FIRM LEVEL, OWNERSHIP CONCENTRATION AND INDUSTRY LEVEL DETERMINANTS OF CAPITAL STRUCTURE IN AN EMERGING MARKET: INDONESIA EVIDENCE

Razali Haron

IIUM Institute of Islamic Banking and Finance, International Islamic University Malaysia, Jalan Gombak, 53100 Kuala Lumpur, Malaysia

*E-mail: hrazali@iium.edu.my

ABSTRACT

This study evaluates the impact of firm and industry level determinants plus ownership concentration on the capital structure decisions in Indonesia. This study finds that growing firms seem to employ high level of debt, taking advantage of the tax shield as explained by the trade-off theory. However, if the firms are operating in a highly dynamic environment they tend to take on less debt as to avoid bankruptcy risk. Known to be in a highly concentrated ownership structure, firms in Indonesia opt to debt financing perhaps to act as a controlling mechanism to mitigate agency conflicts that may exist between the large controlling shareholders and the minority. Aged and highly profitable firms with high tangible and intangible assets and liquidity level operating in a high munificence environment follow the pecking order theory. The insights on the impact of industry characteristics are novel especially on emerging market thus fill the gap in the literature.

Keywords: capital structure, emerging market, ownership concentration, Indonesia

INTRODUCTION

Capital structure decision is when a firm chooses its financing method between debt and equity or the best mixture of both to finance its operations and future

investments and at the same time aiming at reducing its cost of capital. It has been the most debatable issue in finance literature globally regardless of the economic environment, developed or emerging markets and has received tremendous attention from researchers and policy makers over the decades due to its influence over firm value.

Focussing on the emerging market in the East Asian region, these markets were badly hit by the 1997 Asian financial crisis. This turmoil has been frequently documented to be attributed by a very poor corporate governance system (Carney & Child, 2013). The need for a more strategic and effective corporate governance becomes paramount over the years and ownership structure is one of the crucial mechanisms needs to be scrutinised and studied. As documented by Claessens, Djankov, Fan and Lang (2002), East Asian markets are known with the reputation of having a high level of ownership concentration and family control. In such an environment where high ownership concentration and family control are prevalent, the agency problems may arise between the controlling shareholder and minority shareholders and can consequently give a significant impact on the financial decision of the firms.

Therefore, by using a set of recent data from the year 2000–2014 over 402 firms, this study firstly examines the impact of commonly cited firm level determinants on the financing choices of firms in Indonesia, being an emerging market; secondly investigates the influence of industry characteristics: the industry dynamism, industry munificence and industry concentration on leverage; thirdly examines the impact of ownership structure on the financing decision of the Indonesian firms. Indonesia's capital market is featured by higher ownership concentration and family control (Claessens et al., 2002; Carney & Child, 2013), weaker legal system and investor protection, and weaker disclosure requirements (La Porta, Lopez de Silanez, & Shleifer, 1999; Claessens & Fan, 2002) thus offers a unique case for this study. Finally, to analyse the governing capital structure theories to better explain the findings. These objectives shine out this study from the existing once and offer policy implication to not just Indonesia but other economies as well.

The rest of the study proceeds as follows. The next section deals with literature review of related theories, related studies of capital structure, a brief explanation of the determinants examined with the development of hypotheses. Then follows by the data and methodology employed for the purpose of this study. Later comes the analysis of the findings, discussion and the last section concludes the study.

LITERATURE REVIEW

Extensive studies have been carried out in understanding the capital structure of firms ever since Modigliani and Miller (1958), later referred to as the MM irrelevance theory, argue that in an efficient and perfect market capital structure is irrelevant to the value of the firm and firms should be indifferent in choosing between debt and equity financing. Streams of capital structure studies emerge in the literature mostly arguing that the proposition is unrealistic and there are in fact unavoidable frictions like taxes in the capital market. In 1963, they then modify and include tax in their study and claim that the presence of tax shield on debt has significant influence on the value of firm. This documentation has initiated the introduction of new theories to explain the variations in debt ratios across firms. The trade-off theory (TOT) emphasises on the trade-off between the benefit of debt due to debt tax shield and the cost of bankruptcy. The pecking order theory (POT) promotes the use of internal rather than external resources, and secured rather than unsecured securities (Myers & Majluf, 1984). The financing method chosen signals the credibility of the manager and the performance of the firm.

The agency theory on the other hand, argues that optimal capital structure can be achieved when the costs arising from conflict between the shareholders and managers known as agency conflict is mitigated (Jensen & Meckling, 1976). Good corporate governance is therefore crucial to mitigate this agency conflict and ownership structure is one mechanism that helps in ironing off the conflicts between shareholders and the managers as well. In the case of concentrated ownership, the large shareholder, being the controlling party has greater opportunities to expropriate the firm's wealth at the expense of the minority shareholders (Shleifer & Vishny, 1997). The agency theory elaborates that being the controlling shareholders they enjoy substantial private benefit which may lead to misalignments of interests between the controlling shareholder and minority shareholders. Firms with a higher level of ownership concentration, as well as in less-developed markets with weaker minority shareholders protection are more susceptible to be affected by this agency problem (La Porta et al., 1999).

Later the years, Baker and Wurgler (2002) argue that current capital structure is actually the cumulative outcome of past attempts to time the market. This argument introduces the market timing theory and stresses that market valuation impacts capital structure persistently.

Past Studies on Indonesia

Indonesia underwent several reformations in its financial system as its financial market activities decades ago were dull and there were a lot of flaws in the firms'

financing choices with state-owned banks dominating the debt market and over shadowed the capital market (Moosa & Li, 2012). It was apparent that Indonesian financial systems then needed robust deregulations and reformations. The government control over initial offering prices and the daily movement of stock prices was lifted, providing a fair game between the state and private banks, the choices between debt and equity as well as between internal and external sources of equity. At present after several financial reformations and severe experiences during several financial crises, the Organisation Economic Cooperation and Development (OECD) (2016) predicts in the long term perspective of 2016 to 2020, Indonesia's average real growth rate is predicted to remain high at 5.5% per year, higher than the average real growth rate of 5.2% of ASEAN (10 countries).

Ang, Fatemi and Tourani (1997) conduct a survey on capital structure and dividend policy on the CEOs of all 180 firms listed on the IDX. Firms are found to have good access to various sources of funds like debt and equities. Nevertheless, that access is not because of information asymmetry but because of fairly reasonable interest rates, thus no influence of the POT in this case. Ruslim (2009) analyses a sample of 18 firms of Indonesian firms for the period of 2000 to 2006, and finds that profitability has no significant impact on the capital structure of firms in Indonesia, again implying no evidence of POT influence in the financing decisions in Indonesia. Bunkanwanicha, Gupta and Rokhim (2008), on a different strand, incorporate corporate governance arrangement in their study on Indonesia and find that weaker corporate governance seem to have higher debt level especially during financial crisis. They also highlight that country level determinants could also impact empirical results.

