Capital Structures of Listed Firms in ASEAN

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บทคัดย่อ

การศึกษานี้เพื่อศึกษาถึงปัจจัยที่มีผลต่อโครงสร้างเงินทุนของ 3,750 บริษัทจดทะเบียนในอาเซียน เก็บข้อมูลรายปีตั้งแต่ พ.ศ. 2543 ถึง 2554 รวมทั้งสิ้น 45,000 ตัวอย่าง วิเคราะห์ข้อมูลโดยใช้การวิเคราะห์ถดถอยด้วยวิธี pooled ordinary least squared ผลการศึกษาพบว่า ขนาดกิจการ สินทรัพย์ถาวร มีสัมพันธ์เชิงบวกกับอัตราการก่อหนี้อย่างมีนัยสำคัญ ในขณะที่ความสามารถในการทำกำไร การเติบโต สภาพคล่อง และอัตราดอกเบี้ย มีสัมพันธ์ผกผันกับอัตราการก่อหนี้อย่างมีนัยสำคัญ ซึ่งสอดคล้องกับทฤษฎีและวรรณกรรมที่ผ่านมา อย่างไรก็ตาม non-debt tax shield ไม่มีความสัมพันธ์กับอัตราการก่อหนี้ระยะยาวตามมูลค่าตลาด แต่มีความสัมพันธ์กับอัตราการก่อหนี้ตามนิยามอื่น ส่วนความผันผวนของกิจการไม่มีความสัมพันธ์กับอัตราการก่อหนี้ในทุกนิยาม. munificence และ ดัชนี HHI ซึ่งเป็นลักษณะของอุตสาหกรรม มีสัมพันธ์ผกผันกับอัตราการก่อหนี้ระยะยาวตามมูลค่าตลาดอย่างมีนัยสำคัญ ส่วนปัจจัยต่างๆ ของลักษณะประเทศ มีสัมพันธ์ผกผันกับอัตราการก่อหนี้ระยะยาวตามมูลค่าตลาดอย่างมีนัยสำคัญ นอกจากนี้อัตราการก่อหนี้ของบริษัทในแต่ละอุตสาหรรมและในแต่ละประเทศมีความแตกต่างกัน

Abstract :

This paper examines factors affecting capital structure of listed firms in ASEAN. The 3,750 samples are collected annually for 12 years from the year 2000 to 2011 resulting to 45,000 firm-year observations. The pooled ordinary least squared regression is used in analysis. The results shows firm size and tangibility are significantly positive related to leverage, while profitability, growth, liquidity, and interest rate are significantly negative related to leverage, consistent to theories and prior studies. However, non-debt tax shield is insignificant related to long-term debt market leverage, but significant related to other leverages. Business volatility is insignificant related to all leverages. The Munificence and HH index as an industry-specific factors are significantly negative related to long-term debt market leverage. The country-specific factors are significantly related to long-term debt market leverage. Moreover, there are differences of leverage across industries and countries.

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1. Introduction

There are typical two types in which any business can raise money-debt or equity, sometimes it can be categorized as internal and external financing. The different choice of financing decision is critical issues for all firms, especially the long-term financing. The capital structure is defined as the source of firms' financing mix decisions, which leads to a firm's future investment opportunity. Generally, a firm raises funds from mixed sources i.e. debt, equity, and hybrid securities in order to generate its assets, operations, and future growth opportunity. Hence, capital structure decisions are one of the most interesting issues in corporate finance that can reflect to the maximization of the firm's value. Likewise, capital structure choices are related to the cost of capital and capital budgeting decisions. In the papers of Modigliani and Miller (1958), capital structure or the method of financing was basically shown to be irrelevant to the value of the firm under perfect market assumptions, then Modigliani and Miller (1963) argued that capital structure was relevant to firm value under taxation conditions. Subsequent researchers have relaxed assumptions such as bankruptcy costs, non-debt tax shields, agency costs, asymmetric information, and have introduced capital market frictions into the model. Seemingly, the main factors affecting capital structure decisions are related to these frictions.

In prior studies on capital structure mainly focus on the determinants of leverage at firm-specific characteristic, some studied on country-specific factors affecting on leverage across time (Booth et al., 2001; Antoniou et al., 2008; De Jong et al., 2008). However, the industry-specific variables effect on capital structure is few mentioned in previous studies especially in ASEAN countries. Although the majority of capital structure papers include dummy variables representing different industries, only a few include variables that classify each industry. Remmers (1974) shows that even though industry-level variables are insignificant the U.S., the Netherlands and Norway, but it is matter for the leverage of Japan and France. Kester (1986) also finds that Japanese firms in heavy manufacturing sector have greater the book-value leverage than those of the U.S. companies. However, country-specific factors are possibly more important than industry-specific factors due to influence of cultural difference (Sekely and Collins, 1988). The optimal capital structure mix has differed from industry to industry (Kim, 1997) and also from country to country (Wald, 1999). Up to now, the study of industry classification affecting financial leverage mostly covers developed countries data.

The various leverage ratios in term of both book and market value are utilized as proxies of capital structure in earlier studies. Following Kayo and Kimura (2011), the debt financing measured by the long-term debt market-value leverage, applying to context of all firms in ASEAN 6 countries for the year 2000-2011 in Table 1, Vietnam has the lowest financial leverage, followed by Singapore, the Philippines, Malaysia, Thailand, and Indonesia. The range of average market leverage is 12.67% to 19.33%. Obviously, there are different leverage ratios across country, therefore country factors and even culture differences may have a marked influence on capital structure.

Table 1 Leverage ratio (LR) by Country in ASEAN during 2000-2011

Country	Average LR (%)	S.D.	No. of observations
Vietnam	12.67	20.69	2,758
Singapore	13.27	18.87	6,238
The Philippines	13.85	22.52	2,362
Malaysia	16.05	20.48	8,717
Thailand	17.99	24.47	5,029
Indonesia	19.33	26.27	3,821

Source: Research data

As few papers analyzing the influence of industry-level factors in explaining firm financial leverage as compared to papers focusing on firm and country factors, so this paper provides a deeper investigation of industry influence on a firm's capital structure in ASEAN data. Hence, the paper is to compare and understand capital structures alternatives made by the ASEAN 6 countries; namely Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. Specifically, the paper is to evaluate the influence of characteristic of firm, industry and country on firm financial leverage of ASEAN.

