

# The effect of Intellectual Capital and Debt Policy on Bankruptcy Predictions and Its Implications on Firm Value

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## Authors' contributions

*This work was carried out in collaboration between both authors. Author RP designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript and managed the analyses of the study. Author S managed the literature searches. Both authors read and approved the final manuscript.*

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## ABSTRACT

**Aims:** This study aims to examine the effect of intellectual capital and debt policy on bankruptcy predictions and its implications for firm value.

**Study design:** The design used in this research is causal research. Causal research aims to determine the effect or also the relationship between two or more variables.

**Place and duration of study:** The population of this study consist of mining companies on the Indonesia Stock Exchange, with the observation year 2015-2019. The sampling technique used in this study is the purposive sampling method. After the sampling criteria were carried out, 13 companies met the sampling criteria, so the total number of observation was 52.

**Methodology:** The analytical method used is path analysis, which is an extension of multiple linear analysis using SPSS 22 analysis tools.

**Results:** The results showed that simultaneously the intellectual capital and debt policy had an influence on the prediction of bankruptcy and firm value, but partially the debt policy had a direct influence both on bankruptcy predictions and on firm value. The results of this study also prove that

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bankruptcy prediction indirectly provides a relationship between intellectual capital and firm value, However, debt policy will have a greater relationship if it is directly related to the value of the company without going through bankruptcy predictions, because when debt increases it lowers the zscore, which means the company is in an unhealthy condition so that it can reduce the value of the company.

*Keywords: Intellectual capital; leverage; financial distress; firm value.*

## 1. INTRODUCTION

Intellectual capital continues to grow in Indonesia, marked by the number of companies in Indonesia using a knowledge-based strategy. This is because each country must be ready to face the presence of the World Trade Organization (WTO) at the global level and the ASEAN Free Trade Area (AFTA) at the regional level. So that the value of the company remains an issue that is still interesting to discuss.

Company value is very important in reflecting the company's success in achieving company goals. One measure of firm value is through Price Book Value (PBV). This decrease in PBV value indicates that the level of market confidence in firm value has decreased. One way of increasing company value can be seen from how the company manages the intellectual capital it owns efficiently [1].

Good management of intellectual capital results in an increase in company value and if the management of intellectual capital does not go well, it will result in the company's performance being considered poor [2,1]. A decline in performance can have an impact on the decline in company profits which can lead to bankruptcy. Therefore, prediction of bankruptcy is an important issue for companies to pay attention to and anticipate. This is because financial distress affects firm value [3].

Intellectual Capital (IC) can be said to be an intangible asset that has an impact on the performance of a business. The greater the level of intellectual capital, the more value and success it will create for the company [4]. This means that the company has better capable management and resources so that there is little risk for companies with indications of financial distress. [5] in his research said that the role of a company's intellectual capital greatly affects the company's life cycle, because with the company's resources it can minimize agency problems so that it can improve company performance.

Bankruptcy conditions as described above can occur in all corporate sectors, one of which is the mining sector. The mining and quarrying industry's contribution to GDP also decreased. In the second quarter of 2020 its contribution fell to 6.28 percent, while in the same period the previous year the mining and quarrying industry's contribution reached 7.39 percent of total GDP, (www.bisnis.com, August 5, 2020).

Conditions of financial distress or financial distress can reduce company profits and increase company debt. The greater the risk faced by the company, the greater the uncertainty to generate profits in the future, [6]. Companies that have a lot of debt will experience financial distress earlier than companies that have less debt. It would be dangerous for a company to use debt that is too high because research companies [7] have an influence between debt and financial stress as measured by means of zscore, according to him the higher the leverage of a company, the lower Altman Z-score, it means that the possibility of a company moving into financial distress is getting higher. The greater the risk faced by the company, the greater the uncertainty to generate profits in the future, [6]. Companies that have a lot of debt will experience financial distress earlier than companies that have less debt. Information about an increase in debt will be accepted by the market as a bad signal that will provide negative input to investors in making decisions to buy shares, so that with this condition it can reduce the value of the company [8].