Moosa and Li (2012) reveal that some firm level determinants may not have similar impacts on the firms' capital structure as evidenced in the literature. They also discover that the financial reformation experienced by Indonesia have indeed eliminated the inefficient corporate financial policies and financial market during the dominance of state banks.

Saadah and Prijadi (2012) examine the capital structure of 53 manufacturing firms in Indonesia over a study period from 2001–2008. Using the determinants representing the main capital structure theories, they reveal that the TOT and POT are quite pronounced, working side by side in the financing decisions of the firms. This supports Myers (2003) statement that a collaboration of theories is needed to better explain the financing choices of firms. Hardiyanto, Achsani, Sembel and Maulana (2014) using a panel data from year 2005 to 2011 on 228 companies, conclude that firms in Indonesia have specific level of debt ratio in their capital structure and try to maintain that debt ratio level for

value maximisation. They also argue that certain firm level determinants do play significant roles in maintaining the debt ratio, thus, managers should take into account the costs that the firm may incur should they change or adjust their capital structure in striving for maximum firm value.

Very recently, Haron (2018) investigates 402 listed companies using a panel data from year 2000 to 2014 concludes that POT has significant influence on the capital structure of firms in Indonesia, with several determinants affecting the financing decisions. This is perhaps, due to the effects of the financial deregulations taken place where internal financing is also significantly preferred in financing investments and projects, not merely bank loan as previously discussed.

Literature on Indonesia has also been compiling evidences where firms with highly concentrated ownership structure face agency problems between the controlling shareholders and minority shareholders (see for examples Driffield, Mahambare, & Pal, 2007; Siregar & Utama, 2008; Carney & Hart, 2015; Utama, Utama, & Amarullah, 2017). This study therefore reveals the insights on how ownership concentration in Indonesia impacts the financing decisions and can perhaps be inferred to by her neighbouring countries for they are reported to share similar ownership concentration structure thus fills the gap in the literature.

DETERMINANTS OF CAPITAL STRUCTURE AND HYPOTHESES DEVELOPMENT

We incorporate firm and industry level determinants plus ownership structure in this study as to understand further the capital structure of firms in Indonesia.

Non Debt Tax Shield (NDTS)

NDTS according to Frank and Goyal (2009) should be negatively correlated with leverage as NDTS is the alternative to tax shields provided by debt financing. This is evidenced by Ameer (2010) on Indonesian firms. NDTS is represented by annual depreciation expenses to total asset (Frank & Goyal, 2009). We hypothesise that:

H_1: NDTS has a negative influence on capital structure.

Firm Size

Larger firms are seen to have better access to bigger debt consumption as they are less affected by information asymmetry problems and are more diversified thus lesser tendency to fail, indicating a positive relationship which supports the

TOT. This is evidenced in De Jong, Kabir and Nguyen (2008) and Ameer (2010). However, Haron (2016) depicts significant negative relationship between size and leverage due to the effects of Indonesian financial market deregulation activities where the control over initial offering prices and the daily movement of stock prices were lifted thus encouraged large firms to issue equity over debt. Firm size is represented by log of total asset (Deesomsak, Paudyal, & Pescetto, 2009; Haron, 2014). The hypothesis is that:

H_2: Firm size has a positive influence on capital structure.

Business Risk

Earnings volatility is commonly translated as business risk of firms. Higher earnings volatility may increase the risk of default on debt payments. Therefore debt financing should be avoided indicating a negative relationship with leverage as evidenced by Ameer (2010) and Haron (2016). Firms with high degree of risk may prefer equity issuance to debt for business expansion and competencies. Business risk is represented by yearly change in the firm EBIT (Deesomsak et al., 2009; Haron, 2016). Here, the hypothesis is:

H_3: Business risk has a negative influence on capital structure.

Tangibility

Lenders are more willing to lend to firms with high tangible assets as these assets are easier to repossess in bankruptcy, thus a positive relationship is anticipated between tangible assets and leverage as explained by TOT and supported by Bunkanwanicha et al. (2008) and Moosa and Li (2012). Degryse, Goeij and Kappert (2010) argues that the positive effect of tangibility on total debt comes entirely from long-term debt as these tangible assets are used to secure long-term debt. Tangible assets are also found to negatively relate to leverage where firms that employ lots of tangible assets seem to rely more on internal funds generated from these assets, which is predicted by the POT (Haron, 2016). Based on the discussion above, Degryse et al. (2010) and Qamar, Farooq, Afzal and Akhtar (2016) argue that short-term debt is negatively related with asset tangibility. Tangible asset is represented by net fixed asset over total asset (Rajan & Zingales, 1995; Haron, 2016). As for tangibility, the hypothesis is that:

H_4: Asset tangibility has a positive influence on capital structure.

Liquidity

When a firm is said to be liquid, the internal funds will be quite substantial thus the need for debt financing will be lessen. This is explained well by POT that firms with high liquidity needs less debt financing and opt to internal funding given the huge retained earnings of the firm. This reflects a negative relationship between liquidity and leverage. Firm liquidity is represented by current asset to current liabilities (Deesomsak et al., 2009; Moosa & Li, 2012). The hypothesis is that:

H_5: Firm liquidity has a negative influence on capital structure.

Profitability

Asymmetric information problem is a concern and can affect the financing choice of a firm. Managers of firms with high profit and cash flows might opt to internal resources first when deciding on investment financing as a mean to mitigate information asymmetry (Myers & Majluf, 1984) as these are the cheapest funds rather than using external financing, either debt or equity. Hence, profitability is expected to affect leverage negatively indicating the support of the POT (Bunkanwanicha et al. 2008; Haron, 2016). Firm's profitability is represented by EBIT over total asset (Rajan & Zingales, 1995; Haron, 2016). Thus, the hypothesis for this variable is:

H_6: Firm's profitability has a negative influence on capital structure.

Intangibility

Intangible assets like copyright, goodwill, patent, trade mark, and research and development costs do have significant impact on capital structure of firms (Rajan & Zingales, 1995). The TOT and the agency theory suggest a negative association between intangible assets and leverage, while the POT implies that firms with more intangible assets confront more asymmetric information problem and thus use more debt financing. Loumioti (2011) find that intangible assets do help firms in the US in confronting information asymmetry problems as intangible assets like goodwill is capable to increase borrower's access to debt in order to mitigate this problem. Intangibility is measured by the ratio of intangible assets to total assets (Chen & Strange, 2005). We hypothesise that:

H_7: Intangibility has a positive influence on capital structure.

