



Asymmetric Information and Capital Structure: Empirical Evidence from Indonesia Stock Exchange

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ABSTRACT

This paper is aimed at scrutinizing the impact of asymmetric information on capital structure in Indonesia by taking the sample from firms listed in the IDX with a total of 225 observations. The capital structure is measured by Leverage (LEV), the asymmetric information is measured by Amihud Illiquidity ratio (ILLQ), and firm size is measured by the book value of total assets (SIZE). Also, two controlling variables of Altman Z-Score (ALT) and gross domestic product are added. The data is analyzed by using multiple regressions with random effect panel data estimation. The results show that the impact of asymmetric information on capital structure is consistent before and after including controlling variables. The evidence is not robust to the inclusion of illiquidity ratio, whereas firm size is important in explaining capital structure.

Keywords: Capital Structure, Asymmetric Information, Amihud Illiquidity, Firm Size, Altman Z-Score, Gross Domestic Product

JEL Classification: G320

1. INTRODUCTION

Capital structure is the proportion or the combination of a firm's debt and equity. At the firm level, the concept of capital structure plays an important role, as it can affect several aspects of the firm, such as market value, cost of financing, investment opportunity and financial flexibility. At the economic level, the role of the capital structure may affect the overall outlook of a country. In this respect, the capital structure serves as the alternative to increase the rate of investment and growth of a country by increasing a firm's opportunity to engage in the future wealth-creating investment. Several capital structure theories explain the preferences and behavior of a firm according to its financing choice (Mokhonova and Zinecker, 2014). One of the most influential theories came from Myers and Majluf (1984) and is known as pecking order theory. The theory is developed based on the asymmetric information, in which the management is assumed to know more about the firm's value than potential investors and the managers are assumed to act in favor of the old investors. They argue that the firm will prioritize internal funding rather than external funding to finance

its overall operation based on the cost of financing. The model suggests explanations to several aspects of corporate financing behavior, including the tendency to rely on internal sources of funds and to prefer debt to equity if external funding is required.

In the world where asymmetric information is something that surely exists, the individual that has less information will try to access the information that is conveyed by another individual with more information. This phenomenon can be explained by the signaling model which was originally proposed by Spence (1973) in the job market terminology. Ross (1977) was the first to address the function of debt signaling mechanism where asymmetric information exists between management and investors, which also explains why existing investors avoid issuing new equity. Therefore, asymmetric information will be taken into account of how the management will take action as it concerns the signal perceived by the outside investors. Leland and Pyle (1977) also argue that for good quality project to be financed, information transfer must occur. Furthermore, the existence of asymmetric information can create an imbalance of power in a transaction.

In the worst case, it can trigger the occurrence of market failures, such as adverse selection and moral hazard. This kind of market failure creates an inefficient market, in which one party may be made better-off than the other party. Thus, higher asymmetric information may lead to higher cost of capital.

In the emerging market, the degree of asymmetric information is relatively high due to the relatively undeveloped market structure (Salehi and Biglar, 2009). At the same time, the adoption of IFRS (International Financial Reporting Standards) enhances the credible implementation of uniform accounting standards, and a direct consequence would be a decrease in information acquisition costs, thereby increasing competition and efficiency (Gao and Zhu, 2012). In Indonesia, the approach to IFRS adoption is to maintain its national GAAP (Generally Accepted Accounting Principles) and converge it gradually with IFRS as much as possible (Deloitte, 2015). The adoption of IFRS in Indonesia was declared in 2008 and implemented in the 2012 financial report. The change of accounting standard is done to provide unbiased information for the investors. One of the ways to protect the investors is giving relevant information and facts regarding the firms as in the government regulation (Benardi and Sutrisno, 2009). In order to overcome this situation, Indonesia is currently striving to minimize the significant difference between IFRS and national GAAP gradually. It indicates that the Indonesian government is aware and concerned about the existence of asymmetric information, thus, causing them to change the accounting standard to minimize the asymmetric information.

