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Article

Firm size sensitivity on the correlation between financing choice and firm value

Cogent Business & Management

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Suggested Citation: Diantimala, Yossi; Syahnur, Sofyan; Mulyany, Ratna; Faisal, Faisal (2021) : Firm size sensitivity on the correlation between financing choice and firm value, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 8, Iss. 1, pp. 1-19, https://doi.org/10.1080/23311975.2021.1926404

This Version is available at: https://hdl.handle.net/10419/245035

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Cogent Business & Management

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/oabm20

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To cite this article: Yossi Diantimala, Sofyan Syahnur, Ratna Mulyany & Faisal Faisal | (2021) Firm size sensitivity on the correlation between financing choice and firm value, Cogent Business & Management, 8:1, 1926404, DOI: 10.1080/23311975.2021.1926404

To link to this article: https://doi.org/10.1080/23311975.2021.1926404

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Published online: 20 Jun 2021.

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Received: 29 January 2021 Accepted: 29 April 2021

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Reviewing editor: Collins G. Ntim, Accounting, University of Southampton, Southampton, United Kingdom

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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

Firm size sensitivity on the correlation between financing choice and firm value

Yossi Diantimala^{1*}, Sofyan Syahnur¹, Ratna Mulyany¹ and Faisal Faisal¹

Abstract: This study examines the impact of firm size on the effect of capital structure choice on the firm value in one of the emerging markets, Indonesia. The study of capital structure choice and firm value in emerging markets is captivating due to the different characteristics of its companies as compared to the characteristics of companies in developed countries. To rigorously conduct the research, this study uses annual reports and market value of 1,638 listed non-financial companies as the result of a random sampling method with 7-year observation periods, 2012 until 2018. The finding supports the existing literature that optimal capital structure choice reflects an appropriate mix of debt and the company's equity that enhances the firm value. This means that capital structure is one of the significant aspects of the decision-making of investment by investors. Similar to that in developing countries, increasing long-term debt is a funding option when the internal funds are insufficient. Reducing retained earnings affected by lower profitability level increase corporate long-term debt. Furthermore, the size of a company



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PUBLIC INTEREST STATEMENT

Increasing the firm value is the main goal to maintain firm sustainability. Optimal choice of debt and equity gives a signal to stakeholders regarding the company's financial risks. Theoretically, the choice of the funding source to be an optimal capital structure is not merely a choice between increasing debt or increasing equity but also is a reflection of financial risk and transfer of wealth to lenders and equity owner.

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The market catches a signal of the increasing risk if the gap between this year's debt and the previous year's debt is significantly positive. Changes in debt and changes in equity become parameters of changes in firm value. The positive difference in a higher level of debt reduces the company value.

In case of an insufficient internal fund to finance the company's investments, companies in developed countries prefer to increase longterm debt than equity. This condition is similar to that in the developing country; increasing longterm debt is a funding option.





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takes an important role to strengthen the impact of capital structure choice on the firm value.

Subjects: Economics; Finance; Business, Management and Accounting

Keywords: Capital structure; firm value; emerging market firm; profitability JEL Classification: G320

1. Introduction

The main goal of public companies is to increase firm value to maintain companies' sustainability. Empirically, the company's preference for funding sources, whether to increase debt or increase equity, affects the value of the firms (Aras & Yildirim, 2017; Vo & Ellis, 2017). Increasing debt ratio, in particular, delivers a signal to market perceptions of the higher level of corporate financial risk (Dakua, 2018). Companies with very high long-term debt have a higher risk of default (Jeon, 2021). Lowering risk by maintaining the proportion of the debt to equity is a financial strategy to keep public trust (Sony & Bhaduri, 2021) in companies because the decision to increase long-term debt explains how companies' managers shift the risk from companies to lenders or bondholders and increase agency cost problem with shareholder (Campbell et al., 2016). Theoretically, based on trade-off theory, listed companies prefer to increase long-term debt to lower tax payments. However, the consequences of increasing long-term debt, besides higher financial risk perception, are decreasing shareholders' opportunity to get more dividend (Ahmed Sheikh & Wang, 2013). Therefore, capital structure choice affects companies' share price.

Researches that examine the effect of capital structure choice on firm value have been widely conducted since the 1950s (Modigliani & Miller, 1958, 1963) until now, both in the context of developed and emerging countries (Dang et al., 2019; Aras &Yildirim; Aras & Yildirim, 2017; Vo & Ellis, 2017; Masulis, 1983; Owers & Rogers, 1984). However, the results are inconclusive (Sony & Bhaduri, 2021; Chipeta & McClelland, 2018; Vo & Ellis, 2017; Haron, 2014). Almost all prior studies examine the direct effect of capital structure and other factors (such as profitability, leverage, liquidity, and firm size) on firm value. Research examining the moderating effect of certain variables that are sensitive to the relationship between capital structure and firm value is still very rare. The inconclusive results are caused by the different models, approaches, and measurements used (Haron, 2014). Research by Ngatno et al. (2021) regarding capital structure has considered moderating effect of corporate governance on the relationship between capital structure has tructure and firm performance. The results show that the use of moderating variable strengthens the effect of capital structure on firm performance.

We argue that the inconclusiveness is due to differences in firm size. Total asset, as an indicator for firm size, has a significant role in determining financing choice (Yadav et al., 2019) and firm performance (Shah et al., 2016). Large companies have a greater ability to obtain external funds, either in the form of increasing total debt or issuing new shares because they have big collateral from larger total assets (Haron, 2014; Shah et al., 2016) and a good reputation in the share market. Besides, the effort to get optimal capital structure might be different (Jaisinghani & Kanjilal, 2017). Differed from larger companies, small companies tend to use all company resources to grow and have a more technical development strategy (Nason et al., 2015). A bigger firm can create higher value to the investors; however, Kodongo et al. (2015) find different results, they argue that small firms have a higher ability to determine firm value rather than big firms. From the side of funding needs, large companies need more funding to finance their bigger investment activities compared to small companies (Jaisinghani & Kanjilal, 2017). Thus, the strategy to formulate the optimal capital structure is different that caused the effect of capital structure on firm value is inconclusive.

This study provides three contributions to the development of capital structure theory, especially to support the efforts to overcome the inconclusive results of the relationship between capital

structure and firm value in emerging markets. First, we suggest that firm size strengthens the effect of capital structure on firm value. The function of company size as a moderating variable tested using linear relationship in a comprehensive model is a novelty in this study. Exclusively, Jaisinghani and Kanjilal (2017) examined the non-linear relationship between firm size, capital structure, and firm performance in India. Unfortunately, they use firm size as a threshold variable which is not included in the model. They classify the capital structure based on firm size. The capital structure from larger companies becomes the independent variable 1 and the capital structure from smaller companies becomes the effect of capital structure on firm performance. A bigger company with higher long-term debt has a higher firm performance. This study intends to provide empirical evidence regarding the impact of firm size on the relationship between capital structure and firm value by employing a linear model.