Growth

Firms with good growth record require huge funds for expansion. The agency theory explains that growth firms will choose to issue equities to fund their operations and investments as a signal to the outsiders that they are not facing any underinvestment and asset substitution problems. Therefore, growth is expected to relate negatively with leverage. POT also sees a negative relationship between growth and leverage as being large firms they are expected to have substantial retained earnings. When retained earnings are much higher than investments and growth expenses, debt ratio will consequently decrease (Myers & Majluf, 1984; De Jong et al., 2008). Growth is represented by market value of equity over book value of equity (Rajan & Zingales, 1995). Following literature, we hypothesise:

H_8: Firm growth has a negative influence on capital structure.

Age

With regard to age, our hypothesis is that the older a firm is, the more it is able to accumulate funds and the less it will need to borrow either long-term or short-term. In other words, a new firm will not have time to retain funds and may be forced to borrow. Consequently age is likely to be negatively related to leverage (Chen & Strange, 2005). Older firms have longer track records and therefore a higher reputational value. Age of firm is measured from the year of listing on the stock exchange (Chen & Strange, 2005). As this study aims to examine the influence of age of a listed firm on its leverage, how long has it become a listed firm will better reflect the impact of age on the leverage of a listed firm comparative to from the year of its establishment. We hypothesise:

H_9: Age has a negative influence on capital structure.

Share Price Performance

Equity issuance will be preferred if a firm accumulates a strong share price performance with the present market values comparatively higher than the past market values. On the other hand, firm will repurchase equity if the situation is otherwise. This notion is based on the market timing theory, indicating a negative relationship between share price performance and leverage and is evidenced by Setyawan and Budi (2012) and Haron (2016). Share price performance is represented by yearly change in year-end share price (Deesomsak et al., 2009; Haron, 2016). The hypothesis for this variable is that:

H_{10}: Share price performance has a negative influence on capital
structure.

Ownership Concentration

Large shareholders have the incentive and power to monitor and control the action of managers (Shleifer & Vishny, 1986). Debt acts as the controlling mechanism making it difficult for managers to adjust capital structure according to their own interests. Besides, shareholders may prefer debt than equity financing to avoid ownership dilution, and thus retain control on the firm. This suggests a positive relationship between ownership concentration and capital structure. Several studies also find positive relationship between concentrated ownership and leverage like Driffield et al. (2007), Li, Yue and Zhao (2009), Cespedes, Gonzalez and Molina (2010) and Alimehmeti and Paletta (2012).

In contrast, large shareholders with concentrated ownership can act as a controlling mechanism instead of debt to monitor management activities (Jensen & Meckling, 1976). Thus a negative relationship between ownership concentration and leverage is expected. Ownership concentration is measured based on the shareholdings greater than 5% (Siregar & Utama, 2008; Utama et al., 2017; Haron, 2018). The hypothesis for this variable is that:

H_{11}: Ownership concentration has a positive influence on capital
structure.

Munificence

Munificence is the ability of the environment in the industry to ensure sustainability of a firm (Kayo & Kimura, 2011). This means, an industry with high munificence has plenty of resources but with low competition hence, increases profitability of the firm. In this type of industry environment, firms will consequently gain high level of profit. A munificence industry promotes higher profitability. Kayo and Kimura (2011) infer the relationship between munificence and profitability with profitability and leverage and record a negative relationship thus supporting the POT explanation. Munificence is measured by first, regressing time against sales of an industry over the five years of the period under analysis to generate the regression slope coefficient and second, taking the ratio of the regression slope coefficient to the mean value of sales over the same period (Kayo & Kimura, 2011). Following literature, we hypothesise that:

H_{12}: Munificence has significant effect on capital structure.

Industry Dynamism

Industry dynamism reflects the degree of instability or unpredictability of an industry. The concept of industry dynamism, according to Ferri and Jones (1979) to a certain extent can be interpreted as risk where firms operating in a dynamic less predictable environment would engage with lesser debt. The more dynamic the industry, the riskier it gets, the lower the leverage level of the firm (Ferri & Jones, 1979). Kayo and Kimura (2011) find a negative relationship between industry dynamism and leverage. Industry dynamism is measured by dividing the standard error of the munificence regression slope coefficient with the mean value of sales over the same period (Kayo & Kimura, 2011). The hypothesis is that:

> H_{13}: Industry dynamism has a negative influence on capital structure.

Industry Concentration

The influence of industry concentration on firm leverage is measured using the Herfindahl–Hirshman Index (HHI). Highly concentrated industry (high HHI) consumes high level of debt (MacKay & Phillips, 2005). MacKay and Phillips also argue that profitability, size and risk are higher in a highly concentrated industry. Firms investing in high risks projects pursue high returns when debt is high. Thus a positive relationship is anticipated between HHI and leverage as explained by the TOT. However, Kayo and Kimura (2011) record a negative relationship between HHI and leverage indicating highly concentrated industry encourages firms to reduce the employment of debt due to the higher risk that may be translated with higher bankruptcy risks. HHI is measured based on the sum of the squares of market shares (sales) of firms within a given industry for the year (Kayo & Kimura, 2011). Based on literature, we hypothesise that:

> H_{14}: Industry concentration (HHI) has significant effect on capital structure.

Table 1 summarises the variables, measurement, hypotheses and the expected signs of the relationships.

Table 1
Variables, measurement, hypothesis and expected signs

Variables	Measurement	Hypothesis	Expected sign
Independent variable			
Leverage	Total debt/Total asset		
	Long term debt/Total asset		
	Short term debt/Total asset		
Explanatory variables			
Firm variable			
Non-debt tax shield	Annual depreciation expenses/ Total asset	H_1	Negative
Firm size	Log total asset	H_2	Positive
Business risk	Yearly change in firm EBIT	H_3	Negative
Tangibility	Net fixed asset/Total asset	H_4	Positive
Liquidity	Current asset/Current liabilities	H_5	Negative
Profitability	EBIT/Total asset	H_6	Negative
Intangible asset	Intangible asset/Total asset	H_7	Positive
Growth	Market value equity/Book value equity	H_8	Negative
Age	Years since listing	H_9	Negative
Share price performance	Yearly change in year-end share price	H_{10}	Negative
Ownership concentration	Ownership with shareholdings greater than 5%	H_{11}	Positive
Industry variable			
Munificence	(1) regressing time against sales of an industry over the 5 years of the period under analysis and (2) taking the ratio of the regression slope coefficient to the mean value of sales over the same period	H_{12}	Positive/ Negative
Dynamism	Standard error of the munificence regression slope coefficient divided by the mean value of sales over the same period	H_{13}	Negative
Herfindahl–Hirshman Index (HHI)	Sum of the squares of market shares (sales) of firms within a given industry for the year	H_{14}	Positive/ Negative

DATA AND METHODOLOGY

Data

We analyse 402 non-financial listed Indonesian firms between 2000 and 2014 (4737 total observations) with firm data extracted from the Datastream. Financial firms (banks, insurance companies and investments trusts) are excluded from the sample, following the literature. The 402 sample firms consist of 75% out of 537 listed firms on the IDX (as at November, 2016) and this proportion could be regarded as the whole population of firms for generalisation purposes. The sample cover firms from various industries of listing including agriculture, consumer products, industrial, infrastructure and utilities, mining, properties, trade and services and miscellaneous industry. Table 2 describes the detail of the sample firms according to industries. Only firms with a minimum of three consecutive observations toward the end of the study period are included in the data set (Deesomsak et al., 2009; Haron, 2016), meaning the firms should at least be listed on the IDX from the year 2012. Unbalanced panel data is utilised due to the different listing dates of firms within the study period of 2000–2014.

