**BOARD OF DIRECTOR'S CHARACTERISTICS, INTELLECTUAL CAPITAL,
AND BANK PERFORMANCE**

An empirical examination of Indonesian Banking Sector

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Abstract

The purpose of this study to examine the effect of board of director's characteristics that formed by proportion of independent directors, proportion of women directors, number of the board of directors, and frequency of board meeting on intellectual capital and bank performance. This study also examine the effect of intellectual capital on bank performance. This research applies explanatory research with a quantitative approach. The data derived from secondary bank annual report data. The total sample consisted of 12 Indonesian Conventional Banks for a period of 3 years ranging from 2015 to 2017. Partial Least Square (PLS) Analysis is used to analyze the collected data. The results of this study indicated that the board of director's characteristics has a positive and significant influence on intellectual capital. This finding provides a recent insight that the background of the board of directors depicted through the presence of independent directors and female directors on the board of directors has a positive impact on the performance of the company's intellectual capital. Further testing, the board of director's characteristics has a positive and significant influence on bank performance. The results of this study indicate that the number of board of directors, the presence of female directors and independent directors, and the frequency of board of directors' meetings in

Vol. 27, No. 2 August 2019

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a year has an influence to increase ROA and ROE and decrease the ratio of non performing loans (NPL). Testing the effect of intellectual capital on bank performance shows a positive and significant result. The results of this study indicate that companies that are able to allocate intellectual capital well can improve bank performance. The finding of this research provides insight into the presence of independent directors and female directors in the composition of the board of directors contributing to intellectual capital and bank performance, and investment in intellectual capital is needed to improve bank performance.

Keyword: Corporate Governance, Board of Directors, Intellectual Capital, Bank Performance, Indonesian Banking

INTRODUCTION*

According to Mehran et al. in Ashraf & Changjun (2015), the banking sector is highly leveraged characterized by 90% of the bank balance sheet consisting of debt compared to non-financial companies which is only 40%. The debt comes from other than from government financial institutions, also from customer savings that have been collected by the bank. The customer can be said primarily as one of the shareholders who have the authority to oversee the very limited business activities of the bank. To avoid the existence of bad business actions and prevent bad risks from the nature of the bank, it is necessary to implement good corporate governance (Gafoor, Mariappan, & Thyagarajan, 2018; Liang, Xu, & Jiraporn, 2013). The Basel Committee on Banking Supervision (BCBS) (2006) emphasizes the importance of the practice of corporate governance from financial institutions to build trust between investors.

Furthermore, Indonesia as one of the countries that applies good corporate governance uses two tiers. This two tier system is characterized by the president director, the president commissioner, the board of commissioners' members and the board members chosen through the GMS. Furthermore, in this research the researcher specifically discusses the board of director's characteristics and their influence on bank performance and the performance of intellectual capital. The Board of Directors itself has three important roles including creating a relationship between the company and its business entities and managing the allocation of the company's unique resources; oversee manager work; making strategic decisions for companies (Goodstein, Gautama, & Boeker, 1994). The important role played by the board of directors in managing both intangible and tangible resources, as well as their impact on company performance causes shareholders to formulate the composition of the board of directors in accordance with the goals, needs and functions of the company. The formulation of the composition of the board of directors that varies between companies is referred as the board of directors' characteristics.

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Vol. 27, No. 2 August 2019

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The board of director's characteristics in this study are elaborated through the size of the board of directors, composition, and functions of the board of directors (Liang, Xu, & Jiraporn, 2013; Gafoor, Mariappan, & Thyagarajan, 2018). In this study, the composition of the board of directors was measured by indicators of the proportion of female directors (gender diversity) and independent directors. The function of the board of directors is measured by the frequency of board meetings, and for the size of the board of directors it is measured by the number of board members in a bank.

The first characteristic indicator of the board of directors is measured: The proportion of independent directors. Independent directors are directors who have a high level of independence usually from academics or outsiders who have extensive knowledge. The existence of an independent director is expected to be able to be independent not only as a government requirement, but the presence of independent directors can reduce conflicts of interest and be more effective in reducing agency problems (Liang, Xu, & Jiraporn, 2013). Empirical studies conducted by Gafoor, Mariappan, & Thyagarajan (2018) show indications of a positive and significant relationship between independent directors and bank performance.

