Leverage and firm characteristics what matter? An investigation of firms listed in the Indonesian Stock Exchange

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Abstract

This paper investigates the relevant variables of firm financial leverage using a sample of 10 years of 218 firms data from Indonesian Stock Exchange which is one of the most performance stock markets in the period after the financial crisis 2008-2009.

Introduction

How should firms use internal resources (retained earnings) or external resources (debt and stock issued) for maximizing shareholders wealth is always interesting topics for corporate finance research. Capital structure refers to how firm finance its business with long term debt, net equity, and preferred stock (Weston & Brigham, 1979; D’Mello et al., 2018). Financial leverage is the proportion of long term capital which is represented by long term debt (Murphy, 1968). The firm leverage depends on how much long term debt compare to its long term capital.

Murphy (1968); Cooper and Lambertides (2018); Ahmed and Elshandidy (2018) argued that the return on equity, the earnings and dividends growth and the market value of the firm’s common stock of the firm determine the firm leverage. The higher of the rate of return on equity will make more rapid growth of earnings and dividends and the higher the common stock value. When comparing two firms with the same of return on equity, the firm with the greater proportion of debt to the total capital will has higher return of the capital.

Profitability positively affect the value of equity. Firms take actions to offset between its debts and equities. Firms will add its debt and repurchase equity when profitability increase or repay its debt and issue equity when profitability decrease. It can be predicted that when the leverage ratio decreases it will make the profitability increases or profitability will affect negatively to firm leverage (Frank and Goyal, 2009; Jermias and Yigit 2013; Ahmed and Elshandidy 2018).

Financial crisis occurred in the year 2008 when world stock indices decline significantly as compared to the year 2007: Nikkei (Japan) 225 declined by 53.09%; Dow Jones (New York, USA) declined by 36.76%; FTSE 100 (London England) declined by 29.43%; AORD (Australia) declined by 45.25%; STI (Singapore) declined by 45.06%; SSE (Shanghai, China) declined by 38.08%; and JKSE (Indonesia) declined by 51.18%. After the financial crisis, the Indonesian Stock Exchange (JKSE) composite index increased significantly and became one of the best performing stock exchange compare to other countries’ stock markets. Indonesian Stock Exchange index increased almost four times as much as the year 2008 index which it was more than other countries indices increased. Table 1. shows how sample word indices moved during and after the financial crisis period.
The stock market index reflects the average stock price of firms listed in the stock market. Firm stock prices as the firm’s performance measurement are associated with firms leverage decision. Stock prices can be considered as the important variable in the explanation of the capital structure of the firm as studied by Hull (1999), Maestro and Pindado (2005), Jermias and Yigit (2013); Islama and Khandaker 2015; Vithessonthi and Tongurai 2015; Cole et al., 2015; Sorana (2016); Carr and Wu (2017); Yigit (2017) Jermias and Yigit (2018). The correlation of stock price and financial leverage is consistent with the trade off theory which argues that a firm should chooses how much its operation will be financed by debt or its equity depending on its costs and benefits, and the pecking order theory which argues that firms will prefer the internal financing with its own resources before adding the external sources of fund from debt and the last is from the equity.

This study is to investigate how stock prices have important role of financial leverage and firm capital structure according to the previous studies especially with a sample of firms listed in Indonesian Stock Exchange which is one of the best performing stock exchange compare to other countries’ stock markets. The stock index as the relative average of all firms’ stock prices listed in Indonesian Stock Exchange have increased significantly almost four times as much as the year 2008. The question is whether the stock prices in Indonesian Stock Exchange could also explain firm capital structure as previous studies by Hull (1999), Maestro and Pindado (2005), Jermias and Yigit (2013); Islama and Khandaker 2015; Vithessonthi and Tongurai 2015; Cole et al., 2015; Sorana (2016); Carr and Wu (2017); Yigit (2017) Jermias and Yigit (2018)?

To answer the question, this study uses market leverage which uses stock price as a component to determine total market value as suggest by Welch (2004) rather than uses book value of equity to test how are the associations to industry median leverage, tangibility, profits, firm size, and market-to-book assets ratio as reliable variables of firm leverages according the previous studies are also occurred in the context of firms listed in Indonesian Stock Exchange. The results of this study is to provide useful insight for other researchers and practitioners about the other factors regarding the association of industry median leverage, tangibility, profits, firm size, and market-to-book assets ratio and the association to firm leverage of firms listed in Indonesian Stock Exchange. The rest of this article is structured as follows: Section 2 explores the presentation of literature review and hypothesis. Section 3 describes the data and methodology; section 4 reports the results and discussions; conclusions are reported in the section 5.