The paper proceeds as follows. Section 1 introduces significance of study, research question and objective. Section 2 summaries relevant theories and literatures. Section 3 describes data, methodology of study and hypotheses. Section 4 presents statistical data and empirical results. Section 5 concludes

2. Literature review

Trade-off theory (Kraus and Litzenberger, 1973) proposes that firms balance their benefits and costs from their financing choices. Firms favor debt financing over equity issuing because of gain from debt tax shield. But, there are also bankruptcy cost, cost of financial distress for debt financing. The more debt is employed, the more are financial distress; or the higher debt ratio, the higher will be the probability of bankruptcy. Another type of cost that can be weighed against the debt tax benefit is the agency cost. Jensen and Meckling (1976) points out those managers of levered firms tend to transfer risk if firms have free cash flow. Particularly, they favor risky projects that benefit shareholders in case of success, but create losses on bondholders in case of failure. [This means that managers try to transfer firm's wealth from bondholders to shareholders by borrowing more debt and investing in riskier project.] Thus, rational bond investors prevent this overinvestment problem by demanding a risk premium and a higher interest payment as a compensation of this behavior. This type of agency cost reduces the attractiveness for firms to issue debt. This is the risk-transferring hypothesis.

Myer (1977) proposes that managers of debt-financed firms have incentive to skip the positive net present value or good projects if only bondholders receive the gains from these projects. This is the underinvestment hypothesis. Jensen (1986) explains that leverage create a disciplining effect. Specifically, managers are forced to generate enough cash flow to meet debt repayments resulting to decrease in ability to invest in overinvested projects. Meanwhile, dividend payment, share repurchases and interest payment represents a good signal to the market. This is the free cash flow hypothesis. Although debt can lead to overinvestment and underinvestment problems and have impact on agency conflicts, hence managers should consider both agency costs of debt against agency costs of equity.

Pecking order theory is first presented by Myers and Majluf (1984) and Myers (1984). It is based on asymmetric information between managers and outside investors leading to adverse selection so that managers will issue new equity when the firm is overvalued only. Pecking order theory has no predictions about an optimal leverage ratio, but firm's capital choice is the results of firm's financing needs over times with minimizing cost of adverse selection. The pecking order theory ranks financing sources according to the degree they are affected by asymmetric information, where internal funds show lowest cost of adverse

selection and equity financing has the highest adverse selection cost. Therefore a firm firstly employs internal funds to avoid asymmetric information and adverse selection problems; next a firm will use issuance of debt because of a fixed claim of debt; hybrid securities are the later way of financing; and issuance of equity is the last financing choice.

Harris and Raviv (1991) documents the determinants of capital structure decisions. Particularly, leverage of a firm increases with fixed assets, non-debt tax shields, investment opportunity, and firm size. However, leverage decreases with volatility, advertising expense, probability of bankruptcy and uniqueness of product. Generally, the studied factors as determinants should be related to capital structure theories, so they are assumed to proxy for the underlings that drive these theories. However, they are mostly the firm-level factors only. The variables that are mostly used in empirical capital structure literature according to two main capital structure theories; Trade-off and Pecking order. For trade-off theory, the relations between firm size, profitability, tangibility and leverage ratio are generally positive; whereas the relations between firm growth, business risk or volatility and leverage are normally negative. In line with the pecking order theory, it generally predicts inverse relations between size, profitability, tangibility, volatility and leverage ratio; but the prediction between growth opportunity and leverage ratio is still uncertain. (Baker and Martin, 2011: 23). The paper of Frank and Goyal (2009) shows six main determinants of firm capital structure decisions. Specifically, the level of leverage increases with asset tangibility, firm size, inflation and type of industry. In contrast, level of leverage decreases with growth opportunity and profitability. Beyond the firm-specific variables are investigated widely, the industry-level and country-level variables affecting capital structure are some tested. Kaya and Kimura (2011) examines multi-level of influence on firm leverage, time-, firm-, industry- and country-level. Like prior studies firm size, tangibility, growth opportunity, profitability and bankruptcy are indicated as firm-level variables. Additionally, three industry variables of capital structure determinants are munificence, dynamism and Herfindahl-Hirschman index (HH index). It results that the level of firm and time are the most related to explain the variances of leverage, however the interactions of firm, industry and country determinants of leverage show significant roles of all those factors.

3. Methodology

Samples in the paper are secondary data of firms listed in the stock exchanges of ASEAN. The total number of listed firms for Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam are of 437, 941, 236, 740, 567 and 829 firms, respectively. Totally, there are 3,750 listed firms in ASEAN. Each country comprised of eleven categories of industry; Oil & Gas, Basic Materials, Industrials, Consumer Goods, Health Care, Consumer Services, telecommunication, Utilities, Financials. Technology, and Unclassified. Samples are collected annually for 12 years from the year 2000 to 2011 resulting to 45,000 firm-year observations in the paper. The samples are obtained from the Datastream and the Work Bank database. The main independent variable is the long-term debt market leverage as a proxy of capital structure; however, seven other different definitions of leverage are measured as well. Hence, the leverage is examined with firm-, industry- and country-specific explanatory variables as shown in Figure 1.