Secondly, the measurement of board characteristics is done through indicators of the proportion of female directors. The importance of a female director on a board of directors due to gender diversity in a board of directors can provide more diverse alternative solutions to problems and prioritize the principle of prudence in considering the various available solutions (Martinez, Bel-Oms, & Sempere, 2018). The director of women has better skills than men and the presence of female directors encourages better performance (Martinez, Bel-Oms, & Sempere, 2018; Meca, Sanshez, & Ferrero, 2015). Empirical studies conducted by Meca, Sanshez, & Ferrero (2015) shows that there is a positive relationship between gender diversity on the board of directors on company performance.

Third, the board of directors characteristics represented by the measurement of the size of the board of directors are believed to be advantageous in terms of supervision, the more diverse decisions are made, able to improve bank performance (Kose, Masi, & Andrea, 2016) and able to secure important resources (Abeysekara, 2010). According to Jensen (1993) directors consisting of more than 7-8 members will be ineffective. The size of the large board of directors has the advantage of increasing the variety of decisions that

will be made for the company, but has a negative impact that will occur when size becomes large, which raises higher coordination costs (Jensen, 1993).

Fourth, the frequency of board meetings is a signal of the board of directors' activeness. The more often held board meetings, it can be said that the board of directors is active. Board of directors meetings increasingly indicates that supervision from top management is increasing, the function of directors as advisors to policies is increasingly high, and this can certainly improve bank performance (Liang, Xu, & Jiraporn, 2013).

The board of director's characteristics as described above is then examined to determine their influence on intellectual capital. Intellectual capital acts as an organizational resource (Bontis, 1999). This intellectual capital has a value that multiplies when compared to tangible assets (Bontis, 1999), therefore it is necessary to record financial statements and need measurements. The intellectual capital performance in organizations can be done by doing mathematical calculations derived from financial statements. To measure the performance of intellectual capital, researchers used the Value Added Intellectual Capital model.

According to the Resource dependency theory, the diversity in the board of directors is needed to release the company from resource dependence. This means that the board of directors is needed in creating the company's unique resources, by having unique resources, the company will get added value. The board of directors, who are able to manage company resources such as intellectual capital well, will succeed in creating added value for the company. The board of directors, who are able to manage company resources such as intellectual capital well, will succeed in creating added value for the company. The added value by utilizing intellectual capital will have an impact on increasing the profitability and value of the company (Nuryaman, 2015).

Based on the description of the background of the research, the researchers want to carry out further empirical studies. An empirical study will be conducted among others to find out the influence between the boards of director's characteristics on intellectual capital. This is based on the resource dependency theory that the role of the board of directors in releasing dependence on external resources is able to create unique capital (intellectual capital). Next is to examine the effect of intellectual capital on bank performance. The statement is based on resource based theory; companies must have

unique resources that cannot be replicated so that the company is able to achieve competitive advantage (Firer & Williams, 2003). Researchers also suspect that the board of director's characteristics affects bank performance. The hypothesis is based that the separation of controls will reduce conflicts of interest between owners and managers in accordance with agency theory (Gafoor, Mariappan, & Thyagarajan, 2008).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Literature Review

In the literature review, the researchers specifically analyze how the board of directors' characteristics has a significant effect on intellectual capital and bank performance. Previous research focused on examining the effect of intellectual capital on bank performance, causing researchers to study it too. The board of director's characteristics included indicators of the proportion of independent directors, the proportion of female directors, and the frequency of board meetings.

Agency Theory

Agency theory is defined simply by Baker and Anderson (2010), when the principal (shareholder) recruits a manager (agent) and then delegates the day-to-day operational activities of the company to managers.

Resource Dependency Theory

Resource dependency theory views the entire board as a mechanism that successfully reduces external uncertainty (Pfeffer & Salancik in Abeysekara, 2010). Resource dependency theorists argue that the benefits of diversity can help councils bring or secure important resources to companies (Abeysekara, 2010). Pfeffer (1972) found that board size and board composition were rational responses to the organization to external environmental conditions.