**Literatures review and hypothesis**

The decision of firm managers on how much to borrow can be explained by trade-off theory and pecking order theory, but the two theories have contradictive predictions. The trade-off theory (Kraus and Litzenberger, 1973; Islama and Khandaker 2015; Dang et al., 2018) predicts that leverage positively correlated to firm size, tangible assets, and profitability, but has a negative association with growth. The theory argues that decision making of capital structure, managers should consider the trade-off between the benefits of tax deduction from the debt and the expected cost of bankruptcy. But, the pecking order theory (Myers and Majluf, 1984; Cole et al., 2015; Kahraman and Tookes 2017) predicts that firm profitability negatively affects the firm leverage. The theory argues that firms with more more profits and retained earnings tend to use their own funds to invest in the profitable projects and tend to used external sources for invest in less less projects. But, firms with less profits and retained earnings tend to use more debt to finance their project because of the lack of internal funds.

Cheng and Tzeng (2014) used a sample of 645 firms listed in the Taiwan Stock Exchange (TSE) during the period of 2000 to 2009. The study is to estimate the relationship between firm leverage, certain variables and firm market values. They found that, first, firm leverage is positively affected by the firm value, it means that the higher firm leverage is the higher firm value. Second, financial quality of the firm (in term of Z-scores), firm growth, and corporate tax rates affect positively to firm leverage. Third, firm value, firm’s
free cash flow, firm’s non-debt tax rate, and inflation rate negatively affect to firm leverage. Finally, firm leverage can also have positive affect on firm value when firm which has a higher free cash flow, a higher corporate tax rate or higher inflation rate can take advantage of the opportunities. This result provides firms with the useful insight for decision making in debt to maximize firms’ values.

Based on the pecking order theory proposed by Myers and Majluf (1984), Baker (2001) investigated the effect of financial leverage on industry profitability. They used leverages measured inversely as the ratio of equity to total assets. The result is that profitability affects negatively to firm leverage.

Kim and Burnie (2002); Ahmed and Elshandidy (2018) argued that firm size positively affect return on assets and negatively affect firm leverage. It means that the larger firms size, the higher return on assets and lower firm leverage. Small firms tend to have lower on assets and higher firm leverage. When economic is in good conditions, small firms tend to be well perform. But, when economic in worse condition, small firms will suffer more and tend to be worse performance compare to large firms.

Jermias and Yigit (2013); Tsuruta (2014) Vithessonthi and Tongurai (2015) investigated how small businesses with highly leverage finance their investment opportunities and the effect of the small businesses’ leverage to their firm performance. They find, first, the small business with highly leverage tend to have less trade payables to finance their investment opportunities. Second, the small business with highly leverage tend to sell less more receivables to get cash to invest for growth opportunities. Third, firms with higher leverage tend to enjoy good financial performance which are higher sales growth and profitability compared to low leverage firms.

Using a large sample from 37 countries, Oztekin (2015) investigates capital structures and the variables which affect firm leverage. The result indicates that firm size, tangibility, industry leverage, profits, and inflation have close relationship with firm leverage. The result also shows that the quality of countries’ institutions also affects the firms’ leverage and the adjustment speed toward target leverage. The quality of institution affects positively the leverage adjustment. It is means that the higher quality of the institution tends to make faster leverage adjustments. Firms in the countries with tighter regulations to protect more debt holders than the stockholders, the firm leverage tend to be higher.

The other studies concerning the capital structure also used several firm variables, such as size, profitability, and the tangibility of assets (Anderloni and Tanda, 2014; Cole et al., 2015; Sorana 2016; Bai et al., 2019). Rajan and Zingales (1995) investigated the determinants of capital structure choice by analyzing the financial decision in public firms in G-7 countries using asset tangibility, market to book ratio, size, and profitability.

