

# Intellectual Capital, Capital Structure, Firm Size, Firm Age and Financial Performance

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## ABSTRACT

This study aims to find out how the role of the components of intellectual capital and capital structure on financial performance in financial sector companies listed on the Indonesia Stock Exchange during 2018-2020. Samples were selected by purposive sampling method and valid data were 59 companies. The data processing technique uses multiple regression analysis assisted by the EViews 12 SV program and Microsoft Excel. The results of this study show that the three components of intellectual capital, namely structure capital efficiency, human capital efficiency and capital employed efficiency as well as capital structure have a significant influence on the company's financial performance. The implication of this study is that it is necessary to maintain the company's attention to employees, the values that can make the company unique, as well as company funding that will improve the company's financial performance that will provide a good signal for investors.

**Keywords:** *Financial performance, Intellectual Capital, Capital Structure, Firm Size, Firm Age*

## 1. INTRODUCTION

The development that occurs in this world occurs so quickly and of course all fields are experiencing significant development. Likewise, the economic sector has also experienced rapid development. The development begins with advances in information technology, fierce business competition, and innovations that bring changes in business management. Such rapid development has also caused the emergence of problems, one of which is that there are not a few companies that have experienced a decline in profits and even almost went bankrupt.

Not only because of developments that affect a company but the environment around the company is also affected. Stability in the political and social spheres and even health in the place where a company stands. Reporting from the website of the Ministry of Manpower of the Republic of Indonesia [1], the Ministry of Manpower surveyed companies in 2020 and found results that 88 percent of companies were affected by the COVID-19 pandemic. The survey was conducted online such as by phone and email of 1,105 companies. Losses occur due to a decrease in sales so production must be reduced and have an impact on the company's revenue. In overcoming these problems, companies must think about how to be strategic, efficient, and effective for their companies, so as not to experience a decline in profits and bankruptcy. One way to overcome this problem is that the company must improve the company's performance so that it can pass its critical period.

Financial performance is the most important thing for investors before entering into a business agreement, so many companies maintain their financial performance so that they are in demand by many investors. The factors that can affect the company's financial performance are one of them is intellectual capital. Intellectual capital is divided into three components, namely: structure capital efficiency (SCE), human capital efficiency (HCE), and capital employed efficiency (CEE). Other factors affect the company's financial performance, such as the capital structure. In addition, firm size and firm age can also affect the company's financial performance.

This research is expected to provide benefits to be considered in making decisions in the company so that companies can develop intellectual capital, namely structure capital efficiency, human capital efficiency, and capital employed efficiency because it can support company performance. In addition, this study aims to provide information to business leaders and investors that the capital structure is a debt to asset ratio, then the size of the company and the age of the company can affect the company's financial performance.

## **2. LITERATURE REVIEW**

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

This theory was first developed by Wernerfelt [2] in a paper entitled "A Resource-based View of The Company". Next is the paper "Firm Resource and Sustained Competitive Advantage" by Barney [3] which explains that resources in a company can help companies in improving the efficiency and effectiveness of a company's business. According to Wernerfelt [2]: "for the company, resources and products are two sides of the same coin". Edith Penrose is one of the experts who recognize how important resources are in the company's competition [4].

### ***2.2. Agency Theory***

Agency Theory was first introduced by Jensen and Meckling in 1976 [5]. Agency Theory is a theory that underlies the financial performance of a company. Ehikioya [6] in his research, stated that there is a conflict of interest between principals (investors or shareholders) and agents (managers). According to Jacking and Johl [7], this agency theory can be used to investigate and monitor the role of company directors in terms of their involvement which is reflected in the financial performance of the companies they operate. According to Widiatmoko and Indarti [8], this agency theory describes a relationship between agents and principals which is a contract that binds both parties in regulating capital in a company. The principal gives orders to agents to perform their duties and make the right decisions in running a business.

### ***2.3. Financial Performance***

According to Hutabarat [9], financial performance is an analysis carried out to find out the extent to which a company has implemented financial performance rules properly and correctly. Devi [10] argues that a company's financial performance is a measure determinant that can indicate the company's success in making a profit. One of the ratios that can be used to measure a company's financial performance is the profitability ratio, namely Return on Asset (ROA). Uslu's research examines intellectual capital on the financial performance of companies with one of the indicators being ROA [11].