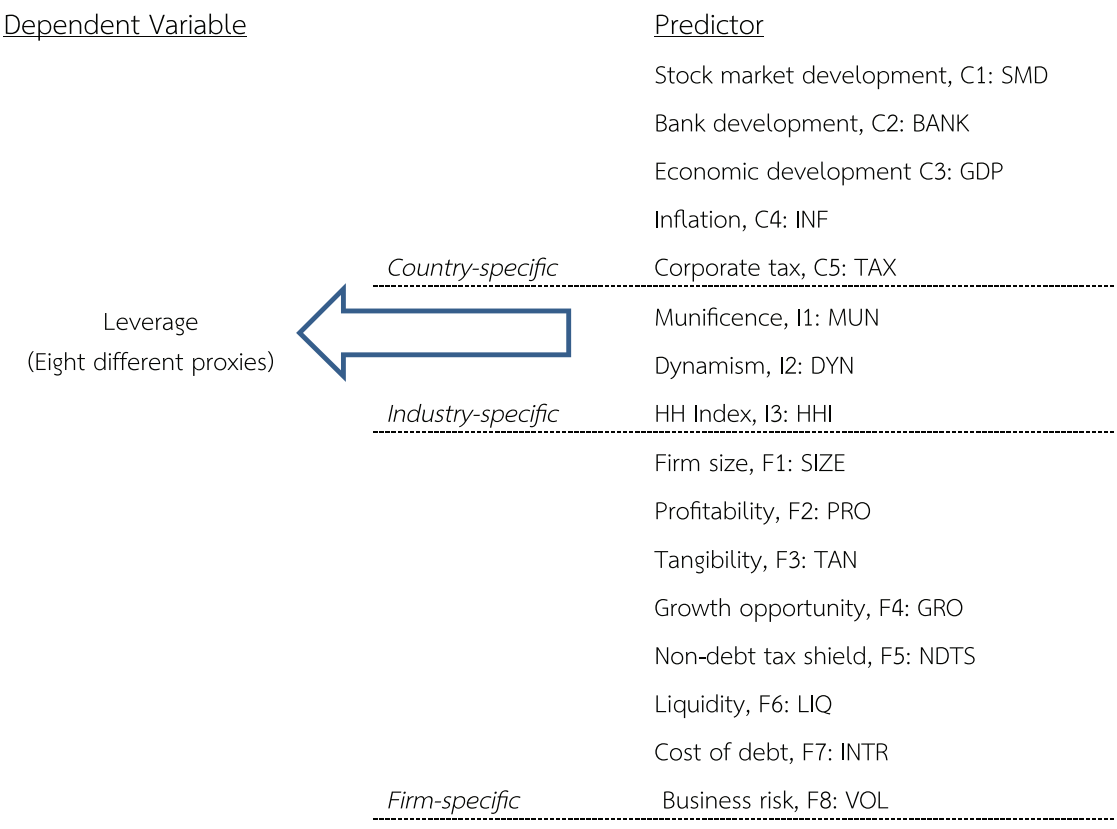

Figure 1 Framework of the Study

The pooled data is analyzed by using the ordinary least squared regressions. The outliers are removed by using standardized Z-score and the firms within Financials and Utilities industries are deleted. The hypotheses for individual factor of each level affecting to leverage ratio are as follows:

H1: Firm size has positive relation with leverage ratio.

As firm size increase, it is easy for a bigger firm to access the debt financing, resulting to the higher leverage.

H2: Profitability has negative relation with leverage ratio.

If a firm can generate more profitability, the chance of bankruptcy decrease, and then a firm can increase its leverage in order to get tax benefit.

H3: Tangibility has positive relation with leverage ratio.

As tangible assets can be used as collateral, the more tangible assets a firm has, the higher level of financing a firm acquires.

H4: Growth rate has negative relation with leverage ratio.

Firms with more growth opportunities have less leverage according to the trade-off theory.

H5: Non-debt tax shield has negative relation with leverage ratio.

Firms with larger amount of non-debt tax shield is tend to use less leverage due to the tax benefit from their debt financing.

H6: Liquidity has negative relation with leverage ratio.

Liquidity of firms increase, implying to high ability to debt service, firms therefore tend to use less levels of debt.

H7: Cost of debt has negative relation with leverage ratio.

Certainly, firms with high interest rate tend to use less debt according to the trade-off theory.

H8: Business risk or volatility has negative relation with leverage ratio.

Firms with higher volatility have higher probability of bankruptcy, resulting to use less leverage.

H9: Munificence (I1: MUN) has negative relation with leverage ratio.

Munificence is the industry environment's capacity to support a sustained growth. Hence, firms working in environments with high munificence or plentiful resources tend to have lower levels of debt, resulting from high profits generated.

H10: Dynamism has negative relation with leverage ratio.

As suggested in Kayo and Kimura (2011), firms working in more dynamic environments (industry dynamism) have smaller level of debt.

H11: HH index has negative relation with leverage ratio.

As a small index indicates a competitive industry, therefore the lower index is, those firms within the industry use more debt financing for business competition.

H12: Stock market development has negative relation with leverage ratio.

As stock markets are more developed and increase efficiency, firms can easily access equity financing instead of debt financing, reflecting to lower leverage of firms.

H13: Banking development has positive relation with leverage ratio.

As banking sector provides more loans for domestic firms, those firms leverage increase.

H14: Country growth rate has positive relation with leverage ratio.

If economic growth of a country increases, firms certainly increase their levels of debt financing so as to expand its business opportunity.

H15: Inflation rate has negative relation with leverage ratio.

As inflation rate increase, debt financing of firms decrease due to the higher price of goods and service.

H16: Corporate tax rate has positive relation with leverage ratio.

If corporate tax rate increases, a firm borrows more in order to take advantage of tax benefit.