As the role of capital structure is very important in both firm and economic levels, asymmetric information is the factor that surely exists and one of the concerns in the society, especially in corporate finance. Thus, this study attempts to achieve two main objectives. The first objective is to assess the development of asymmetric information and capital structure in the firms listed in IDX. The second objective is to investigate the impact of asymmetric information toward the managers' decision regarding the capital structure of the firms listed in IDX. The remainder of the paper is organized as follows. In the next section, we develop the literature review. Section 3 explains the research methodology and section 4 presents the results and discussion of the study. Last, section 5 offers the conclusion, limitation of the study and recommendations for further research.

2. LITERATURE REVIEW

2.1. Capital Structure Theory

The importance of the capital structure has been studied in many previous works. It is known that capital structure plays important roles in affecting several firms' aspects, such as the market value, the cost of financing, investment opportunity and financial flexibility. Capital structure refers to the kinds of securities and the proportionate amounts that make up capitalization, which is the mix of different sources such as equity shares, preference shares, debentures, long-term loan and retained earnings (Paramasivan and Subramanian, 2012). The development of the capital structure theory has been centered on Modigliani and Miller (1958). Since then, many studies were done to deepen the understanding

of capital structure, as well as create new models about it. Asymmetric information cannot be avoided due to the separation of ownership and professional management which causes the gap in the information about the firm (Myers and Majluf, 1984). After all, the managers' information advantages go beyond having more facts than investors do and also understanding what those facts mean. Thus, several traditional theories about capital structure are presented in the following paragraphs.

The trade-off theory by Modigliani and Miller (1958) is the first to address the modern theory of capital structure that motivated many researchers to examine things more deeply and create a new model of capital structure. As the pioneer whose assumption has made capital structure relevant to firm value, they demonstrate that, if investors can borrow and save on the same terms as firms, and if financing decisions of a firm do not affect their total cash flows, then the choice of a firm between debt and equity has no effect on their total market value (Chen and Strange, 2005). This theory was formulated under the assumption of a perfect market, which is in the absence of taxes, bankruptcy costs, agency costs, and asymmetric information, and efficient market. The theory was, then, revised in 1963 by adding the effect of taxes to the model, which was also in the later work of Miller (1977). This theory suggests it is more beneficial for the firm to employ debt because of the benefits of tax exemption. According to the theory, the firm should finance their projects completely through debt to increase the value of the firm. It is because the value of the firm will rise with leverage since increasing leverage measures the market perception of value (Ross, 1977). The optimal capital structure represents the leverage that balances bankruptcy costs and benefits of debt financing. Prior to MM theory, conventional perspective also believed that the use of financial leverage increases company's value. In this respect, there is an optimized capital structure that minimizes the cost of capital (Salehi and Biglar, 2009).

Myer and Majluf (1984) argue by their pecking order theory that the preference of the firm in determining capital structure is purely based on the cost of capital. Due to the adverse selection, the firm prioritizes internal funding and prefers debt to equity if external funding is required because of lower information costs. Miller and Rock (1985) predict that announcement of new security issues will, on average, depress stock, causing the firm to be undervalued. Investors become conscious that the equity issuance results in either fair pricing or mispricing; consequently, equity issuance leads investors to react negatively (Jahanzeb et al., 2014). The logic behind the issuing stock causing the firm to be undervalued can be explained by Akerlof (1970) in his theory of the "market of lemons". Akerlof's model suggests that the existence of asymmetric information caused the market to perceive that the goods sold are overvalued. Therefore, in order to avoid being ripped off by the seller, the buyer will demand a discount. Based on the assumption, it can be concluded that the new stock issuance will cause the stock to be undervalued because of the market perception that the firm is selling overvalued stocks.

This model was, however, challenged by Frank and Goyal (2003) who found that a great deal of external financing takes the form of equity. They argue that external finance, especially equity issues, is

much more significant than is usually recognized, in which it often exceeds investment or debt issuance. They found that pecking order did not perform well for small firms, which was assumed to have a more severe adverse selection problem, compared to the large firms in the observation during the 1970s and 1980s. Eckbo (1986) and Asquith and Mullins (1986) also provide evidence that adverse selection is more significant for equity issues than for the debt issues. On the other hand, Lemmon and Zender (2010) found that asymmetric information creates an incentive for the managers to use debt financing. Then, capital structure decisions have always been dominated by pecking order theory (Jahanzeb et al., 2014).