Second, this study employs three models in its methodology which are static and dynamic models to examine the effect of capital structure choice on firm value and the effect of firm size on the relationship between capital structure and firm value. To examine the impact of capital structure choice on firm value, we employ the static econometric model (in equation 1) and the dynamic econometric model (in equation 2). Since the financial statement is released in the next period after the accounting year, all independent variables are needed to be lagged for one year in that dynamic model. The main investigation is represented in equation 3. We predict the effect of capital structure choice, profitability, asset structure, and liquidity on the companies' value depends on the size of the company (analogized to the study of Ngatno et al., 2021;; Jaisinghani & Kanjilal, 2017). To examine the hypothesis, we use the interaction of firm size with a one-year lag of capital structure choice, asset structure, profitability, and liquidity in the econometric model. Equation 3 is a novelty of this study.

Third, in the early stages, the discussions of capital structure and firm value were mostly focused on developed countries (Masulis, 1983; Owers & Rogers, 1984). Subsequently, empirical studies on this issue shift to the emerging market Glen and Singh (2004), Vo and Ellis (2017), Aras and Yildirim (2017), and Ramli et al. (2018). In the early 2000s, emerging market firms commonly use lower debt, especially using current liabilities as strategically financing sources Deesomsak et al. (2004) and Glen and Singh (2004), and have a relatively higher fixed asset than current assets (Glen & Singh, 2004). Conversely, Deesomsak et al. (2004) show that current assets are higher than fixed assets in the emerging market firms at that time. In 2007–2016, the firms in Turkey and Brazil, Vietnam, the use of debt increased, profitability increased; however, the value of the company declined (Aras & Yildirim, 2017; Dang et al., 2019; Vo & Ellis, 2017). This research contributes to providing evidence from an emerging market, Indonesia for the period 2012–2018.

The study focuses in Indonesia is still limited (Ramli et al., 2018). In the case of Indonesia, the issue which has been commonly raised is the factors influencing capital structure (Haron, 2016). To the best of our knowledge, the study which empirically tests the role of firm size on the relationship between capital structure and firm value specifically in Indonesia is still infrequent.

2. Background

The urgency to conduct this study in Indonesia is driven by the fact that the fluctuating IDX Composite tends to decrease since 2012 (Cnbc Indonesia, 2018). Additionally, it is recorded that the worst decrease of IDX Composite happened in the last three years (2016–2018). These facts indicate that in the last seven years, stock prices tend to decrease year by year which represents the value of the listed company as well as the return received by investors in general. On the other hand, the listed companies in IDX increase over time hence investors are faced with a larger amount of options to invest. Consequently, investors are required to be more selective by increasing the benchmark of the company. Therefore, analyzing the factors that would decrease or

increase the market value of the company is needed to be widely conducted, including in an emerging market like Indonesia.

The study of capital structure choice and firm value in emerging markets is very interesting because the role of the developed and developing capital market may differ on firm capital structure choice (Yadav et al., 2019). Moreover, the characteristics of emerging market companies are different from the characteristics of companies in developed countries. According to Glen and Singh (2004), characteristics of emerging market firms are (a) firms in emerging market are dominated (approximately 76%) by small firms (with total assets less than US\$300 million) than big firms; (b) the firms have a lower level of debt which is getting smaller in the early 2000s. Long-term debt takes a smaller portion than short-term debt; (c) related to assets structure, the firms in emerging market have a higher level of fixed assets than current assets; (d) the firms have a lower level of profitability (ROA and ROE) which tends to increase in the early 2000s; (e) liquidity ratio of emerging market firms are lower.

Based on the characteristics of emerging market firms by Glen and Singh (2004), it is interesting to investigate the important relationship between capital structure choice, profitability, assets structure, liquidity, firm size, and firm value in the emerging market, Indonesia. Unfortunately, Glen and Singh (2004) did not examine the value of a firm in their discussion. Indeed, including the value of the firms in the analysis of emerging market firms enables to provide a wide-ranging condition of emerging market firms. The firm value of emerging market firms represents a lower level of both firm financial and market performance (Hanauer & Lauterbach, 2019). Providing not just the relation analysis among the issues but also the impact of capital structure choice, profitability, assets structure, liquidity, and firm size on the value of the firms of emerging market firms is needed to advance a theory of emerging market firms. Since profitability, asset structure, and liquidity have an empirically significant effect on firm value, this study examines not only the role of firm size on the relationship between capital structure choice and firm value, but also examines the role of firm size on the relationship between asset structure and firm value, profitability and firm value, liquidity and firm value, and leverage and firm value.

Glen and Singh (2004) used more than 8000 firms in 44 countries as their sample and included firms in Indonesia in their sample in small size, 148 firm-year for the period 1994–2000. However, in 1997–1998, Indonesia and several Asian countries included in their study as samples were hit by a very severe economic crisis in 1997–1998. This economic crisis caused the total debt of almost all large and small companies listed on the stock exchange to increase sharply and the inflation and currency rate was extremely high. The conclusions regarding the level of company debt become biased. This study focuses on firms listed in Indonesia as a sample to capture a comprehensive picture of emerging market firms in 2012–2018 in which the country's economy is stable. The economic condition of a country influences the company's decision-making of debt and equity (Deesomsak et al., 2004).

Glen and Singh (2004) observed the capital structure, assets structure, and accounting rate of return (profitability) using old data, in 1994–2000. They considered the level of inflation and ignoring the impact of financial accounting standards on assets, liability, and equity. However, the implementation of different accounting standards has a significant effect on the firm balance sheet and income statement (Cordazzo, 2013). In determining the appropriate period of data, the study considers the big changes in the financial accounting standard. In this study, we use new data, from 2012 to 2018. The data in this study differ more than 12 years from the data in the study of Glen and Singh (2004). Many important events that have occurred during those years affect world business. Among others, changes in the company's financial reporting environment. Almost 90% of countries in the world switched from local accounting standards to international accounting standards in the 2000s. Changes in these standards make it advisable for companies to use fair value in valuing assets, debt, and equity so that it affects the value of assets, debt, and company equity. The high demand for disclosure as a consequence of the implementation of international accounting standards affects the value of the company (Leuz &

Wysocki, 2016). Indonesia began implementing financial accounting standards based on international accounting standards in 2012 and therefore this research is very important to be carried out in Indonesia for the said period.

Based on the discussion above, we consider investigating the impact of capital structure choice, profitability, liquidity, asset structure, and firm size on firm value. Our main focus is to examine the impact of firm size on the relationship between capital structure choice, profitability, liquidity, asset structure, and the market value of equity. The rest of the paper is organized as follows. Section 2 discusses the background. Section 3 explains about empirical literature review. The literature on the relation between capital structure and firm value. Section 4 discusses research design. In section 5, we provide the results and discussion, and conclusion in the last section 6.

3. Theoretical framework

3.1. Capital structure choice and supporting theories

Capital structure choice is the management's effort to consider the appropriate proportion between debt and equity (Vanden, 2016). In principle, capital structure choice is not just to maintain a balance between debt and equity, but rather to the level of financial risk that is indicated by an unbalanced debt and equity ratio (Schwartz, 1959). Maintaining a balance between debt and equity is very important to minimize financial risk (Campbell et al., 2016). A recent study by Aras and Yildirim (2017) conducted in Vietnam finds that it is riskier for investors to invest in a firm with a high level of leverage. A low-level leveraged firm is more likely to generate higher returns and value. They also find that higher profitable firms are able to create higher market value. Comparing two emerging markets that are similar in characteristics; Turkey and Brazil, Vo and Ellis (2017) show that capital structure choice is also a significant determinant of the market value of a firm. They find that firms with lower capital structure generate higher firm value for shareholders because in such conditions they could not generate a higher return. The higher the debt they have, the lower the CARs they generate. They also report that size is one indicator influencing investors' valuation of a company.

