THE EFFECT OF CAPITAL STRUCTURE AND FINANCIAL STRUCTURE ON FIRM PERFORMANCE (An Empirical Study of The Financial Crisis 2008 and 2009 in Indonesia)

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THE EFFECT OF CAPITAL STRUCTURE AND FINANCIAL STRUCTURE ON FIRM PERFORMANCE
(An Empirical Study of The 2008 and 2009 Financial Crisis in Indonesia)

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Abstract
This research aims to identify the impact of capital structure on Indonesian firm performance, particularly the magnitude of the impact at the periods prior, during, and following the crisis that occurred in 2008. The Global Financial Crisis grants a chance to scrutinize the impact of crisis between capital structure and firm performance. The proxies used for capital structure are total debt to total assets, short-term debt to total assets, and long-term debt to total assets ratio. In addition, firm performance is measured by accounting performance (Return on Asset and Return on Equity) and market performance (Price to Equity Ratio and Tobin’s Q). Samples in this study include all firms listed on the Indonesian Stock Exchange (IDX) from the period of 2004 until 2017, excluding firms from the financial sector. This research posits that capital structure generally negatively impacts firm performance. The 2008 Global Financial Crisis (GFC) serves a greater negative impact of capital structure on firm performance than before and after the crisis. This research is intended for use by firms as a perusal in managing capital structure, for creditors in managing lending, and for investors in investing, especially in times of financial crisis.

Keywords: Indonesia, crisis, performance, capital
terhadap total aset. Selain itu, kinerja perusahaan diukur dengan kinerja akuntansi (Return on Asset dan Return on Equity) dan kinerja pasar (Price to Equity Ratio dan Tobin's Q). Sampel yang digunakan meliputi seluruh perusahaan yang terdaftar di Bursa Efek Indonesia (BEI) dari periode 2004 hingga 2017, tidak termasuk perusahaan sektor keuangan. Penelitian ini berpendapat bahwa struktur modal secara umum berdampak negatif terhadap kinerja perusahaan. Krisis Keuangan Global (Global Financial Crisis atau GFC) yang terjadi pada tahun 2008 memberikan dampak negatif yang lebih besar dari struktur modal terhadap kinerja perusahaan dibandingkan sebelum dan sesudah krisis. Penelitian ini dimaksudkan untuk digunakan oleh perusahaan sebagai bahan pertimbangan dalam mengelola struktur modalnya, untuk kreditor dalam mengelola pinjamannya, dan untuk investor dalam berinvestasi, terutama pada saat krisis keuangan.

Kata kunci: Indonesia; krisis; performa; struktur modal

INTRODUCTION

Every company generally has a similar objective, which is to obtain maximum profit and increment the value of the company (Chowdhury and Chowdhury 2010). Profitability and the value of a firm are indicators that show how well firm performance is. To accomplish this objective, a firm needs funding from internal and external sources. Internal funding comes from retained net profit after taxes, while external funding may come from the issuance of new shares, proposing for debt to financial institutions or by issuing bonds (Al-Taani 2013). The combination of internal and external funding is known as capital structure.

Each funding option selected certainly has its advantages to be earned and its costs that must be borne by the company. This research will focus on the further explanation of the effect of the utilization of debt on firm performance. Companies gain an advantage from using debt, namely the increase in free cash flow that comes from reduced tax payments for the interest cost that is allowed to be deducted in calculating taxable income (Modigliani and Miller 1963). However, referring to the trade-off theory by Modigliani and Miller (1963), funding by debt with high interest will also decrease a firm’s income, and thus will lower firm profitability. This condition occurs when the benefit of the debt can no longer cover the cost, thus lowering company performance. Subsequently, debt can also act as a control for management in decision making (Jiahui 2015). Management acts as a decision maker so it is normal for them to have more indepth information about the company in comparison to the owner of the company. The separation of functions between management and company owners results in different interests to be achieved and the management tends to act on the behalf of themselves in order to maximize their own wealth. One way to prevent this from happening is to utilize debt (Jensen and Meckling 1976).

The decision of using debt comes with interest costs that must be borne by the company. Excessive interest costs will pose a default risk, which will adversely affect the company's profitability (Abor 2005). The utilization of debt is deemed optimal when the benefits derived from its use are proportional to the costs to be borne (Modigliani and Miller 1963). Management activities in managing investment also play an important role so that the debt can be worthwhile in improving firm performance.

Research conducted by Sheikh and Wang (2013) proves that the utilization of debt has an effect on diminishing firm performance due to the higher interest costs, thus management have to be more cautious in selecting investments. This differs to the results conducted by Zeitun and Tian (2007), where the utilization of short-term debt
causes lower interest costs compared to long-term debt. Companies can use short-term debt to increase sales growth. The higher the sales growth, the higher firm performance will likely be.

In crisis conditions, more attention must be given to the management of capital structure because weak economic conditions can affect management decisions in acquiring funding for the company (Chang et al. 2014). The Global Financial Crisis (GFC) of 2008 began as a financial crisis that occurred in America in 2007. The Asian economy was one affected by the crisis through the trade sector in the fourth quarter of 2008. This condition is shown by the significant decline of export growth in Indonesia that was above 10% during the first until the third quarter of 2008, which then plummeted to just 1.99% in the fourth quarter. The rising prices of imported products hit Indonesia even more insofar that it posed a serious risk of inflation. In order to control inflation, Bank Indonesia implemented a monetary policy measure of raising the interest rate (Bank Indonesia 2009).

The monetary policy action taken by Bank Indonesia in 2008 was implemented in multiple stages. The first stage of the interest rate policy was set at 8% and resulted in no change. As the risk of inflationary pressure increased, Bank Indonesia decided to raise the interest rate to 9.25% (Bank Indonesia 2009). The increase in the interest rate in turn raised savings and prime lending rates. The increase in the prime lending rate affected management decisions in managing capital structure. Overall, the effect of the global financial crisis in Indonesia was manifested through the rise of the inflation rate, lower economic growth rate, weaker exchange currency value, and loss suffered by Indonesian firms that invested in US firms (Darajati and Hartomo 2015).

Khodavandloo et al. (2017) posits that as a company’s level of leverage increases, firm performance also decreases. Moreover, the research also compares the magnitude of the negative impact of the 2008 crisis on Malaysian listed firms prior, during and after the crisis. It was found that capital structure negatively and more severely impacted firm performance during the crisis compared to pre-crisis and post-crisis. This is due to the sudden increase of the interest rate in Malaysia; from a stable level of 2.8% since 2004 to an increase to 3.5% that occurred at the beginning of the crisis in early 2007. The rise of the interest rate in turn contributed to the rise of the prime lending rate. A rising prime lending rate negatively affects a firm’s profitability, as does its performance.

