis could be continued with hypothesis testing. This study also employed moderated regression analysis (MRA) to examine panel data regression with the busy director variable as

moderating variable to see if busy directors help or hurt the relationship between IC and company performance. The table below presents the regression models.

Model	Regression Equation
1a	$ROA = \alpha + \beta_1 VAIC + \beta_2 LEV + \beta_3 SIZE + \beta_4 AGE + \beta_5 INDCOM + \beta_6 COV19 + e$
1b	$ROE = \alpha + \beta_1 VAIC + \beta_2 LEV + \beta_3 SIZE + \beta_4 AGE + \beta_5 INDCOM + \beta_6 COV19 + e$
2a	$ROA = \alpha + \beta_1 VAIC + \beta_2 VAIC * BD + \beta_3 LEV + \beta_4 SIZE + \beta_5 AGE + \beta_6 BD + \beta_7 INDCOM + \beta_8 COV19 + e$
2b	$ROE = \alpha + \beta_1 VAIC + \beta_2 VAIC * BD + \beta_3 LEV + \beta_4 SIZE + \beta_5 AGE + \beta_6 BD + \beta_7 INDCOM + \beta_8 COV19 + e$

Table 2. Regression Model (2021)

The direct relationship between IC and company performance was tested using models 1a and 1b, while the indirect impact of busy directors on the relationship between IC and company performance was tested using models 2a and 2b.

## 4. Results

### 4.1. Descriptive statistic

Table 3 provides descriptive statistics of the variables used in this study.

Variable	Obs.	Mean	Minimum	Maximum	Std. Deviation
ROA	385	0.0643	-0.0952	0.5267	0.0828
ROE	385	0.1129	-0.4353	1.4509	0.2042
VAIC	385	3.5989	1.1730	11.1955	1.7038
Busy Director	385	0.6064	0.0000	1.0000	0.3478
Firm Size	385	28.8355	25.7957	33.4945	1.5170
Firm Age	385	3.7296	2.4849	5.3132	0.4113
Ind. Com	385	0.4111	0.2000	0.8333	0.1080
Leverage	385	0.9735	0.0833	5.3701	0.7857
COVID-19	385	0.2000	0.0000	1.0000	0.4005

Table 3. Descriptive Statistic

Based on the result of descriptive statistics, average ROA and ROE are 6.43% and 11.29%, respectively. Meanwhile, the average value of VAIC is 3.59 which indicates that the higher the number, the more efficient the company uses its resources and the employee's knowledge in particular and may create new economic value for the company. Further, the average value of the proportion of concurrent positions of commissioners is 60.64% of all observations, indicating that greater than 50% of total observations, commissioners have multiple positions. The average proportion of independent commissioners is 41.11%, this figure indicates a higher level of compliance than the regulation stipulated by the Financial Authorities Regulation (Otoritas Jasa Keuangan or OJK) of Indonesia. Because according to rule No. 57/POJK.04/2017, if the BOC of a company has more than two members, the percentage of the number of Independent Commissioners must be at least 30% of the total members of the BOC. Thus, there is a tendency for companies in Indonesia to apply better corporate governance practices by increasing the proportion of independent commissioners compared to stipulated regulation. Furthermore, the average proportion of total debt to total equity used by the company is 97.35%. Therefore, the companies are almost indifferent between choosing equity or debt as external financing resources.