Relevant to the issue discussed in this paper, Pecking Order Theory (POT) and Trade-Off Theory (TOT) are among the most influential theories of capital structure which explain the relationship between capital structure, profitability, and firm value. The POT argues that firms finance their activities with retained earnings when feasible. When the retained earnings are inadequate, then the debt is used. Issuance of new shares is the last option in the order of companies' funding sources (Myers, 1984). The TOT suggests that firms have a unique optimal capital structure that balances between the tax advantage of debt financing and costs of debt (Modigliani & Miller, 1963). Furthermore, Modigliani and Miller (1963) argue that the companies that use debt have a higher firm value than the companies that do not use debt. Because firm value can be indicated by stock price, the higher the total debt, the higher the companies' stock price value. Empirically, the continuous increase in debt does not increase firm value automatically cause of increasing companies' financial risk.

According to Myers (1984), optimal capital structure is a combination of funding sources, longterm debt, and stock, that generates the highest firm value. A firm that respects the tradeoff theory sets a target debt-to-equity ratio and then gradually moves towards the target. The target is determined by balancing debt tax shields against costs of bankruptcy. A company with an optimal level of debt tries to adjust its actual debt level towards the optimal point when the company is over-levered or under-levered. In a stable condition, the company will adjust its level of debt to the average level of debt in the long run.

Chipeta and McClelland (2018) explain the inconclusive results of capital structure by validating trade-off and pecking-order theory for non-financial firms listed on the Johannesburg Stock Exchange. The results show that the company makes funding choices based on its financial condition. Lower-leverage- and higher-leverage- companies that experience financial deficits

tend to increase their leverage level. Otherwise, low levered and high levered companies with financial surplus tend to increase their leverage. The results support the pecking-order theory, but no evidence for trade-off theory. In line with Chipeta and McClelland (2018), Sony and Bhaduri (2021) evaluate pecking order theory on capital structure choice in India by examining dual issues of equity and debt, a combination of debt and equity, as a strategy to reduce risk in their model. They argue that the issuance of equity cannot be separated from the issuance of debt because these two financial instruments have different levels of sensitivity and cover each other's agency costs. The results support their arguments.

4. Empirical literature review and hypotheses development

4.1. The impact of capital structure choice on market value of equity

The market intensity in determining the stock price can only be intervened through the provision of favorable information and the delivery of signals to the market that the firm's financial condition is in good condition (Sony & Bhaduri, 2021). Optimum choice of funding source between debt and equity gives a signal to stakeholders regarding the company's financial risks (Lee et al., 1983; Sony & Bhaduri, 2021). Theoretically, the choice of the funding source to be an optimal capital structure is not merely a choice between increasing debt or increasing equity but also is a reflection of financial risk (Schwartz, 1959) and transfer of wealth to lenders and equity owner (Vanden, 2016). The market catches a signal of the increased risk if the gap between this year's debt and the previous year's debt is significantly positive (Dang et al., 2019). Changes in debt and changes in equity become parameters of changes in firm value (Lee et al., 1983; Masulis, 1983). The positive difference in a higher level of debt reduces the company's value (Dang et al., 2019).

In choosing the main funding source, the choice is whether to increase debt or equity (Lee et al., 1983; Ngatno et al., 2021; Vanden, 2016). In case of an insufficient internal fund to finance the company's investments, companies in developed countries such as Japan prefer to increase long-term debt than equity (Jarallah et al., 2018). This condition is similar to that in the developing country; increasing long-term debt is a funding option when the internal funds are insufficient (Chipeta & McClelland, 2018). Moreover, increasing long-term debt as decreasing earnings, and opposite, decreasing long-term debt as increasing earnings depend on firms and countries economy (Al-Zoubi et al., 2018). The lower (higher) earnings cause lower (higher) retained earnings to influence the level of long-term debt. These results support Pecking-Order Theory. A similar finding is also supported by Aras and Yildirim (2017) that the increases in profitability decrease the market value of the firm. Without investigating the capital structure, Hanauer and Lauterbach (2019) examine factors influencing the stock return of 28 emerging market firms including Indonesia by using monthly data. Their result presents that the profitability of the emerging market firm is a one-factor influencing stock return. Higher profitability induces higher stock returns.

Ha and Tai (2017) examine the impact of capital structure on firm value with 105 listed companies in HOSE 2009–2014 as the sample. Their study does not support the statistically significant relationship between capital structures as measured by long-term debt and firm value. Their finding supports the prior study by Ferreira and Vilela (2004) who also find no correlation between the two variables in EMU countries. Extending Ferreira and Vilela (2004) research, Tiago and Caldeira (2014) show a greatly different result. In their research, the capital structure measured by long-term debt as well as short-term debt creates changes in the firm value of Brazilian firms. Another study in the emerging market also performed by Kodongo et al. (2015) in Africa, their results claim that leverage is not the determining factor of firm value. They find that the driving factor of firm value is firm size; the small-sized firm has a significant relation with firm value, but it has not happened in large firms.

Some other researchers have also examined the determinants of market value such as asset structure. A firm with more assets especially fixed assets is more attractive in the sight of investors. This is due to the bigger collateral it has by having a large number of fixed assets which is a positive signal for investors (Delcoure, 2006). A fixed asset is considered the most liquid compared to intangible assets. This condition is preferable for cases such as bankruptcy (Gaud et al., 2003). Regarding liquidity, Ramli et al. (2018) using samples from Malaysia and Indonesia argue that there is no guarantee that firms with high liquidity perform better than others because they might be unable to create value for shareholders with low debt. Thus, firms are required to use debt when they are in a position that enables them to fulfill the obligation.

Hypothesis 1: capital structure choice positively affects firm value.

Hypothesis 2: profitability positively affects firm value.

4.2. The role of firm size on the relationship between capital structure and market value of equity

Besides the partial relationship between profitability, capital structure, asset structure, liquidity, firm size, and market value of equity as discussed above, the size of a firm gives a significant contribution to the relationship between profitability, capital structure, assets structure, liquidity, firm size and market value of equity of emerging market firms. Prior studies suggest that different sizes of the firm may result in different market valuations (Berger et al., 2006; Dang et al., 2019; Kodongo et al., 2015; Vo & Ellis, 2017). Vo and Ellis (2017) and Berger et al. (2006) agree that firm size has a positive relationship with firm value. A bigger firm can create higher value to the investors; however, Kodongo et al. (2015) find different results, they argue that small firms have a higher ability to determine firm value rather than big firms.

Exclusively, Jaisinghani and Kanjilal (2017) examined the non-linear relationship between firm size, capital structure, and firm performance in India. They use firm size as a threshold variable in their model. Their results show that firm size determines the effect of capital structure on firm performance. Companies that have total assets that exceed a certain threshold (148 million rupees) have a higher total debt than companies with total assets less than a certain threshold (small companies). Small companies that are developing their investments will usually find it challenging to find new sources of funding and incur the substantial cost of capital so that the level of profitability is low. Large companies with high debt have better company performance.