The concept of signaling is first studied in the context of job and product markets by Akerlof and Arrow and was developed into an equilibrium theory by Spence. In the incentive-signaling approach proposed by Ross (1977), managers act in accordance with the incentive of the signaling that will be given to the investors. Therefore, the managers of a firm maximize their incentive return by choosing a financial package that trades off the current value of the signal given to the market against the incentive consequences on that return (Ross, 1977). This model, however, was developed under the assumption of a perfect market as in the MM Theorem. He argues that what amounts to value in the marketplace is the perceived stream of return for the firm. In this respect, the changes in the financial structure can alter the market perception. Although there are a lot of different financial instruments, what matters for the managers is the set of incentive return they yield.

Even if markets are perfect and there is no tax impact, agency theory suggests that the appropriate mix of debt and equity is still an important matter for corporate governance (Chen and Strange, 2005). The core problem in this theory is the different interest and asymmetric information between the principal (the owner) and the agent (the managers), which may trigger a moral hazard and cause a conflict of interest. Jensen and Meckling (1976) suggest that, as the manager's ownership falls, the incentive to devote significant effort to creative activity such as searching out new profitable ventures falls. Thus, it leads to the value of the firm being substantially lower than it otherwise could be. Bank and Lawrence (2005) argued that managers who pursue their own interest can have a significant influence of leverage decision. In this respect, managers use their discretion to implement a leverage that is too low compared to equity holders' optimum.

Jensen and Meckling (1976) argue that an optimal capital structure can be achieved by trading off the benefits and cost of debt financing. Employing more debt can reduce the amount of free cash flow that is available for the manager. In addition, a scheduled payment in debt can be used as the disciplinary tool for the manager to limit their use of cash. The use of debt can also raise the manager's share of the equity which is in line with many researches that suggest the solution to solve agency problem is providing appropriate incentives to the agent. Thus, the leverage ratio should be lower if managers were endowed with additional entrenchment. In contrast, Bank and Lawrence (2005) suggested that the managers can maximize their claim by minimizing the probability of default which means taking on less debt. Additionally, the use of debt can result in the agency

cost associated with the monitoring costs by the bondholders or banks. Noe and Rebello (1996) show that the first-best policy to solve this problem is by the use of an all-equity financing. But this is unlikely to happen because of the disciplining mechanism of the equity holders. The second-best solution for managers is to implement the coupon level which is optimal for equity holders (Bank and Lawrence, 2005).

Another model about capital structure is the market timing theory which suggests that there is no preference between debt and equity financing. In this respect, firms prefer external equity when the cost of equity is low, and prefer debt otherwise (Jahanzeb et al., 2014). Furthermore, Baker and Wurgler (2002) show that an index of financing that reflects how much financing was done during hot equity period and hot debt period is a good indicator of firm. They found that external finance-weighted average of historical market-to-book is negatively related to current market leverage, which can be interpreted as the support of market timing. Therefore, the undervalued firms tend to adopt a higher leverage while the overvalued firms will have a lower leverage. In the survey by Graham and Harvey (2001), managers admit trying to time the market. Two-thirds of those that considered issuing common stock agree that how much their stock is undervalued or overvalued was an important consideration (Chenkanskiy, 2009). Publicly traded U.S. firms also fund a much larger proportion of their financing deficit with external equity when the cost of capital is low (Huang and Ritter, 2009). On the contrary, Alti (2006), in the study of issuance event, found that the effect of market timing disappears after two years. Market timing theory, however, is still not robust enough due to the lack of a theoretical model.

2.2. Previous Studies

Many studies try to shed light on the relation between capital structure and its determinants (Mokhonova and Zinecker, 2014). Based on the literature review, there are some key internal factors that have significant effects on the financing choices of a firm: Profitability (Krasauskaite, 2009; Huang and Ritter, 2009; Bharath et al., 2009; and Halov, 2006), firm size (Chenkanskiy, 2009; Krasauskaite, 2009; Raja and Zingales, 1995; Bharath et al., 2009; Gao and Zhu, 2012), asset tangibility (Bharath et al., 2009; Chen and Strange, 2005; Chenkanskiy, 2009; and Halov, 2006), growth opportunities (Bas et al., 2009; Chen and Strange, 2005), firm age (Chen and Strange, 2005; Huang and Ritter, 2005) and tax shields (Booth, et al., 2001; Chenkanskiy, 2009). In addition, some economic factors are also taken into account on their effect on capital structure: GDP (Mokhonova and Zinecker, 2014; Booth et al., 2001), inflation (Bas, et al., 2009; Booth, et al., 2001) and interest rate (Bass et al., 2009; Mokhonova and Zinecker, 2014). All of those factors might have positive or negative relations.