Research on the relationship of IC to company value has been done a lot, such as the results of research [9] which states that intellectual capital has succeeded in creating value added and competitive advantages for companies which then influence the market valuation of the company. However, from the overall elements of intellectual capital, SCE is considered not to contribute or influence the company's profitability. Meanwhile, the relationship between financial distress and firm value is described by [10] that although in their research financial

distress does not have an effect on firm value, this is because companies use going concern assumptions, even though in reality financial distress often causes financial management of the company not good, so that financial distress in the end can reduce the value of the company.

## **2. LITERATURE AND HYPOTHESIS DEVELOPMENT**

### **2.1 Signaling Theory**

Signal theory was first coined by Spence [11] in his research entitled Job Market Signaling. This theory involves two parties, namely an insider such as management who acts as a party providing a signal and an outside party such as an investor who acts as a party receiving the signal. Spence said that by providing a signal or signal, management tries to provide relevant information that can be used by investors. Then, the investor will adjust his decision according to his understanding of the signal.

Meanwhile, according to Brigham and Houston [12], a signal is an action taken by a company to provide guidance to investors about how management views the company's prospects. This signal is in the form of information about what management has done to realize the owner's wishes. Information released by the company is important, because it affects the investment decisions of parties outside the company. This information is important for investors and business people because information essentially provides information, notes or descriptions, both for the past, present and future conditions for the survival of the company and how it affects the company.

Information is an important element for investors and business people because information essentially provides information, notes or descriptions for the past, present and future conditions for the survival of a company and how the securities market is. [13] revealed that due to the asymmetry of information between the company and outside parties, the publication of the company's conditions is needed to create a good corporate image and outsiders will be interested in joining as investors. Complete, relevant, accurate and timely information is needed by investors in the capital market as an analytical tool for making investment decisions [14]. Revealed that some individuals want to convey existing information, but others hope not to convey information, but overall the fact is in

signaling theory that the act of conveying information leads people to change their behavior.

### **2.2 Firm Value**

Company value is a form of company achievement that comes from the level of public trust in company performance through a very long process of activities, starting from the establishment of the company to the current state of the company [1]. Firm value is the present value of a series of cash inflows that the company will generate in the future [15]. Company value can also be referred to as market value because it can provide maximum prosperity for shareholders if the company's share price increases [16]. So that the higher the stock price the higher the company value. High corporate value is the desire of company owners, because high values indicate that the prosperity of shareholders is also high [17]. The value of the company in this study is measured by the company's Tobin's Q value indicator, where this ratio is the market ratio used compared to the market value of the company's shares with the book value of the company's equity or the replacement value of the company's assets.

### **2.3 Financial Distress**

Bankruptcy prediction can be interpreted as a condition of financial distress, which is a condition that occurred before bankruptcy. Bankruptcy indicators can be seen from cash flow analysis, corporate strategy analysis, to company financial reports. Several studies have taken their own definition of financial distress, but there is no fixed term regarding financial distress [7]. Predicting financial distress can be an "early warning" of the company's system as a sign of a problem. Companies that have a lot of debt will experience financial distress earlier than companies that have less debt. Company downfall events caused by financial distress such as dividend reduction, company closure, losses, dismissal, resignation of directors and falling share prices.

Moghaddam and Filsaraei, [18] said that financial distress, known as financial crisis, financial turbulence, and financial confusion in financial literature, is a term used in conditions where corporations are disabled to fulfill their commitments and pay their debts. The company's financial difficulties may be temporal, but if the company's financial condition does not

improve, it can lead to bankruptcy in the company. Financial difficulties do not always lead to bankruptcy, but without exception, all companies face financial difficulties prior to bankruptcy. When a company experiences financial difficulties, there is a potential risk of wiping out shareholder capital. so that it can have an influence on stock price movements.

## **2.4 Intellectual Capital**

Stewart (1997) in [1] defines intellectual capital (IC) as "packaged useful knowledge" which is a resource in the form of knowledge available to companies that produce high-value assets and future economic benefits for the company. Meanwhile, the Organization for Economic Co-operation and Development (OECD, 1999) describes IC as the economic value of two categories of intangible assets: (1) organizational (structural) capital; and (2) human capital, [19].

However, although it is not easy to be able to present a precise definition of intellectual capital, [20] states from an accounting standpoint, a number of studies have been conducted in various countries to examine how methods to identify, measure, report and present it in company reports, even in various methods. It has also been offered, one of which is the VAIC™ (value added intellectual coefficient), which is an instrument to measure the intellectual capital performance of a company.