Resource Based Theory

Wernerfelt (1984) emphasized how resources contribute to diversification and how diversification must be in accordance with the company's core competencies to optimize

performance. Resource-based theory emphasizes that to achieve and maintain competitive advantage, resources must be unique, valuable, rare, cannot be replicated, difficult to replace.

Board of Director's Characteristics

The task of the board of directors is to manage company's activities and make strategic decisions (Khaled & Aljifri, 2012). Liang, Xu, & Jiraporn (2013) board of director characteristics include three elements including board size, board composition, and board functions. The board composition consists of independent directors, political connections on the board, foreign directors, proportion of female directors, senior directors (aged over 69 years). Board functions consist of CEO duality and meeting frequency. According to the agency theory, the size of the board of directors might provide a long term performance to the company (Fama & Jensen, 1983). The size of the board of directors that is suitable for the organization is still a debate for researchers.

Intellectual Capital

Johnson and Kaplan in Bontis (1999) stated that the current economic value of a company does not only come from the value of its tangible assets as measured by the historic cost, replacement cost, and current market value but also comes from the value of intangible assets. Intellectual capital (intellectual capital) is defined as intangible assets that are explicitly not included in the balance sheet but have an impact on company performance (Roos et al. In Salicru & Perryer, 2007), Intellectual capital as measured by the VAIC model reveals intellectual capabilities in the organization and how organizational resources have been used efficiently (Ozkan, Cakan, & Kayacan, 2016). Firer & Williams (2003) to calculate VAIC there are three indicators which will be summed up, namely Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), and Structural Capital Efficiency (SCE).

Bank Performance

Bank performance is illustrated by the capacity to generate sustainable profitability (European Central Bank, 2010). The bank's performance can be measured traditionally.

These traditional performance measures include calculation of ROE, ROA, and NIM. Further bank performance can also be measured through credit risk (NPL). The banking sector in Indonesia is required to report on the company's performance, this is in accordance with Bank Indonesia Regulation No. 13/1 / PBI / 2011 regarding the measurement of health of commercial banks in Indonesia.

Hypothesis

Board of Director's Charactersitics and Intellectual Capital

Based on the theory of resource dependence, the larger council allows mobilizing the expertise and skills possessed by individual directors in order to improve the board's information processing capabilities. The study of Al-Musalli & Ismail (2012) states that there is no influence among the size of board of director's on intellectual capital. Independent directors through their independence are expected to give advice to other executives to support strategies related to generating intellectual capital performance for the company. The empirical study of Carol & Mitchell (2008) shows that there is no influence between independent directors on the efficiency of intellectual capital (VAIC). Firer (2005) research revealed that there was no influence among the proportion of female directors on the performance of intellectual capital in companies in South Africa. Research by Romero, Rodrigues, & Craig (2017) examined the relationship between the frequency of board meetings and intellectual capital disclosure shows that meeting frequencies have a negative influence on intellectual capital disclosure in companies.

H1: Board of Director's Characteristics has a significant effect on Intellectual Capital

Board of Director's Characteristics and Bank Performance

The results of research conducted by the research conducted by Sadakawa & Watanabe (2018); Pathan & Faff (2013) shows that there is a negative relationship between board size and bank performance. Research conducted by Gafoor, Mariappan, & Thyagarajan (2018) shows that there is a positive and significant relationship between board independent and bank performance. Pathan & Faff (2013) reinforce this statement, that

there is a positive relationship between gender diversity and bank performance. Liang, Xu, & Jiraporn (2013) that there is a significant positive effect between the frequency of board meetings and bank performance.

H2: Board of Director's Characteristics has a significant influence on Bank Performance

Intellectual Capital and Bank Performance

Intellectual capital in a company as an intangible asset owned by a company can make a business entity gain its competitive advantage. Owned competitive advantage can create profits for the company. Previous research conducted by Ozkan, Cakan, & Kayacan (2016) has a positive relationship among intellectual capital (VAIC) on the company's financial performance.

