

HUMAN INTELLECTUAL CAPITAL, AGE OF DIRECTORS, AND FINANCIAL DISTRESS OF SERVICE COMPANIES

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ABSTRACT

This study investigates the influence of human intellectual capital and the age of directors on financial distress in service companies listed in the Indonesia Stock Exchange (IDX) year 2014-2021. We employ purposive sampling method to select the sample used in this study. Furthermore, we used a logistic regression model with STATA to test the hypothesis. We provide evidence that human intellectual capital negatively impact financial distress. On the other hand, the age of directors positively influence financial distress. In addition, the control variable net profit margin negatively influences financial distress, while other control variables proved to be no influence on financial distress.

Keywords: Financial Distress; Human Capital; Age of Director

ABSTRAK

Riset ini bertujuan untuk menguji efek modal intelektual dan usia direksi terhadap financial distress perusahaan jasa yang terdaftar di Bursa Efek Indonesia tahun 2014-2021. Kami menggunakan metode purposive sampling untuk menentukan sample yang digunakan dalam riset ini. Lebih lanjut, kami menggunakan model regresi logistik untuk menguji hipotesa dalam riset ini. Dengan bantuan software STATA, kami menemukan bahwa modal intelektual berpengaruh negatif terhadap financial distress perusahaan. Sebaliknya, usia direksi berpengaruh positif terhadap financial distress. Kami juga menemukan bahwa diantara variabel kontrol yang digunakan dalam riset ini, hanya net profit margin mempengaruhi financial distress dengan arah negatif.

Kata Kunci : Kesulitan Keuangan; Sumber Daya Manusia; Usia Direksi
JEL Classification: O16; G32



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INTRODUCTION

Over the period, the global economy has developed rapidly, forcing companies to change their management and strategies to compete in business. In Indonesia, there is evidence of companies that cannot adjust to the changes and finally have to be excluded or delisted from the Indonesia Stock Exchange (IDX). The Indonesia Stock Exchange defines delisting as a condition where the stocks cannot be traded because they are removed from the list of securities. It was recorded that during 2014-2021 the IDX had delisted 29 firms. The existence of a delisting firm is on every year in our research period, except for 2016.

If a company is unable to maintain the company's performance, a condition known as bankruptcy may occur. According to Agostini (2018), financial distress is a company condition that leads to bankruptcy or liquidation, marked by a decline in financial conditions. In their study, Farooq, Qamar, & Haque (2018) also use financial distress to express financially problematic companies and define it as a mediator between the health of financial performance and bankruptcy. Therefore, the condition of a company currently in financial difficulty is known as financial distress.

Financial distress represents the company's finances are in an unhealthy condition or crisis. The company's financial distress can be seen from the changes in several components of the company's financial statements, such as operating profit, net income, and the book value of equity, which begins to show a negative value, and this condition can occur in companies that carry out a sudden merger (Brahmana, 2007). Based on the agency theory by Jensen & Meckling (1976), the company's financial statements are a form of accountability from the agent as the decision maker to the principal as the party evaluating the information (Kanji, 2019). The principal, which in this case is the investors, will feel disadvantaged if the company's financial statements show lousy performance. Thus, agency theory can resolve disputes and risk-sharing problems between agents and principals (Kurniawansyah, Kurnianto, & Rizqi, 2018).

Financial distress can be caused by the era of development and technology that is getting faster, so the company cannot survive due to the rapid changes in the corporate environment. According to Amri & Aryani (2021), a company environment that can affect a business comes from internal and external factors. Financial distress in the company needs to be alerted and anticipated (Mustika, Ananto, Surya, Felino, & Sari 2018) because investors prefer companies that are not in financial distress.