The VAIC™ method was developed by Pulic (1998) which is designed to provide information about the value creation efficiency of tangible assets and intangible assets owned by companies [21]. This approach is relatively easy and very possible to do, because it is constructed from the accounts in the company's financial statements (balance sheet, profit and loss) (Ulum 2009b; 111), on [20].

This model begins with the company's ability to create value added (VA). Value added is the most objective indicator for assessing business success and shows the company's ability to create value (Pulic, 1998). VA is calculated as the difference between output and input. output (OUT) represents revenue and includes all products and services sold in the market, while input (IN) includes all expenses used in obtaining revenue [22,2]. VA is influenced by the efficiency of Human Capital (HC) and Structural Capital (SC). Another relationship between VA is capital employed (CE), which in this case is labeled as

VACA. VACA is an indicator for VA created by one unit of physical capital.

In this study, the IC method used was VAIC™. The advantage of this method is that the required data is relatively easy to obtain from various sources and types of companies. The data needed to calculate these various ratios are standard financial figures that are generally available from corporate financial reports.

## **2.5 Debt Policy**

Debt policy can be represented through the leverage ratio. The leverage ratio describes the source of operating funds used by the company. The leverage ratio also shows the risks a company faces. The greater the risk faced by the company, the greater the uncertainty to generate profits in the future, [6]. The consequence of using leverage according to [23] is if the use of debt turns out that the rate of return on assets (return) is greater than the cost of debt, the leverage is profitable and the return on capital with the use of this leverage also increases, vice versa on assets less than the cost of debt, leverage will reduce the rate of return on capital.

Utami and Darmawan [8] said that DER is a measure of the leverage ratio which can be defined as the level of debt use as a source of corporate financing. From the perspective of the ability to pay long-term obligations, the lower the DER will have an impact on the increase in stock prices and the company will be better at paying long-term obligations. Information about an increase in DER will be accepted by the market as a bad signal that will provide negative input to investors in making decisions to buy stocks. This causes the share price and demand to fall.

## **2.6 Hypothesis Development**

### **2.6.1 The effect intellectual capital on bankruptcy predictions**

Bankruptcy prediction can be seen by the presence of symptoms of liquidity difficulties and solvency difficulties in the company. Effective and efficient management of company intellectual capital can avoid financial distress [1]. Thus, the company's performance will increase, indicating that the company is in good health and does not experience financial distress. Research [3] produced one of the proxies of IC, namely HCE and SCE which had positive and negative impacts on financial distress.:

H1 = Intellectual capital has effect on bankruptcy predictions.

### **2.6.2 The effect of debt policy on bankruptcy predictions**

The greater the risk faced by the company, the greater the uncertainty to generate profits in the future, [6]. Companies that have a lot of debt will experience financial distress earlier than companies that have less debt. Research [7] shows that there is an influence between debt and financial stress as measured by means of zscore, according to him, the higher the leverage of a company, the lower the Altman Z-score, it means that the possibility of a company moving towards financial distress is higher.:

H2 = Debt policy has effect on bankruptcy predictions.

### **2.6.3 The effect of bankruptcy predictions on firm value**

Bankruptcy prediction provides a concept where a company faces financial difficulties. Predicting financial distress can be an "early warning" of the company's system as a sign of a problem. Sources of financial distress can be drawn from internal factors that depend heavily on the management of financial institutions as an efficient early warning signal, thus it can be useful for monitoring and evaluation [24]. Even though the results of the research [10] financial distress does not have an effect on company value, this is because the company uses a going concern assumption, even though in reality financial distress often causes poor financial management, so that financial distress can ultimately reduce value. company:

H3 = Bankruptcy prediction has effect on firm value.

### **2.6.4 The effect of intellectual capital on firm value**

In the effort to create value (value creation) it is necessary to use the whole The company's potential resources include employees (human capital), physical assets (physical capital) and structural capital. [1] said that the management of resources in the form of intangible assets or better known as intellectual capital, which maximally can increase company value while also having an impact on increasing profits, thus providing benefits for shareholders. Thus, it can

be concluded that the effective management and use of intellectual capital is proven to be able to increase company value.