Table 2

Number of firms and observations in each industry

Industry	Number of firms	Percentage	Number of observations
Agriculture	21	5.22	204
Consumer products	36	8.96	465
Industrial	62	15.42	814
Infrastructure and utilities	47	11.69	461
Mining	36	8.96	384
Properties	51	12.69	592
Trade and services	110	27.36	1279
Miscellaneous	39	9.70	538
Total sample	402	100	4737

Note: Industry classification is following the general industry listing of the Indonesia Stock Exchange.
Source: http://www.idx.co.id/

Methodology

Leverage in this study, is defined as the ratio of total debt to total asset $\left(\frac{\text{TD}}{\text{TA}}\right)$ (see, for examples, Bunkanwanicha et al., 2008; Seifert & Gonenc, 2016). To check for the consistency of the results on determinants of leverage $\left(\frac{\text{TD}}{\text{TA}}\right)$, we

also defined leverage as the ratio of long term debt to total asset $\left(\frac{\text{LTD}}{\text{TA}}\right)$ and short term debt to total asset $\left(\frac{\text{STD}}{\text{TA}}\right)$.

We employ a static panel data approach to estimate the parameters of interest and estimate the firm leverage with a set of firm level and industry level determinants. Under the static panel data approach, the observed leverage of firms is assumed to be the optimal leverage. To examine the determinants of leverage, the leverage function is specified as:

$$Lev_{it} = \alpha + \beta_1 NDTS_{it} + \beta_2 SIZE_{it} + \beta_3 RISK_{it} + \beta_4 TANG_{it}$$
$$+ \beta_5 LIQ_{it} + \beta_6 PROF_{it} + \beta_7 INTANG_{it} + \beta_8 GROW_{it} + \beta_9 AGE_{it} \qquad (1)$$
$$+ \beta_{10} SPP_{it} + \beta_{11} OWN_{it} + \beta_{12} MUN_t + \beta_{13} DYN_t + \beta_{14} HHI_t + \varepsilon_{it}$$

where the dependent variable, Lev_{it}, represents the leverage level of firm i at time t, which is defined as $\frac{\text{TD}}{\text{TA}}$, $\frac{\text{LTD}}{\text{TA}}$ and $\frac{\text{STD}}{\text{TA}}$. Firm level determinants comprising of NDTS (non-debt tax shield), *SIZE* (firm size), *RISK* (business risk), *TANG* (asset tangibility), *LIQ* (liquidity), *PROF* (profitability), *INTANG* (intangibility), *GROW* (growth), *AGE* (firm age), *SPP* (share price performance), *OWN* (ownership concentration), and industry level determinants comprising of *MUN* (industry munificence), *DYN* (industry dynamism), *HHI* (industry concentration) and ε_{it} is the error term.

Based on Equation (1), if individual firm effects do not exist and all other assumptions are satisfied, ordinary least square (OLS) is sufficient as model estimation as it produces efficient and consistent parameters estimates. However, in the presence of individual firm effects, heterogeneity may influence OLS assumptions and the violation of assumptions renders OLS to be biased. Hence the OLS estimator is no longer best linear unbiased estimator (BLUE). Then panel data models such as fixed effects model (FEM) and random effects model (REM) provide better way to deal with these problems.

The FEM is estimated based on within effect estimation method and is expressed as follow.

$$Y_{it} = (\alpha + u_j + \lambda_t) + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots\ldots + \beta_k X_{kit} + \varepsilon_{it} \qquad (2)$$

where u_j and λ_t denotes the individual and time effects respectively, together they represent that each firm is having different intercepts.

REM, unlike the FEM, the intercepts and slope of regresses are the same across individual firm. The REM can be written as follow.

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \text{...} + \beta_k X_{kit} + \varepsilon_{it} \qquad (3)$$

where $\varepsilon_{it} = u_j + \lambda_t + v_{it}; u_j$ and λ_t denotes the individual and time effects respectively.

Through several model specification tests, the robust model that is the most appropriate for this study is identified among the three panel data models i.e. pooled OLS, FEM and REM. Accordingly, this study employed all the three tests, namely the Chow Test, Breusch and Pagan Lagrangian Multiplier Test (BP-LM) and Hausman Test in selecting the most appropriate model for this study.

We perform diagnosis check to ensure the basic OLS assumptions related to heteroscedasticity, autocorrelation and multicollinearity are not violated. If heteroscedasticity and autocorrelation problem arises, following Hoechle (2007), a robust standard error will be applied as a corrective measure to the problem. After performing the robust standard error, the standard error estimates in this study hence are robust to disturbances being heterocedastic and autocorrelated. As for multicollinearity, we performed the variance inflation factor (VIF) to check for possible multicollinearity between variables. Each variable should have a VIF of less than 10 to avoid multicollinearity problem.

In addition to the diagnostic tests mentioned above, we also perform endogeneity test on each of the independent variable (regressor) in the regression model (with leverage defined as TD/TA, LTD/TA, STD/TA). To test for endogeneity, following Samadeni, Withers and Certo (2014) and Seifert and Gonenc (2016), we first perform the FEM two-stage least square (2SLS) with instrumental variable with a regressor specified as endogenous in the regression. After performing the FEM 2SLS regression, we then perform the Durbin-Wu-Hausman test (DWH statistic) on the regressor that has been specified as endogenous and the same procedure is repeated on each regressor. Following the endogeneity test, if the specified endogenous variable is confirmed to be endogenous, we use instrumental variable to represent the endogenous variable(s) in the FEM regression (see for examples, Samadeni et al., 2014; Seifert & Gonenc, 2016). Instrumental variable is widely known as a solution to endogenous problem where the use of instrumental variable in multiple regressions helps to obtain consistent parameter estimates. We perform the Sargan-Hansen test (Hansen *J* statistic) to test the validity of the instrumental variable (null: the instrumental variable is valid).