H3: Intellectual Capital has a significant effect on Bank Performance

RESEARCH METHODS

This research is categorized as explanatory research. The quantitative approach is used in this study to test the influence between variables. The sampling technique uses nonprobability sampling, namely purposive sampling. Descriptive analysis is used to describe the characteristics of each variable in the form of mean, standard deviation, variance, maximum and minimum. To explore the relationship between research variables, researchers used PLS analysis.

Method of Collecting Data

Companies in Indonesia that are engaged in the banking sector in this study are the object of research. The banking sector in Indonesia includes state-owned banks, foreign private banks, and national private banks. Companies in Indonesia engaged in banking in Indonesia amounted to 32 banks. Sampling is done using the criteria set by the researcher, so that 12 eligible banks are obtained as the study sample with the observation period of 2015-2017.

The data used in this study are secondary data derived from good corporate financial statements that have been published annually. Data on the board of directors' characteristics are obtained in full from banking corporate governance reports. The financial statements are of course obtained from the Indonesian stock exchange website.

Research variables and operational definitions between variables are explained as follows:

a. The Board of Director's Characteristics (X)

The board of director's characteristics are the proposals of independent directors, the proportion of female directors, the size or number of directors who are members of the board of directors, and how many times or the frequency of board meetings.

1. Proportion of independent directors (X1): Directors who have no connection with the bank. The calculation is the percentage of the number of independent directors in the board of directors (Gafoor, Mariappan, & Thyagarajan, 2018; Liang, Xu, & Jiraporn, 2013). The following is the calculation formula:

$$\frac{\sum \text{independent Director}}{\sum \text{board of director}} \times$$

Source: Gafoor, Mariappan, &
Thyagarajan, 2018; Liang Xu,
& Jiraporn, 2013

2. Proportion of female directors (X2): Percentage of female directors in the board of directors (Liang, Xu, & Jiraporn, 2013). Here's the calculation formula:

$$\frac{\sum \text{female director}}{\sum \text{board of director}} \times 100\%$$

Source: Liang, Xu, & Jiraporn, 2013

3. The size of board of director (X3): the number of director in board of director (Gafoor, Mariappan, & Thyagarajan, 2018; Liang, Xu, & Jiraporn, 2013; Meca, Sanshez, & Ferrero, 2015).

$$\sum \text{Board of directors member}$$

Source: Gafoor, Mariappan, & Thyagarajan, 2018; Liang, Xu, & Jiraporn, 2013; Meca, Sanshez, & Ferrero, 2015

4. Meeting frequency of The size of board of director (X4): the meeting number of board of director in the recent years (Gafoor, Mariappan, & Thyagarajan, 2018; Liang, Xu, & Jiraporn, 2013; Meca, Sanshez, & Ferrero, 2015)

$$\sum \text{board of director meeting in a year}$$

Source: Gafoor, Mariappan, & Thyagarajan, 2018; Liang, Xu, & Jiraporn, 2013; Meca, Sanshez, & Ferrero, 2015

b. Intellectual Capital

Intellectual capital is an intangible asset that is not explicitly listed on the company's balance sheet but has a positive impact on the success and performance of the company. The value of intangible assets (intellectual capital) is sometimes valued far greater than tangible assets. Intellectual capital acts as an organizational resource, so that it can be measured by calculating the company's financial statements. Intellectual capital in this study is measured by Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Capital Employed Efficiency (CEE).

To measure intellectual ability and its utilization in a company efficiently or not, Pulic (2004) developed a Value Added Intellectual Coefficient (VAIC) model. Value Added Intellectual Coefficient from bank i, calculated as follows:

$$VAIC_i = HCE_i + SCE_i + CEE_i$$

Source: Ghosh & Mondal (2009), Nuryaman (2015)

Note:

VAIC = *Value Added Intellectual Coefficient* from bank i

HCE_i = *Human Capital Employed Efficiency Coefficient* bank i

$SCE_i = \text{Structural Capital Efficiency Coefficient bank } i$

$CEE_i = \text{Capital Employed Efficiency Coefficient from bank } i$

Before counting the variable, then the calculation is done first on *Total Value Added* (VA_i).

$$VA_i = OP_i + EC_i + A_i$$

(1)