Fama and French (2005) observed that asymmetric information is an important determinant of firms' capital structure. The attempt of the market microstructure to estimate the extent of information asymmetry of firms has also caught the attention of researchers to identify firm's information environment, especially in case of corporate finance. While, Bharath et al. (2009) by using both the fixed-effect panel regression and Tobit panel regression was executed with the level of firm leverage on

the adverse selection index and four conventional firm-specific characteristics. They found that Asymmetric information does affect the capital structure decision; thus firms should finance new investment with the least information-sensitive securities. In the presence of financing needs, U.S. firms display a greater preference for debt, both statistically and economically, when plagued with a greater extent of and change in adverse selection costs. The results provide strong confirmation of asymmetric information.

Petacchi (2012) is deployed and quantile regression is employed to examine the effect of independent variables on dependent variables by using the quantile data. His study shows that firms which experienced a greater increase in information asymmetry increase their leverage more after Regulation Fair Disclosure (FD) is imposed in the equity market. Given that the cost of capital is increasing in the level of information asymmetry, the result shows that managers adjust the target leverage ratios to rely more on debt when facing a higher cost of equity resulting from a higher information risk.

Ibrahimo and Barros (2009) used the stochastic frontier model to test and find that the relative magnitude of equity in the capital structure makes a real difference to the profits obtained by firms in the economy. Following the pecking order theory, firms prefer internal finance and debt is preferred when external finance is needed due to the lower adverse selection costs associated with debt issues. Last, Gao and Zhu (2012) utilized fixed-effect panel regression to estimate the influence of information asymmetry on capital structure and the cost of capital as well as how the institutional environment impacts the relation between information asymmetry and capital structure. The results show that the financial decision of a firm is influenced by the institutional environment in various country-specific factors, especially the comparative cost of their external capital, and then firms with more intense asymmetric information have a higher market leverage because the greater adverse selection results in a higher cost of equity.

3. RESEARCH METHOD

3.1. Data Collection

Data is obtained by downloading the historical data from several websites, including the Indonesia Stock Exchange (IDX), and companies' websites are listed in LQ45 during the study period 2010 to 2014. After the entire selection process, it makes up the total of 225 observations. As the general rule of thumb, this sample size is appropriate as this number is held by many to be the minimum number of cases if the researchers plan to use some form of statistical analysis on their data.

3.2. Research Variables and Its Measurements

This paper employs three kinds of variable, which are the independent variable, dependent variable, and controlling variable. In addition, the dummy variables are used as the categorical variables. The further explanation regarding the variables employed in this paper will be discussed below, including the operational definitions of each variable.

3.2.1. Dependent variable

Capital structure is measured by leverage as a dependent variable. Leverage is the widely used measurement of capital structure (Bharath et al., 2006; Gao and Zhu, 2012; Frank and Goyal, 2003). Since market values of leverage may be difficult to obtain, accounting measures are applied as proxies (Salehi and Biglarm 2009). In this case, book value is employed instead of market value which is formulated below:

$$LEV_{it} = \frac{\text{Book value of debt}_{it}}{\text{Book value of assets}_{it}}$$

According to the formula, LEV_{it} represents leverage of stock i on year t which is equal to the total of short-term and long-term debt of stock i in year t divided by the book value of assets of stock i in year t .

3.2.2. Independent variables

In this study, asymmetric information is used as the independent variable. Thus, two independent variables are used to measure the asymmetric information, namely Amihud illiquidity ratio (Bharath et al., 2006; and Gao and Zhu, 2012) and firm size (Rajan and Zingales, 1995). Amihud illiquidity ratio is used to measure the market liquidity and firm size is used to measure the transparency of the firms.