H4: Intellectual capital has effect on firm value.

### **2.6.5 The effect of debt policy on firm value**

Leverage is a large or small picture of the amount of debt used by a company that is used to finance its operational activities, so that the debt structure or leverage is also one of the determinants of company value. Leverage management is very important because the use of high leverage can increase company value due to tax protection [15]. The research results prove that debt affects firm value.

H5: Debt policy affects firm value.

### **2.6.6 Intellectual effect on firm value through bankruptcy predictions**

Intellectual Capital (IC) can be said to be an intangible asset that has an impact on the performance of all successes in business. The greater the level of intellectual capital, the more value and success it will create for the company [4]. This means that the company has better capable management and resources so that there is little risk for companies with indications of financial distress. A company with good intellectual capital performance can be an added value for the company to increase investor confidence, so that investment can increase. Pujianto et al 2016 in his research said that the role of a company's intellectual capital greatly affects the company's life cycle, because with the company's resources it can minimize agency problems so that it can improve company performance.

H6 = Intellectual capital has an indirect effect on firm value through bankruptcy prediction.

### **2.6.7 The effect of debt policy on firm value through bankruptcy predictions**

Debt policy can be measured through the leverage ratio. This ratio shows the risks faced by the company. The greater the risk faced by the company, the greater the uncertainty to generate profits in the future, [6]. Companies that have a lot of debt will experience financial distress earlier than companies that have less debt. Information about an increase in debt will

be accepted by the market as a bad signal that will provide negative input to investors in making decisions to buy shares. So that with this condition it can reduce the value of the company [8].

H7 = Debt policy has an indirect effect on firm value through bankruptcy prediction.

### 3. METHODS RESEARCH

#### 3.1 Research Design

The population of this research is mining companies on the Indonesia Stock Exchange, with an observation year of 2016-2019. The sampling technique used in this research is purposive sampling method, in which the sample is selected based on the suitability of the characteristics with the criteria (consideration) of the specified sample in order to obtain a representative sample. The number of mining companies listed on the IDX until 2019 is 13 companies, so the total number of observation is 52.

#### 3.2 Analysis Method

The method of analysis in this study uses the SPSS 22 analysis tool to test model fit test, hypothesis and path analysis.

#### 3.3 Model Feasibility Test and Hypothesis Test

The feasibility test of the model consists of the determination coefficient test (R2), which is to see how much the model's ability to explain the variation in the dependent variable. Then the F test to show whether all the independent variables included in the model have a joint influence on the independent variable and the t

test to show how far the influence of an explanatory / independent variable individually explains variations in the dependent variable [25]. At this stage, hypothesis testing is also carried out aimed at testing the truth of the hypothesis, which means testing the correctness of existing theories.

To test the hypothesis using path analysis. Path analysis is used to analyze the pattern of relationships between variables in order to determine the magnitude of the direct or indirect effect of a set of independent variables on the dependent variable. In addition, path analysis is a type of multivariate analysis to study the direct and indirect effects of a number of variables which are hypothesized as causal variables on other variables called effect variables. The causality relationship between variables has been formed with a model based on the theoretical basis. The data in this study will be processed using the Statistical Package for Social Sciences (SPSS) program.

#### 3.4 Model Analysis

This research model can be described as follows:

$$\text{Financial distress} = \alpha + \beta_1\text{IC} + \beta_2\text{LEV} + \varepsilon$$

$$\text{Tobin's Q} = \alpha + \beta_3\text{IC} + \beta_4\text{LEV} + \beta_5\text{FD} + \varepsilon$$

Information:

- FD = Financial Distress
- Tobin's Q = Firm Value
- a = Constant
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  = Regression Coefficient
- IC = Intellectual Capital
- Lev = DAR
- $\varepsilon$  = Error