ANALYSIS AND FINDINGS

Descriptive Statistics

Table 3 summarises the descriptive statistics of all variables in this study. Indonesian firms employ mean leverage of 0.3691, 0.1344 and 0.2673 of $\frac{TD}{TA}$, $\frac{LTD}{TA}$ and $\frac{STD}{TA}$ respectively in their capital structure. Short term debt is noticeably higher compared to long term debt employed by Indonesian firms during the period understudy. Ahsan, Man and Qureshi (2016) have also recorded a higher use of short term debt compared to long term debt among firms in emerging markets. Ownership concentration shows, on average 47.64% ownership exceeds 5% shareholding with the maximum and minimum of 100% and zero respectively. This statistic shows that the ownership structure of public Indonesian firms is highly concentrated. Utama et al. (2017) posit that it is quite prevalent for public firms in Indonesia to have only a few shareholders with substantially large holdings (i.e. at least 5%).

Table 3
Descriptive statistics (whole sample)

Variable	Mean	Maximum	Minimum	Median	Standard Deviation
TD/TA	0.3691	0.9020	0.0998	0.3355	0.1872
LTD/TA	0.1344	0.7931	0.0000	0.0644	0.1655
STD/TA	0.2673	0.8420	0.0998	0.2133	0.1642
NDTS	0.0310	0.6045	0.0000	0.0244	0.0384
Firm Size	11.5277	16.8969	4.1109	11.5955	1.7817
Risk	–0.0594	28.5000	–29.7739	–0.0275	3.0502
Tangibility	0.3922	0.9852	0.0000	0.3677	0.2504
Liquidity	2.1793	29.8679	0.1027	1.4378	2.6678
Profitability	0.0654	2.8310	–2.9565	0.0672	0.1791
Intangible	0.0164	0.9650	0.0000	0.0000	0.0621
Growth	8.3666	97.8479	0.6000	2.9101	14.2480
Age	15.4104	38.0000	3.0000	15.0000	7.6098
SPP	0.0058	2.7810	–4.8121	0.0010	0.2038
Ownership	0.4764	1.0000	0.0000	0.5700	0.3383
Munificence	0.1563	0.4041	0.0050	0.1534	0.0751
Dynamism	0.0544	0.1592	0.0081	0.0493	0.0310
HHI	0.1420	0.4841	0.0398	0.0961	0.1082

Notes: Number of all firms = 402; Number of observations = 4737 for each variable. SPP = Share Price Performance, HHI = Herfindahl–Hirshman Index.

Determinants of Leverage

After performing the three tests (Chow, BP-LM, Hausman) to determine the most appropriate model to be employed in explaining the relationship between leverages (total debt, long term debt and short term debt over total asset) and its determinants, it is found that FEM is the most appropriate model to explain the relationship. Hence, further discussions on the findings between leverage $\left(\frac{TD}{TA}\right)$ and its determinants are based on the FEM with instrumental variable to address the endogeneity issue. $\frac{LTD}{TA}$ and $\frac{STD}{TA}$ are used as a robustness check in order to examine the consistency of the results of determinants of leverage $\left(\frac{TD}{TA}\right)$.

Table 4
Determinants of leverage

Leverage	TD/TA	LTD/TA	STD/TA	
Explanatory variables	Fixed effects with instrumental variable	Fixed effects with instrumental variable	Fixed effects with instrumental variable	VIF
NDTS	−0.6832 [−1.00]	−0.7466 [−1.54]	0.0635 [0.20]	1.76
Size	−0.0631 [−1.37]	−0.0532* [−1.65]	−0.0099 [−0.53]	1.11
Risk	0.0000 [0.61]	−0.0001 [−1.64]	0.00018 [1.25]	1.01
Tangibility	−0.1683** [−2.20]	−0.0011 [−0.02]	−0.1672*** [−3.25]	1.27
Liquidity	−0.0004** [−1.97]	0.0002 [1.31]	−0.0005** [−2.35]	1.03
Profitability	−0.3900*** [−72.90]	−0.0036 [−0.97]	−0.3864*** [−116.51]	1.58
Intangible	−0.3480** [−2.53]	−0.0042 [−0.09]	−0.3438** [−2.65]	1.07
Growth	0.0001*** [3.98]	0.0001** [2.47]	0.0001*** [3.47]	1.09
Age	−0.0102*** [−3.06]	−0.0038 [−1.09]	−0.0067*** [−2.81]	1.09
SPP	−0.0154 [−1.23]	−0.0270* [−1.91]	0.0116 [0.70]	1.03
Ownership	0.0167** [2.01]	0.0158 [1.40]	−0.0063 [−0.49]	1.08

Table 4 (*continued*)

Leverage	TD/TA	LTD/TA	STD/TA	
Explanatory variables	Fixed effects with instrumental variable	Fixed effects with instrumental variable	Fixed effects with instrumental variable	VIF
Munificence	−0.2586***	−0.1985***	−0.0602	1.12
	[−3.40]	[−3.47]	[−1.07]	
Dynamism	−0.5873**	−0.3006*	−0.2865	1.05
	[−2.31]	[−1.73]	[−1.31]	
HHI	−0.0242	−0.2323	0.2080	1.06
	[−0.10]	[−1.45]	[0.131]	
R^2	0.9424	0.0556	0.9691	
F-stat	9100.30***	5.35***	19853.83***	
Hansen *J*-stat	5.947	4.216	4.39	
p-value	0.1142	0.2391	0.2223	
Observations	4737	4737	4737	

Notes: The *z*-statistics in parentheses are the *z*-values are robust standard errors adjusted for heteroscedasticity and autocorrelation; ***, **, * denotes significant at 0.01, 0.05 and 0.10 levels respectively. Sargan-Hansen test (Hansen *J*-statistic) in FE (with Instrumental Variable) refers to the null: Instrumental Variable is valid. Multicollinearity test in the dataset is performed and no multicollinearity problem is found in the data since the variance inflation factor (VIF) of variables are less than 10 for TD/TA as the dependent variable, reported above. Similarly, VIF are less than 10 on variables when regress with LTD/TA and STD/TA; SPP = Share Price Performance, HHI = Herfindahl–Hirshman Index.

Based on Table 4, nine determinants, which are the firm level determinants: tangibility, liquidity, profitability, intangible, growth, age and ownership of firm and industry level determinants: munificence and dynamism, are found to significantly influence the leverage $\left(\frac{\text{TD}}{\text{TA}}\right)$ of Indonesian firms throughout the period understudy.