3.2.2.1. Amihud illiquidity ratio

Amihud illiquidity ratio is the ratio that is formulated by Amihud (2002) based on the stock return and its dollar return. In this case, however, the writer uses rupiah as the currencies because the firms used as the sample are Indonesian firms as well as to avoid currency fluctuations. The formula for this ratio is:

$$ILLIQ_{iy} = \sum_{t=1}^{D_{iy}} \frac{|R_{iyd}|}{Vol_{iyd}}$$

Where by, the formula denotes:

$ILLIQ_{iy}$ = Illiquidity ratio for stock i in year y

D_{iy} = Number of days of available data for stock i in year y

R_{iyd} = Return on stock i on day d of year y

Vol_{iyd} = Daily transaction volume in rupiah.

3.2.2.2. Firm size

The term firm size is often defined by the use of several proxies, such as the number of employees, total assets, sales or market capitalization (Trigueiros, 2000). Despite the elusive concept of firm size, however, it is one of the widely used proxies of asymmetric information. The measurement of firm size is employed by the natural logarithm of the book value of total assets of firm i in year t (Chae, 2005; Benardi and Sutrisno, 2009). The natural logarithm is used to minimize the variability of the data.

3.2.3. Controlling variables

This study uses two controlling variables which are Gross Domestic Product (GDP) and Altman Z-Score, GDP to represent macroeconomic factor and Altman Z-Score to represent credit risks as the controlling variables in the model.

3.2.3.1. Altman Z-score

The Altman Z-Score is the measurement of financial distress, which is used to predict the possibility of bankruptcy two years before the event. The formula was originally developed by Edward I. Altman in 1968 and is based on four or five financial ratios that can be calculated from the data found on the financial report of a firm. In 2000, the model was modified to adapt the firm and industry characteristics for non-US firms, especially for emerging markets. The new Z'-Score is (Altman, 2000):

$$Z = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 \quad (1)$$

Where X_1 = Working capital/total assets

X_2 = Retained earnings/total assets

X_3 = Earnings before interest and taxes/total assets

X_4 = Book value of equity/book value of total liabilities

Z = Overall index

Below are the guidelines established by Altman for classifying the discrimination zone of the Z value: $Z > 2.6$ = safe zone; $Z < 1.1$ = distress zone; $1.1 < Z < 2.6$ = zone of ignorance or gray area. This measurement is employed to represent credit risk to set the limitation for the firm when employing debt. The logic is that, when the financial distress is high, the firm faces a higher possibility of going bankrupt. Therefore, the credit risk would increase when a firm employs more debt, resulting in lower debt.

3.2.3.2. GDP

GDP is the market value of all final goods and services in a country in a given time period; it measures the value of production that equals total expenditures on final goods and total income (Bade, 2012). GDP is included in the model because of its nature that cannot be controlled by the managers (Mokhonovo and Zinecker, 2013). Furthermore, the economic condition affects the monetary regulation, such as interest rate, and the health of the overall financial market, including performance of banks and the capital market. As a consequence, this condition influences the managers' decisions regarding the capital structure of the firm which is concerned with the cost of capital and the market value of the firm. Hence, this paper uses the natural logarithm yearly data of GDP in Indonesia, which was calculated based on the current price. As in the total asset calculation, the natural logarithm of GDP is used to minimize the variability of the data.

3.2.3.3. Dummy variables

In this study dummy variable represents industries. These dummies are used because of the different capital structure expected from one industry to another. Currently, there are nine industries in Indonesia according to the IDX sector index. As in standard practice, utility and financial sectors are excluded because their financing policies are affected by government regulations. In addition, the manufacturing sectors are also excluded because it is basically the combination of three sectors used in the observations. Therefore, five dummies are used in this study which is specified below.

- Dummy 1: Agriculture
- Dummy 2: Basic industries
- Dummy 3: Constructions, properties and real estates
- Dummy 4: Consumer goods
- Dummy 5: Trades and Services.