Source: Ghosh & Mondal (2009), Nuryaman (2015)

Note:

$VA_i = \text{Total value added}$ which can be gained by Bank i

$OP_i = \text{Operating Profit Bank } i$

$EC_i = \text{Employment Cost Bank } i$ (employees cost)

$A = \text{Amortization and Depreciation}$

The following step is counting the component of VAIC (HCE_i , SCE_i , and CEE_i), the first VAIC that is counted is CEE , in which:

$$HCE_i = VA_i / HE_i$$

(2)

Source: Ghosh & Mondal (2009), Nuryaman (2015)

Note:

$HC_i = \text{Human Capital Bank } i$ (employees cost)

The second and third components from VAIC are:

$$SC_i = VA_i - HC_i$$

(3)

Source: Ghosh & Mondal (2009), Nuryaman (2015)

$$SCE_i = SC_i / VA_i$$

(4)

Source: Ghosh & Mondal (2009), Nuryaman
(2015)

$$CEE_i = VA_i / CE_i$$

(5)

Source: Ghosh & Mondal (2009), Nuryaman (2015)

Based on the description of the components of calculation of intellectual capital added value (VAIC) in an organization, the intellectual capital indicators are obtained as follows:

1. Human Capital Efficiency or HCE (Z1) Efficiency of a company's human capital, where added value can be given by a unit of human resources invested during the period i. Human Capital (HC) is an investment in human resources (Human Capital) during the period i, or total salary, wages, and all incentives (Maheran & Ismail, 2009). The following is a calculation from HCE:

$$HCE_i = VA_i / HC_i$$

Source: Ghosh & Mondal (2009); Nuryaman (2015)

2. Structural Capital Efficiency atau SCE (Z2). Efficiency of structural capital, the proportion of total value added (VA) recorded by structural capital. The following is an SCE calculation formula:

$$SCE_i = SC_i / VA_i$$

Source: Ghosh & Mondal (2009);
Nuryaman (2015)

3. *Capital Employed Efficiency* atau CEE (Z3). Efficiency of company working capital, where the value can be created by one unit of capital in the year i. CEE is calculated by the formula:

$$CEE_i = VA_i/CE_i$$

Source: Ghosh & Mondal (2009);
Nuryaman (2015)

c. *Bank Performance (Y)*

Bank performance Bank performance can be viewed from the financial and non-financial side. Financial performance is still the most widely used measure of bank performance, although in its development various approaches to valuing performance that are non-financial have emerged. The researcher used three indicators to measure bank performance, namely ROA, ROE, and NPL.

1. Return on Asset or ROA (Y1)

The purpose of calculating ROA is to measure the level of net income obtained from the total assets of the company (Syamsuddin, 2011). Here is a way to calculate ROA:

$$ROA = \frac{\text{Earning before Tax}}{\text{total assets}}$$

Source:Lampiran SE BI 13/24/DPNP

2. Return on Equity or ROE (Y2)

The ROE calculation is used to measure the level of net income obtained by the company owner for the capital invested (Syamsuddin, 2011). The following is the ROE calculation formula:

$$ROE = \frac{EAT}{\text{shareholder equity}}$$

Source:Lampiran SE BI13/24/DPNP

3. Non Performing Loan atau NPL (Y3)

The Calculation of the ratio of Non Performing Loans to find out the comparison among the number of non-performing loans and the total loans that have been given. This non-performing loan means that loans with collectability are substandard, doubtful and loss. The following is the NPL calculation formula:

$$NPL = \frac{\text{non performing loan}}{\text{Total loan}}$$

Source: Liang, Xu, & Jiraporn, 2013

RESEARCH RESULT AND DISCUSSION

Descriptive Analysis

Description of research variables in the form of minimum values, maximum value, average and standard deviation shown in table 1 as follows:

Table 1 Descriptive Analysis of the Research Variable

Variable	Statistics			
	Min	Max	Mean	Standart Deviation
Independent Director (%)	9	29	16	6
Female Director (%)	10	75	33	16
Number of board of Director (people)	4	11	7	2
Number of Director meeting (frekuensi)	12	54	33	13
HCE	-2.924	3.733	1.610	1.344
SCE	-19.926	1.369	-0.147	3.422
CEE	-1.989	2.171	0.199	0.517
ROA (%)	-27.0	6.30	0,30	5.30
ROE (%)	-48.90	38.30	5.90	14.00