What factors affecting to firm leverage have been done by Krishnan and Moyer (1996), Ozkan (2001), Handoo and Sharma (2014), Anuara and Chin (2015); Abdul and Jubair (2017). Krishnan and Moyer (1996) find that past profitability being the major determinant of leverage, firm size and growth also appear to be significant variables in explaining capital structure variations. Ozkan (2001); Adrian and Shin (2010); Cole et al., 2015; Sorana (2016); Abdul and Jubair (2017) Dang et al., (2018) argued that factors affecting capital structure are firm size, liquidity, growth, profitability. Chen et. al (2014) find that large firms favor debt financing while profitable firms rely more on internal capital accumulation. Handoo and Sharma (2014) revealed that firm profitability, growth, asset tangibility, size, cost of debt, debt serving capacity have a significant effect on firm leverage. Adrian and Shin (2010); Anuara and Chin (2015) Lotfaliei (2018) revealed that factors contributing to leverage which focus on equity ratio are firm growth, tangibility, profitability, size, liquidity, and firm age.

Frank and Goyal (2009) argued that there are certain variables which affect firm leverage there are industry median leverage; asset tangibility; firm profitability; firm size; market to book assets ratio. The median of firm industry leverage will positively affect firm leverage. The tangibility of assets will positively affect firm leverage. Profitability will negatively affect firm leverage. Firm size will positively affect firm leverage. Market-to-book ratio will negatively affect firm leverage.

This study is to test factors which may affect on leverage proposed above by Frank and Goyal (2009) and also
proposed by Ozkan (2001), Handoo and Sharma (2014), Anuara and Chin (2015) Bai et al., (2019); Moradi and Paulet (2019) i.e. profitability, size, and market-to-book assets ratio in Indonesian Stock Exchange which is very high increasing index after financial crisis 2008. A further test also conducts to proof that industry median leverage, tangibility as suggestions for further study by Frank and Goyal (2009) may have a significant effect on firm leverage.

**Industry median and firm leverage**

Firms in the same industry sectors produce and earn revenues from selling similar goods or services, need similar resources, and operate in a similar business environment. The business risks are also similar so that can be predicted that the financial leverages are also similar. Firms in industries in which the median firm has high leverage tend to have high leverage. The industry where a firm operates its business affects the firm capital structure or financial leverage. Mc. Kay and Phillips (2005) in their study found that financial leverage is higher and less dispersed in concentrated industries. Strebulaev and Yang (2013); Cole et al., (2015); Oztekin (2015); Sorana (2016); Abdul and Jubair (2017) finds that a firm's capital structure reflects the institutional environment in which it operates. Frank and Goyal (2009) argued that median industry leverage has a positive effect on firm leverage within the industry.

**Tangibility of assets and firm leverage**

To borrow money from outside, the firm needs assets to guarantee its debts. The assets consist of tangible and intangible assets. Tangible assets, such as property, plant, and equipment, are easier for outsiders to value than intangibles, such as the value of goodwill from an acquisition, lowers expected distress costs. More tangible assets are easier to predict high-risk assets for low-risk ones. The firm with more tangible assets can get debts easier than the firm with less tangible assets. Firms that have more tangible assets tend to have higher leverage. Antaniou et.al (2008) found that the leverage ratio is positively affected by the tangibility of assets and the size of the firm. Hikmet et. al (2011) also find that tangibility positively affects total debt. Other previous studies of leverage also show positive associations between tangibility of assets to firm leverage (Rajan and Zingales, 1995; Frank and Goyal, 2009; Anderloni and Tanda, 2014; Handoo and Sharma, 2014; Anuara and Chin (2015); Oztekin, 2015).

**Profitability and firm leverage**

The pecking order theory, when firms need funds to invest they will consider the cost of financing among using internal sources, debt, and stock issued. Firms tend to finance their investment by using internal sources as the first priority, then use debt when their internal funds are unavailable, and at the last resort they will issue stocks to public. Consistent with the pecking order theory, profitability affects negatively on firm leverage. Firms that have more profits tend to have lower leverage. Previous studies show a negative association between profitability and firm leverages as the study of Krishnan and Moyer (1996), Baker (2001), Chen et. al (2014), Ozkan (2001), Oztekin (2015), Frank and Goyal (2009), Anderloni and Tanda (2014), Handoo and Sharma (2014), Anuara and Chin (2015); Lotfaliei (2018) Bai et al., (2019).