3.3. Model Specification

The multiple regressions determine the simultaneous effect of several independent variables on the dependent variable by using the least square model (Newbold, et al., 2003). The formulation of the model specification can be stated as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon \quad (2)$$

Whereby, Y denotes the dependent variable, β_0 is constant, β_n denotes the regression coefficients of each variable (X_n), X_n represents the independent variables, and ε denotes error that is assumed as zero. In this study, two models are employed to scrutinize the effect of controlling variables as written below:

Model 1:

$$LEV_{it} = \beta_0 + \beta_1 ILLQ_{ijt} + \beta_2 SIZE_{jt} + \varepsilon \quad (3)$$

Model 2:

$$LEV_{it} = \beta_0 + \beta_1 ILLQ_{it} + \beta_2 SIZE_{it} + \beta_3 GDP_t + \beta_4 ALT_{it} + \beta_5 D_1 + \beta_6 D_2 + \beta_7 D_3 + \beta_8 D_4 + \beta_9 D_5 + \varepsilon \quad (4)$$

In the first model, the dependent variable of LEV_{it} will be regressed with the two independent of $ILLQ_{it}$ and $SIZE_{it}$. In the second model, two controlling variables of GDP_t and ALT_{it} , as well as five categorical variables of D (dummy) are included as the regressor of LEV_{it} to scrutinize the effect of the controlling variable and categorical variables on the dependent variable.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

Table 1 shows the visualization of the data through descriptive statistics. The LEV serves as the independent variable, ILLQ and SIZE as the independent variables, and ALT, GDP and Dummy as the controlling variables. The results with the number of observation (N) of 225 show that the minimum and maximum value of LEV as the dependent variable is 0.9332 and 3.1156, respectively, with a standard deviation of 0.5935. It indicates that the maximum leverage of a firm is twice as much as the other firms. The zero value of ILLQ is because the data used to obtain this measure is very small; thus the data cannot be interpreted due to the limited number of the value shown. As for the SIZE, the minimum value is Rp2,155.3 billion and the maximum value is Rp336,030 billion. The mean value of SIZE is Rp41,930.56 billion and the standard deviation for SIZE is 5.2989. The minimum, maximum and mean values of ALT are 3.8731, 27.1369 and 10.6508, respectively, with a standard deviation of 4.1673. The maximum value of GDP is Rp10,543,000 billion and the minimum is Rp6,864,100 billion, with the mean of Rp8,675,700 billion. The standard deviation for GDP is 1.2810.

4.2. Regression Analysis

The panel data is used as the purpose of the study to estimate the causal effects of independent variables on the dependent variable (McManus, 2011). In the panel data models, the estimation of

the model is most commonly done by examining the fixed or random effects of a group of time. Because the probability value of the Hausman test (X^2) obtained is greater than 0.050 ($0.7067 > 0.050$), random effect is used and GLS estimation is executed instead. Table 2 shows the regression results estimated with Random Effect Model.

The results above show that the ILLQ has a positive and insignificant impact on LEV. A higher ILLQ indicates a greater degree of asymmetric information as it is associated with low liquidity (Bharath et al., 2006; Gao and Zhu, 2012). Therefore, the firms tend to increase LEV when the asymmetric information of

a firm is high. On the other hand, the SIZE is found to negatively and significantly affect the LEV. Thus, when the SIZE is large, the LEV will decline. After including the controlling in the model, show that there is no difference in the direction as well as the significance of the relation between the dependent variable and independent variables. The differences are only on the constant and coefficient of the results. In this respect, both results indicate that ILLQ has a positive and insignificant relation with the LEV, SIZE has a negative and insignificant relation. As for the controlling variables, all of them are found to affect the LEV of a firm negatively. In addition, all of the dummy variables are found to be negative and significant.

5. DISCUSSION

The result of ILLQ is found to be positively insignificant toward LEV in models 1 and 2. It indicates that the greater the ILLQ is, the greater the degree of asymmetric information because the low liquidity is accompanied by the greater ILLQ (Bharath et al., 2006; Gao and Zhu, 2012). The positive sign of the result indicates that, as the ILLQ increases, LEV also increase. Hence, the firms which have higher asymmetric information tend to increase their leverage or debt. The preference of debt to equity is because the debt is less sensitive to information than equity. As explained by Myers and Majluf (1984) and Akerlof (1970), the value of new stock issuance would be undervalued when the asymmetric information existed

Table 1: Descriptive statistics

	Minimum	Maximum	Mean	Standard deviation
LEV	0.9332	3.1156	0.510855	0.5935
ILLQ	0.0000	0.0000	0.000002	0.0000054
SIZE	2.1553E3	333.03E5	41.93056E4	5.2989E4
ALT	3.8731	27.1369	10.6508E0	3.1673188
GDP	6.8641E6	10.5430E7	8.675799E6	1.2895783E6
Dummy 1	0	1	0.13	0.342
Dummy 2	0	1	0.13	0.342
Dummy 3	0	1	0.20	0.403
Dummy 4	0	1	0.40	0.493
Dummy 5	0	1	0.07	0.251
Valid N (listwise)				