The considerable theory and empirical evidence from prior studies related to the role of firm size on capital structure choice state that firm size is the most reliable factor influencing capital structure (Dakua, 2018; Deesomsak et al., 2004; Jaisinghani & Kanjilal, 2017; Oztekin, 2015). Firm size becomes an important factor in capital structure because it can be an indicator representing the company's ability to survive (Deesomsak et al., 2004). It provides justification to further investigation of the impact of firm size on the relationship between capital structure choice, profitability, asset structure, liquidity, and market value. Based on the results of Jaisinghani and Kanjilal (2017) using the analogy of company stock performance replacing company performance, it can be concluded that the market reacts differently on a small-profitable firm with higher long-term debt compared to a big-profitable firm with higher long-term debt.

Based on all different previous findings, we suggest that the impact of profitability, capital structure, asset structure, and liquidity on the market value of equity depends on the size of a firm. The logical reasoning of the interaction between firm size and profitability, asset structure, liquidity, and the impact of the interaction on the market value of equity is the share price of a profitable firm is not always higher. The share price of a big-profitable firm is not always higher (Kodongo et al., 2015).

Hypothesis 3: the size of a firm strengthens the correlation between capital structure choice and firm value.

Hypothesis 4: the size of a firm strengthens the correlation between profitability and firm value.

5. Research design

5.1. Sample and collecting data

Data used in this study consist of various items taken from the companies' financial statements directly. As shown in Table 1, the sample is selected by using Slovin Equation: $n = N/(1 + (N \times e^2))$, where n is the sample amount; N is population (564 companies), and e is error margin (5%). To rigorously conduct the research, this paper uses annual reports and market value of 234 non-financial listed (564/(1+(564*0.05²) and active companies for each year as the result from a random sampling method with 7-year observation periods, 2012 to 2018, in total, there are 1,638 observations during the observation period. The sample companies are spread across eight industrial sectors as classified by the Indonesia Stock Exchange (IDX). Those sectors are agriculture; basic industry and chemical; consumer good industry; infrastructure, utilities, and transportation; mining; miscellaneous industry; property, real estate, and building construction; trade, service, and investment.

Table 1. Sample selection process	
Non-financial companies listed on the IDX in 2018.	564
Slovin: (564/(1+(564*0.05 ²))	234
Sample for 7 years	1,638

The population size is different every year: 2012 = 440; 2013 = 453; 2014 = 453; 2015 = 533; 2016 = 553; 2017 = 564; 2018 = 564. We took the total population in the last year, amounting to 564 with an error of 5%, to get a sample size for each year, which was 234 per year. If we took a population accumulation of 3560, then the number of samples per year is very small.

5.2. Variables measurement

Firm value (FV_{it}) as the dependent variable is measured by market capitalization (Aras & Yildirim, 2017). Capital Structure choice (CS_{it}) as the main independent variable is measured by long-term debt to book value of equity ratio (Chipeta & McClelland, 2018; Dang et al., 2019; Yadav et al., 2019). Generally, the capital structure is measured by the ratio of total debt to total assets. However, Chipeta McClelland (2018) measure capital structure by long-term debt to total assets ratio; Dang et al. (2019) and Yadav et al. (2019) measure capital structure by long-term debt to book value of equity ratio. Modigliani and Miller (1958) also use long-term debt to book the value of equity ratio. Capital structure is needed to be lagged for one year (CS_{it-1}).

Profitability (PF_{it}) as the second independent variable is measured by the ratio of net operating income to total assets ratio. Profitability is one of the main indicators that investors see in a firm where they will invest in. Profitability gives investors the forecast of return they might have by investing in the firm. The more profitable the firm, the more attractive the firm will be in the view of investors. This positive correlation is in line with the finding of (Aras & Yildirim, 2017; Dang et al., 2019; Hanauer & Lauterbach, 2019). According to Pecking-Order Theory, profitability is the main key to capital structure choice. A lower level of profitability that causes lower retained earnings encourages companies to decide to look for external funding sources. Profitability needs to be lagged for one year (PF_{it-1}).

Asset Structure (AS_{it}) as the third independent variable is measured by the ratio of fixed asset to total asset. Delcoure (2006) has identified the positive relationship between asset structure and firm value. The positive correlation is supported because the fixed asset is seen as less risky than

other types of asset Gaud et al. (2003) due to its liquidity, and thus investors will prefer such conditions as they might have a bigger guarantee. Asset structure is needed to be lagged one year (AS_{it-1}) . Liquidity (LQ_{it}) as the fourth independent variable is measured by the ratio of current assets to current liability; The relationship between liquidity and firm value has been found by (Ramli et al., 2018). Liquidity is needed to be lagged one year (LQ_{it-1}) . Leverage (LV_{it}) as a control variable is measured by the ratio of total debt to total assets (Glen & Singh, 2004; Tiago & Caldeira, 2014). Tiago and Caldeira (2014) argue that total debt ratio contributes to the firm value. Leverage is needed to be lagged for one year (LV_{it-1}) .

Firm size **(SZ_{it})** as a moderating variable is measured by the log nature of total assets. Small and big firms have differences that might lead to a different effect on market valuation (Kodongo et al., 2015). Big firms are disadvantaged in this case because of their larger market and ability to obtain funding sources from internal and external of the firm. Firm size can strengthen or weaken the relationship between capital structure choice and the market value of equity. Small companies that increase their long-term debt contribute a bad signal to the market so that the company's stock price falls. Conversely, if large companies increase their long-term debt, the market responds positively to the increase in debt. Dang et al. (2019), Vo and Ellis (2017), and Berger et al. (2006) agree that firm size has a positive correlation with firm value. Firm size is needed to be lagged for one year **(SZ_{it-1})**. Summary of variable definition is represented in Table 2.

Table 2. Summary of variable definition					
Variables	Abbreviations	Measurement			
Dependent Variable					
Firm Value	FV _{it}	Logarithm of market capitalization value			
Independent Variable					
Capital Structure Choice	CS _{it}	Long term debt to book value of equity ratio			
Lag of Capital Structure Choice	CS _{it-1} .	Capital structure choice is lagged for one year.			
Profitability	PF _{it}	Net operating income to total assets ratio.			
Lag of Profitability	PF _{it-1}	Profitability is lagged for one year.			
Assets Structure	AS _{it}	Fixed assets to total assets ratio.			
Lag of Asset Structure	AS _{it-1}	Asset structure is lagged for one year.			
Liquidity	LQ _{it}	Current assets to current liability ratio.			
Lag of Liquidity	LQ _{it-1}	Liquidity is lagged for one year.			
Control Variable					
Leverage	LV _{it}	Total debt to total assets ratio.			
Lag of Leverage	LV _{it-1} Leverage is lagged for one year.				
Moderating Variable					
Firm size	SZ _{it}	The logarithm natural for total assets.			
Lag of Firm Size	SZ _{it-1}	Firm size is lagged for one year.			