The findings of Khodavandloo et al. (2017) support Chang et al. (2014) in their research conducted on Vietnam listed firms. Deteriorating capital market conditions resulted in companies relying more on the use of debt. Relying on using debt during a crisis that coincides with conditions of hyper-inflation results in higher interest costs borne and reduced firm profitability, which in turn deteriorates its performance.

Overall, the results of previous research are still inconsistent. Moreover, research regarding the impact of capital structure on firm performance is still limited in Indonesia, especially research on the crisis period. Therefore, this research will further investigate the impact of capital structure on firm performance, particularly its impact on three different periods (pre-crisis, during crisis, and post-crisis).

This research aims to examine the negative effect of capital structure on firm performance and the differences in the negative effect of capital structure on firm performance in the period before, during, and after the 2008 Global Financial Crisis.
LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Generally, there are three ways to obtain funding for a firm: funding from appropriated retained earnings, debt, and issuing new shares (Myers and Majluf 1984). The funding for a company is also known as capital structure. Modigliani and Miller (1958) state in their trade-off theory that firms can achieve the optimal level of leverage with the existence of debt. Moreover, when debt occurs, the creditor will also be overseeing the firm along with the agent and principal, and thus will help lower the agency problems between agent and principal (Jensen Meckling 1976). The existence of debt will also generate the cost of debt or interest. This interest can be optimized to lower taxable income, thus reducing tax payments. However, the cost of debt will lower firm performance if it is too high.

Trade-Off Theory

Trade-off theory is the development of the irrelevant theory which was previously constructed by Modigliani and Miller (1958). The trade-off theory assumes that taxation is present in real business conditions. With taxation taken into account, there should be tax benefits obtained from the utilization of debt, which is the addition of cash flow derived from the reduction of tax payments. Tax payment reduction is derived from the interest expense from the use of debt that is included as a deductible expense in the calculation of fiscal profit.

Balanced utilization of debt and equity funding will lead to higher company value. One component of the calculation of company value is the company's ability to generate profits, which is earnings before interest costs and taxes (EBIT) that indirectly describe the company's cash flow. Profit before interest and tax will ultimately affect the company's performance. A financial crisis can potentially bankrupt a firm because in general, the cost of debt will rise along with the benefits of the debt it obtains. On the other hand, an increase in the cost of debt will raise the firm's debt expense. Overall, the trade-off theory states that it is possible for a firm to achieve an optimal level of leverage between costs and interest payments that arise due to debt.

Pecking Order Theory

Pecking Order theory was initiated by Myers and Majluf in 1984. The factor that leads to the emergence of this theory is the presence of the rights of each party to claim returns on what each party has invested in the company itself. The decision of a company to obtain external financing will most likely cause information asymmetry problems between shareholders and management to arise. The presence of a conflict of interest between these two parties results in three financing options. Internal financing is the most secure and least risky source of financing compared to external financing. Internal financing here refers to appropriated retained earnings.

Alternatively, firms can obtain external financing by acquiring debt. However, if a firm decides to go for external financing, they should not only expect to cover operational expenses but also meet their obligation to the third party. This obligation includes the debt and the interest. There is also a third option as stated by Myers and Majluf (1984), which is equity financing by issuing new shares. Howbeit, this option will not only pose a negative signal to shareholders for their current ownership to be potentially diluted, but also envisage that the firm might be in distress. When shareholders get a negative signal, it will lower the company value.
Agency Theory
The separation of the management and ownership function in a firm causes conflict of interest between each party. Agency theory was initiated by Jensen and Meckling in 1976. Shareholders as the owner of a firm have their own rights to point the agent to make decisions in terms of investment decisions. Management as the managing party will surely get a more comprehensive view of the firm’s condition so they will most likely make investment decisions on behalf of their own—which is to invest in high risk and high return investments (Bodhoo 2009). Built upon the agency theory, this conflict of interest causes firms to incur a cost in order to alleviate the conflict, better known as agency cost, that consist of monitoring costs, bonding costs, and residual loss (Jensen and Meckling 1976). Moreover, agency problems can be reduced with the presence of debt. When debt occurs, creditors will also have a role in overseeing the firm along with the agent and principal. Hence, the addition of debt in the capital structure will be shown by high leverage, thus lowering the agency problem between agent and principal (Jensen and Meckling 1976). This will in turn increase firm efficiency because with the presence of debt, agents will be driven by incentives to make the firm profitable. Conversely, the more debt a firm has, the more conservative agents will be in terms of making investment decisions. They will prefer the less risky with lower return options so that the firm is not faced with a lot of risks (Khan 2012). This implies that the more debt the company has, the more the firm’s profitability will decrease.

Financial Crisis in Indonesia
The 2008-2009 Global Financial Crisis (GFC) that started in the United States of America had managed to affect Indonesia’s economy as well as generating several issues, including rising inflation rates, low economic growth, weakened currency exchange, and loss for Indonesian companies that invested in American firms (Darajati and Hartomo 2015). However, another study stated that the implication of the GFC in 2008-2009 did not worsen the economy as much as in other emerging countries (Sugema 2012). This was due to the level of Indonesia’s export market share that was not more than half of its Gross Domestic Product (GDP). It also did not affect the stock market much since only 0.5% of its citizens were involved in the stock market. However, a big impact was seen on the high level of poverty and unemployment, especially in rural areas since a majority of Indonesia’s prime export commodities were produced in rural areas.

Moreover, Ramlil et al. (2018) found that some firms that were mostly affected by the GFC were forced to use external funds to help raise their financial performance. The external funds was most likely banks loans, since issuing bonds is more difficult in emerging countries. However, Imadudin et al. (2014) insinuated that the non-optimal use of debt funding in Indonesian firms post-crisis does not have any impact on firm performance. This occurred because the rise of debt funding utilization was not followed by any increase in its profitability, thus had no impact on firm performance.