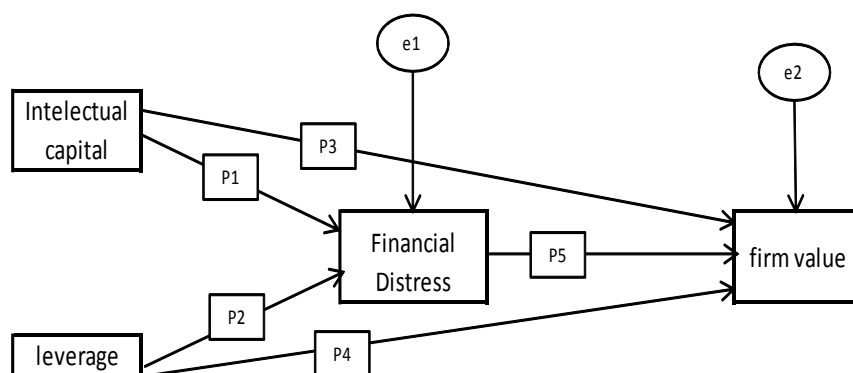


Fig. 1. Frame work

**Table 1. Operational description of variable**

Variabel	Measurement	Skala
<b>Dependent</b> Firm Value (Y)	Tobin's Q = $\frac{\text{Market Value Equity} + \text{BV of Debt}}{\text{Book value Equity} + \text{BV of Debt}} \times 100\%$	Rasio
<b>Independent</b> Intellectual Capital (X <sub>1</sub> )	1. Value Added (VA) VA = OUT – IN Output (OUT) = Total sales and other income., Input (IN) = Expenses and costs (other than employee expenses). 2. Value Added Capital Employed (VACA) VACA = VA / CE VACA = Value Added Capital Employed, VA = Value Added CE = Funds available (equity, net income) 3. Value Added Human Capital (VAHU) VAHU = VA / HC VAHU = Value Added Human Capital, VA = Value Added HC = labor load 4. Structural Capital Value Added (STVA) STVA = SC / VA STVA = Structural Capital Value Added, VA = Value Added Structural Capital (SC) = VA - HC 5. Value Added Intellectual Coefficient (VAICTM) VAICTM = VACA + VAHU + STVA	Rasio
Leverage (X <sub>2</sub> )	DAR = Total Liabilities / Total Asset	Rasio
Intervening Financial distress (Z)	$Z'' = 6,56X_1 + 3,26X_2 + 6,72X_3 + 1,05X_4$ Information: Z'' = bankruptcy index X <sub>1</sub> = working capital / total assets X <sub>2</sub> = retained earnings / total assets X <sub>3</sub> = earning before interest and taxes / total assets X <sub>4</sub> = book value of equity / book value of total debt. The classification of healthy and bankrupt companies is based on the Z-score of the Modified Altman model, namely: a. If the value of Z'' < 1.1, it is a bankrupt company. b. If the value of 1.1 < Z'' < 2.6 then it is included in the gray area (it cannot be determined whether the company is healthy or going bankrupt). c. If the value of Z'' > 2.6, it is a company that is not bankrupt	Rasio

## 4. RESULTS AND DISCUSSION

### 4.1 Result

In this study, there are four variables analyzed, namely intellectual capital, debt policy, financial distress, and firm value. The analysis process is carried out using the path analysis method (path analysis), so that the four variables will produce five path parameters (p<sub>1</sub>, p<sub>2</sub>, p<sub>3</sub>, p<sub>4</sub>, and p<sub>5</sub>) and two error parameters (e<sub>1</sub> and e<sub>2</sub>). The two stages that must be passed in the analysis process are calculating the path coefficient and testing the hypothesis, as shown in Fig. 1 for the framework.

#### 4.1.1 First regression

The first regression is used to calculate the path coefficient of model I which consists of the

independent variables (X<sub>1</sub> and X<sub>2</sub>) and the dependent variable (Z) with a significant level of 5% (0.05). There are two types of tables from the output of SPSS 22 used in the calculation of the path coefficient of Model I, namely the Coefficients table (Table 2) and the Model Summary table (Table 3).

Referring to the regression output model I in the Coefficients table section, it can be seen that the significance value of the two variables, namely X<sub>1</sub> = 0.714 is greater than 0.05 and X<sub>2</sub> = 0.000 is less than 0.05. These results conclude that the regression model I, namely the intellectual capital variable (X<sub>1</sub>) has no direct effect on financial distress (Z) and debt policy (X<sub>2</sub>) has a significant direct effect on financial distress (Z).