### ***2.4. Intellectual Capital***

According to Soewarno and Tjahjadi [12], intellectual capital is the result of human knowledge and has an important role in achieving competitive advantage and can improve company performance. If a company has intellectual capital, it must be managed effectively and efficiently to achieve a competitive advantage and produce good company performance. Based on the understanding of intellectual capital, it can be concluded that intellectual capital is a resource that should be owned and developed so that the company can compete with other companies and remain a company that is not easily duplicated by its competitors. Gunawan and Ramadhani [13] define intellectual capital as the result of the sum of three main elements, namely, structure capital efficiency, human capital efficiency, and capital employed efficiency if this element is utilized efficiently, it will provide value-added to the company.

#### **2.4.1. Structure Capital Efficiency (SCE)**

Structural capital is knowledge in an organization such as databases, strategies, and activities that have a higher value than material values [12]. Based on the above understanding, it can be concluded that the capital efficiency structure includes unique resources and is not easy to find so each company must have a unique organizational culture and a different operating system than other companies.

#### **2.4.2. Human Capital Efficiency (HCE)**

Human capital is the knowledge of an individual represented by employees in a company [12]. Human capital efficiency will increase if the company uses knowledge from people in the company [14]. According to Ignasia and Sufiyati [15], human capital efficiency is a picture of the cost expenditure incurred by the company to its employees. Based on the understanding above, it can be concluded, that human capital efficiency provides an overview of the company's collective ability to produce the best solution based on the knowledge of the people in the company.

#### **2.4.3. Capital Employed Efficiency (CEE)**

Capital Employed Efficiency is the relationship between the company and its external environment, namely customers, distributors, investors, and suppliers. According to Soewarno and Tjahjadi [12], capital employed is an effort of a company in managing the resources they have, namely in the form of capital assets. Based on the understanding above, capital efficiency is a component of a company that is a complement to a business cycle whose existence greatly affects the financial performance of a company.

### **2.5. Capital Structure**

Capital Structure or commonly known as the capital structure is part of the financial structure which is a balance between debt and capital of a company [16]. According to Hastuti [17], a capital structure is a collection of capital that can be used and allocated by a company, which is obtained from debt and long-term capital. The definition of capital structure based on the above understanding can be concluded to be the amount of capital or debt used by the company in funding the company's operational activities.

### **2.6. Firm Size**

Debora and Dewi [18] argue that in general companies can be categorized into three categories, namely small companies, medium-sized companies, and large companies. According to Gunawan and Rahmadani [13], the size of the company reflects the capacity or ability of the company and the services provided to customers which are certainly different from other companies. Based on the understanding above, it can be concluded that firm size is the size of a company that can be classified into large companies or small companies, the larger the size of the company, the company is trusted by many capital owners because it has grown from a small company to a large company.

### **2.7. Firm Age**

Suta and Laksito argue that: "The age of a company describes a company's ability to compete and take advantage of business opportunities to be able to continue to exist in the economy. More senior or older companies have more experience and have improved their financial reporting practices over time, so the information disclosed will be broader" [19]. According to Oktari, Handajani, and Widiastuty [20], the age of the company provides an overview of a company's ability to compete with other companies and take advantage of existing business opportunities to be able to go for concern. Based on the understanding that has been explained, it can be concluded that firm age is a measurement of the age of a company in carrying out operational activities, the longer a company has enough experience makes it an advantage over other companies.

### **3. RESEARCH MODEL AND HYPOTHESES DEVELOPMENT**

#### ***3.1. The Effect of Structure Capital Efficiency on Financial Performance***

Structure capital efficiency provides an overview of the importance of the role of intellectual capital derived from the non-human category to the value-added of the company [21]. The calculation of structure capital efficiency, it can be proxied by dividing the value-added or added value of the company by structure capital. According to Uslu [11] structure capital efficiency has a positive influence on financial performance. Ignasia and Sufiyati [15] stated that this can happen because there is a well-structured system and optimal management implementation, so the influence of the capital efficiency structure encourages the company to create value-added for the company.

#### ***3.2. The Effect of Human Capital Efficiency on Financial Performance***

Human capital efficiency is an illustration of how much the role of employed expenses that have been issued by companies to increase company value-added [15]. Employed expense is the total funds spent by companies to prosper their employees such as salaries, wages, and bonuses/incentives [22]. The calculation of Human capital efficiency, it can be proxied by dividing the value-added of the company divided by human capital (employed expense). According to Uslu [11], human capital efficiency has a positive influence on financial performance. Kurniawati et al. [23] stated that this can happen because the human resources contained in a company have experience and the ability to work so that the creativity, motivation, and flexibility of human resources can provide benefits to the company and produce good company financial performance.