Table 2 Details of All Relevant Variables

Variable	Proxy/Operationalization	Symbol	Expected sign
Leverage ratios (book and market value)	$Y1 = LR(LTD)B = \frac{LTD}{LTD + CE}$ $Y2 = LR(LTD)M = \frac{LTD}{TLD + (MVTB * CE)}$ $Y3 = LR(TD)B = \frac{TD}{TD + CE}$ $Y4 = LR(TD)M = \frac{TD}{TD + (MVTB * CE)}$ $Y5 = LR(TLCL)B = \frac{(TL - CL)}{(TL - CL) + CE}$ $Y6 = LR(TLCL)M = \frac{(TL - CL)}{(TL - CL) + (MVTB * CE)}$ $Y7 = LR(TL)B = \frac{TL}{TL + TE}$ $Y8 = LR(TL)M = \frac{TL}{TL + (MVTB * TE)}$	LR	
Firm size (F1)	natural logarithm of total assets in USD currency = ln(total assets)	SIZE	+ (TOT) - (POT)
Profitability (F2)	return on assets (ROA) = $\frac{EBT}{TA}$, where EBT= earnings before tax	PRO or ROA	+ (TOT) - (POT)
Tangibility (F3)	Tangible(fixed) assets-to-total assets ratio = $\frac{tangible\ assets}{total\ assets}$	TAN	+ (TOT), Jensen and Meckling (1976) - (POT) (Grossman and Hart 1982)
Growth opportunity (F4)	market-to-book ratio or MVTB	GRO	- (TOT) +/- (POT)
Non-debt tax shield (F5)	non-debt tax shield= $\frac{depreciation}{total\ assets}$	NDTS	-
Liquidity (F6)	current assets-to-current liabilities ratio	LIQ	-
Cost of debt (F7)	borrowing interest rate	INTR	-
Volatility or business risk (F8)	standard deviation of its return on assets	VOL	- (TOT, POT)
Munificence (I1)	Regressing time against sales of an industry over a past given period, then taking a ratio of the regression slope coefficient to its average sales.	MUN	- (Kayo and Kimura 2011) for emerging country.

Dynamism(I2)	Standard error of the munificence regression slope coefficient divided by its average sales.	DYN	- (Kayo and Kimura 2011) for emerging country, but insignificant
Herfindahl-Hirschman index (HHI) (I3)	Herfindalhl-Hirschman index is calculated by the sum of the squares of markets shares of firms within a given industry.	HHI	- (Kayo and Kimura 2011) for emerging country.
Stock market development (C1)	Market capitalization ratio = $\frac{\text{mkt cap}}{\text{GDP}}$	SMD	- (Giannetti 2003), + for developed capital market.
Bank development (C2)	Bank claims on private sector/GDP	BANK	+ (Demirguc-Kunt and Makimovic 1999)
Country growth or economic development (C3)	Real GDP growth rate	GDP	+ (Booth et al. 2001, Fan et al. 2003)
Inflation (C4)	Inflation rate by consumer price index	INF	+/-, - (Homaifar et al. 1994)
Corporate tax (C5)	Tax rate	TAX	+

The equation of pooled ordinary least squared regressions for firm-, industry- and country-level factors is:

$$\begin{aligned} LR_{i,t} = \alpha \quad & + \beta_1(F1)_{i,t} + \beta_2(F2)_{i,t} + \beta_3(F3)_{i,t} + \beta_4(F4)_{i,t} + \beta_5(F5)_{i,t} + \beta_6(F6)_{i,t} \\ & + \beta_7(F7)_{i,t} + \beta_8(F8)_{i,t} + \beta_9(I1)_{i,t} + \beta_{10}(I2)_{i,t} + \beta_{11}(I3)_{i,t} + \\ & + \beta_{12}(C1)_{i,t}\ \beta_{13}(C2)_{i,t} + \beta_{14}(C3)_{i,t} + \beta_{15}(C4)_{i,t} + \beta_{16}(C5)_{i,t} + \varepsilon_{i,t} \end{aligned}$$

where; $LR_{i,t}$ is leverage ratio of firm i year t. $\beta_1 \dots \beta_8$ are regression coefficients for firm-specific. $\beta_9 \dots \beta_{11}$ are regression coefficients for industry-specific. $\beta_{12} \dots \beta_{16}$ are regression coefficients for country-specific. $F_1 \dots F_8$ are the firm-specific variables (SIZE, PRO, TAN, GRO, NDTS, LIQ, INTR, VOL). $I_1 \dots I_3$ are the industry-specific variables (MUN, DYN, HHI). $C_1 \dots C_5$ are the country-specific variables (SMD, BANK, GDP, INF, TAX). $\varepsilon_{i,t}$ is error term of firm i year t.

In order to test how those determinants of leverage ratios affect to each different industry and country, relevant dummy variables are computed into the regression model.

$$\begin{aligned} LR_{i,t} = \alpha \quad & + \beta_1(F1)_{i,t} + \beta_2(F2)_{i,t} + \beta_3(F3)_{i,t} + \beta_4(F4)_{i,t} + \beta_5(F5)_{i,t} + \beta_6(F6)_{i,t} \\ & + \beta_7(F7)_{i,t} + \beta_8(F8)_{i,t} + \beta_9(I1)_{i,t} + \beta_{10}(I2)_{i,t} + \beta_{11}(I3)_{i,t} + \beta_{12}(C1)_{i,t} \\ & + \beta_{13}(C2)_{i,t} + \beta_{14}(C3)_{i,t} + \beta_{15}(C4)_{i,t} + \beta_{16}(C5)_{i,t} \\ & + \sum_{j=1}^{k-1} \beta_j(d\_ind_j) + \sum_{m=1}^{n-1} \beta_m(d\_ctry_m) + \varepsilon_{i,t} \end{aligned}$$

where; $LR_{i,t}$ is leverage ratio of firm i year t. $\beta_1 \dots \beta_8$ are regression coefficients for firm-specific. $\beta_9 \dots \beta_{11}$ are regression coefficients for industry-specific. $\beta_{12} \dots \beta_{16}$ are regression coefficients for country-specific. $\beta_j \dots \beta_{k-1}$ are regression coefficients for industry dummies.$\beta_m \dots \beta_{n-1}$ are regression coefficients for country dummies. $F_1 \dots F_8$ are the firm-specific variables (SIZE, PRO, TAN, GRO, NDTS, LIQ, INTR, VOL). $I_1 \dots I_3$ are the industry-specific variables (MUN, DYN, HHI). $C_1 \dots C_5$ are the country-specific variables (SMD, BANK, GDP, INF, TAX). d_ind_j are dummy variables of industry j to k. d_ctry_m are dummy variables of country m to n. $\varepsilon_{i,t}$ is error term of firm i year t.