**Firm size and firm leverage**

Larger size firms and more diversified have lower risk to be default. Firms with better reputation in debt markets and older firms have lower debt related agency costs. As a consequence, the trade off theory argues that firms which more mature tend to have relatively more debt (Strebulaev and Yang 2013; Moradi and Paulet 2019; Huang and Shang 2019). The pecking order theory predicts that the larger firms in terms of firm total assets tend to higher leverage. They larger firms are better known so that they have more alternative to get funds with more advantage from external sources. Firm size positively affects firm leverage as in previous study by Ozkan (2001), Kim and Burnie (2002), Frank and Goyal (2009), Anderloni and Tanda, 2014, Chen et. al (2014), Cheng and Tzeng (2014), Handoo and Sharma (2014), Tsuruta (2014), Anuara and Chin (2015); Kahrama, and Tookes (2017) Dang et al., (2018); Lotfaliei (2018); D'Mello et al., 2018; Bai et al., (2019).

**Growth and firm leverage**

According to the trade off theory, firms will consider between costs and benefits when borrowing funds to
make optimal leverage ratio. The costs of debt are interest expenses and the costs of financial distress. The benefits of borrowing are debt tax shields and the agency benefits. Firms with higher market-to-book ratios tend to preserve low target leverage ratio because they have higher opportunities to growth. Firms with lower market-to-book ratios tend to borrowing more because the benefits from borrowing exceed the benefits from issuing additional firm stocks. Firms that have a higher growth opportunity as measured by market-to-book ratio tend to have lower leverage. Previous studies show a negative association between firm growth and firm leverage as in the studies of Rajan and Zingales (1995), Krishnan and Moyer (1996), Ozkan (2001), Frank and Goyal (2009), Cheng and Tzeng (2014), Handoo and Sharma (2014), Islama Khandaker (2015), Anuara and Chin (2015); Kim 2016; Bai et al., (2019).

Combining the arguments presented above, we arrive at the following testable hypotheses:

$H_1$. The median of firm industry leverage will positively affect firm leverage

$H_2$. The tangibility of assets will positively affect firm leverage

$H_3$. Profitability will negatively affect firm leverage

$H_4$. Firm size will positively affect firm leverage

$H_5$. Market-to-book ratio will negatively affect firm leverage

**Data and Methodology**

There are empirical definitions of the firm leverage, i.e. the book leverage and the market leverage. Book leverage is defined as the ratio of total assets to book equity, while market leverage is defined as the ratio of enterprise value (total assets - book equity + market equity) to market equity. Welch (2004) argues that the book value of equity is used to balance the left-hand side and the right-hand side of the balance sheet rather than a managerially relevant number. This study focuses on the ratio of total debt to market value of assets (TDM). Debt can be defined as long-term or total debt, and it can be defined to include accounts payable or all liabilities.

Using a sample of 2,180 Indonesian firms among firms listing in Indonesian Stock Exchange for a relatively extended period, from 2007 to 2016, we study how reliable factors concerning firm leverages which are industry median leverage, tangibility, profits, firm size, and market-to-book assets ratio. As used in the previous study by Frank and Goyal (2009), this study use firm leverage as total debt to the market value of assets (TDM). Where TDM determined by total debt (debt in current liabilities + long-term debt) divide by the market value of assets (MVA) and MVA is the sum of the market value of equity (price-close × shares outstanding) + debt in current liabilities + long-term debt + preferred-liquidation value - deferred taxes and investment tax credit.

Factors which are reliable to firm leverage used by the previous study are:

Industry median leverage – This study uses the statistical median of each firm total debt/market value of assets (TDM) which is used in the previous study by Frank and Goyal (2009),

Industry Median Leverage (MEDLEV) = Median[\(\frac{\text{Total Short Term Debt+Total Long Term Debt}}{\text{Total Market Value}}\)] \ldots (1)

Firm in the industry which is the median of leverage is higher tends has higher leverage than firm in the industry which is less median of leverage. This study uses linear regression to test the hypothesis with firm leverage as the independent variable and median industry leverage as the dependent variable,

\[\text{LEV}_i = \alpha + \beta \text{MEDLEV}_i + \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \text{(2)}\]

Tangibility – This study uses tangibility as used by the previous study which is total values of tangible fixed assets as the proportion to firm total assets,
Tangibility Asset (TANG) = \frac{\text{Total Tangible Asset}}{\text{Total Asset}} \quad (3)

Firms with a higher proportion of total tangible assets to total assets have more leverage than a firm with lower tangibility proportion of total tangible assets to total assets. To test the hypothesis this study use ranking from 1 to 12 of industry assets tangibility, with ranking 1 is the industry with the highest assets tangibility and 12 is the lowest assets tangibility. The hypothesis is accepted when there is a positive correlation between firm leverage to assets tangibility ranking.