This study depicts a negative relationship between tangibility and $\frac{\text{TD}}{\text{TA}}(p = 0.01)$. The negative relationship is also consistent with $\frac{\text{STD}}{\text{TA}}(p = 0.01)$. This finding however does not support H_4. Tangible assets are commonly used to secure long term debt (Qamar et al., 2016). Apparently from the descriptive analysis, long term debt is much lower than short term debt in Indonesia. This inversed relationship is particularly enhanced by the negative relationship of short term debt with tangibility found in this study as well, confirming what has been highlighted by Degryse et al. (2010). Another reason is perhaps firms in Indonesia which rely on high tangible assets generate relatively high internal funds thus tend to avoid debt financing as explained by POT. Liquidity is reported

to relate negatively with $\frac{\text{TD}}{\text{TA}}(p = 0.05)$, is consistent with $\frac{\text{STD}}{\text{TA}}(p = 0.05)$. H_5 is thus supported. When firms in Indonesia have high liquidity level, they seem to lower their debt consumption due to higher retained earnings. This scenario reflects the influence of POT in their capital structure decisions and is consistent with Deesomsak et al. (2009) and Moosa and Li (2012).

Profitability is found to relate negatively with $\frac{\text{TD}}{\text{TA}}(p = 0.01)$ and is consistent with $\frac{\text{STD}}{\text{TA}}(p = 0.01)$. H_6 is thus supported. Highly profitable firms in Indonesia choose to use their retained earnings to finance their investments thus reflecting the influence of POT in their capital structure decisions. Supporting Bunkanwanicha et al. (2008) and Moosa and Li (2012), the negative relationship reported may be the results of the financial reformations taken place in Indonesia which have opened up and encouraged firms to turn to their retained earnings instead of merely bank loans to finance their investments.

Intangible asset is reported to negatively related to $\frac{\text{TD}}{\text{TA}}(p = 0.05)$ and is consistent with $\frac{\text{STD}}{\text{TA}}(p = 0.05)$. This finding is however in contrast to H_7. The negative relationship depicted in this study nevertheless, does not support what has been recorded in the literature especially on the developed market. This may be because the Bank Indonesia (the central bank) does not acknowledge intangible assets as collateral to secure debt from lenders and does not impose a policy of intangible asset as a fiduciary security object because these assets lack in economic value and cannot be traded (Mulyani, Janni, & Khamimah, 2014). Apart from that, it is hard to measure the value of these assets and if intangible assets are used as collateral, it would be difficult to anticipate the risks of bank losses.

Growth is found to have a positive relationship with $\frac{\text{TD}}{\text{TA}}(p = 0.01)$, consistent with $\frac{\text{LTD}}{\text{TA}}(p = 0.05)$ and $\frac{\text{STD}}{\text{TA}}(p = 0.01)$. This finding is nevertheless in contrast to H_8. Fast growing firms in Indonesia seem to engage with more debt to address any underinvestment problems that might occur as explained by the agency theory. Myers (2003) argues that growth firms prefer short-term debt to minimise under-investment costs thus explains the positive relationship depicted in this study. Growth firms in Indonesia might also issue debt over equity should they need external financing as they could reap the advantage of tax shield from debt financing. This positive relationship is also reported by Booth, Aivazian, Demirguc-Kunt and Maksimovic (2001) in their study on emerging countries.

Age of firm is negatively related to $\frac{\text{TD}}{\text{TA}}(p = 0.01)$, H_9 is thus supported, consistent with $\frac{\text{STD}}{\text{TA}}(p = 0.01)$. Conforming to what has been argued previously in past studies, the older the firm, the more accumulated funds it will have and the lesser the need of debt financing, either short term or long term. Based on the sample firms of this study, about 53% of the firms have been listed for more than 15 years with the average of 15.41 years. Apparently, these aged firms have more impressive track record with substantial retained earnings thus do not require external financing like debt (Chen & Strange, 2005). The negative relationship between age and leverage reflects the influence of POT in the capital structure of aged firms in Indonesia.

Higher level of concentrated ownership has a positive influence on $\frac{\text{TD}}{\text{TA}}(p = 0.05)$, H_{11} is thus supported. This result however is not supported by other leverage definitions of $\frac{\text{LTD}}{\text{TA}}$ and $\frac{\text{STD}}{\text{TA}}$. This finding supports the findings by Driffield et al. (2007) and Alimehmeti and Paletta (2012). The positive relationship depicted in this study reflects the power and authority of the large controlling shareholder in a highly-concentrated ownership environment employing debt as controlling mechanism on the managers. The positive relationship may also be explained by the reluctance of large shareholders to engage with equity financing as to avoid ownership dilution thus can maintain the control of the firms.

In term of industry level determinants, munificence is found to have a negative relationship with $\frac{\text{TD}}{\text{TA}}(p = 0.01)$, consistent with $\frac{\text{LTD}}{\text{TA}}(p = 0.01)$. H_{12} is thus supported. Firms in Indonesia operating in an industry with high munificence level employ less debt in their capital structure. Since munificence industry promotes higher profitability, a firm in the industry is able to increase its retained earnings substantially thus needs less debt financing. Higher munificence level is translated into higher profitability and lower debt, thus supporting the POT. Kayo and Kimura (2011) also report a negative relationship between munificence and leverage.

Dynamism is negatively related to $\frac{\text{TD}}{\text{TA}}(p = 0.05)$, which is consistent with $\frac{\text{LTD}}{\text{TA}}(p = 0.10)$. This finding supports H_{13}. This finding reflects the concept of dynamism being interpreted as risk as suggested by Ferri and Jones (1979) therefore, firms in Indonesia operating in a highly dynamic environment employ less debt to avoid excessive risks that come with high debt level. This study supports Kayo and Kimura (2011) where they argue firms in a highly dynamic industry will employ less debt due to the high risks they might incur.

Nonetheless results of this study show that some of the determinants (NDTS, size, risk, share price performance, industry concentration) appeared to be insignificant on capital structure of Indonesian firms $\left(\frac{\text{TD}}{\text{TA}}\right)$ despite being reported as important factors in capital structure studies. The finding of this study is summarised in Table 5.

Table 5
Summary of finding

Explanatory variable	Hypotheses (expected sign)	Hypotheses (Supported/Not supported)	Theories supporting finding	Consistencies with LTD/TA and STD/TA
NDTS	H_1: negative	Not supported	-	-
Firm size	H_2: positive	Not Supported	-	-
Risk	H_3: negative	Not supported	-	-
Tangibility	H_4: positive	Not supported	POT	STD/TA
Liquidity	H_5: negative	Supported	POT	STD/TA
Profitability	H_6: negative	Supported	POT	STD/TA
Intangibility	H_7: positive	Not supported	TOT/Agency	STD/TA
Growth	H_8: negative	Not supported	TOT/Agency	LTD/TA; STD/TA
Age	H_9: negative	Supported	POT	STD/TA
SPP	H_{10}: negative	Not supported	-	-
Ownership	H_{11}: positive	Supported	Agency	-
Munificence	H_{12}: significant	Supported	POT	LTD/TA
Dynamism	H_{13}: negative	Supported	TOT	LTD/TA
HH Index	H_{14}: significant	Not supported	-	-

Notes: SPP = Share Price Performance, HHI = Herfindahl–Hirshman Index.