The value of R2 or R Square in Table 3 (Model Summary table) is 0.264, this shows that the contribution / contribution of the influence of X1 and X2 on Y is 26.4%. The remaining influence of the contribution of other variables that were not included in the study was (1-0.264) = 0.736 or 73.6%.

Meanwhile, the value of e1 can be found using the following formula:

$$\begin{aligned}
 e1 &= \sqrt{1 - R2} \\
 e1 &= \sqrt{1 - 0.264} \\
 e1 &= 0.857
 \end{aligned}
 \tag{1}$$

From the value of e1, it can be seen that the magnitude of the financial distress variant (Z) which is not influenced by the intellectual capital variable (X1) and debt policy (X2) is 0.857.

The values of P1 and P2 are obtained from Standardized Coefficients which are part of Table 2 (Coefficients Table), which are 0.045 and -0.512. After the values of e1, P1, and P2 are known, the structure of the path diagram model I can be arranged as shown in Fig. 2.

#### 4.1.2 Second regression

The second regression is used to calculate the path coefficient of model II which consists of the independent variables (X1, X2, and Z) and the dependent variable Y with a significant level of 5% (0.05). There are two types of tables from the output of SPSS 22 used in the calculation of the path coefficient of Model II, namely the

Coefficients table (Table 4) and the Model Summary table (Table 5).

Referring to the regression output model II in the Coefficients table section, it can be seen that the significance value of the three independent variables, namely X1 = 0.615 and X2 = 0.010 and Z = 0.000 is smaller than 0.05. These results conclude that regression model II, namely the intellectual capital variable (X1) does not have a direct effect on firm value, while debt policy (X2) and financial distress (Z) have a significant direct effect on firm value. The value of R2 or R Square in table 5 (Model Summary table) is 0.379, this indicates that the contribution / contribution of the influence of X1, X2 and Z on Y is 37.9%. The remaining influence of the contribution of other variables that were not included in the study was (1-0.379) = 0.621 or 62.1%. Meanwhile, the value of e2 can be found using the following formula:

$$\begin{aligned}
 e2 &= \sqrt{1 - R2} \\
 e2 &= \sqrt{1 - 0,379} \\
 e2 &= 0,788
 \end{aligned}
 \tag{2}$$

From the value of e1, it can be seen that the magnitude of the financial distress variant (Z) which is not influenced by the intellectual capital variable (X1) and debt policy (X2) is 0.857.

The values of P3, P4, and P5 were obtained from Standardized Coefficients which are part of Table 4 (Coefficients Table), namely -0.058, 0.357 and 0.717. After the values of e2, P3, P4 and P5 are known, the path diagram structure for Model II can be arranged as shown in Fig. 3.

**Table 2. Coefficients regresi I**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	13.754	2.827		4.864	0.000
Intellectual capital (X1)	0.023	0.063	0.045	0.369	0.714
Debt Policy (X2)	-20.094	4.808	-0.512	-4.179	0.000

Uji F : 0.001  
*Variabel Dependent: Financial Distress*

Source: processing data spss.22

**Table 3. Model summary Regresi I**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.514 <sup>a</sup>	0.264	0.234	6.9078644

Source: processing data spss.22



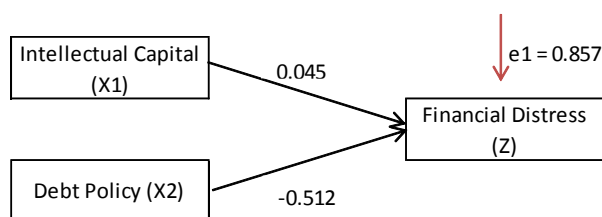


Fig. 2. Model path diagram 1

Table 4. Coefficients Regresi 2

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	-0.959	0.894		-1.073	0.289
Intellectual capital (X1)	-0.008	0.016	-0.058	-0.507	0.615
Debt Policy (X2)	3.921	1.455	0.357	2.696	0.010
Financial Distress (Z)	0.201	0.037	0.717	5.411	0.000

Uji f : 0.000  
Variabel Dependent: Firm Value

Source: processing data Spss.22

Table 5. Model summary regresi 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.616 <sup>a</sup>	0.379	0.341	1.7943524