Many researchers and practitioners have tried to examine the possibility of financial distress. Their finding shows that internal factors can influence this condition in the form of human intellectual capital. However, the results obtained from these studies still need to be clarified. Some researchers found a positive effect of intellectual capital on financial distress (Mustika et al., 2018), while others found a negative effect (Cenciarelli, Giulio, & Allegrini, 2018; Handayani, Iskandar & Yuvisaibrani, 2019; and Shahwan & Habib, 2020). However, (Bakhshani, 2014) found no influence between human intellectual capital and company bankruptcy. The different results in this research lie in managing human capital, which adjusts to each industrial sector (Shahwan & Habib, 2020). Based on the results of previous research, the management of human intellectual capital is critical. We argue that human intellectual capital has a negative effect on financial distress. A company that appropriately manages its human intellectual capital can reduce the possibility of financial distress.

Research examining the age of directors for financial distress also has different findings. Darmadi (2011), Fernández-Temprano & Tejerina (2020), and Kagzi & Guha (2018) finds that the age diversity of directors positively affects company performance. It is different from Tarus & Aime (2014), who found that the various ages

of directors undermine strategic changes in the company. On the other hand, the results of some of these studies differ from Astuti (2017), who found that the age of directors does not affect company performance. The difference in the results of several studies is due to the researchers' point of view on the age of the board of directors. We argue that the age of directors positively affects financial distress. In a company with a proportion of board members mostly old, the possibility of financial distress will increase. In this study, we control company size, board director's size, net profit margin (NPM), and leverage, as those variables can influence the company's financial distress.

METHOD

The type of data used in this study was secondary data taken from annual and financial reports of service companies listed on the IDX from 2014 until 2021. The annual report was collected from the IDX and the company's official websites. The population of this research was property and real estate sector companies, infrastructure services, utilities and transportation, financial services, trade services, and investment services. The sampling technique used was purposive sampling based on the criteria appropriate for the study. Based on the sampling criteria, the total observation data used in this study was 279, as shown in Table 1.

Table 1. Population and Research Sample

Description Criteria	2014	2015	2016	2017	2018	2019	2020	2021
Number of service companies that have been listed	266	282	291	301	323	357	386	400
Delisted companies	(1)	(3)	(0)	(8)	(4)	(6)	(6)	(1)
Companies that have not experienced negative profit for two consecutive years	(191)	(205)	(211)	(216)	(243)	(287)	(308)	(323)
Companies that do not provide data on human capital and the age of directors	(29)	(35)	(38)	(37)	(40)	(28)	(31)	(30)
Unavailable company data	(15)	(7)	(9)	(4)	(3)	(4)	(5)	(7)
Number of companies that meet the criteria	30	34	33	39	36	32	36	39
Total Observation Data	279							

The independent variables examined were human intellectual capital and the age of the board directors. In contrast, the control variables in this study were firm size, board director's size, NPM, and leverage. Unlike previous studies that used Altman Z-score (e.g., Abadi & Ghoniyah, 2016), we have measured the dependent variable, financial distress, using the O-score model (Ohlson, 1980). Ohlson's (1980) model has a better level of accuracy than the Altman Z-score model because it can fix the problems in the model by using nine financial ratio variables (Imelda & Alodia, 2017). The financial distress can be measured by comparing the O-score results with the cut-off, as in Table 2.

The sample in this study was classified into companies free from financial distress and companies in financial distress (Cenciarelli et al., 2018; Imelda & Alodia,



2017). The STATA program used logistic regression analysis techniques to analyze the effect of independent and control variables on the dependent variable. Logistic regression analysis was used because the dependent variable is a binary number (Hadjar, 2018).

Table 2. O-Score Cut-off According to Ohlson (1980)

<i>O-Score</i>	<i>Description</i>	<i>Score</i>
O-score > 0.38	Financial distress occurs	1
O-score < 0.38	Financial distress does not occur	0

Human capital (HC) reflects the amount of value added (VA) obtained from workers' expenses in rupiah. The relationship between VA and HC shows the motivation for HC to give their best performance (Handayani et al., 2019). The existence of competent human resources means nothing to the company if it is not managed correctly (Handayani et al., 2019). According to Shahwan & Habib (2020), building knowledge management, ethical standards, learning organizations, and updating human capital information technology capabilities will create a competitive spirit for employees to support company performance. Investors and lenders prefer to allocate their investments to companies fully aware of the potential of their intellectual capital, including human capital (Cenciarelli et al., 2018). Therefore, we measure human capital by comparing the value of VA with total HC, called VAHU. HC is the number of funds spent to see the contribution of human capital from every rupiah the company invests in its workforce through salaries, development programs, training, and welfare.