4. Empirical Results

The leverage as a proxy of capital structure in measured in both book and market leverage, under the term of long-term debt, total debt, long-term liabilities (total liability minus current liabilities), and total liabilities. There is not much different leverage of ASEAN between book and market base in each term. The average ASEAN leverage in term of the book-, and market total liabilities (44.54%, 43.32%) is the highest, followed by the term of total debt (29.04%, 28.98%), long-term liabilities (17.30%, 17.85%) and long-term debt (14.70%, 14.19%). The long-term debt market leverage of all ASEAN is 14.20%. The country with the highest one is Indonesia (18.70%), followed by Thailand (14.75%), Malaysia (14.52%), the Philippines (14.37%), Vietnam (13.07%), and Singapore (11.61%). For other proxies of leverage, the countries with higher leverage are Indonesia and Vietnam, while Singapore and the Philippines have lower leverage. Details are showed in Table 3.

Table 3 Descriptive Statistics of ASEAN

	ASEAN			Indonesia			Malaysia			The Philippines			Singapore			Thailand			Vietnam		
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N
Y1: LR(LTD)B (%)	14.7017	21.3467	24218	21.6005	25.6087	2781	12.9630	21.4984	7436	13.9284	20.6980	1278	12.6060	16.8022	5671	15.8275	23.1570	4045	15.3877	20.5741	3007
Y2: LR(LTD)M (%)	14.1999	20.2708	22165	18.7033	24.7721	2551	14.5238	19.1125	7162	14.3665	22.5438	1206	11.6077	17.1186	5210	14.7524	21.2815	3756	13.0691	20.9007	2280
Y3: LR(TD)B (%)	29.0408	24.9624	24221	35.9893	27.3648	2781	25.8809	23.6077	7436	23.6390	25.4251	1278	26.4827	22.0024	5671	30.7928	26.2231	4045	35.1862	26.4577	3010
Y4: LR(TD)M (%)	28.9834	27.0652	21912	32.7800	29.5566	2561	29.2313	26.2724	7159	24.9289	28.3388	1210	25.8909	24.9971	5149	29.6577	27.4457	3750	32.2496	28.8351	2083
Y5: LR(TLCL)B (%)	17.3054	24.1932	24030	25.3221	32.5614	2751	15.7099	21.8118	7360	18.2844	26.0638	1249	14.8700	22.9393	5644	17.4326	23.4015	4015	17.8701	21.5746	3011
Y6: LR(TLCL)M (%)	17.8581	22.6592	21676	23.4894	27.8909	2490	18.0177	20.4359	7062	20.9168	26.8936	1178	14.6108	20.0780	5156	17.3681	23.3573	3759	17.7756	23.4748	2031
Y7: LR(TL)B (%)	44.5460	23.3015	24234	50.8546	27.1970	2783	39.4894	21.0971	7444	38.4650	25.0352	1278	44.7313	21.6426	5672	44.3670	22.9072	4046	53.6887	23.1082	3011
Y8: LR(TL)M (%)	43.3280	26.0083	21625	45.6597	28.3245	2529	42.4741	25.0810	7119	37.6607	30.4717	1208	42.4065	24.4756	5112	42.2337	25.5172	3744	51.6057	26.1160	1913
F1: SIZE	11.0047	1.6379	24190	11.3103	1.7551	2781	11.1185	1.4562	7443	11.0177	1.9890	1269	11.3641	1.5638	5643	11.1043	1.5332	4044	9.6282	1.3399	3010
F2: PRO	0.0593	0.2244	23906	0.0590	0.2485	2724	0.0466	0.1454	7399	0.0333	0.1697	1210	0.0540	0.2445	5631	0.0770	0.3455	3997	0.0887	0.0911	2945
F3: TAN	0.3483	0.2247	24178	0.3957	0.2406	2779	0.3670	0.2079	7436	0.3865	0.2617	1249	0.2960	0.2185	5657	0.3940	0.2265	4046	0.2796	0.2052	3011
F4: GRO	3.5169	70.9152	21641	10.8428	133.7803	2531	1.2619	1.9567	7121	17.9952	228.0894	1208	1.7774	5.1684	5115	1.6256	5.7228	3745	1.4377	1.4572	1921
F5: NDTS	0.0367	0.0756	24063	0.0434	0.0507	2757	0.0332	0.1240	7425	0.0383	0.0387	1259	0.0343	0.0335	5669	0.0451	0.0320	4023	0.0315	0.0344	2930
F6: LIQ	2.9931	9.1505	24012	2.6709	7.6448	2752	3.3414	8.1803	7360	7.7900	30.0858	1232	2.4940	3.5763	5645	2.4567	5.0906	4014	2.1235	3.2858	3009
F7: INTR	0.1303	0.8403	21036	0.1960	1.2894	2388	0.1121	0.7034	6554	0.1518	0.6665	924	0.1091	0.7160	5083	0.1403	1.0711	3540	0.1366	0.4654	2547
F8: VOL	0.0924	0.5865	19906	0.0895	0.1266	2425	0.0976	0.9368	6313	0.1118	0.4755	1104	0.1111	0.3400	4682	0.0817	0.3622	3564	0.0390	0.0382	1818
I1: MUN	0.1700	0.1271	23581	0.1536	0.0997	2784	0.1334	0.0742	7445	0.1240	0.1313	1278	0.1815	0.1307	5462	0.1324	0.0861	4046	0.3518	0.1562	2566
I2: DYN	0.0317	0.0233	23403	0.0292	0.0322	2775	0.0290	0.0218	7445	0.0366	0.0233	1278	0.0319	0.0202	5354	0.0320	0.0143	4038	0.0390	0.0306	2513
I3: HHI	0.1149	0.1108	24036	0.0828	0.1067	2779	0.0734	0.0456	7429	0.2378	0.1136	1137	0.1765	0.1534	5644	0.1363	0.0674	4038	0.0560	0.0726	3009
C1: SMD (%)	103.1060	67.3668	24245	32.2315	12.7415	2784	136.7446	23.9395	7445	50.4646	17.4844	1278	179.9825	50.9486	5672	63.3256	20.1172	4046	16.7013	6.7851	3020
C2: BANK (%)	100.5417	33.7523	24245	43.6689	7.2221	2784	126.1020	11.6171	7445	51.2265	3.5598	1278	79.4162	11.4733	5672	131.9327	12.7117	4046	108.4479	21.2953	3020
C3: GDP (%)	5.3029	3.1306	24245	5.4360	0.8125	2784	4.9164	2.6721	7445	4.6822	1.7660	1278	6.0826	4.6040	5672	3.9575	2.9769	4046	6.7338	1.1471	3020
C4: INF (%)	3.9775	3.6468	23738	7.7407	2.9887	2784	2.3377	1.3558	7445	4.6222	1.6327	1278	2.1755	2.0842	5672	2.7813	1.7787	4046	10.3316	4.4907	2513
C5: TAX (%)	34.5854	5.4850	17379	35.8891	2.4916	1880	34.8662	0.9621	5051	46.5360	1.7418	819	26.1482	1.8273	3923	37.2057	0.2757	2688	38.6937	2.6687	3018