	ROA	ROE	VAIC	VAIC_B D	LEV	SIZE	AGE	BD	IND COM	COV 19
ROA	1									
ROE	0.897** (0.000)	1								
VAIC	0.746** (0.000)	0.737** (0.000)	1							
VAIC_ BD	0.522** (0.000)	0.582** (0.000)	0.665** (0.000)	1						
LEV	-0.218** (0.000)	0.024 (0.320)	-0.001 (0.490)	0.064 (0.106)	1					
SIZE	0.220** (0.000)	0.216** (0.000)	0.360** (0.000)	0.263** (0.000)	0.079 (0.061)	1				
AGE	0.277** (0.000)	0.289** (0.000)	0.153** (0.001)	0.093* (0.034)	0.121** (0.009)	0.287** (0.000)	1			
BD	0.021 (0.338)	0.062 (0.112)	0.036 (0.239)	0.702** (0.000)	0.009 (0.429)	0.097* (0.028)	-0.070 (0.087)	1		
IND COM	0.313** (0.000)	0.431** (0.000)	0.292** (0.000)	0.178** (0.000)	0.134** (0.004)	0.091* (0.037)	0.067 (0.096)	-0.082 (0.054)	1	
COV 19	-0.110* (0.015)	-0.094* (0.033)	-0.097* (0.028)	-0.046 (0.182)	0.019 (0.357)	0.039 (0.220)	0.062 (0.111)	0.013 (0.402)	0.034 (0.255)	1

\*\*significance at 1% confidence level

\*significance at 5% confidence level

Table 4. Pearson Correlation Analysis (1-tailed)

Table 4 presents the correlation coefficients among the variables. The sign of correlation coefficient between 1) IC (VAIC) and company performance (ROA and ROE); and 2) the interaction variables of IC and busy director with company performance (ROA and ROE) are aligned with the hypothesis, i.e. positive and significant. Nevertheless, Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) are needed to test the influence of busy director and IC on company performance. On the other hand, the correlation between independent variables has a coefficient value lower than  $|0.8|$ , so it can be concluded that the regression models do not have multicollinearity.

#### 4.2. Statistical result

Because this study used panel data, we must first decide whether CEM, FEM, or REM is best for predicting each regression model. The Chow test is performed to determine which panel data prediction model is the best between CEM and FEM. FEM would be used instead of CEM if the result of the Chow test has a significant value (at a 5% level of confidence). Further, the Hausman test must be performed to determine which panel data prediction model is the best between FEM and REM. FEM would be used to predict the data instead of REM if the result of the Hausman test has a significance value (at a 5% level of confidence) (Ghozali, 2018). Table 5 shows the results of the Chow test and Hausman test.

		Model 1a	Model 1b	Model 2a	Model 2b
Chow Test	Cross-section F	0.0000	0.0000	0.0000	0.0000
	Cross-section Chi-square	0.0000	0.0000	0.0000	0.0000
Hausman Test	Cross-section random	0.0045	0.0096	0.0091	0.0083

Table 5. Chow Test and Hausman Test

Because the p-value was significant (below 0.05) in both Chow Test and Hausman Test, it can be concluded that FEM was the most appropriate model to estimate all the four regression models.

Variable	Hypothesis	Model 1a	Model 1b	Model 2a	Model 2b	Remarks
Constant		0.2565* (0.0992)	0.3414 (0.2384)	0.4136** (0.0199)	0.6734* (0.0825)	
VAIC	H <sub>1</sub> : +	0.0417*** (0.0000)	0.0809*** (0.0000)	0.0330*** (0.0000)	0.0608*** (0.0000)	Supported
Leverage		-0.0149*** (0.0000)	-0.0224*** (0.0034)	-0.0151*** (0.0000)	-0.0238*** (0.0020)	
Firm Size		-0.0274*** (0.0003)	-0.0396** (0.0194)	-0.0306*** (0.0001)	-0.0464*** (0.0074)	
Firm Age		0.1255*** (0.0008)	0.1699** (0.0367)	0.1146*** (0.0017)	0.1516* (0.0533)	
Independent Commissioners		-0.0095 (0.3253)	0.0344 (0.2484)	-0.0086 (0.3384)	0.0329 (0.2557)	
Covid-19		-0.0088*** (0.0057)	-0.0188** (0.0121)	-0.0082*** (0.0080)	-0.0174** (0.0156)	
Busy Director				-0.0329** (0.0147)	-0.0948*** (0.0048)	
VAIC * Busy Director	H <sub>2</sub> : +			0.0126*** (0.0003)	0.0294*** (0.0005)	Supported
Adjusted R-squared		0.9401	0.9429	0.9422	0.9446	
Prob (F-Stat)		0.0000	0.000	0.0000	0.0000	
Regression Model		FEM	FEM	FEM	FEM	