Hypothesis Formulation
Effect of Capital Structure on Firm Performance
Generally, in running a business, a company will need funding that can be obtained either internally or externally. The combination of these funding sources in the form of debt and equity is called capital structure. There have been various studies conducted related to the implications of capital structure on firm performance that had generated different results. A company with good performance means operational activities are running optimally, as seen from
indicators of productivity, growth, and profitability (Tan and Hamid 2016). In a study conducted by Dawar (2014), state-owned banks play a big role in lending money to undeveloped markets in India so that control over-lending and the utilization of debt is not used effectively. In the case of credit disbursement not chosen according to the criteria for creditworthiness, funding through debt cannot actually improve firm performance. Le and Phan (2017) found that tax discretion in certain countries limit management decisions in managing capital structure. The utilization of debt in Vătavu (2015) is not used to develop a company, but only necessary when experiencing financial difficulties. Companies will prioritize using internal funding because it is in line with the Pecking Order theory due to external funding being riskier, which can lead to poor firm performance (Twairesh, 2014). This explanation is not in accordance with the statement of Modigliani and Miller (1958), which states that companies can benefit from the utilization of debt by balancing the benefits and costs of the utilization of debt. Abor (2005) and Zeitun and Tian (2007) find that the use of short-term debt in capital structure has a positive influence on firm performance. This is because short-term debt has relatively low-interest costs so that it can be used to increase company growth. In addition, Ofek (1993) found that companies with high levels of debt tend to make the company more disciplined and respond quickly if there is a decrease in performance. Thus companies with high debt levels tend to maintain the going concern of the company. The formation of Hypothesis 1 is based on the research of Le and Phan (2017) because Indonesia has tax regulations similar to those applied in Vietnam. The limitation to the reduction of deductible expense that is regulated based on the ratio of debt to capital causes the benefits derived from the utilization debt to be limited. The usage of debt that exceeds the amount of benefit causes the use of debt to negatively affect firm performance. Therefore, the hypothesis formed is as follows: 

**H1:** There is a negative influence of capital structure on firm performance

**The Effect of Capital Structure on Firm Performance in the Pre-Crisis Period of the 2008 Global Financial Crisis**

Similar to the explanation on the development of the previous hypothesis, this hypothesis will focus on the influence of capital structure on firm performance in the pre-crisis research period. Before the crisis affected global economic conditions, interest rates were relatively low and companies had no difficulty in fulfilling obligations related to debt repayment. In the research of Khodavandloo et al. (2017), companies leaned on debt funding for operational activities. Although interest rates in Malaysia were stable in the pre-crisis period, companies utilized a large portion of their debt. When compared to the trade-off theory, the relatively large usage of debt in the period before the crisis caused companies to gain smaller benefits because the use of large amounts of debt raises the number of interest costs that must be borne by the company. These interest costs will negatively affect firm performance. Similar results were also found in studies conducted by Chang et al. (2014), where the existence of capital market limitations and underinvestment problems in companies in Vietnam resulted in their relying on debt and dealing with hyper-inflation conditions, resulting in costs incurred on debt interest exceeding the limit of company benefits received. In addition, research from Hossain and Nguyen (2016) examines the effect of capital structure on firm performance with a focus only on the oil and gas sector in Canada, where external funding in the form of debt plays an important role for capital-intensive industries for the investment of machinery and
technology. The use of debt is increasingly used especially if an excavation source is found because the company needs funding to complete the excavation project. The use of large debt in the pre-crisis period caused firm performance to decline. The formation of this hypothesis is based on research by Khodavandloo et al. (2017), which has similarities in terms of interest rate movements before the crisis. Moreover, hyperinflation did not occur in the case of Indonesia before the crisis such as in the study of Chang et al. (2014), but was affected by the movement of crude oil prices similar to the research of Hossain and Nguyen (2016) as examined in this research of many sectors. Therefore, the hypothesis formed is as follows:

H2a: There is a negative effect of capital structure on firm performance in the pre-crisis period.

Effect of Capital Structure on Firm Performance during the Crisis Period of the 2008 Global Financial Crisis

Modigliani and Miller (1963) state that to achieve optimal capital structure, there must be a balance between the usage of debt and equity. One of the advantages of using debt is the interest expense that can be used as a deductible expense, thus giving the company more cash flow due to reduced tax payments (debt-tax shield). The trade-off theory proposed by Modigliani and Miller (1963) also states that there is a maximum point between the benefits obtained from the debt-tax shield and the bankruptcy costs that can arise due to large interest costs. In addition, Ofek (1993) found that companies with high debt when experiencing difficulties tend to immediately take operational actions such as restructuring assets and laying off employees or financial actions such as cutting dividends and debt restructuring. This helps companies to avoid losses in the long run. Thus a high level of debt can help maintain the company’s going concern.

Khodavandloo et al. (2017) in their research on publicly listed companies in Malaysia show that there was a significant increase in the benchmark interest rate just before the crisis. The increase in interest rates caused loan interest rates to rise, thus demanding companies to pay higher interest costs. Research by Khodavandloo et al. (2017) is also supported by a study conducted by Chang et al. (2014) on a public company in Vietnam. In times of crisis, the capital market in Vietnam experienced a slump that made it impossible for companies to obtain capital from the capital market. Companies relied on debt from banks as a source of funding. Meanwhile, Vietnam also experienced hyper-inflation during the crisis, causing interest rates to fluctuate. The fluctuating interest rates caused interest costs borne by the company to increase, creating a burden for the company. An increase in the company’s interest and principal expenses in times of crisis will have a greater negative effect on performance compared to pre-crisis.

Research conducted by Hossain and Nguyen (2016) on oil and gas sector companies in Canada shows that the negative effect of capital structure on performance is smaller during a crisis than in pre-crisis times. The contributing factor is Canada’s strong financial condition in times of crisis, which was considered as one of the best. This was influenced by the stable price of crude oil during the crisis, resulting in smaller negative effects during the crisis compared to prior the crisis. Therefore, research conducted by Khodavandloo et al. (2017) has similarities with conditions in Indonesia, namely an increase in interest rates during crises. It is expected that the use of debt in capital structure will lower firm performance due to the rise in cost of debt, thus this study has the following hypothesis:
Research Framework

**H₂a:** The negative effect of capital structure on firm performance in times of crisis is greater than before the crisis.

**Effect of Capital Structure on Firm Performance in the Post-Crisis Period of the 2008 Global Financial Crisis**

Khodavandloo et al. (2017) found that after a crisis, the interest rates became more stable than during the crisis and Malaysian firms became more conservative in obtaining funding through debt. This conservative attitude is expressed through the debt ratio, which tends to decrease in the post-crisis period compared to during the crisis. The addition of the company's free cash flow causes agents to be opportunistic in taking investment projects with high returns. The opportunist attitude of the agents had led Malaysian companies to return to using debt as a monitoring fee so that the principal can control the decisions taken by the agent. The higher the debt means the burden is also high, hence the agent is conservative and the investment taken is an investment with a low level of risk and ultimately cannot maximize the rate of return on investment (Jensen and Meckling1976).