According to the Indonesia Government Law No. 40 (2007), one of the board of directors' duties is as a company leader and manager. Hence, the board of directors is required to have the ability to create policies that can increase company productivity. These abilities and skills can be affected by age (Astuti, 2017). The board of directors is also one component in the corporate governance system that can shape innovation in the company (Belloc, 2011). Along with the high technological advancement, companies are always required to make innovations. Older board members tend to be conservative, more resilient to change, and thus resist new technology (Tarus & Aime, 2014). Based on the generation division theory, baby boomers are the oldest generation starting at the minimum age of 54 years. Therefore, we measure the directors' age variable in this study by comparing directors over 54 years of age to total directors. Firms size is one of the factors that can affect the company's financial difficulties (Shahwan & Habib, 2020). The larger the company, the more it can minimize its risks. This study measures the company's size using the natural log of total assets owned by the company. Tarus & Aime (2014) describe that board size can indicate the level of heterogeneity in the board. The risk-taking will be greater if the board of directors is too few (Chakraborty, Gao, & Sheikh, 2019). The size of the board directors in this study can be calculated using the natural log of the number of directors; the value generated in the natural log can be interpreted as an estimate of the proportional difference (Gelman & Hill, 2007). Net profit margin (NPM) can be related to the probability of financial distress because any decrease in the company's profit margin will increase the chances of company failure (Faradila & Aziz, 2016; Udin, Khan, & Javid, 2017). Balasubramanian & Natarajan (2019) stated that companies experiencing financial difficulties would have a negative value between NPM and financial distress. The ratio between net profit after tax and net sales can measure the net profit margin. Leverage can impact the risk of bankruptcy (Fernández-Temprano & Tejerina, 2020) because the increase in leverage will be followed by the high risk the company faces

(Felicio, Rodrigues, Grove, & Greiner, 2018; Vo, 2016). Increased profits in companies with high leverage will benefit creditors so that investors will give negative signals (Kustinah, 2011). The ratio between total debt and total assets can calculate leverage.

RESULT AND DISCUSSION

The results of descriptive statistics of human intellectual capital, age of directors, firm size, board director's size, net profit margin, and leverage in this study can be seen in Table 3.

Table 3. Descriptive Statistics of Independent and Control Variables

	N	Mean	SD	p25	Median	p75
OHLSON	279	0,7706	0,4212	1,0000	1,0000	1,0000
VAHU	279	1,5210	8,1812	-0,4475	0,7960	2,3693
AGE	279	0,3440	0,2909	0,0000	0,3330	0,6000
FSIZE	279	28,5339	1,7304	27,1021	28,6109	29,8410
DSIZE	279	1,4033	0,3579	1,0990	1,3860	1,6094
NPM	279	-2,6145	28,1123	-0,3590	-0,0910	0,0193
LEV	279	14,9652	171,8547	0,4429	0,6680	0,8377

Table 3 shows that the VAHU average value is 1.5210, which means that, generally, one employee has an added value of 1.5210. A positive value indicates that the sample company is in optimal condition. The average value of AGE is 0.3440, which means that the average sample of companies with a composition of directors over 54 years old is 34% or at least 1 in 3 directors are 54 years old. Of the six variables, there are VAHU, NPM, and LEV variables which have a higher standard deviation than the average, which means that these three variables have a high level of data variation.

The results of the descriptive statistical test of the financial distress variable were used to determine the frequency and percentage values of the data studied in Table 4.

Table 4. Descriptive Statistics of Dependent Variables

Dep. Value	Count	Percent	Cumulative Count Dep: 0	Cumulative Count Dep: 1
0	64	22.94		
1	215	77.06	64	279
Total%			22.94	100.00

Table 4 shows that based on the research sample from 2014 to 2021, there were 64 observational data, or 22.94% of companies, did not experience financial distress, and 215 observational data, or 77.06% of companies, experienced financial distress. The value of 100% means that this cumulative value is the sum of companies that do not experience financial distress at 22.94% and companies that experience financial distress at 77.06%. It shows that companies that experience financial distress are more than companies that do not experience financial distress.