Variable	Statistics			
	Min	Max	Mean	Standart Deviation
NPL (%)	0,50	8.80	2.90	1.92

Source: Processed Data (2019)

The average proportion of independent directors is 16.1%. This very small amount is possible because each company only gives a quota of 1 independent director. The proportion of female directors in one of the banks in Indonesia is filled by 75% of female director; this means that the average size of the board of directors in the conventional banking sub-sector in Indonesia is not large. The number of meetings of directors in a year is carried out with an average of 32 times.

Furthermore, the descriptive analysis of the Intellectual Capital variable shows that HCE is the most effective component contributing to adding value to the company compared to SCE or CEE. Bank performance as measured by ROA, ROE, and NPL shows that ROA and ROE show a positive average, even though ROA at one bank is worth - 27% and ROE -48%. Descriptive analysis of NPL also shows a good average of 2.9%, where the risk of failure to repay loans can still be kept below 5% in accordance with Bank Indonesia regulations.

Partial Least Square (PLS) Analysis

Evaluation of the formative model validity is done by calculating the weight value. An instrument is declared valid if the value of T-Statistics $\geq$ T-table (1.96). The results of testing the validity of formative models are presented in the following table:

Table 2 Validity Test's Result

Variable	Indicator	Weight	Standard Error	T Statistics
X	X1	0.358	0.145	2.477
	X2	0.292	0.146	2.004
	X3	1.215	0.363	3.346

Variable	Indicator	Weight	Standard Error	T Statistics
	X4	0.451	0.139	3.237
Z	Z1	0.393	0.070	5.618
	Z2	0.797	0.051	15.555
	Z3	0.132	0.027	4.937
Y	Y1	0.987	0.021	47.102
	Y2	0.036	0.038	0.928
	Y3	0.013	0.005	2.776

Source: Prosessed Data (2019)

Based on table 2, Indicators in Variables Characteristics of the board of directors and Intellectual Capital have t statistics that are more than 1.96. Thus, these indicators are declared valid to measure the characteristic variables of the board of directors (X) and Intellectual Capital (Z). While the Y2 indicator on bank performance has a satistic t value <T Table (1.96), then the indicator is not valid for measuring Bank Performance variables.

To overcome the invalid Y2 value, the researcher conducted an Outlier. The researchers focused on deleting data that caused invalid Y2 (ROE) variables. After deleting Outliers from a sample of 36 company data, 30 company data were obtained, which means that there were 6 outlier company data which caused the Y2 variable to be invalid. The following are companies of companies that are the research samples after deletion of data outliers:

Table 3 the list of companies that become research samples after outliers

NO	CODE	COMPANY
1.	BBCA	PT Bank Central Asia Tbk
2.	BBNP	PT Bank Nusantara Parahyangan Tbk
3.	BDMN	PT Bank Danamon Tbk
4.	BMAS	PT Bank Maspion Indonesia Tbk
5.	BNII	PT Bank Maybank Tbk

NO	CODE	COMPANY
6.	BNLI	PT Bank Permata Tbk
7.	BTPN	PT Bank Tabungan Pensiunan Nasional Tbk
8.	INPC	PT Bank artha Graha Internasional Tbk
9.	MEGA	PT Bank Mega Tbk
10.	NISP	PT Bank OCBC Nisp Tbk

Source: Processed Data (2019)

After detection of the outlier data and the disposal of data that causes the Y2 (ROE) indicator to be invalid, a re-calculation of the validity between the research indicators is carried out.