#### ***3.3. The Effect of Capital Employed Efficiency on Financial Performance***

Capital employed efficiency provides an overview of how much the role of the company's physical capital in increasing the value-added of the company [15]. Capital employed is the total equity owned by the company so that it can increase added value for the company. In the calculation of Capital employed efficiency can be proxied by dividing the value added with capital employed. According to Uslu [11], capital-employed efficiency has a positive influence on financial performance. Saputra [24] stated that companies with capital intensive will have a stronger relationship between intellectual capital and the company's financial performance than companies that rely on human-intensive.

#### ***3.4. The Effect of Capital Structure on Financial Performance***

In this study, the capital structure is proxied with a debt-to-asset ratio. According to Lestari [25], the debt to asset ratio provides an overview of how much the company's assets financed by debt are used to cover liabilities arising from the use of these assets. The calculation of the debt to asset ratio can be proxied by dividing the total liabilities by the total assets. Capital structure has a negative influence on financial performance [26]. According to Dahlia [26], this can happen because the level of debt is increasing, causing a decrease in the financial performance of a company. Lazar [27] also explained that, the higher debt also makes the company reduce the company's opportunity to invest in profitable projects, because it has the main goal of paying the debt it has and has an impact on the company's productivity.

The research model of this study as presented in Figure 1:

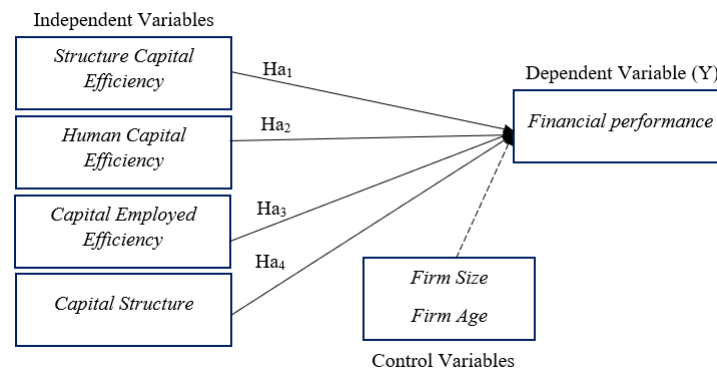


Figure 1. The Research Model

#### 4. RESEARCH METHOD

The population of this study consists of all financial sector companies listed on the Indonesia Stock Exchange for the period 2018 to 2020. Purposive sampling is being used as the sample method in this study. The followings are the sample criteria: a) Financial sector companies listed successively on the Indonesia Stock Exchange 2018-2020, b) Financial sector companies that did not experience losses during the period 2018-2020 consecutively, c) Financial sector companies that issue financial statements in rupiah (Rp) during the 2018-2020 period. The research sample selected was 59 companies. The total of 177 panel data (59 companies times 3 period) were analyzed using multiple regression analysis. Data processing in this study using EViews 12 SV. The following is the operationalization of each research variable as presented in Table 1:

**Table 1.** Operationalization of Research Variables

Variable	Proxy	Adopted From	Scale
Financial Performance	$ROA = \frac{Net\ Income}{Total\ Assets}$	Uslu (2022)	Ratio
Structure Capital Efficiency	$SCE = \frac{SC}{VA}$	Uslu (2022)	Ratio
Human Capital Efficiency	$HCE = \frac{VA}{HC}$	Uslu (2022)	Ratio
Capital Employed Efficiency	$CEE = \frac{VA}{CE}$	Uslu (2022)	Ratio
Capital Structure	$DAR = \frac{Total\ Liabilities}{Total\ Assets}$	Dahlia (2018)	Ratio
Firm Size	$SIZE = Ln(Total\ Assets)$	Soewarno and Tjahjadi (2020)	Nominal
Firm Age	AGE= Research date - date of company formed	Samisi and Ardiana (2013)	Nominal

The following is the multiple linear regression equation to be used:

$$FPERF = c + \beta_1 SCE + \beta_2 HCE + \beta_3 CEE - \beta_4 DAR + \varepsilon$$

Note:

FPERF = Financial Performance; c = Constant;  $\beta_1$ -6 = Regression Coefficient; SCE = Structure Capital Efficiency; HCE = Human Capital Efficiency; CEE = Capital Employed Efficiency; DAE = Debt to Total Asset Ratio;  $\varepsilon$  = Error term

The research method used in this study is a combination of time series and cross-sectional data known as panel data (pooled data). There are three alternative models can be used to analyze the panel data: Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Several tests are needed to select the most appropriate model: Chow Test, Hausman Test, and Langrange Multiplier (L-M).