Next, the paper investigate variance components of all eight different proxies of leverage in order to assess amount of variation in a dependent variable that is associated with one or more random-effects variables. It shows the proportion of variance attributable to a random effects variable's main effect and, optionally, the random variable's interactions with other factors. Results in Table 4 reveal that the largest amount of variation in each dependent variable of the study does not result from random-effect variables of country-level and industry-level. But, the large proportion of leverage is due to the variables of other levels i.e. firm-level variables.

Table 5 displays correlations between the explanatory predictors in order to check a problem of multicollinearity. The result shows that firm size (F1: SIZE) is only predictor that is statistically significant correlated with all other explanatory variables. But, their strength of correlation is weak. Even tangibility (F3: TAN) has statistically significant relations to all other independent variables except 3: HHI, but positive moderate relation with non-debt tax shield (F5: NDTS). However, growth opportunity (F4: GRO), interest rate (F7: INTR), and business risk (F8: VOL) show significant relationship to some predictors. Industry-specific predictors show significant correlated to two third of other predictors. However, only stock market development (C1: SMD) is highly negative relations to inflation (C4: INF) and Tax (C5: TAX). Overall, the Pearson's correlations are not beyond +/-0.8, implying that all reviewed predictors can be included into the model.

Table 6 shows the ASEAN's estimates for regression models of firms in unregulated industries, the results show that firm size and tangible assets have statistically significant positive relations to long-term debt market leverages, and other six proxies of leverages. However, profitability, firm growth, non-debt tax shield, liquidity, interest rate have statistically significant negative relations to long-term debt market leverages and others. These are consistent to theories and prior studies. Only business risk or volatility has a statistically insignificant effect on leverages. For industry-specific factors, there are statistically significant negative relations between munificence of industry and market leverages, except the long-term debt market leverage. However, there are statistically significant negative relations between dynamic of industry and book leverages, but insignificant effect on the long-term debt market leverage. The HH index has statistically significant negative relations to long-term debt market leverages and other six leverages, according to Kayo and Kimura 2011. For country-specific influence, stock market and bank developments have statistically insignificant relations to the long-term debt leverage. Economic development has statistically significant negative relations to all market leverages, contrasting to prior papers. Inflation rate

Table 4 Variance Estimates (Y1, Y2, Y3, Y4, Y5, Y6, Y7, Y8)

Component	Y1		Y2		Y3		Y4		Y5		Y6		Y7		Y8	
	Estimate	%	Estimate	%	Estimate	%	Estimate	%	Estimate	%	Estimate	%	Estimate	%	Estimate	%
Var(Error)	1046.735	90.23	457.111	88.61	1879.726	94.34	569.200	66.13	13006.744	57.72	726.979	80.89	5756.882	95.55	785.514	76.57
Var(idind)	55.851	4.81	19.401	3.76	52.000	2.61	226.196	26.28	8596.702	38.15	127.266	14.16	186.140	3.09	181.663	17.71
Var(idctry(idind))	57.550	4.96	39.343	7.63	60.830	3.05	65.377	7.60	931.140	4.13	44.464	4.95	81.907	1.36	58.635	5.72
Total	1160.136	100	515.855	100	1992.556	100	860.773	100	22534.586	100	898.709	100	6024.929	100	1025.812	100

Method: Minimum Norm Quadratic Unbiased Estimation (Weight = 1 for Random Effects and Residual)

Table 5 Correlations Matrix of Predictors

This table represents the Pearson's correlations of firm-, industry-, and country-level predictors. F1: SIZE is the natural logarithm of total assets in US dollar currency, F2: PRO is the ratio of earnings before tax to total assets, F3: TAN is the ratio of net property, plant and equipment to total assets, F4: GRO is the ratio of market to book-value, F5: NDTS is the ratio of depreciation and depletion to total assets, F6: LIQ is the ratio of current assets to current liabilities, F7: INTR is the ratio of interest expenses of total debt to total debt, F8: VOL is the standard deviation of return of asset over the past five years, I1: MUN is the munificence of an industry defined as the ratio of the regression slope coefficient to average sales after regressing time against sales of an industry over the past five years, I2-DYN is the dynamism of an industry defined as the standard error of munificence regression slope coefficient to average sales, I3: HHI is the Herfindahl-Hirschman index defined as the sum of the squares of market shares of firms within an industry, C1: SMD is stock market development of a country defined as the ratio of market capitalization of listed firms to GDP, C2: BANK: is the bank development of a country defined as the ratio of domestic bank credit to GDP, C3:GDP is the country growth defined as the GDP growth rate, C4:INF is the inflation rate of a country defined by the consumer price index, and C5: TAX is the corporate tax rate of a country defined as the ratio of total tax rate to commercial profit. **, * denotes the 1% and 5% statistical significance level of correlation, respectively.