5.3. Analysis method

To examine the impact of capital structure choice on firm value, we employ the econometric model as follows.

$$FV_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 AS_{it} + \beta_3 LQ_{it} + \beta_4 SZ_{it} + \beta_5 PF_{it} + \beta_6 LV_{it} + \varepsilon_i$$
(1)

Since the financial statement is released in the next period after the accounting year, all independent variables are needed to be lagged for one year. A lagged value of independent variables is added to the econometric model as follows.

$$FV_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 AS_{it} + \beta_3 LQ_{it} + \beta_4 SZ_{it} + \beta_5 PF_{it} + \beta_6 LV_{it} + \beta_7 CS_{it-1} + \beta_8 AS_{it-1} + \beta_9 LQ_{it-1} + \beta_{10} SZ_{it-1} + \beta_{11} PF_{it-1} + \beta_{12} LV_{it} + \varepsilon_i$$
(2)

where FV is firm value; CS_{it} is capital structure; AS_{it} is asset structure; LQ_{it} is liquidity; SZ_{it} is company size; PF_{it} is profitability; LV_{it} is leverage; CS_{it-1} is a one-year lag of capital structure; AS_{it-1} is a one-year lag of capital structure; AS_{it-1} is a one-year lag of liquidity; SZ_{it-1} is one year lag of company size; PF_{it-1} is a one-year lag of profitability; LV_{it-1} is a one-year lag of leverage; and SZ_{it-1} is a one-year lag of company size; CS_{it-1} is a one-year lag of capital structure; AS_{it-1} is a one-year lag of negative and so one-year lag of asset structure; LQ_{it-1} is a one-year lag of capital structure; AS_{it-1} is a one-year lag of a one-year lag of negative and so one-year lag of asset structure; LQ_{it-1} is one year lag of liquidity; PF_{it-1} is one year lag of profitability, and LV_{it-1} is one year lag of leverage.

Based on Jaisinghani and Kanjilal (2017), we predict that the effect of capital structure decisions, profitability, assets structure, and liquidity on the companies' value depends on the size of the company. To examine the hypothesis, we use the interaction of firm size with capital structure choice, asset structure, profitability, and liquidity in the econometric model as follows.

$$FV_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 AS_{it} + \beta_3 LQ_{it} + \beta_4 SZ_{it} + \beta_5 PF_{it} + \beta_6 LV_{it} + \beta_7 CS_{it-1} + \beta_8 AS_{it-1} + \beta_9 LQ_{it-1} + \beta_{10} SZ_{it-1} + \beta_{11} PF_{it-1} + \beta_{12} LV_{it} + \beta_{13} CS_{it-1} * SZ_{it} + \beta_{14} AS_{it-1} * SZ_{it} + \beta_{15} LQ_{it-1} * SZ_{it} + \beta_{16} PF_{it-1} * SZ_{it} + \beta_{17} LV_{it} * SZ_{it} + \varepsilon_i$$
(3)

where * is the symbol for interaction.

5.4. Model specification

This study uses regression models of panel data. The model is estimated by using the fixed-effects model (FEM) or Least-Square Dummy Variable (LSDV) and the random-effects model (REM) using Ordinary Least Square (OLS). The results are shown in Table 3. The Lagrange Multiplier (LM) test, Chow test, and Hausman test are required to decide whether the model is either FEM or REM. If the probability of these three tests is less than the significant level ($\alpha = 5\%$), the appropriate model must be FEM. Otherwise, REM is a suitable model. The results are shown in Table 3. After testing and comparing the results of the robustness test using Lagrange Multiple Tests, Chow Test, and Hausman Test, it is determined that the suitable model for this study is FEM (Fixed-effect model).

Table 3. The results of tests	for the appropriat	e estimating mode	els	
	Equation 1	Equation 2	Equation 3	Summary
Lagrange Multiplier Test Breusch-Pagan	1672.02***	1100.79***	937.03***	REM
Chow Test (LR Test) Cross-sectional Chi-square	1829.29***	1551.69***	1475.28***	FEM
Hausman Test Cross-section random, Chi-Sq statistic	54.82***	56.17***	105.30***	FEM

Note: *** is significant at 1% level.

6. Empirical results and discussion

6.1. Statistics summary

The indicator of the firm value is market capitalization. As reported in Table 4, on average, market capitalization reflects that most companies listed in Indonesia Stock Exchange are big capitalization firms. They have a market capitalization of more than 5 trillion rupiahs. The extreme-high market capitalization is 488.187 trillion rupiahs (log FV is 31.12), and the extreme-low market capitalization is 700 million rupiahs (log FV is 8.85). Capital structure, on average, 0.53. It indicates

Table 4. De	escriptive st	atistics					
	Log FV _{it}	CS _{it}	AS _{it}	LQ _{it}	SZ _{it}	PF _{it}	LV _{it}
Mean	12.26	0.53	0.35	1.54	16.03	0.17	0.66
Max	31.12	17.83	8.51	59.57	53.73	50.34	19.51
Min	8.85	-16.78	0.58	2.26	7.20	-13.13	-0.25
Std dev	1.03	1.58	0.38	2.43	4.90	1.75	1.17

Observation of each year is 234 companies; the total observation is 1638 companies-years. FV_{it}: firm value; CS_{it}: Capital Structure Choice; AS_{it}: Asset Structure; LQ_{it}: Liquidity; SZ_{it}: Company's Size; PF_{it}: Profitability; LV_{it}: Leverage.

that total long-term debt is 53 to 100 total equity, even though there is a firm with 17.83 total long-term debt. Asset structure, on average, is 0.35, range from 0.58 to 8.51. The firms with the lowest asset structure are the firm with the smallest total-fixed asset. They have the largest current asset. Liquidity, on average, is 1.54, range from 2.26 to 59.27. It indicates that the current asset is strong enough to support current liabilities. The result is consistent with the result of the asset structure that the companies listed in the IDX have more current assets than fixed assets. Profitability, on average, is 0.17, range from negative 13.13 to 50.34. Leverage is measured by total debt to total asset. On average, leverage is 0.66, range from negative 0.25 to 15.91. Companies' size is varying from a small firm (log natural of total asset is 7.20) to a big firm (log natural of total asset is 53.73).

From the overall view, on average, the same as Ngatno et al. (2021), the capital structure of companies listed on the Indonesian Stock Exchange is relatively high, more than 50%. These results support that the capital structure value of companies in the emerging market relatively high (Aras & Yildirim, 2017; Chipeta & McClelland, 2018; Sony & Bhaduri, 2021; Vo & Ellis, 2017). Companies use more than 50% of long-term debt to fund their investment and operations. The value categorizes long-term debt-to-equity ratio as an optimal capital structure (Vanden, 2016). One of the factors driving high long-term debt is a level of profitability. The level of profitability in Indonesia reasonably high and tend to increase. The result is consistent with the optimal capital structure simulation by Vanden (2016) that the more profitable a firm, the debt-to-equity ratio of the firm getting higher. The result is inconsistent with Glen & Singh (2004), who empirically state that the long-term debt of emerging market firms is small, and the level of profitability is low and tends to increase. The pecking-order theory explains the positive relationship between capital structure and profitability (Chipeta & McClelland, 2018). There is an indication that the companies in Indonesia prioritize using internal sources (specifically from retained earnings), and then external sources (specifically from long-term debt) to fund their investment and operation.