\[ \text{LEV}_i = \alpha + \beta_1 \text{TANG}_i \quad (4) \]

Profitability – This study uses earning per share (EPS) as firm as profitability is the firm net income divided by outstanding shares,

\[ \text{Earning per Share (EPS)} = \frac{\text{Earning After Tax (EAT)}}{\text{Total Stocks}} \quad (5) \]

Firm size – This study uses the log of total assets as firm size,

\[ \text{Firm Size (SIZE)} = \log (\text{Total Assets}) \quad (6) \]

Firm growth – This study uses the ratio of MVA to assets as the market-to-book ratio,

\[ \text{Firm Growth (GROWTH)} = \frac{\text{Market to Book Ratio = Market Value of Assets (MVA)}}{\text{Total Assets}} \quad (7) \]

To test the hypothesis the effect of profitability, size, growth to firm leverage this study uses linear regression with 95% confidence level,

\[ \text{LEV}_i = \alpha + \beta_1 \text{EPS}_i + \beta_1 \text{SIZE}_i + \beta_1 \text{GROWTH}_i + e \quad (8) \]

Results and Discussions

1. Industry median leverage The proposed theory predicts that firms in industries in which the median firm has high leverage tend to have high leverage. With a confidence level of 95%, Table 2 shows that the median of the firm industry has a positive effect on the firm leverage. It means that firms in industries in which the median is higher tend to have higher leverage. This result is consistent with hypothesis 1 that the median of firm industry leverage will positively affect firm leverage. Place Table 2. about here

2. Tangibility The proposed theory predicts that firms that have more tangible assets tend to have higher leverage. This study tests the hypothesis by comparing the leverages among industry which are more have tangible assets than others. The industry which the firms have more tangible assets have more leverages. Table 3. shows the averages of firm leverage, the prediction ranking, and the actual ranking of tangibility of assets of each industry. The first ranking (mining industry) is the first industry sector which firm tangibility of assets is the greatest proportion. The prediction rank is the ranking of tangibility assets of each industry as the commonly known. The actual rank is the ranking of tangibility assets of each industry as data analyzed. The results show that only 3 industries have the same ranking of assets tangibility as predicted which are Infrastructure, Utilities and Transportation (2); Pharmaceuticals (9), and Financial Institution (12). There are two industries which have the ranking of assets tangibility almost the same as predicted which are Basic Industry and Chemicals (5 and 6) and Bank (10 and 11). The result of this study does not confirm that the industry which firms have more tangible assets have more leverages. It means that firms that have more tangible assets do not tend to have higher leverage. This result is not consistent with hypothesis 2 that tangibility of assets will positively affect firm leverage. Place Table 3. about here

3. Profits, firm size, and market-to-book assets ratio The proposed theory predicts:

1. Profitability will negatively affect firm leverage
2. Firm size will positively affect firm leverage
3. Market-to-book ratio will negatively affect firm leverage
Table 4. with Pearson correlation analyses at 95% confident level earning per share (EPS) with significance of 0.000 with positive sign (t = 0.076), firm size with significance of 0.227 with negative sign (t = -0.026), and firm growth significance of 0.000 and negative sign (t = -0.121). This result shows that profitability (in term of EPS) has a positive correlation to firm leverage, firm size (in term of assets) has no correlation to leverage because the significance p-value is 0.227 > 0.05, and the firm growth (in term of the market-to-book ratio) has negatively affect to firm leverage.

Place Table 5. about here

Table 5. shows the regression analyses of EPS, size, and growth to firm leverage. With R square of 0.019, the result as follows: EPS has b = 0.422, t = 0.143, and sig = 0.063 < 0.10 (significance at the confidence level of 90%). This result shows that EPS has positively correlated to firm leverage. Profitability (EPS) has positively affect firm leverage, it means that firms that have more profits tend to have higher leverage. This result is not consistent with hypothesis 3 that profitability will negatively affect firm leverage that the higher the profitability the less firm leverage.

LOGTA has b= - 0.00002, t= 2.948, and sig = 0.003 < 0.05 (significance at the confidence level of 95%). This result shows that firm size (LOGTA) has positive effect on to firm leverage. This means that the larger firm size the higher firm leverage. This result is consistent with hypothesis 4 that firm size will positively affect firm leverage.