Table 4 the result of validity test after *outlier*

Vari able	Indic ator	Weig ht	Stand ard Error	T Statisti cs
X	X1	0.511	0.116	4.396
	X2	0.570	0.120	4.742
	X3	1.432	0.140	1.,212
	X4	0.360	0.128	2.817
Z	Z1	0.279	0.047	5.912
	Z2	0.951	0.082	11.563
	Z3	0.158	0.035	4.566
Y	Y1	0.300	0.063	4.799
	Y2	0.932	0.070	13.409
	Y3	-0.145	0.066	2.176

Source: Processed Data (2019)

Based on the table above it can be seen that all indicators that measure the characteristic variables of the board of directors, intellectual capital, and bank

performance produce a T-statistic value greater than T-table (1.96), then the indicator is declared valid.

Goodness of Fit Model

The goodness of fit model in PLS analysis is done using the coefficient of determination (R-Square) and Q-Square predictive relevance (Q2).

There are results of the Goodness of fit Model summarized in the following table.

Table 5 the result of goodness of fit model

Variable	R^2
<i>Intellectual capital</i>	0.415
<i>Bank performance</i>	0.869
$Q^2 = 1 - [(1 - R_1^2) (1 - R_2^2)] \rightarrow$ $Q^2 = 1 - [(1 - 0.415) (1 - 0.869)] = 0.924$	

Source: Processed Data (2019)

The R-square intellectual capital is 0.415 or 41.5%. This can show that the diversity of intellectual capital can be explained by the board of directors' characteristics of 41.5%, while the remaining 58.5% is a contribution of other factors not discussed in this study.

The next R-square bank performance is worth 0.869 or 86.9%. This can show that the diversity of bank performance is explained by the board of directors' characteristics and intellectual capital of 86.9%, while the remaining 13.1% is the contribution of other factors not discussed in this study.

Q-Square predictive relevance (Q2) is 0.924 or 92.4%. This can indicate that the diversity of bank performance can be explained by the overall model of 92.4%, or in other words the contribution of the board of director's characteristics and intellectual capital to bank performance as a whole (direct and indirect influence) of 92.4%, while the remaining 7.6% is the contribution of other factors not discussed in this study.

Hypothesis Testing

Table 6 shows the test results between the board of directors’ characteristics (X), intellectual capital (Z), and bank performance (Y), which uses Partial Least Square analysis to determine the influence between these variables.

Table 6 the results of testing direct influence hypotheses

Variable Correlation	Path Coefficient	Standard Error	T Statistics
X → Z	0.644	0.047	13.836
X → Y	0.102	0.028	3.710
Z → Y	0.863	0.022	39.528

Source: Processed Data (2019)

Figure 1 Structural Model (Outer Model)

Source: processed data with PLS, 2019

Based on the tests that have been carried out using PLS analysis, it can be tested the hypothesis described as follows:

1. The testing results of the effect of the board of director’s characteristics (X) on Intellectual capital (Z) shows the path coefficient value of 0.644 and the T value of Statistics 13.863. This value indicates that the board of director’s characteristics has a positive and significant effect on intellectual capital. This means that the better the board of directors’ characteristics tend to increase intellectual capital.
2. The test results of the influence of the board of director’s characteristics (X) on bank performance (Y) show that they are 0.102 and the T value of 3.710 states that the

board of director's characteristics has a positive and significant effect on bank performance. This means that the better the board of directors' characteristics tend to increase bank performance significantly.

3. The test results of the effect of intellectual capital (Z) on bank performance (Y) show the path coefficient value of 0.863 and with a t value of 39.528, states that intellectual capital has a positive and significant effect on bank performance. This means that higher intellectual capital tends to increase bank performance.

DISCUSSION

The Effect of Board of Director's Characteristics on Intellectual Capital

The results obtained in the previous hypothesis testing indicate that the influence of the board of director's characteristics (X) on intellectual capital (Z) has a path coefficient value of 0.644 with a t value of 13.863. These results indicate that the board of director's characteristics has a positive and significant influence on the intellectual capital variable, thus supporting the first hypothesis. These findings corroborate research that Romero, Rodrigues, & Craig (2017).

This finding does not corroborate the research conducted by Carol & Mitchell (2008) showing that there is no influence between independent directors on the efficiency of intellectual capital (VAIC). This study does not reinforce previous research conducted by Al-Musalli & Ismail (2012) that there is no influence between the sizes of the board of directors on intellectual capital. Romero, Rodrigues, & Craig (2017) who examined the relationship between the frequency of board meetings and intellectual capital disclosure showed that meeting frequencies had a negative influence on intellectual capital disclosure.