Correlation	F1: SIZE	F2: PRO	F3: TAN	F4: GRO	F5: NDTS	F6: LIQ	F7: INTR	F8: VOL	I1: MUN	I2: DYN	I3: HHI	C1: SMD	C2: BANK	C3: GDP	C4: INF	C5: TAX
F1: SIZE	1															
F2: PRO	.048**	1														
F3: TAN	.166**	-.034**	1													
F4: GRO	-.017*	-.011	-.018**	1												
F5: NDTS	-.060**	.004	.349**	-.012	1											
F6: LIQ	-.093**	-.002	-.103**	.002	-.006	1										
F7: INTR	-.037**	.075**	-.019**	.001	.030**	.039**	1									
F8: VOL	-.044**	.024**	-.032**	.007	-.004	.013	.005	1								
I1: MUN	-.106**	.056**	-.102**	.015*	-.023**	-.029**	-.004	-.001	1							
I2: DYN	-.078**	-.005	-.035**	.004	.016*	.013	-.010	.010	.232**	1						
I3: HHI	.160**	-.007	-.001	.002	.028**	.014*	.003	.007	.133**	.246**	1					
C1: SMD	.168**	-.018**	-.058**	-.024**	-.032**	-.004	-.029**	.021**	-.151**	-.067**	.098**	1				
C2: BANK	-.051**	.000	.029**	-.049**	-.011	-.025**	-.016*	-.014	-.135**	.028**	-.154**	.056**	1			
C3: GDP	-.043**	.046**	-.051**	.002	-.026**	-.015*	-.014	.005	.197**	.044**	-.026**	.176**	-.238**	1		
C4: INF	-.150**	.017**	-.049**	.010	-.008	-.015*	.010	-.011	.259**	-.013*	-.091**	-.634**	-.234**	.117**	1	
C5: TAX	-.196**	.016*	.099**	.034**	.048**	.043**	.013	-.017*	.074**	.065**	-.203**	-.713**	.097**	-.188**	.387**	1

Table 6 Regressions Results on Leverage for ASEAN (Unregulated Industries)

This table displays the results of the panel data analysis with respect to leverage ratios of firms in the ASEAN Stock Exchanges for the years 2000-2011. The dependent variable is a leverage ratio defined in eight definitions; Y1: LR(LTD)B is the long-term debt to total firm book-value ratio, Y2: LR(LTD)M is the long-term debt to total firm market value ratio, Y3: LR(TD)B is the total debt to total firm book-value ratio, Y4: LR(TD)M is the total debt to total firm market value ratio, Y5: LR(TLCL)B is the long-term liabilities to total firm book-value ratio, Y6: LR(TLCL)M is the long-term liabilities to total firm market value ratio, Y7: LR(TL)B is the total liabilities to total firm book-value ratio, and Y8: LR(TL)M is the total liabilities to total firm market ratio. For explanatory variables, F1: SIZE is the natural logarithm of total assets in US dollar currency, F2: PRO is the ratio of earnings before tax to total assets, F3: TAN is the ratio of net property, plant and equipment to total assets, F4: GRO is the ratio of market to book-value, F5: NDTS is the ratio of depreciation and depletion to total assets, F6: LIQ is the ratio of current assets to current liabilities, F7: INTR is the ratio of interest expenses of total debt to total debt, F8: VOL is the standard deviation of return of asset over the past five years, I1: MUN is the munificence of an industry defined as the ratio of the regression slope coefficient to average sales after regressing time against sales of an industry over the past five years, I2-DYN is the dynamism of an industry defined as the standard error of munificence regression slope coefficient to average sales, I3: HHI is the Herfindahl-Hirschman index defined as the sum of the squares of market shares of firms within an industry, C1: SMD is stock market development of a country defined as the ratio of market capitalization of listed firms to GDP, C2: BANK: is the bank development of a country defined as the ratio of domestic bank credit to GDP, C3:GDP is the country growth defined as the GDP growth rate, C4:INF is the inflation rate of a country defined by the consumer price index, and C5: TAX is the corporate tax rate of a country defined as the ratio of total tax rate to commercial profit. In addition, N is the number of observations, Adj.R^2 is the adjusted R square value, DW is the Durbin-Watson statistic. For the statistical judgments, ***, **, * denotes the 1%, 5% and 10% statistical significance level of the coefficients, respectively.