To test the arguments developed in this study, we used a logistic regression model as the dependent variable, financial distress, is measured with a binary scale. In the logistic regression model, it is optional to test the data's normality and the traditional assumptions of the regression model (Ghozali, 2018). Ghozali (2018) stated that the only test that still needs to be conducted is the multicollinearity test. The multicollinearity test examines the existence of correlation in the regression model. The

higher the score of multicollinearity, the more complex the model is to be regressed. If the correlation between the independent variables is below 0.80, the research is free from multicollinearity problems (Ghozali, 2018). The multicollinearity test results in this study are shown in Table 5.

Table 5. Multicollinearity Test Results

	OHLSON	VAHU	AGE	FSIZE	DSIZE	NPM	LEV
OHLSON	1						
VAHU	-0.0893	1					
AGE	0.1478	0.1029	1				
FSIZE	0.0287	-0.0626	0.0224	1			
DSIZE	-0.0655	0.0625	0.1554	0.3498	1		
NPM	-0.0594	0.1085	-0.038	0.0655	-0.0938	1	
LEV	0.0459	0.0911	-0.0973	-0.2835	-0.045	-0.0595	1

The calculation of Table 5 shows that the overall value between the independent variables does not exceed the value of 0.80, which means that this study is free from multicollinearity. We then carry out the logistic regression test to examine the arguments developed in this study. We run the logistic regression test using full and non-covid years data. The results of the logistic regression test in this study are shown in Table 6.

Table 6. Logistic Regression Test Results

Variable	<i>O-score</i>	
	Full Sample	Non-Covid Year
VAHU	-0.8904 0.017 **	-0.8476 0.008 ***
AGE	7.4299 0.002 ***	9.4147 0.001 ***
FSIZE	1.0233 0.931	1.0816 0.799
DSIZE	-0.6464 0.500	-0.6563 0.595
NPM	-0.7578 0.010**	-0.5047 0.130
LEV	10.5297 0.370	4.8392 0.575
Year FE	Yes	Yes
N	279	212
Pseudo R-squared	0.1820	0.1532
Wald chi2(13)	31.56	30.71
Prob (LR statistic)	0.0028 ***	0.0012 ***

Note: significance level of 10% *, 5% **, and 1% ***. P-values based on robust standard errors corrected for heteroscedasticity.

The results in the total column sample in Table 6 show that the Pseudo R-squared value is 0.1820. It shows that the ability of the independent variable, human capital and the age of the board of directors, respectively, to explain the dependent variable, which is financial distress, is 18.2%. The remaining 81.8% is explained by other variables not examined in this research model.

Table 6 shows the probability LR statistic value of 0.0028, which means this value is smaller than the significance level of 0.05. This result means that with a confidence level of 95%, at least one independent variable affects the dependent variable. The results obtained are that these variables simultaneously affect financial distress.

The partial test in this study determines the effect of each independent variable on the dependent variable. The results of this test can be seen in column total sample in Table 6, which can be determined through a probability value (Prob.). Table 6 shows that both variables, VAHU and AGE, have a significant effect on financial distress as the p-value is lower than the significant level of 0.05. Among the control variable, only NPM significantly affect financial distress, while the others do not significantly affect financial distress.

The Effect of Human Intellectual Capital on Financial Distress

The regression coefficient value of the human capital (VAHU) variable in Table 6 has a negative (-) value of -0.8904. The negative value means that the higher value of human intellectual capital can result in the tendency of companies not to experience financial distress. The conclusion is that human intellectual capital has a negative effect on financial distress conditions. Therefore, these results answered the first hypothesis in this study. This finding is consistent with the arguments of Cenciarelli, et al. (2018), Handayani et al. (2019), and Shahwan & Habib (2020). The company's potential to experience financial distress becomes smaller if the company has a high value of human intellectual capital.