The board of director's characteristics formed from the proportion of female directors (gender diversity) and independent directors on the board of directors, board size, and the number of frequency of board meetings in a year that positively and significantly affects the intellectual capital reinforces the theory of resource dependency. Resource dependency theory (Pfeffer & Salancik, 1978) states that the board of director plays a role in managing the company's unique resources, the unique resource intended in this study is intellectual capital. Based on this research shows that the role of the board of directors

has an influence on the management of intellectual capital in the company, so the better the characteristics of the board of directors can improve the performance of the company's intellectual capital.

The Effect of Board of Director's characteristics on Bank Performance

The results obtained in the previous hypothesis testing indicate that the influence of the board of director's characteristics (X) on bank performance (Y) has a path coefficient value of 0.102 with a t value of 3.710. These results indicate that the board of director's characteristics has a positive and significant influence on the bank performance variable, so accepting the second hypothesis, "the characteristic of the board of directors has a significant effect on bank performance". This means that the better the board of director's characteristics tend to be to increase bank performance significantly.

These findings reinforce previous research conducted by Gafoor, Mariappan, & Thyagarajan (2018) which shows that there is a positive and significant relationship between board independent and bank performance. As well as research conducted by Liang, Xu, & Jiraporn (2013) and Sadakawa & Watanabe's research (2018) that independent directors have a positive and significant relationship to bank performance.

The results of this study are also in line with previous studies conducted by Meca, Sanshez, & Ferrero (2015); Pathan & Faff (2013); that there is a positive and significant relationship between the gender diversity of the board of directors towards bank performance. This finding also strengthens the research conducted by Hakimi et al. (2018); Gafoor, Mariappan, & Thyagarajan (2018); Liang, Xu, & Jiraporn (2013); and Meca, Sanshez, & Ferrero (2015) that there is a positive and significant relationship between the size of the board of directors and bank performance. This study reinforces previous research conducted by Meca, Sanshez, & Ferrero (2015) that there is a frequency of board meetings that have a positive influence on bank performance.

The findings of this study also strengthening agency theory. According to the agency theory (Jensen & Mecking, 1976) that the separation of control between owners and managers will have an influence on company performance. This result means that directors employed by shareholders have an influence on company performance. Based on these findings, the characteristics of the board of directors that formed by gender

diversity (the proportion of female directors), the existence of independent directors, the number of board of directors, and the frequency of board of directors meetings can improve the bank's performance.

The Effect of Intellectual Capital on Bank Performance

The results obtained in the previous hypothesis testing indicate that the effect of intellectual capital (Z) on bank performance (Y) has a path coefficient value of 0.863 with a t value of 39.528. These results indicate that the intellectual capital variable has a positive and significant effect on the performance bank variable, thus supporting the third hypothesis. This finding corroborates previous research conducted by Ozkan, Cakan, & Kayacan (2016) that there is a positive relationship between intellectual capital (VAIC) on the company's financial performance. Similar findings by Nuryaman (2015) have a positive relationship between intellectual capital and profitability.

This finding also supports resource based theory (Wernefelt, 1984) that companies that have unique resources (intellectual capital) will achieve competitive advantage in the form of profits for the company. The results of the study that intellectual capital has a positive and significant effect on bank performance, means that the higher of the intellectual capital value as reflected in human capital efficiency, structural capital efficiency and capital employer efficiency can improve company performance.

CONCLUSION

The research finding of the study indicate that the board of directors characteristics have a positive and significant influence on intellectual capital, this finding further strengthens the resource dependency theory. The board of director's characteristics have a positive and significant influence on bank performance. The last result of this research is that intellectual capital has a positive and significant influence on bank performance, this finding strengthens resource based theory.

Lastly, based on the results of these studies, there are several useful suggestions for further research. Further research should also to find out whether this research model has the same effect when applied to Islamic banks. Future research can try to explore the

characteristics of the board of directors and the performance of the bank using other methods. Semi-structured interviews with the board of directors can be an alternative to gain deeper insight.

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