MVTA has b = - 0.147, t = -5.215, and sig = 0.000 < 0.05 (significance at the confidence level of 95%). This result shows that MVTA has negative effect on firm leverage. This means that the larger firm book value will the less firm leverage. This result is consistent with hypothesis 5 that market-to-book ratio will negatively affect the firm leverage.

Interpretation, limitation, and implication for future study

The purpose of this study is to test factors relating to leverages: firm industry leverage, market-to-book ratio, tangibility, profitability, and firm size proposed by Frank and Goyal (2009) and other previous studies concerning to leverages in Indonesian Stock Exchange which is the most performance stock markets in the world after financial crisis 2008. To test how are the associations of industry median leverage, tangibility, profits, firm size, and market-to-book assets ratio to firm leverages, this study uses market leverage which uses stock price as a component to determine total market value as suggest by Welch (2004) rather than uses book value of equity.

The results of the study are: 1) the median of firm industry leverage will positively affect firm leverage, consistent to previous study that the median of firm industry leverage will positively affect firm leverage; 2) the tangibility of assets will not affect firm leverage, is not consistent to previous study that the tangibility of assets will positively affect firm leverage; 3) profitability have positively correlated to firm leverage, is not consistent to the previous study that profitability will negatively affect firm leverage; 4) firm size will positively affect firm leverage, consistent to previous study that firm size will positively affect firm leverage; 5) market-to-book ratio will negatively affect firm leverage, consistent to to previous study that market-to-book ratio will negatively affect firm leverage.

Firms in industries in which the median firm has high leverage tend to have high leverage is consistent with the previous study of Mc.Kay and Phillips (2005), Frank and Goyal (2009), Kalemli-Ozcana et al., (2012); Oztekin (2015); Kim (2016). The firm industry is a business environment where firms operate. When the business of industry is growing there are two consequences arise, first is the increasing of the firms’ motivation to expand their business to get the business opportunity, and second is the increasing availability sources of external funds to finance the growing business affect the firms’ leverage because all firms in the industry have relatively the similar needs to improve its business and the opportunity to get additional external funds or equities.
This study is not consistent with previous studies that firms that have more tangible assets tend to have higher leverage as in the studies of Antaniou et.al, 2008; Frank and Goyal, 2009; Hikmet et. al (2011) Kalemli-Ozcana et al., (2012); Anderloni and Tanda, 2014; Handoo and Sharma, 2014; Anuara and Chin, 2015; Oztekin, 2015, this study reveals that firms that have more tangible assets do not tend to have higher leverage. External funding sources of firms such as banks and other credit (funding) institutions usually provide credit for firms use fixed (tangible) assets as priority collateral. This result means that the firm which has more tangible assets have a greater chance of getting funds from banks and other credit institutions so that firms that have more tangible assets tend to have higher leverage. But in Indonesia where the stock market index has moved much higher than other countries indices, firms that have more tangible assets do not tend to have higher leverage. The prediction is that the firm in the automotive and the component industry which have more tangible assets than firm in the trade, the service, and the investment industry, but the fact is that firm in the automotive and the component industry has less leverage than firm in the trade, the service, and the investment industry. Otherwise, the prediction is that the firm in consumer goods industry has fewer tangible assets than firm in the agriculture industry, but the fact is that the firm in consumer goods industry has more leverage than firm in the agriculture industry.

The results provide that firms with higher profitability (EPS) do not have lower leverage is not consistent with the previous study of Baker (2001), Ozkan (2001), Kalemli-Ozcana et al., (2012); Anuara and Chin (2015); Vo (2018). According to pecking order theory, the first firm uses internal financing from its retained earnings which include in its current assets (cash and marketable securities or other short terms investments) or selling other fixed assets which are not used for firm operational. The second, firms used debt for financing its investments if there are enough funds for external sources. At last, the firms issue equity for financing after there are unavailable internal resources and debts. Firm internal resources are accumulated from year to year profit. The more a firm gain profit the more it has internal resources is. The more a firm get internal resources the less the firm need debt for financing. So that, the more profitable firm the less debt as a proportion to equity. It is mean that profitability has a negative effect on firm leverage. But this study shows that firms with higher profitability (EPS) do not have lower leverage because of the leverage used in this study determined by market value relative to firm total debts. The firm market value is determined by multiplying the stock market prices by the number of firm stocks issued and stock market prices which are moved abnormally beyond the change of firm assets in the Indonesian Stock Exchange after financial crisis 2008-2009, this causes that the firm leverage is not related to the firm profitability.