CONCLUSION

This study examines the impact of firm level as well as industry level determinants on capital structure of firms in Indonesia. This study uses the FEM with instrumental variable to examine the relationship between the determinants and leverage and the results are robust to heterogeneity, autocorrelation, multicollinearity and endogeneity concern. This study depicts high short term debt employment compared to long term debt among firms in Indonesia, similar to other emerging markets. As what has been stated in the body of knowledge, the use of short term debt is more pronounced in the emerging and this study confirms that.

Certain firm level determinants like firm tangibility, liquidity, profitability, intangibility, growth, age and concentrated ownership do have significant influence on the capital structure of the firms understudy. However, certain hypotheses cannot be supported like tangibility, intangibility and growth.

Industry level determinants incorporated in this study also appear to have significant impact on the capital structure of these firms. It seems that a firm operating in a high munificence level and in a very dynamic environment employs less debt due to higher retained earnings and higher risk level respectively. Growing firms in Indonesia employ high level of debt due to low asymmetric information problems and get better access to bank loans as a result of competitive field among the banks after the financial liberalisation. These firms seem to take advantage of the tax shield offered by engaging with long term and short term debt and are willing to take higher risks for higher returns. All these reflect the influence of TOT on the financing decisions of the firms.

Nevertheless, aged and highly profitable firms with high tangible and intangible assets and highly liquid operating in a high munificence environment tend to practice the hierarchical financing (POT) and reduce their debt engagement. With regards to firms operating in a highly dynamic atmosphere, less debt is employed. This is perhaps due to the risks that come with debt financing and firms seem to avoid incurring high risk with high level of debt. The concentrated ownership phenomenon does have a significant impact on leverage in Indonesia. The positive relationship recorded in this study may be explained by the reluctance of large shareholders to engage with equity financing as to avoid ownership dilution thus can maintain the control of the firm.

The findings from this study have important policy implication. This study reveals the significant influence of tangible and intangible assets on capital structure of firms. The central bank should perhaps consider intangible assets as collateral as well to support firm's growth, especially Research and Development (R&D) intensive firms such as the young public high-tech firms for they are subject to high asymmetric information, high volatility of earnings and low collateral value. Thus by recognising intangible assets as collateral might encourage these firms to consider debt as external financing.

The findings from this study contribute significantly to the literature. Both developed and emerging markets can also learn from this study of Indonesia especially on the impact of intangible assets to leverage and the potential of these assets as collateral to secure debts. Other emerging markets with high ownership concentration level in their corporate governance can also learn from Indonesia as depicted in this study. Debt can be an effective controlling mechanism to

discourage managers to manage cash flows and investments at their own self-interest. Debt can also act as a safeguarding mechanism as to avoid ownership dilution thus the large shareholder can maintain their controlling power of the firm.

This study however has limitation. Despite relatively utilising recent data and bigger sample firms comparatively, the results of this study, however, need to be cautiously interpreted. This study does not perform each industry regression individually. All the industries are pooled together since the main focus of this study is to examine the factors affecting leverage of firms in general without giving particular attention to individual industry. Perhaps for future research study can be done on individual industry as firms in different industry react differently responding to certain characteristic of each individual industry. To understand further the issue of concentrated ownership and its impact on capital structure, it is recommended that future research incorporate ownership identity and political connection on debt financing of Indonesian firms. Therefore, a more comprehensive and detail scenario can be captured for future improvement of firms in Indonesia in particular and firms in the rest of emerging markets as a whole.

REFERENCES

Ahsan, T., Man, W., & Qureshi, M. A. (2016). Mean reverting financial leverage: Theory and evidence from Pakistan. *Applied Economics*, *48*(5), 379–388. https://doi.org/10.1080/00036846.2015.1080802

Alimehmeti, G., & Paletta, A. (2012). Ownership concentration and effects over firm performance: Evidences from Italy. *European Scientific Journal [ESJ]*, *8*(22), 39–49.

Ameer, R. (2010). Financial liberalization and firms' capital structure adjustments evidence from Southeast Asia and South America. *Journal of Economics and Finance*, *37*(1), 1–32. https://doi.org/10.1007/s12197-010-9158-3

Ang. J. S., Fatemi, A., & Tourani, A. (1997). Capital structure and dividend policies of Indonesian firms. *Pacific-Basin Finance Journal*, *5*(1), 87–103. https://doi.org/10.1016/S0927-538X(96)00025-X

Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *Journal of Finance*, *57(1),* 1–32. https://doi.org/10.1111/1540-6261.00414

Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001). Capital structure in developing countries. *Journal of Finance*, *56*(1), 87–130. https://doi.org/10.1111/0022-1082.00320

Bunkanwanicha, P., Gupta, J., & Rokhim, R. (2008). Debt and entrenchment: Evidence from Thailand and Indonesia. *European Journal of Operational Research*, *185*(1), 1578–1595. ttps://doi.org/10.1016/j.ejor.2006.08.025

Carney, R. W., & Hart, H.N. (2015). What do changes in corporate ownership in Indonesia tell us? *Bulletin of Indonesian Economic Studies*, *51*(1), 123–145. https://doi.org/10.1080/00074918.2015.1016570

Carney, R. W., & Child, T. B. (2013). Changes to the ownership and control of East Asian corporations between 1996 and 2008: The primacy of politics. *Journal of Financial Economics*, *107*(2), 494–513. https://doi.org/10.1016/j.jfineco.2012.08.013

Cespedes, J., Gonzalez, M., & Molina, C. A. (2010). Ownership and capital structure in Latin America. *Journal of Business Research*, *63*(3), 248–254. https://doi.org/10.1016/j.jbusres.2009.03.010

Chen, J., & Strange, R. (2005). The determinants of capital structure: Evidence from Chinese listed companies. *Economic Change and Restructuring*, *38*(1), 11–35. https://doi.org/10.1007/s10644-005-4521-7

Claessens, S., Djankov, S., Fan, J. P., & Lang, L. H. (2002). Disentangling the incentive and entrenchment effects of large shareholdings. *The Journal of Finance*, *57*(6), 2741–2771. https://doi.org/10.1111/1540-6261.00511

Claessens, S., & Fan, J. P. (2002). Corporate governance in Asia: A survey. *International Review of Finance*, *3*(2), 71–103. https://doi.org/10.1111/1468-2443.00034

Degryse, H., Goeij, P., & Kappert, P. (2010). The impact of firm and industry characteristics on small firms capital structure. *Small Business Economics*, *38*(4), 431–447. https://doi.org/10.1007/s11187-010-9281-8