The mean asset structure is quite low, presenting that the companies use smaller fixed assets than current assets. The result supports a higher level of liquidity. The higher mean of liquidity shows that the companies have more current assets than fixed assets. It is inconsistent with Glen & Singh (2004), however, it is consistent with the results of Deesomsak et al. (2004); (Vo & Ellis, 2017), and Aras &Yildirim (2017) that companies in emerging markets have more current assets than fixed assets. Companies in emerging markets are growing companies that generate moderate profits that tend to increase from year to year and require higher current assets than fixed assets to fund the company's operations.

6.2. Correlation among variables

The Pearson correlation among variables in the models of Equation (3) is presented in Table 5, which shows that almost all variables of interest are significantly correlated at the level of 1% (symbolized by ***), 5% (symbolize by **), and 10% (symbolized by *). Conversely, just a few variables have no significant correlation with the other variables (the correlation without symbol

Table	5. Pearsd	on correl	ation am	ong varial	bles													
	FV	CS _{it}	CS _{it-1}	CS _{it-1} *SZ _{it}	AS _{it}	AS it-1	AS _{it-1} *SZ _{it}	LQ _{it}	LQ it-1	LQ _{it-1} *SZ _{it}	SZ _{it}	SZ _{it-1}	PF _{it}	PF _{it-1}	PF _{it-1} *SZ _{it}	LV _{it}	LV _{it-1}	LV _{it-1} *SZ _{it}
FV	1.00														1			
CS _{it}	0.19***	1.00																
CS _{it-1}	0.16***	0.81***	1.00															
$\underset{1}{\text{CS}}_{\text{it-}}$	0.21***	0.82***	0.99***	1.00														
AS _{it}	0.09***	0.20***	0.19***	0.20***	1.00													
AS_{it-1}	0.07***	0.17***	0.19***	0.19***	0.60***	1.00												
AS $_{it^{-}}$ *SZ $_{it}$	0.16***	0.22***	0.22***	0.25***	0.60***	0.98***	1.00											
LQ _{it}	0.04	0.03	0.03	0.04	-0.01	0.08	0.09	1.00										
LQ_{it-1}	0.01	0.11***	0.09***	0.10***	0.05*	0.05**	0.06**	0.59***	1.00									
LQ _{it-1} *SZ _{it}	0.09***	0.16***	0.13***	0.16***	0.06**	0.06**	0.10***	0.59***	0.98***	1.00								
SZ_{it}	0.68***	0.34***	0.31***	0.40***	0.09***	0.11***	0.26***	0.07***	0.07***	0.22***	1.00				1			
SZ_{it-1}	0.48***	0.26***	0.25***	0.30***	0.10***	0.06**	0.15***	-0.04	0.00	0.09***	0.63***	1.00			1			
PF_{it}	0.35***	-0.12^{***}	-0.08***	-0.07***	-0.14^{***}	-0.11^{***}	-0.09***	0.10***	-0.07***	-0.06**	0.11***	0.11***	1.00		1			
$PF_{it^{-1}}$	0.32***	-0.12^{***}	-0.12***	-0.11^{***}	-0.15^{***}	-0.18***	-0.16^{***}	0.05**	0.02	0.02	0.10***	0.10***	0.66***	1.00				
${}^{\mathrm{PF}_{\mathrm{it}-1}}_{\mathrm{*SZ}_{\mathrm{it}}}$	0.37***	-0.09***	-0.10***	-0.08***	-0.15***	-0.18***	-0.14***	0.06**	0.02	0.05*	0.18***	0.15***	0.66***	0.99***	1.00			
LV_{it}	-0.05*	0.45***	0.46***	0.46***	0.15***	0.13***	0.15***	-0.02	0.18***	0.20***	0.14***	0.15***	-0.22***	-0.23	-0.21***	1.00		
$LV_{\rm it-1}$	-0.07***	0.43***	0.49***	0.48***	0.12***	0.14***	0.14***	-0.05*	0.16***	0.16***	0.10***	0.12***	-0.19***	-0.24***	-0.23*** (0.86***	1.00	
$^{\rm LV_{it-1}}_{\rm *SZ_{it}}$	0.09***	0.47***	0.50***	0.53***	0.14***	0.16***	0.21***	-0.02	0.17***	0.22***	0.35***	0.26***	-0.15***	-0.20***	-0.17*** (0.85***	0.95***	1.00
The valiis levera	ue presente age; SZ_{it} is (id in the tat company si	le is the co ze; CS_{it-1} is	efficient anc a one-year	1 (t-statistic) lag of capitu) of all corre al structure	elation amor SAS _{it-1} is a	ng variables one-year la	. FV_{it} is firm Ig of assets	n value; CS_{it} structure; I	: is capital : L Q _{it-1} is a (structure; <i>i</i> one-year la	AS_{it} is asset ag of liquid.	s structure; ity; PF _{it-1} is	; LQ_{it} is liquid. a one-year lo	lity; PF _{it} is a ag of prof	profitability itability; LV	y; LV _{it} V _{it-1} is
a one-y one yec	rear lag of l r lag of pro	everage; ar sfitability; L	Nd SZ _{it-1} is (V _{it-1} is one	a one-year l year lag of	ag of compu leverage, ar	any size; C 1d SZ _{it-1} is (i _{it-1} is a one one year lag	-year lag o 1 of compar	f capital str 1y size. CS_{it}	ructure; AS _i . -1*SZ _{it} is th	t-1 is a oné e interactio	e-year lag on betwee	of assets si in capital st	tructure; LQ :ructure and	l _{it-1} is one ye d firm size. A	ear lag of l S _{it-1} *SZ _{it} is	iquidity; PI the interd	F _{it-1} is action
betwee leverag	n asset stru e and firm :	ucture and size. Symbc	firm size. L	Q _{it-1} *SZ _{it} is * denote sig	the interact inificance at	ion betwee † 1%, 5%, a	n liquidity c nd 10% levu	and firm siz	e. PF _{it-1} *SZ _i ely.	_t is the int∈	eraction b€	etween pro	ofitability aı	nd firm size	e. LV _{it-1} *SZ _{it} is	s the inter	action bet	ween

*). Thus, it faces no potential problems to affect the results of this study. Capital structure choice (CS_{it}), last year capital structure (CS_{it-1}), asset structure (AS_{it}), prior asset structure (AS_{it-1}), firm size (SZ_{it}), last year firm size (SZ_{it-1}), profitability (PF_{it-1}), and last year profitability (PF_{it-1}) have a positively significant correlation with firm value (FV_{it}). Leverage (LV_{it}) and last year leverage (LV_{it-1}) have a negatively significant correlation with firm value. However, liquidity (LQ_{it}) and last year's liquidity (LQ_{it-1}) do not correlate with firm value.