\*\*\* significance at 1% confidence level

\*\* significance at 5% confidence level

\* significance at 10% confidence level

Table 6. Summary of Statistical Output (one-tailed)

Table 5 shows the relationship between IC and company performance. The positive sign in the regression coefficient value of the IC variable calculated using VAIC indicates that IC has a positive impact on company performance (measured by ROA and ROE). Based on the regression testing result in model 1a and model 1b, the probability value of the IC variable is 0.0000. Because the value is significant at the 1% confidence level, this value implies that hypothesis 1 is supported. As a result, the greater a company's IC, the better its performance. This result is in line with the result of research conducted by Al-Musali and Ismail (2014), Bayraktaroglu et al. (2019), Mondal and Ghosh (2012), Ousama et al. (2020), Rompas, Soeindra and Dananjaya (2019), Saleh, Che, Rahman, Hasan and Ahmad (2020).

The second hypothesis predicts that busy directors will strengthen the relationship between IC and company performance. According to regression testing results, the probability value of the interaction variable between IC and busy director in model 2a and model 2b is significant at a 1% confidence level. These results indicate that busy director has a significant impact on the relationship between IC and company performance (measured by ROA and ROE). Additionally, because the regression coefficients are positive, the interaction variable between IC and busy directors will enhance or strengthen the positive relationship between IC and company performance. So, we can conclude that hypothesis 2 is supported. Moreover, the increased value of Adjusted R-square when the regression model includes the busy director as a moderating variable indicates that busy directors strengthen the positive relationship between IC and company performance.

For the control variables, the results show that leverage negatively affects company performance at the 1% confidence level. This result means that higher leverage decreases company performance. This result corroborates Mishra and Dasgupta (2019), who argue that higher leverage decreases company performance and increases default risk. Thus, debt as a source of external financing must be chosen with caution. Next, firm size has a negative and significant effect on company performance (at 1% confidence level on ROA and 5% confidence level on ROE). According to Pi and Timme (1993), larger companies may have more conflicts between managers and shareholders, which can result in worse profitability due to less control over management's actions. Larger companies may also display a high degree of diversification, which makes them less efficient. Next, firm age has a positive and significant effect on company performance (at 1% confidence level on ROA and 10% confidence level on ROE). This result indicates that as a company's age increases, so does

its performance. Senior companies are considered to have more experience and knowledge, as well as a more systematic and structured approach to their operations. Furthermore, senior companies typically engage in development as a creative activity and have a myriad of ideas for new product development, making it easier for companies to increase their performance. The performance of the company is unaffected by the presence of an independent commissioner. Rashid (2009) explained that independent commissioners have no influence in improving company performance because most independent commissioners may not have adequate qualifications and expertise as independent commissioners. Lastly, the result shows that pandemic COVID-19 has a negative and significant effect on company performance (at 1% confidence level on ROA and 5% confidence level on ROE). So, company performance will be lower during pandemic situations compared to normal situations. The pandemic hurts the production, operation, and sales of these companies, so the company performance will worsen. Generally, government policies such as strict quarantine and social distancing cause decreasing in consumption and production. Further, the cost of capital and financial constraints, having only limited access to external funds, will be higher.

## 5. Discussion

The first aim of this study is to analyze the positive effect of IC on company performance. The study finds that IC will create value-added for the company and consequently, enhances the company's competitive advantage. So, the first hypothesis is supported. As explained in the resource-based theory (Wernerfelt, 1984), the knowledge-based view assumes that knowledge is one of the most essential resource that has a significant role and influence on a company. Companies that use knowledge-based business to develop and formulate their business strategies, as well as companies that invest in all of their assets, including intangible assets (IC), are believed could increase their competitive advantage and competitiveness, allowing them to produce good performance and profits in their operational activities. The argument is a competitive advantage will make its products superior to its competitors and become more attractive, so the customer interest in using their services or products will be higher. Chen, Cheng and Hwang (2005) also explain that IC is an important strategic asset for sustainable competitive advantage. Investors will appraise higher value to companies with better IC efficiency, render more excellent performance, and sustainable revenue growth. This result is in line with Al-Musali and Ismail (2014), Bayraktaroglu et al. (2019), Mondal and Ghosh (2012), Ousama et al. (2020), Rompas et al. (2019), Saleh et al. (2020).