De Jong, A., Kabir, R., & Nguyen, T. T. (2008). Capital structure around the world: The roles of firm-and country-specific determinants. *Journal of Banking and Finance*, *32*(9), 1954–1969. https://doi.org/10.1016/j.jbankfin.2007.12.034

Deesomsak, R., Paudyal, K. & Pescetto, G. (2009). Debt maturity structure and the 1997 Asian financial crisis. *Journal of Multinational Financial Management*, *19*(1), 26–42. https://doi.org/10.1016/j.mulfin.2008.03.001

Driffield, N., Mahambare, V., & Pal, S. (2007). How does ownership structure affect capital structure and firm value? Recent evidence from East Asia. *Economics of Transition*, *15*(3), 535–573. https://doi.org/10.1111/j.1468-0351.2007.00291.x

Ferri, M. G. & Jones, W. H. (1979). Determinants of financial structure: A new methodological approach. *The Journal of Finance*, *34*(1), 631–644. https://doi.org/10.1111/j.1540-6261.1979.tb02130.x

Frank, M. Z. & Goyal, V. K. (2009). Capital structure decisions: Which variables are reliably important? *Financial Management*, *38*(1), 1–37. https://doi.org/10.1111/j.1755-053X.2009.01026.x

Hardiyanto, A. T., Achsani, N. A., Sembel, R., & Maulana, N. A. (2014). Testing trade-off theory of capital structure: Empirical evidence from Indonesian listed companies. *Economics and Finance Review*, *3*(6), 13–20.

Haron, R. (2014). Capital structure inconclusiveness: Evidence from Malaysia, Thailand and Singapore. *International Journal of Managerial Finance*, *10*(1), 23–38. https://doi.org/10.1108/IJMF-03-2012-0025

Haron, R. (2016). Do Indonesian firms practice target capital structure? A dynamic approach. *Journal of Asia Business Studies*, *10*(3), 318–334. https://doi.org/10.1108/JABS-07-2015-0100

Haron, R. (2018). Ownership and debt financing: Indonesia evidence. In Kucukkocaoglu, G. & Gokten, S. (eds.), *Financial management from an emerging market perspective* (pp. 3–25). Rijeka, Croatia: IntechOpen. https://doi.org/10.5772/intechopen.70618

Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, *7*(3), 1–31.

Jensen, M. C., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Kayo, E. K., & Kimura, H. (2011). Hierarchical determinants of capital structure. *Journal of Banking and Finance*, *35*(1), 358–371. https://doi.org/10.1016/j.jbankfin.2010.08.015

La Porta, R., Lopez de Silanes, F., & Shleifer, A. (1999). Corporate ownership around the world. *The Journal of Finance*, *54*(2), 471–517. https://doi.org/10.1111/0022-1082.00115

Li, K., Yue, H., & Zhao, L. (2009). Ownership, institutions, and capital structure: Evidence from China. *Journal of Comparative Economics*, *37*(1), 471–490. https://doi.org/10.1016/j.jce.2009.07.001

Loumioti, M. (2011). *The use of intangible assets as loan collateral*. Harvard Business School Job Market Paper, 29 October.

MacKay, P., & Phillips, G.M. (2005). How does industry affect firm financial structure? *The Review of Financial Studies*, *18*(1), 1433–1466. https://doi.org/10.1093/rfs/hhi032

Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance, and the theory of investment. *American Economic Review*, *48*(3), 261–297.

Moosa, I., & Li, L. (2012). Firm specific factors as determinants of capital structure: Evidence from Indonesia. *Review of Pacific Basin Financial Markets and Policies*, *15*(2), 1–17. https://doi.org/10.1142/S021909151150007X

Mulyani, S., Janni, A. M., & Khamimah, D. (2014). Policy on entry in the use of intellectual property rights (mark) denotes intangible asset as fiduciary security object efforts to support economic development in Indonesia. *International Journal of Business, Economics and Law*, *5*(4), 51–56.

Myers, S. C. (2003). Financing of corporations. *Handbook of the Economics of Finance*, *1*(1), 215–253. https://doi.org/10.1016/S1574-0102(03)01008-2

Myers, S. C., & Majluf. N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221. https://doi.org/10.1016/0304-405X(84)90023-0

Organisation Economic Cooperation and Development (OECD). (2016). *Economic outlook for Southeast Asia, China and India 2016: Enhancing regional ties.* Paris: OECD Publishing.

Qamar, M. A. J., Farooq, U., Afzal, H., & Akhtar, W. (2016). Determinants of debt financing and their moderating role to leverage-performance relation: An emerging market review. *International Journal of Economics and Finance*, *8*(5), 300–311. https://doi.org/10.5539/ijef.v8n5p300

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance*, *50*(5), 1421–1460. https://doi.org/10.1111/j.1540-6261.1995.tb05184.x

Ruslim, H. (2009). Pengujian struktur modal (Teori Pecking Order): Analisis empiris terhad saham di LQ-45. *Jurnal Bisnis dan Akuntansi*, *11*(3), 209–221.

Saadah, S., & Prijadi, R. (2012). Capital structure's dynamic response to exogenous variables: A case of listed manufacturing firms in Indonesia. *International Journal of Financial Research*, *3*(2), 86–95. https://doi.org/10.5430/ijfr.v3n2p86

Samadeni, M., Withers, M. C., & Certo, S. T. (2014). The perils of endogeneity and instrumental variables in strategy research: Understanding through simulations. *Strategic Management Journal*, *35*(1), 1070–1079. https://doi.org/10.1002/smj.2136

Seifert, B., & Gonenc, H. (2016). Creditor rights, country governance, and corporate cash holdings. *Journal of International Financial Management and Accounting*, *27*(1), 65–90. https://doi.org/10.1111/jifm.12033

Setyawan, I. R., & Budi, F. (2012). Empirical tests for market timing theory of capital structure: The case of IPOs in Indonesian Stock Exchange. *Proceedings of the 14th Malaysian Finance Association Conference*, Kuala Lumpur, Malaysia, 103–120. https://doi.org/10.2139/ssrn.1980014

Shleifer, A., & Vishny, R. W. (1986). Large shareholders and corporate control. *Journal of Political Economy*, *94*(3), 461–488.

Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, *52*(2), 737–783. https://doi.org/10.1111/j.1540-6261.1997.tb04820.x

Siregar, S. V., & Utama, S. (2008). Type of earnings management and the effect of ownership structure, firm size, and corporate-governance practices: Evidence from Indonesia. *The International Journal of Accounting*, *43*(1), 1–27. https://doi.org/10.1016/j.intacc.2008.01.001

Utama, C. A., Utama, S., & Amarullah, F. (2017). Corporate governance and ownership structure: Indonesia evidence. *Corporate Governance: The International Journal of Business in Society*, *17*(2), 165–191. https://doi.org/10.1108/CG-12-2015-0171