Human capital is the company's most valuable asset (Handayani et al., 2019). Human capital efficiency in a company is critical because these assets include knowledge, skills, and experience. With efficiency in human capital, the company will produce a competitive advantage that can increase added value for the company (Ulum, 2017). Therefore, the company's value will increase if it maximizes its intellectual capital. The increase in company value can reduce the possibility of financial pressure on the company (Shahwan & Habib, 2020). With the existence of swift technological advances, the company needs to make updates in the management of human intellectual capital to maintain its performance (Mustika et al., 2018). Human Capital reflects a firm's ability to overcome the problem through personal knowledge to set up innovation strategies to increase the firm competitive advantage (Barokah, Wilopo, & Nursalam, 2018).

The Effect of the Age of Directors on Financial Distress

Table 6 shows that the age of directors variable (AGE) regression coefficient score has a positive (+) value of 7.4299. This value indicates that the more significant the proportion of directors over 54 years old, the more likely it is to increase the company's tendency to experience financial distress. The conclusion is that the age of directors positively affects financial distress. Thus, the second hypothesis in this study is supported by the data.

According to Codrington & Grant-Marshall (2004), people born between 1946-1964 are known as the Baby Boomers or the oldest generation. The older a worker in the company, the lesser flexible and tend to reject the existence of new technology (Robbins, 2003). Thus, with the development of the era, new technology and innovation are needed to survive amid market competition. If the leaders in the company are too older, it will be more difficult to stay because of the lack of innovations to endure in market competition. Fernández-Temprano & Tejerina (2020)

state that the company's growth opportunities or market prospects do not increase significantly because older board members are more reluctant to take risks. In addition, entering one's old age, the speed for processing information has decreased, and it becomes less able to convey information stored in memory (Kusumastuti, Supatmi, & Sastra, 2007). The existence of these facts can reduce the company's performance so that it has an impact on the financial pressure that the company will experience.

The Effect of Control Variable on Financial Distress

Based on Table 6, it can be concluded that the control variable, NPM is the only variable influencing financial distress. The variable net profit margin (NPM) has a regression coefficient value of -0.7578. Thus, NPM has a negative effect on the financial distress experienced by the company. The finding of the influence of NPM on financial distress follows the argument of Balasubramanian & Natarajan (2019) and Udin et al. (2017). Those studies conclude that NPM has a negative effect on financial distress. The other variable controls, firm size (FSIZE), director size (DSIZE), and leverage (LEV), do not significantly affect financial distress.

Robustness Test

COVID-19 is a global pandemic causing a crisis economy worldwide (Singh et al., 2022). The economy across countries has been devastated, including Indonesia. Indonesia experienced a fall in GDP year 2020 by 2.07% (BPS, 2020). Therefore, we conducted a robustness test to see whether the pandemic is causing financial distress in our sample firms by excluding the data year 2020 and 2021. The result of the test is presented in Table 6, column Non-Covid Year. From that table, it can be seen that the results are consistent with the full data. It implies that Covid 19 does not significantly affect this study.

CONCLUSION

We examine the effect of human intellectual capital and the age of directors on the company's financial distress, which company size, leverage, NPM, and board director size as control variables. The findings indicate that the intellectual capital of human capital and the age of the directors, as well as the control variables NPM, affect the company's financial distress. In contrast, the firm size, board of directors size, and leverage do not affect financial distress.

Financial distress is a complex problem in the company. Many factors can cause a company to experience financial distress, both internally and externally. The results of this study should be implemented carefully as this study have limitation. This study has limitations by only using variables from the internal factor of the company; thus, it cannot be fully utilized as a reference to determine whether the company is experiencing financial distress. The company's management can still control its internal factors; therefore, it is necessary to consider external factors to overcome a company's financial distress in predicting financial distress.

However, besides the limitation of this study, we contribute to developing accounting science, especially in the field of management accounting related to bankruptcy conditions that companies may experience. Companies can learn about the importance of human intellectual capital and the age of the board of directors in the company to avoid financial distress. They can maintain company performance and face market competition. In addition, the results of this study provide helpful information for investors to understand the financial distress conditions of the company; hence, they can be careful when investing and avoid companies with financial difficulties.

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