CS_{it} is positively and significantly related to CS_{it-1}, AS_{it}, AS_{it-1}, LQ_{t-1}, SZ_{it}, SZ_{it-1}, LV_{it}, LV_{it-1}; and negatively and significantly related to PF_{it} and PF_{it-1}. CS_{it-1} has a positively significant correlation with AS_{it}, AS_{it-1}, LQ_{t-1}, SZ_{it}, SZ_{it-1}, LV_{it}, LV_{it-1}; and has a negatively significant correlation with PF_{it} and PF_{it-1}. AS_{it} is positively and significantly related to AS_{it-1}, LQ_{it-1}, SZ_{it}, SZ_{it-1}, LV_{it}, LV_{it-1}; and negatively and significantly related to PF_{it} and PF_{it-1}. LQ_{it} has a positively significant correlation with PF_{it} and PF_{it-1}, SZ_{it}, SZ_{it-1}, LV_{it}, LV_{it-1}; and negatively and significantly related to PF_{it} and PF_{it-1}. LQ_{it} has a positively significant correlation with LQ_{t-1}, SZ_{it}, PF_{it}, PF_{it-1}; and has a negatively significant correlation with SZ_{it-1}, LV_{it}, LV_{it-1}. SZ_{it} is positively and significantly related to SZ_{it-1}, PF_{it-1}, LV_{it}, LV_{it-1}. PF_{it} is negatively and significantly related to LV_{it}, LV_{it-1}. V_{it} is correlated to LV_{it-1} significantly.

To support trade-off theory and pecking-order theory, our focus is on the positive relationship between CS_{it} , CS_{it-1} , AS_{it} , AS_{it-1} , firm size SZ_{it} , SZ_{it-1} , PF_{it-1} , PF_{it-1} , and firm value (FV_{it}). These positive correlations indicate that an increase in current and prior capital structure caused by an increase in total debt, assuming total equity is constant or total equity increase insignificantly, increases firm value (r = 0.19, t-stat. = 7.22). Besides, an increase in current and previous asset structure (r = 0.09, t-stat. = 3.28) caused by an increase in fixed assets, an increase in current and last year firm size (r = 0.68, t-stat. = 34.13) caused by increasing in total asset, and increasing in current and last year profitability (r = 0.35, t-stat. = 13.16) caused by operating income, increase firm value significantly at 1% level.

Furthermore, we stressing also the correlation between capital structure choice (CS_{it-1}) and profitability (PF_{it-1}). The correlation is negatively significant at a 1% level (r = -0.12, t-stat. = -4.42) which indicates that the company's choice to increase long-term debt is related to a lower level of profitability. The result supports the pecking order theory which states that firms with greater profitability require a lower amount of debt since they generate more internal resources to finance their investments. It is inconsistent with the trade-off theory and Gombola et al. (2019) suggesting a positive relationship between profitability and debt. This result is successful in supporting the search for an inconclusive relationship between capital structure and profitability (Sony & Bhaduri, 2021; Chipeta & McClelland, 2018; Vo & Ellis, 2017;; Haron, 2014). The relationship between capital structure and asset structure is positive significant at 1% level (r = 0.2, t-stat. = 7.74). These results indicate that the company's choice to increase long-term debt is related to increasing fixed assets. The result is consistent with (Glen & Singh, 2004).

The largest correlation seems to be between the interaction of each independent variables and firm size: $CS_{it-1}*SZ_{it}$ and CS_{it-1} (r = 0.95, significant at level 1%), $AS_{it-1}*SZ_{it}$ and AS_{it-1} (r = 0.99, significant at level 1%), $LQ_{it-1}*SZ_{it}$ and LQ_{t-1} (r = 0.904, significant at level 1%), $PF_{it-1}*SZ_{it}$ and PF_{t-1} (r = 0.999, significant at level 1%), $LV_{it-1}*SZ_{it}$ and LQ_{t-1} (r = 0.924, significant at level 1%). This result provides evidence for firm size as moderating variable. There is an almost perfect correlation between capital structure and firm size, asset structure and firm size, liquidity and firm size, profitability and firm size, and between profitability and firm size. It presents that the impact of capital structure, assets structure, liquidity, profitability, and leverage on firm value dependent on the size of a company.

6.3. Empirical results

The fixed-effect model (FEM) with panel least square analysis is the appropriate model to examine the hypothesis. Therefore, we apply three models in three equations, to examine the hypothesis. Equation 1 examines the effect of capital structure choice, asset structure, liquidity, firm size, profitability, and leverage on the firm value without lag. We predict that the firm financial

Table 6. Panel least squares results in FEM							
Variables	Equat	tion 1	Equa	tion 2	Equat	tion 3	
	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	
С	11.96***	189.79	11.81***	127.69	10.52***	62.97	
CS _{it}	0.01	0.40	-0.01	-0.36	-0.02	-0.97	
CS _{it-1}			0.00	-0.20	0.11**	2.27	
$CS_{it-1}^*SZ_{it}$					-0.01**	-2.36	
AS _{it}	0.03	0.52	-0.02	-0.29	0.01	0.20	
AS _{it-1}			-0.07	-1.12	0.55***	3.06	
$AS_{it-1}^*SZ_{it}$					-0.04***	-3.52	
LQ _{it}	0.00	0.13	-0.01	-1.00	-0.01	-0.95	
LQ _{it-1}			-0.01	-0.54	0.31***	7.78	
LQ _{it-1} *SZ _{it}					-0.02***	-8.09	
SZ _{it}	0.02***	5.11	0.05***	9.43	0.12***	13.03	
SZ _{it-1}			-0.02***	-3.62	0.00	-0.57	
PF _{it}	0.01	1.27	0.00	0.45	0.01	0.52	
PF _{it-1}			0.01	1.38	-0.08***	-2.70	
$PF_{it\text{-}1} ^*SZ_{it}$					0.01***	3.87	
LV _{it}	-0.02	-0.86	-0.03	-1.09	-0.04	-1.52	
LV _{it-1}			0.02	0.74	0.07	0.73	
LV_{it-1} *SZ _{it}					0.00	-0.44	
Adj. R-Square	0.65		0.66	0.74	0.69		
F-stat.	13.64***		12.25***		13.41***		
Durbin Watson	2.00		2.29		2.22		

Significant at 1% = *; Significant at 5% = **; Significant at 10% = ***

performance of this year does not affect firm value in the same year. As shown in Table 6, the result shows that capital structure (Coef. = 0.01, t-stat. = 0.40), asset structure (Coef. = 0.03, t-stat. = 0.52), liquidity (Coef. = 0.003, t-stat. = 0.13), profitability (Coef. = 0.01, t-stat. = 1.27), and leverage (Coef. = -0.02, t-stat. = -0.86) do not affect firm value. Only firm size (Coef. = 0.02, t-stat. = 5.11) affects firm value significantly at 1% level. Like our prediction, the result indicates that firms' financial performance of this year does not affect the firm's share price in the same year.

As early expectations, financial performance should influence firm share prices for next year. Responding to the expectation, Equation 2 examines the effect of the previous year of capital structure choice, asset structure, liquidity, profitability, and leverage on this year's market value of equity. The result presents that only previous year of firm size (SZ_{it-1}) and firm size without lag (SZ_{it}) affect the firm value significantly at level 1%. The relation between firm size without lag and firm value is positive (Coef. = 0.05, t-stat. = 9.43) significant at level 1%, however, the relation between firm size with lag and firm value is negative (Coef. = -0.02, t-stat. = -3.62) significant at level 1%. It presents that small firms affect firm value. From these two equations (Equations 1 and 2), we conclude that firm size influences firm value significantly and the sign of the effect of liquidity on firm market value is not consistent as the early expectation.