Research conducted by Chang et al. (2014) also found something similar and showed different things about market performance. It was found that capital structure had a positive effect on market performance after crisis. This is due to the problem of underinvestment that previously occurred has now become more controlled after the financial crisis. Agents became more opportunistic in taking investment post financial crisis, so the investments taken are those with a large rate of return. The existence of a high rate of return affects the increasing performance of the firm.

In contrast to the research results conducted by Khodavandloo et al. (2017) and Chang et al. (2014), Hossain and Nguyen (2016) found that in the post-crisis period, a greater negative effect of capital structure was seen on firm performance compared to the crisis period. The major influencing factor in this research is the price of crude oil that experienced a slump post-crisis, causing a burden for the company to fulfill the legality. The decline in oil prices in the Hossain and Nguyen (2016) study is different from the conditions in this study, therefore the hypothesis was formed based on the research of Khodavandloo et al. (2017). Similar to the research of Khodavandloo et
al. (2017), the interest rates in Indonesia after the crisis also became more stable compared to during the crisis. Stable interest rates mean a more stabilized condition of firm cost of debt, thus the capital structure represented by debt is expected to have a negative effect on firm performance. Therefore, the hypothesis proposed is as follows:

**H2:** The negative effect of capital structure on firm performance in the post-crisis period is smaller than during the crisis.

This study tested the effect of capital structure on firm performance in times of pre-crisis, crisis, and post-crisis. Capital structure is represented by three variables: total debt to total assets (TDTA), short-term debt to total assets (STDTA), and long-term debt to total assets (LTDTA). Meanwhile, firm performance will be represented by four variables, namely return of asset ratio (ROA), return of equity (ROE) ratio, price to earnings ratio (PER), and Tobin’s Q ratio (TOBINS).

There are also two additional control variables, which are firm size (SIZE) and sales growth (SGROW). SIZE and SGROW are chosen because knowing sales growth and company size is sufficient to represent the calculation of the four dependent variables utilized in this research. In addition, this research also utilizes four independent variables with 13 years of coverage. However, the overall control variables here are intended to only support the main hypotheses, and not as the new concerned main focus of this study. Several similar previous studies conducted in Indonesia have also added these control variables in their research.

**METHODOLOGY**

**Research Model**

Referring to the framework above, below are the models and variable operationalization used in this study:

**Model 1.**

\[
\text{PERF}_{i,t} = \alpha_0 + \beta_1 \text{TDTA}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{SGROW}_{i,t} + \epsilon_{i,t}
\]

**Model 2.**

\[
\text{PERF}_{i,t} = \alpha_0 + \beta_1 \text{STDTA}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{SGROW}_{i,t} + \epsilon_{i,t}
\]

**Model 3.**

\[
\text{PERF}_{i,t} = \alpha_0 + \beta_1 \text{LTDTA}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{SGROW}_{i,t} + \epsilon_{i,t}
\]

The dependent variable PERF is measured by four proxies: ROA, ROE, PER, and TOBINS. Details of the variables used in the models explained in Table 1.

**RESULTS AND DISCUSSION**

**Population and Sample**

The population data used in this study are all companies listed on the Indonesian Stock Exchange (IDX) from 2004 to 2017 with the exception of companies engaged in the financial sector. Samples were collected by the purposive sampling method so that the data taken as samples were taken based on specified criteria. All data used in this study were obtained from Bloomberg data. The separation of the three crisis period groups is based on the 2008 Indonesian Economic Report Book issued by Bank Indonesia.

The following is a list of research sample acquisition (Table 2).

This study uses panel data, namely research observations involving various companies and time periods. The data used are unbalanced so that the number of observations will be different for each regression result.

**Statistical Results and Discussions**

Based on the results of descriptive statistics, it can be seen in Table 3 that the overall usage of TDTA debt in publicly listed companies in Indonesia was highest during the crisis period. When the increase in both types of debt was further examined, descriptive results showed an increase in STDTA proxy or short-term debt, which experienced
Table 1. Variable Operationalization

| No | Variables               | Proxies | Measurement                                           | Reference                      |
|----|-------------------------|---------|-------------------------------------------------------|--------------------------------|
|    | **Dependent Variables** |         |                                                       |                                |
|    | Accounting Performance  | PERF    | Measured by four proxies; ROA, ROE, PER, TOBINS       |                                |
| 1  | Accounting Performance  | ROA     | \( \frac{\text{Net Income}}{\text{Total Asset}} \)   | Khodavandloo et al. (2017)     |
| 2  | Accounting Performance  | ROE     | \( \frac{\text{Net Income} - \text{Preferred Dividend}}{\text{Total Equity}} \) | Khodavandloo et al. (2017)     |
| 3  | Market Performance      | PER     | \( \frac{\text{Price per Share}}{\text{Earnings per Share}} \) | Khodavandloo et al. (2017)     |
| 4  | Market Performance      | Tobin’s Q | \( \frac{\text{Market Cap. + Total Debt}}{\text{Total Asset}} \) | Zeitun and Tian (2007)         |

|    | **Independent Variables** |         |                                                       |                                |
|    | Capital Structure         | TDTA    | \( \frac{\text{Total Debt}}{\text{Total Asset}} \)   | Twairesh (2014)                |
| 1  | Capital Structure         | STDTA   | \( \frac{\text{Short – term Debt}}{\text{Total Asset}} \) | Twairesh (2014)                |
| 2  | Capital Structure         | LTDTA   | \( \frac{\text{Long – term Debt}}{\text{Total Asset}} \) | Twairesh (2014)                |

|    | **Control Variables**     |         |                                                       |                                |
|    | Firm Size                 | SIZE    | \( \ln (\text{Total Asset}) \)                       | Ramli et al. (2018)            |
| 1  | Sales Growth              | SGROW   | \( \frac{\text{Sales}_t - sales_{t(\ell-1)}}{sales_{t(\ell-1)}} \) | Chadha and Sharma (2015)       |

A significant increase during the crisis period. Descriptive result of LTDTA proxies show that companies tend to reduce long-term debt funding due to the crisis period interest rates increase according to the policy steps taken by Bank Indonesia during 2008.