The second aim of this study is to investigate whether the busy directors as a moderating variable, will strengthen the positive relationship between IC and company performance. This study finds that busy directors as a moderating variable, will strengthen the positive relationship between IC and company performance. So, the second hypothesis is supported. From the resource dependence perspective, the busy director is one of the mechanisms for companies to access and acquire information, ideas, and others from outside the company (Al-Musali & Ismail, 2014). The board analyzed in this study is the Commissioner. These interconnected commissioners will serve as a good conduit for the exchange of ideas, knowledge, and expertise, resulting in the creation and facilitation of IC development in the company. The BOC might have a greater impact and oversight on the company's management when it comes to IC policy decisions. They can also provide their opinions, thoughts, and advice to the company's management based on outside information to improve the company performance. Mooneeapen, Abhayawansa, Ramdhony and Atchia (2021) explain that companies may obtain IC in the form of experience, knowledge, and connections through boards that have positions in other companies, which will enhance the company performance. Ribeiro and Colauto (2016) also explain that members of the BOC that hold positions in other companies are considered to help commissioners improve their experience by exchanging ideas and knowledge with members of other companies. Finally, they will avoid mistakes, offer advice, and determine the best IC development strategy for the company. The development of this IC will provide a competitive advantage that will help the company operate better in the long run. Hence, it can be argued that busy directors contribute to the board's effectiveness in a variety of ways, one of which is IC and company performance.

Based on our results, this study has several contributions, both theoretical and practical. To begin, we suggest a new theoretical framework for investigating the impact of busy directors on the relationship between IC and

company performance. Many studies only focus on the direct effect of IC and busy director on company performance. Further, this study shows that the existence of BOC in a two-tier structure has a significant impact on the relationship between IC and company performance. Second, this study could provide some practical recommendations for companies who are seeking the best board configuration that allows them to continue learning and building capabilities. They should consider that BOC who have multiple directorships will create value added to company performance. This study is also expected to provide further solutions to improve company performance by finding that companies must consider using all the resources they have effectively and efficiently, including intangible assets, to gain and retain their sustainable competitive advantage. The greater a company's competitive advantage, the better its performance is projected to be.

## 6. Conclusions and limitations

The purpose of this study is to investigate the relationship between IC and the performance of manufacturing companies listed on the Indonesia Stock Exchange from 2016 to 2020. Further, this study also examines the impact of busy directors of the BOC on the relationship between IC and company performance. The study finds that IC positively affects company performance and busy director of the BOC strengthens the positive relationship between IC and company performance.

The study's implications are as follows: first, as business globalisation continues and competition becomes more difficult in the future, companies must consider how to effectively and efficiently use all of their resources, including intangible assets, to gain and maintain a sustainable competitive advantage. Companies also need to consider corporate governance mechanisms, especially the characteristics of the board that has multiple directorships. Second, investors are expected to gain a better understanding of the importance of a company's IC and how busy directors affect the relationship between IC and performance.

We acknowledge that this study has limitations. First, this study only uses the VAIC model developed by Pulic (1998) to measure IC. There are various methods other than VAIC to measure IC performance, such as a balanced scorecard (Ozkan et al., 2017), an extended VAIC model developed by Nadeem, Gan and Nguyen (2018), which uses innovation capital efficiency instead of structural capital efficiency. Therefore, readers must interpret the results with caution. Second, our study only used secondary data and our observations include Indonesian companies characterised by concentrated ownership and lower investor protection, so the results are applied in this unique setting and may not be generalised in other contexts. Future research may consider using primary data and another method in measuring intellectual capital and may cover companies in other sectors, thus the result could be more generalised.

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