Countering these findings, we suggest that there is an interaction between last year's capital structure choice, asset structure, liquidity, profitability, and last year's leverage with firm size. Therefore, Equation 3 investigates the effect of each independent variable with and without lag as

Table 7. The summary	of results			
Variables	H/L	Firm Size		
		Small	Big	
Capital Structure	Н	√		
	L		√	
Profitability	Н		√	
	L	√		
Firm Value	Н	√		
	L		√	

H is high. L is low.

well as the interaction between each variable and firm size on the market value of equity. The results present that this year's capital structure choice (Coef. = 0.11, t-stat. = 2.27) positively and significantly affect next year's firm value. This result supports hypothesis 1 and the trade-off theory of capital structure. According to Modigliani & Miller (1963), firm value is a function of leverage and tax rate. The interest paid of long-term debt which is reported in the income statement is tax-deductible expenses that affect the after-tax earnings. The increase in interest expenses of long-term debt as a result of the increase in long-term debt led to a decrease in after-tax earnings and retained earnings. Even in constant stock price conditions, the company's market value will increase. Moreover, an increase in debt initiates a higher financial risk and increases the potential costs of bankruptcy (Chipeta & McClelland, 2018). In this condition, the companies strive to achieve the optimal capital structure by balancing the benefits of interest tax shields against the costs of financial distress (Chipeta & McClelland, 2018). Even the result supports the trade-off theory, this result is not consistent with prior research by Vo and Ellis (2017) and Aras and Yildirim (2017) that high-level leveraged-firm is more likely to generate lower returns and firm value.

The interaction of capital structure choice with firm size (t-stat. = -2.36) significantly influences the firm value at a 5% level. The result supports our prediction that the effect of capital structure choice on firm value considerably depends on firm size. Firm size strengthens the effect of capital structure on firm value. The sign of the interaction is negative. It is meant that small firm size and big firm size differently affect the relationship between capital structure choice and firm value (Haron, 2014). Small firms' decision to decrease long-term debt negatively influences the firm market value of equity. Small firms with lower long-term debt have a higher firm value. Otherwise, the decision of a big firm to increase long-term debt negatively affects the firm market value of equity. Big firms with higher long-term debt have a lower market value of equity. This result supports hypothesis 3 that firm size strengthens the correlation of capital structure and market value of equity. This result supports Kodongo et al. (2015) that small firms have a higher ability to determine firm value rather than big firms. Based on this result, we suggest that capital structure choice is sensitive to firm size.

Furthermore, the effect of prior year profitability (Coef. = -0.08, t-stat. = -2.70) on the firm value is negatively significant at 1% level. The result implies that the less profitable a firm higher the firm value. This result is not consistent with our prediction (hypothesis 2) and the results of Vo & Ellis (2017) and Aras & Yildirim (2017) that the relationship between profitability and market value of equity is positive. Without the interaction of profitability and firm size, the result is not consistent with the early expectation that the more profitability and firm size (the result is not consistent effect of the interaction between last year's profitability and firm size (Coef. = 0.01, t-stat. = 3.87) on firm value is positively significant at a 1% level. The result shows that firm size tightens the effect of profitability on the firm value. It implies that a small firm with a lower level of profitability has a lower firm value. Otherwise, a bigger firm with a higher level of profitability has a higher firm value. This result supports hypothesis 4 that firm size strengthens the relationship between profitability and market value of equity.

Based on these two findings, overall, we conclude that the results support the trade-off theory that small firms with higher debt ratios but lower profitability have a higher firm value. Otherwise, big firms with lower debt ratios but higher profitability experience a lower firm value. The combination is shown in Table 7. This finding confirms that capital structure and profitability are sensitive to firm size.

The impact of the previous year's asset structure (Coef. = 0.55, t-stat. = 3.06) and the interaction between last year's asset structure and firm size (Coef. = -0.04, t-stat. = -3.52) on firm value is significant at 1% level. Previous year liquidity (Coef. = 0.31, t-stat. = 7.78) positively and significantly influences the firms value. The interaction between liquidity and firm size (Coef. = -0.02, t-stat. = -8.09) negatively substantially affects firm value at 1% level. The results suggest that the investor highly responds to the information of current assets and current liabilities. The effect of liquidity on the market value of equity depends on firm size. The negative sign of the interaction implies that a small firm with lower liquidity has a higher market value of equity. A small firm with higher liquidity has a lower market value of equity.

7. Summary and conclusion

Our main contribution is to provide evidence in supporting conclusiveness of the effect of capital structure choice on firm value in emerging markets by employing a different approach that is rarely analyzed before. We argue that the inconclusiveness is due to differences in firm size. Total asset, as an indicator for firm size, has a significant role in determining financing choice. Mainly, we investigate whether the different size of the company triggers a different effect of capital structure choice on the firm value. We investigate firm size sensitivity on the effect of capital structure choice on firm value. We also investigate the effect of capital structure choice, profitability, firm size, liquidity, and leverage on firm value. The results present as follows. First, the market capitalization of firms listing on the Indonesian Stock Exchange as an emerging market is categorized as big market capitalization. It implies that the stock price of listed companies is high. Second, the long-term debt of listed companies is relatively high. On average, it is more than 50%. Third, the profitability of the companies is high enough, more than 75%. Based on the Spearman correlation test, there is a negatively significant correlation between capital structure and profitability. It indicates that increasing long-term debt is related to decreasing profitability. This result is consistent with the peckingorder theory.

Third, the results present that capital structure choice significantly and positively affects firm value. This result is consistent with our prediction (hypothesis 1). The interaction of capital structure choice with firm size significantly and negatively affects the firm value. It is consistent with the early expectation (hypothesis 2) that small firm size and big firm size differently affect the relationship between capital structure choice and market value of equity. The results present that big (small) firms' decisions to decrease (increase) long-term debt have a lower (higher) firm value. This result is consistent with the trade-off theory that small firms with higher debt ratio but lower profitability has a higher firm value. Otherwise, big firms with lower debt ratios but higher profitability experience a lower firm value. This finding confirms that capital structure and profitability are sensitive to firm size (consistent with hypotheses 3 and 4).

Based on the capital structure theory, this study reveals that the company reaches the optimal capital structure under certain conditions. However, this study does not further examine in-depth the timing and conditions for the optimal capital structure to occur. The next research is expected to explain comprehensively and in-depth the firm value in the timing and condition of optimal capital structure. Besides, in the capital structure theory, the problem of information asymmetry is

related to capital structure decisions (Sony & Bhaduri, 2021). This study does not address and includes information asymmetry in the model. Further research should consider the information asymmetry variable in examining the relationship between capital structure and firm value with firm size as a moderating variable.

Funding

The authors received no direct funding for this research.

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Citation information

Cite this article as: Firm size sensitivity on the correlation between financing choice and firm value, Yossi Diantimala, Sofyan Syahnur, Ratna Mulyany & Faisal Faisal, *Cogent Business & Management* (2021), 8: 1926404.

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