Source: processing data Spss.22

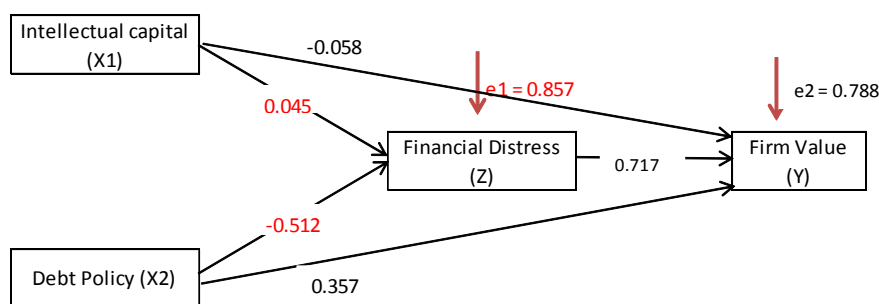


Fig. 3. Model path diagram 2

## 4.2 Hypothesis Testing

Based on the calculation process in regression I and II, the relationship between several variables can be described as follows:

### 4.2.1 Intellectual Capital has a direct effect on Financial Distress

Based on the results of regression I obtained the significance value of X1 of 0.714. This significance value is greater than 0.05. So it can

be concluded that X1 does not have a direct effect on Z, or in other words that the prediction of bankruptcy is not influenced by the amount of the company's intellectual capital. Then hypothesis 1 is rejected.

### 4.2.2 Debt Policy has a direct effect on Financial Distress

Based on the results of regression I obtained the significance value of X2 of 0.000. This significance value is less than 0.05. So it can be concluded that X2 has a significant effect on Z,

or in other words that the smaller the company's debt will increase the value of the zscore number, which means the company is healthier, and vice versa. Then hypothesis 2 is accepted.

#### **4.2.3 Intellectual capital has a direct effect on firm value**

Based on the results of regression II, the X1 significance value is 0.615. This significance value is greater than 0.05. So it can be concluded that X2 does not directly affect Y, or in other words the value of intangible assets that can increase the competitiveness of the company does not increase the firm's value. Then hypothesis 3 is rejected.

#### **4.2.4 The debt policy has a direct effect on firm value**

Based on the results of regression II, the X2 significance value is 0.010. This significance value is greater than 0.05. So it can be concluded that X2 directly has a significant effect on Y, or in other words that the company's debt originating from assets causes the company's value to increase or decrease. Then hypothesis 4 is accepted.

#### **4.2.5 Financial Distress has a direct effect on Firm Value**

Based on the results of regression II, the Z significance value is 0,000. This significance value is less than 0.05. So it can be concluded that Z directly has a significant effect on Y, or in other words that the higher the Zscore number, which means that the company is in good health, the company value will also increase, and vice versa. Then hypothesis 5 is accepted.

#### **4.2.6 Intellectual capital has an indirect effect on firm value through financial distress**

It is known that the direct effect X1 has on Y is -0.058. While the indirect effect of X1 through Z on Y is the multiplication of the beta value X1 against Z (Table 4) with the beta value Z against Y (Table 4), namely:  $0.045 \times 0.717 = 0.0322$ . Then the total effect given by X1 to Y is the direct effect plus the indirect effect, namely  $-0.058 + 0.0322 = -0.090$ . Based on the above calculations, it is known that the value of the direct effect is -0.058 and the indirect effect is 0.0322, which means that the value of the indirect effect is greater than the value of the direct effect, this shows that indirectly X1 through

Z has a significant effect on Y. Then hypothesis 6 is accepted.

#### **4.2.7 The effect of debt policy through financial distress on firm value**

The direct effect that X2 has on Y is 0.357. While the indirect effect of X2 through Z on Y is the multiplication of the beta value of X2 to Y (Table 4) and the beta value of Z to Y (Table 4), namely:  $-0.512 \times 0.717 = -0.367$ . Then the total effect given by X2 to Y is the direct effect plus the indirect effect, namely  $0.357 + (-0.367) = -0.01$ . Based on the above calculations, it is known that the value of the direct effect is 0.357 and the indirect effect is -0.01, which means that the value of the direct effect is greater than the value of the indirect effect, this shows that indirectly X2 through Z does not have a direct effect on Y. Then hypothesis 7 is rejected.