Subsequently, ROA and ROE proxies produced ratios that increased compared to the pre-crisis period due to sales still showing an increase in sales growth during the crisis, as seen in Table 3. The impact of the Global Economic Crisis did not affect the entire industry but decreased the performance of companies, especially the trading industry. The increase in the ratio during the crisis period was also shown by one of the market performances, namely PER. As explained above, not all industries were affected by the global economic crisis, so it can be concluded that there are still many investors entrusting their investment even though crisis conditions might affect the firm’s performance. In contrast, market performance measured by Tobin’s Q proxy shows the highest firm performance was during the period after the crisis. This is because Indonesia is in a
Table 2. Research Sample Acquisition

| Period                | Public Firms | Financial Institutions | Total Observation |
|-----------------------|--------------|------------------------|-------------------|
| Full (2004-2017)      | 6.738        | (2.469)                | 4.269             |
| Pre-Crisis (2004-2007)| 1.521        | (652)                  | 869               |
| Crisis (2008-2009)    | 849          | (337)                  | 512               |
| Post-Crisis(2010-2017)| 4.368        | (1.480)                | 2.888             |

Table 3. Difference in Average Between Periods

| Variables  | Full | Pre-Crisis | Crisis | Post-Crisis |
|------------|------|------------|--------|-------------|
| TDTA       | 0.33 | 0.31       | 0.58   | 0.29        |
| STDTA      | 0.24 | 0.20       | 0.61   | 0.16        |
| LTDTA      | 0.20 | 0.19       | 0.19   | 0.20        |
| ROE        | 4.06 | 4.07       | 5.40   | 3.80        |
| ROA        | 7.33 | 7.37       | 8.51   | 7.11        |
| PER        | 115.99 | 67.31       | 197.23 | 116.62      |
| TOBINS     | 1.43 | 1.11       | 1.29   | 1.63        |
| LNSIZE     | 3.23 | 3.23       | 3.22   | 3.24        |
| GROW       | 1,254.90 | 797.12      | 536.86 | 1,538.53    |

TDTA = Total Debt to Total Asset, STDTA = Short Term Debt to Total Asset, LTDTA = Long Term Debt to Total Asset, ROA = Return on Asset, ROE = Return on Equity, PER = Price to Earnings Ratio, TOBINS = Tobin’s Q, LNSIZE = firm size, SGROW = sales growth.

period of economic recovery, so it can be seen in Table 3 that the average post-crisis sales growth is much higher than during the crisis period.

Lastly, the descriptive statistical results of the control variables indicate that the size of the company during the study period did not have a significant difference or tended to be close to the value. Whereas the proxy for overall sales growth for the period showed that the sample companies all experienced sales growth except those in the financial sector.

Subsequently, from the pre-crisis period section of Table 4, it can be seen that the independent variables were able to explain the dependent variables, shown by the result of F tests being below 0.05 during the pre-crisis period. Regression results show that Hypothesis 2a is proven when firm performance is measured by ROE. This is depicted by all capital structure variables, showing a negative significant relationship to firm performance measured by ROE during the pre-crisis period. The negative impact of capital structure on firm performance can be explained by the fact that firms are still unable to manage their capital structure to the point where benefits and costs are in equilibrium, as stated in the trade-off theory. The fact that the Indonesian Tax Regulation sets a certain cap for firms to benefit from the debt-tax shield can be one of the causes of the negative impact of debt utilization. Hypothesis 2a cannot be proven when performance is measured by using ROA, and Tobin’s Q for the regression result shows that the t-test is above 0.05. ROA and Tobin’s Q both used total assets which is proven in the descriptive statistics that total asset variance was largest in the pre-crisis period, hence the effect of capital structure on ROA and Tobin’s Q is not linear. Regression results between control variables and dependent variables in the pre-crisis period posit that firm size and sales growth positively affect firm performance. It is said that the greater the firm size and the greater the sales growth leads to a better firm performance.
### Table 4. Regression Results

| Independent Variables | Dependent Variables | Full Period | Pre-Crisis |
|-----------------------|---------------------|-------------|------------|
|                       | ROA                 | ROE         | PER        | TOBINS | ROA   | ROE   | PER   | TOBINS |
| TDTA                  | -1.02               | -3.30       | -2.38      | 0.07    | -0.07 | -0.96 | 0.10  | 0.00   |
| LNSIZE                | 9.59                | 21.37       | -21.05     | -8.59   | 6.79  | 271.90| -108.69| 1.26   |
|                      | (0.00)***           | (0.00)***   | 0.55       | (0.00)***| 0.14  | (0.05)***| 0.71  | (0.00)***|
| STDTA                 | 0.00                | 0.00       | -0.00      | 0.00    | 0.00  | 0.00  | -0.00 | 0.00   |
| LNSIZE                | -2.92               | 21.59       | 58.06      | 2.27    | 5.71  | 351.32| -107.44| 15.79  |
|                      | (0.01)***           | (0.00)***   | (0.09)*    | 0.43    | (0.04)***| 0.25  | (0.00)***|
| STDTA                 | 0.00                | 0.00       | 0.00       | 0.00    | 0.00  | 0.00  | -0.00 | 0.00   |
| LNSIZE                | 13.39               | -57.67      | -112.08    | -6.21   | -13.90| -1116.33| 403.59| -50.00 |
|                      | (0.00)***           | (0.00)***   | (0.09)*    | 0.09    | (0.00)***| 0.62  | (0.00)***|
| Dependent Variables   | Adj. R Sq.          | 0.10        | 0.03       | 0.00    | 0.02  | 0.09  | 0.00  | 0.01   |
| TDTA                  | -4.63               | -36.67      | -52.17     | 0.65    | 9.92  | -52.36| -46.48| -0.19  |
| LNSIZE                | -9.33               | -26.66      | -21.71     | 1.29    | -80.41| 86.74 | -230.81| 13.98  |
|                      | (0.00)***           | (0.00)***   | (0.09)*    | (0.01)***| 0.63  | (0.01)***| 0.52  | 0.62   |
| STDTA                 | 0.72                | 0.51        | 0.80       | 0.00***  | 0.44  | (0.1)* | 0.64  | (0.00)***|
| STDTA                 | 0.00                | 0.00       | -0.00      | 0.00    | 0.00  | 0.00  | -1.40 | 0.00   |
| LNSIZE                | 34.64               | 100.72      | 159.27     | -3.07   | 262.65| -264.48| 1970.28| -44.19 |
|                      | (0.00)***           | (0.00)***   | (0.09)*    | (0.00)***| 0.50  | (0.00)***| 0.17  | (0.01)***|
| STDTA                 | 0.00                | 0.00       | 0.00       | 0.00    | 0.00  | 0.00  | 0.55  | 0.00   |
| STDTA                 | 0.01                | 0.02       | 0.00       | 0.02    | 0.01  | 0.13  | 0.06  | 0.06   |
| LNSIZE                | -0.15               | -0.37       | -0.28      | 0.00    | -8.29 | -24.54| -187.46| 0.52   |
| LNDTA                 | 10.52               | 16.00       | -129.56    | 25.78   | 40.70 | -45.03| 2015.42| -31.58 |
| STDTA                 | -25.40              | -32.21      | 456.30     | -82.20  | -125.76| 160.14| -6438.31| 103.73 |
| STDTA                 | 0.00                | 0.01        | 0.04       | 0.00    | 0.00  | 0.08  | 0.31  | 0.00   |
| LNSIZE                | 0.16                | 0.05        | 0.08       | 0.17    | 0.15  | 0.02  | 0.01  | 0.11   |
| STDTA                 | -55.94              | -6.86       | -17.00     | -1.60   | -14.77| -24.82| -13.76| 0.80   |
| LNSIZE                | 233.60              | 11.08       | -33.32     | 28.62   | 29.00 | 267.97| 2095.94| 1.13   |
| STDTA                 | 0.00                | 0.00        | -0.00      | 0.00    | 0.00  | 0.00  | 0.03  | 0.00   |
| STDTA                 | -742.44             | 25.97       | 135.14     | -91.32  | -19.20| -76.42| -6755.98| -2.30  |
| LNSIZE                | 0.04                | 0.83        | 0.23       | 0.00    | 0.00  | 0.01  | 0.26  | 0.00   |
| STDTA                 | 0.11                | 0.00        | 0.01       | 0.25    | 0.21  | 0.03  | 0.02  | 0.01   |
| STDTA                 | -12.45              | -45.33      | -13.80     | 0.71    | -4.20 | -21.54| -75.44| 0.72   |
| LNSIZE                | 10.08               | 10.55       | -40.34     | 33.21   | 11.73 | 26.80 | -13.35| 1.00   |
| STDTA                 | -0.00               | -0.00       | -0.00      | 0.00    | 0.00  | 0.00  | 0.03  | 0.00   |
| STDTA                 | -26.98              | -18.09      | 159.02     | -106.77| -34.06| -76.19| 144.49| -1.92  |
| LNSIZE                | 0.24                | 0.68        | 0.64       | (0.00)***| (0.04)***| (0.04)***| (0.04)***| 0.32   |
| STDTA                 | -26.98              | -18.09      | 159.02     | -106.77| -34.06| -76.19| 144.49| -1.92  |
| LNSIZE                | 0.08                | 0.46        | 0.01       | 0.18    | 0.03  | 0.03  | 0.00  | 0.03   |