## 5. RESULTS

**Tabel 2.** Descriptive Statistical Test Results

	<b>ROA</b>	<b>SCE</b>	<b>HCE</b>	<b>CEE</b>
<b>Mean</b>	0.022459	0.537421	3.296205	0.196087
<b>Std. Dev.</b>	0.022787	0.208511	4.376085	0.118227
<b>Maximum</b>	0.146618	0.969725	33.03010	0.769064
<b>Minimum</b>	0.000011	0.091588	1.100822	0.022562
	<b>DAR</b>	<b>FS</b>	<b>FA</b>	
<b>Mean</b>	0.661883	30.48304	43.01695	
<b>Std. Dev.</b>	0.229634	2.103986	19.90074	
<b>Maximum</b>	0.918899	34.95208	125	
<b>Minimum</b>	0.010211	25.19430	4	

According to the descriptive statistical test as presented in Table 2, the dependant variable, cash holding, has a mean value of 0.022459, standard deviation value of 0.022787, maximum value of 0.146618 and a minimum value of 0.000011. There are four independent variables in this study. First, structure capital efficiency, has a mean value of 0.537421, standard deviation value of 0.208511, maximum value of 0.969725, and minimum value of 0.091588. Second, human capital efficiency, has a mean value of 3.296205, standard deviation value of 4.376085, maximum value of 33.03010, and minimum value of 1.100822. Third, capital employed efficiency, has a mean value of 0.196087, standard deviation value of 0.118227, maximum value of 0.769064, and minimum value of 0.022562. Fourth, capital structure, has a mean value of 0.661883, standard deviation value of 0.229634, maximum value of 0.918899, and minimum value of 0.010211. This study also used control variable, there are two control variables. First, firm size, has a mean value of 30.48304, standard deviation value of 2.103986, maximum value of 34.95298, and minimum value of 25.19430. Second, firm age, has a mean value of 43.01695, standard deviation value of 19.90074, maximum value of 125, and minimum value of 24.

According to the Chow Test findings, the Chi-square cross- section has a probability value of 0.0000, indicating that Fixed Effect Model is the better model to apply. According to the Hausman Test, the random cross-section has a probability value of 0.0000, indicating that the Fixed Effect Model is the preferred model to apply.

Due to the use of panel data, the classical assumption tests used are multicollinearity test and heteroskedasticity test. According to multicollinearity test results show that all variables have a correlation coefficient value of less than 0.85, which means there is no multicollinearity in this study so it can be used for regression testing. The heteroskedasticity test results showed Probability value of 0.4129. In this test, it can be concluded that there is no problem of heteroskedasticity. The following is the results of multiple linear regression with Fixed Effect Model as presented in Table 3:

**Table 3.** The Results of Multiple Linear Regression with Fixed Effect Model

<b>Variable</b>	<b>Coefficient</b>	<b>Sig. Value</b>	<b>Results</b>
Constants	-0.506416	0.0004	
Structure Capital Efficiency	0.025036	0.0047	Ha1 is accepted
Human	0.003569	0.0000	Ha2 is

Capital Efficiency			accepted
Capital Employed Efficiency	0.047991	0.0001	Ha3 is accepted
Debt-to-Total Asset	-0.070074	0.0000	Ha4 is accepted
Firm Size	0.021512	0.0000	
Firm Age	-0.002676	0.0021	

The form of the multiple linear regression equation is as follows:

$$\text{FPERF} = -0.506416 + 0.025036 \text{ SCE} + 0.003569 \text{ HCE} + 0.047991 \text{ CEE} - 0.070074 \text{ DAR} + 0.021512 \text{ SIZE} - 0.002676 \text{ AGE} + \varepsilon$$

Note:

FPERF = Financial Performance; SCE = Structure Capital Efficiency; HCE = Human Capital Efficiency; CEE = Capital Employed Efficiency; DAE = Debt to Total Asset Ratio;  $\varepsilon$  = Error term

The F-test results reveal that the probability value of F- statistic is 0.000000, indicating that all independent variables and control variables regarded as independent variables simultaneously affect the dependent variable significantly. According to the multiple determinant coefficient test, the adjusted R-squared value is 0.878276, indicating that all independent variables in this research, including control variables, have an effect toward dependent variable by 87.83%. Meanwhile, the remaining 12.17% is explained by variables that are not examined in this study.