Table 2: Regression with Random Effect Panel data results

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Constant	1.490 (0.23)	7.993*** (0.000)	6.821*** (0.000)	6.470*** (0.000)	6.253*** (0.000)	6.114*** (0.000)	6.286*** (0.000)
ILLQ	9715.12 (0.497)	9838.78 (0.331)	10042.89 (0.254)	19114.47* (0.067)	161952.19 (0.170)	18869.36* (0.078)	16899.71 (0.104)
SIZE	-0.461*** (0.002)	-0.854*** (0.000)	-0.706*** (0.000)	-0.627*** (0.000)	-0.623*** (0.000)	-0.604*** (0.000)	-0.632*** (0.000)
ALT	-	-0.126*** (0.000)	-0.129*** (0.000)	-0.150*** (0.000)	-0.140*** (0.000)	-0.138*** (0.000)	-0.139*** (0.000)
GDP	-	-0.627*** (0.000)	-0.605*** (0.000)	-0.601*** (0.000)	-0.572*** (0.000)	-0.569*** (0.000)	-0.573*** (0.000)
Dummy 1	-	-0.993 (0.000)	-0.550*** (0.000)	-	-	-	-
Dummy 2	-	-0.412** (0.021)	-	0.163 (0.199)	-	-	-
Dummy 3	-	-0.461*** (0.005)	-	-	-0.002 (0.986)	-	-
Dummy 4	-	-0.464*** (0.003)	-	-	-	0.065 (0.437)	-
Dummy 5	-	-0.338* (0.056)	-	-	-	-	0.071 (0.657)
R ²	0.152	0.745					
Adjusted R ²	0.128	0.709					
F-statistic	6.369*** (0.003)	20.746*** (0.000)					
Hausman test (X^2)	-	2.1581 (0.707)					

*Coefficient is significant at the 0.10 level; **coefficient is significant at the 0.05 level; and ***coefficient is significant at the 0.01 level. Definition of variables: LEV=Book value of debt to book value of asset for firm i at year t ; ILLQ: Illiquidity ratio for stock i at t ; SIZE: Natural logarithm of book value of total asset for firm, i at year t ; ALT: The Altman Z-score is the measurement of financial distress firm i at year t ; GDP: The natural logarithm yearly data of GDP of Indonesia. Model 1: Before Including Control Variable of Altman Z-score and GDP, Model 2: After Including Control Variable of Altman Z-score and GDP, Model 3: Model 2 with Dummy 1 (Agriculture Sector as Dummy Variable), Model 4: Model 2 with Dummy 2 (Basic Industry Sector as Dummy Variable), Model 5: Model 2 with Dummy 3 (Construction, properties, and Real Estates Industry Sector as, Dummy Variable), Model 6: Model 2 with Dummy 4 (Consumer Goods Industry Sector as Dummy Variable), Model 7: Model 2 with Dummy 5 (Trades and Services Sector as Dummy Variable)

in the market. In this case, however, the proportion of retained earnings is greater than new equity issuance in the firms' equity. It is because the amount of internal funds that can be provided is limited in the firm. Therefore, the firms would likely access outside funds, which amounts to debt. In this respect, the firm prefers the source of funds with the least information-sensitive securities, which is debt (Gao and Zhu, 2012). Consequently, when the external finance is needed, the firms listed in IDX would likely employ debt because it is less sensitive than new equity issuance in terms of information. According to the signaling theory, the use of debt conveys the information about the firm's confidence to pay the debt, which can increase the value of the firm. Besides, the use of debt can serve as the tax shield and the signaling tool for outside investors.