*** significant at 1%, ** significant at 5%, * significant at 10%

TDTA = Total Debt to Total Asset, STDTA = Short Term Debt to Total Asset, LNDTA = Long Term Debt to Total Asset, ROA = Return on Asset, ROE = Return on Equity, PER = Price to Earnings Ratio, TOBINS = Tobin’s Q, LNSIZE = firm size, SGROW = sales growth.
The model regression test results for the crisis period showed that a higher utilization of debt in the capital structure will have a significant negative effect on firm performance as measured using accounting performance. In the crisis period section of Table 4, the results of the F and t-test of the overall capital structure variable show a number below 0.05, which means that the capital structure variable had a significant effect on firm performance through the ROA and ROE proxy. The results of other model regression tests that produce STDTA proxies have a negative effect on firm performance by using Tobin's Q proxy. Therefore, it can be interpreted that increasing the usage of debt in capital structure during a crisis period will reduce firm performance, or Hypothesis 2b is accepted. Moreover, this result is also supported by the regression depicted in Table 5. For this regression test, the new variables of pretdta, prestdta, and prelttdta are generated, measured by the pre-crisis dummy (pre-crisis = 1; crisis = 0), and multiplied by the value of tdta, stdta, and ltdta, respectively. The terms of pretdta, prestdta, and prelttdta are created to test the null hypothesis H0: βprecrisis = βcrisis. Most of the results of pretdta, prestdta, and prelttdta in Table 5 showed significant results and confirms the
test comparison between the regression test of the pre-crisis and crisis period in Table 4 where H2b is accepted. Regression test results from the firm size control variable showed a significant positive effect on firm performance with ROA and Tobin’s Q proxy. Sales growth control variables in the crisis period showed a significant negative effect on company performance with ROA and Tobin's Q proxy. The results of the other control variable regression resulted in five of the nine results of sales growth regressions that did not have a significant effect on firm performance.

Moreover, in accordance with the results of the regression model testing in the crisis period, capital structure variables have a significant negative effect on firm performance during the post-crisis period as measured through the ROA proxy. For regression model testing using the ROE proxy, only the STDTA and LTDTA proxies have a significant negative effect on firm performance. This study found that Hypothesis 2c was accepted because it could be proven by comparing the results of the regression test of the highly significant negative influence in the crisis period.

### Table 6. Additional Regression Results

| Independent Variables | Dependent Variables |
|-----------------------|---------------------|
|                       | ROA     | ROE     | TOBINS  |
| POSTCRISIS            | 2.66    | -3.26   | 0.74    |
|                       | (0.00)**| (0.00)**|         |
| TDTA                  | 5.39    | -29.88  | 0.97    |
|                       | (0.00)**| (0.06)* |         |
| POSTTDTA              | -10.51  | -5.91   | -0.17   |
|                       | (0.00)**|         |         |
| Coefficient           | 2.61    | 18.55   | 0.65    |
| Prob>F                | 0.00    | 0.00    | 0.00    |
| Adj. R Sq.            | 0.65    | 0.01    | 0.66    |
|                       |         |         |         |
| POSTCRISIS            | 3.40    | 0.44    | 0.63    |
|                       | (0.00)**|         |         |
| STDTA                 | 5.31    | -8.77   | 0.97    |
|                       | (0.00)**|         |         |
| POSTSTDTA             | -20.00  | -18.09  | -0.08   |
|                       | (0.00)**|         |         |
| Coefficient           | 2.90    | 11.05   | 0.74    |
| Prob>F                | 0.00    | 0.09    | 0.00    |
| Adj. R Sq.            | 0.77    | 0.01    | 0.77    |
|                       |         |         |         |
| POSTCRISIS            | -0.18   | -5.19   | 0.77    |
|                       | (0.05)**| (0.00)**| (0.00)**|
| LTDTA                 | 0.83    | (0.06)* | (0.00)**|
|                       |         |         |         |
| POSTLTDTA             | -6.36   | -50.78  | 1.30    |
|                       | (0.05)**| (0.00)**| (0.00)**|
| Coefficient           | 1.69    | 21.07   | -0.54   |
| Prob>F                | 0.56    | 0.20    | 0.15    |
| Adj. R Sq.            | 4.40    | 17.24   | 0.59    |
|                       | 0.03    | 0.02    | 0.03    |