According to the T-test, structure capital efficiency has a probability value of 0,0047 with a regression coefficient of 0.025036, which means Ha1 is accepted. Structure capital efficiency has a significant positive effect toward financial performance. The human capital efficiency has a probability value of 0,0000 with a regression coefficient of 0.003569, which means Ha2 is accepted. Human capital efficiency has a significant positive effect toward financial performance. Capital employed efficiency has a probability value of 0,0001 with a regression coefficient of 0.047991, which means Ha3 is accepted. Capital employed efficiency has a significant positive effect toward financial performance. Capital structure has a probability value of 0,0000 with a regression coefficient of -0.070074, which means Ha4 is accepted. Capital structure has a significant negative effect toward financial performance. Firm size as control variable has a probability value of 0.000 and regression coefficient value of 0.021512, indicating that firm size has a significant positive effect toward financial performance. Firm age as control variable has a probability value of 0.0021 and a regression coefficient value of -0.002676, indicating that cash flow ratio has a significant negative effect toward financial performance.

## 6. DISCUSSIONS

Based on the findings obtained and generated from this study, authors concluded several discussions. Structure capital efficiency has a significant positive effect toward financial performance. This happen because there is a good contribution from human capital to the value-added or added value of the company, it can be concluded that structural capital has a positive influence on financial performance. Structural capital is one of several important components in a company, which has a fairly important role in improving the performance of a company. Structural capital contains such a database system, corporate culture and organizational structure of a company. If the utilization of structural capital is efficient, it will improve the company's performance, so that the performance of the company runs optimally. This result is in accordance with Nadeem et al. [22] and Setiawan and

Prawira [28] research, which states that structure capital efficiency has a significant positive effect toward financial performance.

Human capital efficiency has a significant positive effect toward financial performance, this happen because there are human resources who have the most important role in the aspect of human capital efficiency. In addition, the company continues to provide the best to the employees contained in its company, so that the performance of each employee is working is getting better and providing the best results for the company. Giving bonuses or incentives is a positive encouragement for employees to provide better than before. The higher the level of human capital in a company, the higher the level of company productivity which will certainly improve the company's financial performance. This result is consistent with Sardo and Serrasqueiro [29] and Kurniawati et al. [23] research.

Structure capital efficiency has a significant positive effect toward financial performance. This can happen because there is a good allocation of capital in a company, thus providing value-added to the company in increasing the efficient use of capital in the company. In addition, there is a good relationship with the company's external parties, namely investors, so that investors believe and continue to have a good relationship with the company. Investor confidence and good capital allocation in the company can certainly improve the financial performance of a company.

This result is in accordance with Costa et al. [30] and Debora and Dewi [18] research, which states that capital employed efficiency has a significant positive effect toward financial performance. Capital structure has a significant negative effect toward financial performance. This can happen because there is quite a lot of debt and the company continues to try to pay the debt. If a company has quite a lot of debt, the company's expense will increase so that it experiences a decrease in profit. The company uses the funds it has to pay off the expense and of course it will affect the company's financial performance. This result is in accordance with Dahlia [26] and Sutandi and Dewi [31] research, which states that capital structure has a significant negative effect toward financial performance.

## 7. CONCLUSIONS

Based on the findings from data processing and testing in this study, several conclusions could be drawn. First, structure capital efficiency has a significant and positive effect financial performance, so Ha1 is accepted. Second, human capital efficiency has a significant positive effect toward financial performance, so Ha2 is accepted. Third, capital employed efficiency have a significant and positive effect toward financial performance, so Ha3 is accepted. Fourth, capital structure has a significant negative effect toward financial performance, so Ha4 is rejected.

This research still has some limitations due to limited time and resources. This study has not included all the variables that can affect the dependent variable, namely financial performance. The independent variables in this study are structure capital efficiency, human capital efficiency, capital employed efficiency and capital structure. In this study, control variables were also used, namely firm size and firm age. The period used in this study is also relatively short, namely only for a period of three consecutive years, starting from 2018 to 2020. This study only uses data from financial sector companies listed on the Indonesia Stock Exchange.

Based on the conclusions of this study and the limitations has been described previously, the following suggestions are as follows: (i) For further researchers, can add other independent variables that may be able to make an even better influence on financial performance such as total asset turn over, institutional ownership and even sales growth. The research can use samples for 5 consecutive years so that better results are found and also add the industrial sector used in subsequent research in order to provide results that better reflect the situation that actually occurred. (ii) For companies will further improve the welfare of its employees so that every resource in the company continues to provide the best performance for the company where it works. If the company also further improves relations with shareholders so that a relationship is established that is getting better and better so that the two parties, namely management, and shareholders, continue to get the benefits as expected.



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