The independent variable of SIZE is found to be negatively significant at the level of 5% in the first model and 1% in the second model. This result indicates that the movement of firm size and the leverage has an opposite direction in which the larger firm would lower its debt or increase equity as the asymmetric information increases. Pecking order assumes that larger firms should have higher leverage because of the lower degree of asymmetric information. Taking into account the capital structure in Indonesia, the retained earnings hold a greater proportion of the firms' equity. Hence, the result indicates that the firms increase the use of retained earnings when faced with a greater asymmetric information. As a result, the pecking order performs better in larger firms in Indonesia. In addition, the larger firms also have more cash (retained earnings) in hand; thus the use of internal funding is preferred. Similar to Bank and Lawrence (2005), they found that pecking order performs better in larger firms in European countries. The smaller firms tend to increase their debt when faced with lower asymmetric information. As the pecking order theory explained, the use of debt is preferred because of the lower asymmetric information involved. The new stock issuance can cause the stock prices of the firms to be undervalued by the outside investors; thus it is avoided. In addition, the amount of retained earnings are also limited as they are small firms; thus the internal funds that can be generated are also limited as well.

The controlling variable of ALT is shown to be significant at 1% level of significance and has the negative coefficient of -0.126 which means that cost of financial distress lowered the debt used by the firm. This result indicates that, when the cost of financial distress is high, the firms listed in IDX will decrease their debt because of the high possibility of going bankrupt. Moreover, the economic condition in Indonesia is very volatile; this causes the firms to be more susceptible to financial distress, which limits the firms' ability to use debt. Besides, the cost of debt in Indonesia is high because of higher interest rate imposed by banks in Indonesia due to the high inflation.

The controlling variable of GDP shows a negative relation with a coefficient of -0.627 and is significant at the level of 1%. In this respect, the use of debt decreases as the economic condition improves. The boost in economic condition increases the profit of the firm, raising the internal funds (Makhonova and Zinecker, 2013). In this respect, the firms have plenty of retained earnings

causing them to employ more internal financing. Following the pecking order, the firms listed in IDX likely employ the use of internal funds and prefer debt to equity when external financing is needed. It is because certain information must be disclosed to the debt holders when they wanted to employ debt. It is known that the transparency of firms listed in IDX is still low, which indicates that the firms listed in IDX are reluctant to disclose their information. Besides, the economy in Indonesia is very volatile, especially for the firms which had faced the crisis in 1998 when many banks collapsed due to the inability of the banks and the firms to manage debts. In addition, the high inflation in Indonesia results in the high interest rate, causing the high cost of debt.

All of the dummy variables have proved to be negative and significant. These results indicate that all of the independent variables and controlling variables have the same effect on the dependent variable. The significant results, however, show that the intercept for each industry differs from one to another. It means that the average difference of leverage from one industry to another is different. Among all of the variables, the agriculture industry proves to have the most significant result at the level of 1% and the coefficient is -0.993. This result is followed by the consumer goods sector as well as the construction, property and real estate sectors. It means that the leverage in those sectors tended to be lower than the average difference among industries. Agriculture, construction, property and real estate sectors prove to have a lower leverage because they engage in a large value-created project which leads to the higher return as well as retained earnings. On the other hand, the consumer goods sector as the sector that sells the basic human needs also has a lower leverage than the average difference due to the larger amount of retained earnings. When the regression is executed by adding one dummy variable for each regression, however, only the agriculture sector is found to be negative and significant. The other dummy variables are found to be insignificant.

6. CONCLUSION

According to the discussion in the previous section, several conclusions can be drawn from this study. The development of capital structure in Indonesia during 2010–2014 followed the pecking order theory based on the average of capital structure combination of the sample firms listed in IDX. The number of firms that disclose their information to the public kept increasing over the years of 2010–2014. If measured by trading volume, however, the asymmetric information in Indonesia is still very high due to its undeveloped infrastructure. Moreover, Indonesia is still susceptible toward new information which leads to the greater extent of speculation in the market. Furthermore, the number of transparency and insider trading cases keeps increasing over the years of 2010–2014 (Bapepam-LK). The result of the impact of asymmetric information on capital structure measured by illiquidity is positive and insignificant. On the one hand, the information asymmetric measured by the firm size is found to be negative and significant before and after including the controlling variable. Both controlling variables of macroeconomic factor (GDP) and credit risk (ALT) were found to be negative and significant.

There are limitations faced by the study, including the scope of the study not being broad enough due to the incomplete information regarding the sample firms; thus the results of this study might not be able to represent the population adequately. In order to obtain a more robust result, further research should take a broader sample so that it can represent the population better.

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