*** significant at 1%, ** significant at 5%, * significant at 10%

POSTCRISIS = Dummy for Period (1=Post-Crisis, 0=Crisis), TDTA = Total Debt to Total Asset, POSTTDTA = POSTCRISIS*TDTA, STDTA = Short Term Debt to Total Asset, POSTSTDTA = POSTCRISIS*STDTA, LTDTA = Long Term Debt to Total Asset, POSTLTDTA = POSTCRISIS*LTDTA, ROA = Return on Asset, ROE = Return on Equity, TOBINS = Tobin’s Q
Hypothesis 2c test results are also supported by the results of regression models through market performance, which is Tobin’s Q. In the post-crisis period, the utilization of debt in capital structure has a significant positive effect on firm performance measured by market performance. Additionally, this result is also confirmed from the regression depicted in Table 6. Regarding these regression tests, the new variables of posttdta, poststdta, and postltdta were created, measured by the postcrisis dummy (postcrisis = 1; crisis = 0) and multiplied by the values of tdta, stdta, and ltdta, respectively. The terms posttdta, poststdta, and postltdta examined the null hypothesis H0: βpostcrisis = βcrisis. Most of the results of posttdta, poststdta, and postltdta in Table 6 showed significant results and confirms the test comparison between the regression test of the pre-crisis and crisis periods in Table 4 where H2c is accepted. For the control variable regression results, company size and most sales growth showed a significant positive effect on firm performance measured through accounting and market performance. Sales growth shows that six of the nine results of the proxy of sales growth regression has no influence on firm performance. This can be interpreted that sales growth in the post-crisis period was not relevant in improving firm performance.

The first and second hypotheses in this research are proven. Most of the regression results found that the utilization of debt will negatively affect accounting performance. The results of this study are in accordance with previous studies, where there is a negative influence of capital structure on firm performance. In the pre-crisis period, the use of non-optimal debt caused the benefits received to not commensurate with the number of costs incurred. Meanwhile, in the crisis period the impact of high debt use had a greater negative effect on firm performance than before the crisis. This is evidenced by slowing sales growth in addition to an increase in interest rates during the crisis period. For the post-crisis period, the use of debt had a significant positive effect on market performance. Moreover, the effect of debt use on accounting performance in the post-crisis period caused a significant negative effect on the use of smaller debt compared to during the crisis period.

**CONCLUSIONS, IMPLICATIONS, AND LIMITATIONS**

This research is intended to investigate the effect of capital structure on firm performance in Indonesia. It also aims to compare its magnitude during the periods of pre-crisis, crisis, and post-crisis of the 2008 Global Financial Crisis. The years for the crisis periods are set based on Laporan Buku Perekonomian 2008 issued by Bank Indonesia in 2009. This research compares the effect of capital structure management on three periods, where 2004-2007 is set as the pre-crisis period, 2008 and 2009 is set as the crisis period, and 2010-2017 is set as the post-crisis period.

This research utilizes two performance approaches acting as dependent variables comprising of accounting performance which uses ROA and ROE, and market performance which uses PER and Tobin’s Q as the proxies. In conclusion, capital structure significantly and negatively affects accounting performance. This result supports several studies conducted by Ahmad (2014); Ashraf et al. (2017); Chang et al. (2014); Dawar (2014); Hussain dan Nguyen (2016); Khan (2012); Le dan Phan (2017); Salim dan Yadav (2012); Seetanah et al. (2014); Sheikh dan Wang (2013); Twairesh (2014) dan Vâtuvi (2015) which posits that the more debt a company has, the more firm performance will decrease because the debt-tax shield obtained is insufficient to cover interest costs. Indonesia has a regulation that
limits the deductibility of interest expenses for the calculation of fiscal profit. Based on the Regulation of the Minister of Finance of Indonesia, which is outlined in Peraturan Menteri Keuangan (PMK) 169 of 2015, the rule essentially limits the amount of tax-deductible borrowing costs arising from debt to a maximum Debt to Equity Ratio of 4:1. Any excess of the debt interest expense incurred will be accounted for as a non-deductible expense so that firms will not obtain any tax benefit from the utilization of debt. This negative impact is further supported by the fact that the majority of debt is used to fulfill working capital needs rather than investment in capital that brings more economic benefit to the firm.

In the pre-crisis period, the utilization of debt leads to a decrease in firm performance measured by ROE. This is caused by the costs incurred by the firm that are higher compared to the benefits obtained from the utilization of debt. Whereas if ROA and Tobin’s Q are used as the proxy, capital structure does not affect firm performance. This can be explained by the large variation in total asset data that causes the relationship to not be linear. During the crisis period, the worsened off capital market condition causes firms to opt for debt in terms of financing, shown by the increase in leverage ratio during the crisis. According to the pecking order theory, firms will be faced with a higher risk of interest rates by using debt compared to internal financing, so firms will be burdened by a higher interest cost. Firms not only have to be able to meet their obligation from the utilization of debt, but they should also allocate funds for operational purposes. This study found that the usage of debt during crisis poses a greater impact on the deterioration of firm performance.

Diversely, in the post-crisis period, it is found that firms tend to show an increase in performance. The decrease in debt utilization is shown by the leverage ratio in the post-crisis period, which is lower than that of the crisis period, which in turn causes firms to have a freer cash flow. More free cash flow means that the management of the firm can opportunistically make investment decisions so that investments yield high returns that can be useful in increasing firm performance. Regression results show that debt utilization in the post-crisis period poses a positive impact on firm performance measured by market performance. When firm performance is measured by accounting performance, the utilization of debt in the period after a crisis poses an inferior negative impact on firm performance compared to during a crisis period. A principal tends to use more debt to control agents as agents are being more opportunistic. In line with the agency theory, the usage of debt will encourage agents to act conservatively for they should take the high-interest cost of debt into account, while the decision taken at the same time does not yield profitable returns to the principal, causing firm performance to not be maximized.

The limitation of this study is that it does not distinguish between the types of debt currencies in the three periods (before the crisis, during the crisis and after the crisis) in Indonesia. Further research is suggested in examining this particular topic of the influence of capital structure management on company performance in three crisis time periods in Indonesia by comparing the types of debt currencies due to hedging elements.