The finding argued that firms with larger size (as measured by book assets) not necessarily have the higher leverage is not consistent with the previous study of Kalemli-Ozcana et al., (2012); Anderloni and Tanda, 2014, Handoo and Sharma (2014), Tsuruta (2014), Anuara and Chin (2015). From the trade-off theory perspective, larger and more mature firms lead to having relatively more debt (Strebulaev and Yang 2013; Moradi and Paulet 2019). The reason is that larger firm with total assets for debt collateral more than the smaller firm, so that larger firm has more chance to get external resources from debt. So that the larger size firm has more debt relative to equity or firm size has a positive effect on leverage. But this study shows that firms with higher size do not have an impact on higher leverage because of the leverage used in this study determined by market value relative to firm total debts. The firm market value is determined by multiplying the stock market prices by the number of firm stocks issued and stock market prices which are moved abnormally beyond the change of firm assets in the Indonesian Stock Exchange after financial crisis 2008-2009, this causes that the firm leverage is not related to the firm size measured by the total of assets.

The results show that firms with higher growth (market-to-book ratio) not necessarily have lower leverage is not consistent with the previous studies of Ozkan (2001), Frank and Goyal (2009), Anuara and Chin (2015); Kim (2016) Moradi and Paulet (2019). The trade-off theory predicts that firms choose optimal leverage ratios by balancing borrowing costs against benefits. A firm with a higher market value relative to total assets has lower borrowing costs. Firms with higher market-to-book ratios use more debt, and those with lower market-to-book ratios retire more debt. Consistently, the firms that have a higher growth opportunity measured by market-to-book ratio tend to have lower leverage. But this study shows that firms with higher
growth do not have an impact on lower leverage because of the leverage used in this study determined by the market value relative to the firm total debts and the firm growth determined by the firm market value relative to the total of assets. Although both factors used the same amount of firm market value, because the stock price moved beyond either the firm total debts or total assets in the Indonesian Stock Exchange after the financial crisis 2008-2009, the firm leverage is not related to the firm growth. One of the advantages of using debt is a less firm tax because of debt interest deduction.

Conclusion

This study determines firm leverage as total debts relative to market value of assets rather than uses book value of equity to analyses concerning firm leverage and its reliable factors. Firm leverage is determined as total debt to the market value of total assets (TDM), where TDM determined by total debt (debt in current liabilities + long-term debt) divide by the market value of assets (MVA) and MVA is the sum of the market value of equity (price-close × shares outstanding) + debt in current liabilities + long-term debt + preferred-liquidation value - deferred taxes and investment tax credit.

The results of the study are the median of firm industry leverage will positively affect firm leverage which is consistent to previous study that the median of firm industry leverage will positively affect firm leverage. The tangibility of assets will not affect firm leverage is not consistent to previous study that the tangibility of assets will positively affect firm leverage. Profitability have positively correlated to firm leverage is not consistent to the previous study that profitability will negatively affect firm leverage. Firm size will positively affect firm leverage is consistent to previous study that firm size will positively affect firm leverage. Market-to-book ratio or firm growth negatively affect firm leverage is consistent to to previous study that market-to-book ratio will negatively affect firm leverage.

This study reveals that firm leverage in Indonesian Stock Exchange did not affected by tangibility assets of firms and positively affected by profitability because of stock prices moves beyond its firms’ fundamental. The results of this study provide useful insight for other researchers and practitioners of the other facts regarding the association of industry median leverage, tangibility, profits, firm size, and market-to-book assets ratio and the association to firm leverage of firms listed in Indonesian Stock Exchange which the results are relative different from previous studies.

The results of this study, however, at least it has two limitations, First, this study uses data from the Indonesian Stock Exchange which is very little capital markets that have a relatively very small market capitalization compared to large stock exchanges such as New York Stock Exchange, Nasdaq, Tokyo, and Osaka Securities Exchange, London Stock Exchange, Hangseng, Shanghai, etc. Second, this study uses only go-public firms and not includes non-go-public firms. Further study can use firms in a stock market with large market capitalization and include non-go-public firms to increase the generalizability of the results of this study.

References


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