### **4.3 Discussion**

Intellectual capital simultaneously influences the prediction of company bankruptcy and company value, so that effective and efficient management of the company's intellectual capital can avoid company bankruptcy conditions. However, partially it does not affect both bankruptcy predictions and firm value. If you look at Table 2, the coefficient value of the indirect effect is greater than the direct effect of intellectual capital on firm value, meaning that indirectly intellectual capital has an effect on firm value through financial distress. It can be said that if the intellectual capital owned by the company increases and the company is able to develop and utilize the intellectual capital it has, it will reduce the risk of the company being exposed to financial distress which in turn will be able to increase the company's value. However, obtaining intellectual capital which will be an advantage for the company requires expensive costs so that there is a possibility that the company in developing and utilizing existing intellectual capital will affect the company's finances, which raises the possibility of the company being exposed to financial distress. According to [1,4]. it is possible that companies affected by financial distress in this situation will reduce the value of the company, where investors will judge that the company's financial problems are a form of company development in increasing its resources or intellectual capital. because the company is considered capable of having capable management and resources. However, in the research results [5] it was found

that the possibility was due to the lack of transparency felt by users of financial statements, especially investors, which was due to the presence of asymmetric information in the annual financial statements so that intellectual capital did not have a direct effect on firm value.

Meanwhile, the debt policy proxied by the Debt to Asset Ratio (DAR) in addition to simultaneously also partially gives a direct influence on the prediction of company bankruptcy and on firm value. The negative direction on the prediction of bankruptcy shows that the smaller the debt or the more effective the company is in managing debt, the zscore value will increase. This study uses the Altman Zscore Model to measure financial distress, where if the zscore value increases it means the company is in good health and vice versa if the company does not manage debt properly or the debt increases, it will decrease the zscore value which means the company is in an unhealthy state or tends towards broke. Purba 2019 said companies whose funding uses more debt will have the risk of being difficult to pay in the future due to debt that is larger than the company's assets. If these conditions are not resolved properly, the potential for financial distress will be even greater. Apart from predicting bankruptcy, the debt policy partially also has a significant effect on firm value. The positive direction shows that the higher the DAR indicates the creditor's trust in the company and the company is able to manage debt for its assets so that the company value also increases. If we look at Table 2, the value of the indirect effect coefficient is smaller than the direct effect of debt policy on firm value. This means that indirectly debt policy through financial distress does not have an effect on firm value. It can be said that if the debt policy itself is able to be managed properly by the company, it can actually increase creditor confidence and have an influence on investors in the capital market, so that the company's value will also increase. However, what companies need to be aware of is that the greater the risk faced by the company, the more uncertainty to generate future profits will also increase [6]. Information about an increase in debt will be accepted by the market as a bad signal that will provide negative input to investors in making decisions to buy shares [8].

Financial distress affects firm value. The positive direction shows that if the zscore value is increasing, it indicates that the company is in a healthy condition, this will increase the value of the company, and vice versa if the zscore value

decreases, it indicates that the company is in an unhealthy state. Ndicu, 2018 said that capital adequacy and liquidity indicators are consistent predictors of company failure and serve as efficient early warning signals for investors. Even though sometimes companies use going concern assumptions, in reality financial distress often causes the company's financial management to be poor, so that financial distress can ultimately reduce the company's value [10].

## **5. CONCLUSION AND SUGGESTION**

### **5.1 Conclusion**

1. Intellectual capital does not have a direct influence on bankruptcy predictions.
2. Debt policy has a direct influence on bankruptcy predictions.
3. Intellectual capital does not have a direct influence on firm value.
4. Debt policy has a direct effect on firm value.
5. Bankruptcy predictions have a direct effect on firm value.
6. Indirectly, intellectual capital through bankruptcy predictions has a direct effect on firm value.
7. Indirectly, the debt policy through bankruptcy prediction does not have a direct effect on firm value.

### **5.2 Suggestions**

1. For companies and investors, bankruptcy prediction indirectly influences intellectual capital on firm value, therefore companies should better manage their resources both from tangible assets and intangible assets to bring economic future. Benefits provide competitive advantages for companies to achieve their goals by providing added value for stakeholders.
2. For academics, further research can test the elements of the variable intellectual capital partially to see their effect on firm value, by considering bankruptcy predictions as intervening.

## **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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