It is expected that this research can be beneficial for firm management to optimally manage their firm’s capital structure and anticipate the consequence of the overutilization of debt during the crisis period. This study manages to prove that the utilization of debt during crisis leads to the deterioration of firm performance, the negative impact of capital structure on performance is the largest compared to the pre-crisis and post-crisis periods. Moreover, this research is useful as a perusal for creditors in issuing credit, where
creditors can gain another perspective on assessing prospective debtors’ ability to pay to prevent an unexpected hike in NPL ratio. It is also expected that this research will come in handy for investors as a perusal prior to opting to revoke investment. Investors are expected to not revoke their investment in a hurry in an event of a crisis happening for it is proven that the utilization of debt leads to the downturn in firm performance, which is even worse than during the pre-crisis and post-crisis periods, which in turn will result in a decline in returns for shareholders.

REFERENCES

Abor, J. 2005. The Effect of Capital Structure on Profitability: an Empirical Analysis of Listed Firms in Ghana. The Journal of Risk Finance, 6 (5), 438-445.

Ahmad, T. 2014. Impact of Capital Structure on Profitability: An Empirical Analysis of Cement Sector of Pakistan. Research of Journal of Finance and Accounting, 5 (17), 49-54.

Al-Taani, K. 2013. The relationship between capital structure and firm performance: evidence from Jordan. Journal of Finance and Accounting, 1 (3), 41-45.

Ashraf, M., A. Ameen, and K. Shahzadi. 2017. The Impact of Capital Structure on Firm Profitability: A Case of Cement Industry of Pakistan. International Journal of Business and Social Science, 8 (4), 140-147.

Bank Indonesia. 2003. Buku Laporan Perekonomian Indonesia 2008. Diakses pada tanggal 5 November 2018, https://www.bi.go.id/id/publikasi/laporan-tahunan/perekonomian/Pages/lpi_2008.aspx

Bodhoo, R. 2009. Capital Structure and Ownership Structure: A Review of Literature. The Journal of on Line Education, 56 (2), 1-8.

Chadha, S., and A.K. Sharma. (2015). Capital Structure and Firm Performance: Empirical Evidence from India. Vision, 19 (4), 295-302.

Chang, F.M., Y. Wang, N.R. Lee, and D.T. La. 2014. Capital Structure Decisions and Firm Performance of Vietnamese SOEs. Asian Economic and Financial Review, 4 (11), 1545-1563.

Chowdhury, A., and S.P. Chowdhury. 2010. Impact of capital structure on firm’s value: Evidence from Bangladesh. Business and Economic Horizons, 3 (3), 111-122.

Darajati, T. S., dan D. D. Hartomo. 2015. Struktur Modal Sektor Perbankan Pada Saat Krisis Keuangan. Jurnal Bisnis dan Manajemen, 15 (1), 17-32.

Dawar, V. 2014. Agency Theory, Capital Structure and Firm Performance: Some Indian Evidence. Managerial Finance, 40 (12), 1190-1206.

Hossain, A.T., and D. X. Nguyen. 2016. Capital Structure, Firm Performance and the Recent Financial Crisis. Journal of Accounting and Finance, 16 (1), 76-79.

Imadudin, Z., F. Swandari, and Redawati. 2014. Pengaruh Struktur Modal Terhadap Kinerja Perusahaan. Jurnal Wawasan Manajemen, 2 (1), 81-96.

Jensen, M.C., and W. H. Meckling, 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3 (4), 305-360.

Jiahui, M.A. 2015. Relationship Between Capital Structure and Firm Performance, Evidence From Growth Enterprise Market in China. Management Science and Engineering, 9 (1), 45-49.
Khan, A.G. 2012. The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan. *International Journal of Accounting and Financial Reporting*, 2 (1), 245-262.

Khodavandloo, M., Z. Zakaria, and A. M. Nasir. 2017. Capital Structure and Firm Performance During Global Financial Crisis. *International Journal of Economics and Financial Issues*, 7(4), 498-506.

Le, T.P.V., and T. B. N. Phan. 2017. Capital Structure and Firm Performance: Empirical Evidence from a Small Transition Country. *Research in International Business and Finance*, 42, 710-726.

Modigliani, F., and M. H. Miller. 1958. The Cost of Capital, Corporation Finance and Theory of Investment. *The American Economic Review*, 48(3), 261-297.

Modigliani, F., and M. H. Miller. 1963. Corporate Income Taxes and the Cost of Capital: A Correction. *The American Economic Review*, 53(3), 433-443.

Myers, S.C., and N. S. Majluf. 1984. Corporate Financing and Investment Decisions when Firms have Information that Investors do not have. *Journal of Financial Economics*, 13(2), 187-221.

Ofek, E. 1993. "Capital Structure and Firm Response to Poor Performance: An Empirical Analysis". *Journal of Financial Economics*, 34(1), 3-30.

Ramli, N.A, H. Latan, and G. T. Solovida. 2018. Determinants of capital structure and firm financial performance-A PLS-SEM approach: Evidence from Malaysia and Indonesia. *The Quarterly Review of Economics and Finance*, 71, 148-160.

Salim, M., and R. Yadav. 2012. Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies. *Procedia-Social and Behavioral Sciences*, 65, 155-166.

Seetah, B., K. Seetah, K. Appadu, and K. Padachi. 2014. Capital Structure and Firm Performance: Evidence from an Emerging Economy. *The Business and Management Review*, 4(4), 185-196.

Sheikh, N.A., and Z. Wang. 2013. The Impact of Capital Structure on Performance: An Empirical Study on Non-financial Listed Firms in Pakistan. *International Journal of Commerce and Management*, 23(4), 354-368.

Sugema, I. 2012. Krisis Keuangan Global 2008-2009 dan Implikasinya pada Perekonomian Indonesia. *Jurnal Ilmu Pertanian Indonesia*, 17(3), 145-152.

Tan, S. L., and N.I.N.A. Hamid. 2014. Capital Structure and Performance of Malaysia Plantation Sector. *Journal of Advance Research in Social and Behavioural Sciences*, 3(1), 34-45.

Twaresh, A.E.M. 2014. The Impact of Capital Structure on Firm Performance Evidence from Saudi Arabia. *Journal of Applied Finance and Banking*, 4(2), 183-193.

Vătăvu, S. 2015. The Impact of Capital Structure on Financial Performance in Romanian Listed Companies. *Procedia Economics and Finance*, 32(2015), 1314-1322.

Zeitun, R., and G. G. Tian. 2007. Capital Structure and Corporate Performance: Evidence from Jordan. *Australasian Accounting, Business and Finance Journal*, 1(4), 40-61.