Variable	Y1: LR(LTD)B		Y2: LR(LTD)M		Y3: LR(TD)B		Y4: LR(TD)M		Y5: LR(TLCL)B		Y6: LR(TLCL)M		Y7: LR(TL)B		Y8: LR(TL)M	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
(Constant)	-36.617***	-12.068	-28.749***	-9.647	-12.384***	-3.539	-3.405***	-.867	-40.384***	-12.638	-30.594***	-9.559	25.344***	7.884	36.924***	9.971
F1: SIZE	3.656***	30.034	3.129***	26.142	3.281***	23.371	2.638***	16.739	3.905***	30.461	3.260***	25.383	2.605***	20. 195	1.596***	10.743
F2: PRO	-9.617***	-9.376	-14.763***	-14.704	-22.637***	-19.137	-28.226***	-21.260	-9.901***	-9.166	-15.390***	-14.225	-18.826***	-17.324	-27.958***	-22.339
F3: TAN	22.961***	24.953	28.415***	31.363	11.141***	10.499	19.693***	16.531	25.989***	26.821	33.398***	34.408	-3.469***	-3.559	8.165***	7.272
F4: GRO	.120***	7.317	-.035***	-2.172	.103***	5.446	-.105***	-4.966	.120***	6.970	-.054***	-3.113	.103***	5.941	-.132***	-6.576
F5: NDTS	-20.100***	-3.041	-53.968***	-8.326	-31.313***	-4.108	-83.123***	-9.716	-30.752***	-4.418	-80.694***	-11.575	.249***	.036	-71.509***	-8.866
F6: LIQ	-.315***	-7.144	-.320***	-7.398	-1.230***	-24.207	-1.196***	-20.967	-.347***	-7.478	-.339***	-7.290	-1.663***	-35.628	-1.528***	-28.414
F7: INTR	-1.020***	-4.464	-1.101***	-4.931	-2.278***	-8.647	-2.459***	-8.319	-.759***	-3.156	-.846***	-3.514	-.895***	-3.701	-1.305***	-4.684
F8: VOL	.023	.089	-.070	-.271	.277	.906	.129	.377	-.001	-.002	-.171	-.611	.193	.685	-.149	-.460
I1: MUN	9.025***	3.887	-.278	-.122	13.679***	5.109	-5.808*	-1.933	7.480***	3.059	-5.550**	-2.266	7.304	2.970	-12.287***	-4.337
I2: DYN	-27.504**	-2.280	-18.349	-1.550	-1.156	-.083	22.054	1.412	-24.637*	-1.939	-4.783	-.376	-10.528	-.824	21.992	1.494
I3: HHI	-8.634***	-3.943	-16.046***	-7.444	-18.593***	-7.362	-23.789***	-8.389	-9.979***	-4.325	-14.742***	-6.374	-14.443	-6.225	-17.847***	-6.676
C1: SMD	-.013**	-2.167	.008	1.343	-.028***	-4.088	.013*	1.703	-.007	-1.053	.015**	2.398	-.030***	-4.735	.013*	1.833
C2: BANK	-.003	-.361	-.002	-.260	.034***	3.536	.034***	3.143	-.010	-1.196	-.016*	-1.853	.008	.855	.016	1.567
C3: GDP	.062	1.087	-.278***	-4.943	.133**	2.016	-.481***	-6.473	.068	1.128	-.335***	-5.528	.098	1.605	-.555***	-7.927
C4: INF	.365***	5.146	.921***	13.254	.581***	7.098	1.584***	17.242	.472***	6.319	1.093***	14.602	.668***	8.886	1.679***	19.382
C5: TAX	.129***	2.835	.070	1.565	.107**	2.034	.032	.549	.214***	4.451	.174***	3.621	-.098**	-2.034	-.200***	-3.590
N	10,497		10,436		10,497		10,492		10,496		10,492		10,497		10,495	
Adj. R^2	.183		.209		.183		.192		.194		.222		.193		.193	
F-Stat	148.154***		173.310***		148.068***		157.012***		158.422***		187.583***		158.009***		158.144***	
DW	1.027		.873		.753		.782		1.134		.895		.816		.859	

Table 7 Regressions Results on Leverage for ASEAN and Dummy (Unregulated Industries)

This table displays the results of the panel data analysis with respect to leverage ratios of firms in the ASEAN Stock Exchanges for the years 2000-2011. The dependent variable is a leverage ratio defined in eight definitions; Y1: LR(LTD)B is the long-term debt to total firm book value ratio, Y2: LR(LTD)M is the long-term debt to total firm market value ratio, Y3: LR(TD)B is the total debt to total firm book value ratio, Y4: LR(TD)M is the total debt to total firm market value ratio, Y5: LR(TLCL)B is the long-term liabilities to total firm book value ratio, Y6: LR(TLCL)M is the long-term liabilities to total firm market value ratio, Y7: LR(TL)B is the total liabilities to total firm book value ratio, and Y8: LR(TL)M is the total liabilities to total firm market ratio. For explanatory variables, F1: SIZE is the natural logarithm of total assets in US dollar currency, F2: PRO is the ratio of earnings before tax to total assets, F3: TAN is the ratio of net property, plant and equipment to total assets, F4: GRO is the ratio of market to book value, F5: NDTS is the ratio of depreciation and depletion to total assets, F6: LIQ is the ratio of current assets to current liabilities, F7: INTR is the ratio of interest expenses of total debt to total debt, F8: VOL is the standard deviation of return of asset over the past five years, I1: MUN is the munificence of an industry defined as the ratio of the regression slope coefficient to average sales after regressing time against sales of an industry over the past five years, I2-DYN is the dynamism of an industry defined as the standard error of munificence regression slope coefficient to average sales, I3: HHI is the Herfindahl-Hirschman index defined as the sum of the squares of market shares of firms within an industry, C1: SMD is stock market development of a country defined as the ratio of market capitalization of listed firms to GDP, C2: BANK: is the bank development of a country defined as the ratio of domestic bank credit to GDP, C3:GDP is the country growth defined as the GDP growth rate, C4:INF is the inflation rate of a country defined by the consumer price index, and C5: TAX is the corporate tax rate of a country defined as the ratio of total tax rate to commercial profit. d_idind and d_idctry are dummy variables of industry and country. In addition, N is the number of observations, Adj.R^2 is the adjusted R square value, DW is the Durbin-Watson statistic. For the statistical judgments, ***, **, * denotes the 1%, 5% and 10% statistical significance level of the coefficients, respectively.

Variable	Y1: LR(LTD)B		Y2: LR(LTD)M		Y3: LR(TD)B		Y4: LR(TD)M		Y5: LR(TLCL)B		Y6: LR(TLCL)M		Y7: LR(TL)B		Y8: LR(TL)M	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
(Constant)	-42.242***	-7.657	-26.948***	-4.934	-2.886	-.460	16.524**	2.336	-44.929***	-7.755	-23.631***	-4.007	25.107***	4.426	46.205***	6.911
F1: SIZE	3.853***	33.090	3.196***	27.692	3.220***	24.305	2.305***	15.440	4.024***	32.912	3.205***	25.751	2.580***	21.548	1.310***	9.285
F2: PRO	-9.437***	-10.298	-12.287***	-13.570	-20.659***	-19.816	-22.549***	-19.195	-9.111***	-9.470	-11.785***	-12.031	-17.702***	-18.787	-22.529***	-20.290
F3: TAN	21.926***	25.215	25.655***	29.718	7.342***	7.421	13.526***	12.131	24.228***	26.537	29.487***	31.720	-5.863***	-6.557	2.761***	2.620
F4: GRO	.018***	5.030	-.011***	-3.157	.013***	3.213	-.020***	-4.413	.015***	4.189	-.014***	-3.787	.009**	2.414	-.025***	-5.999
F5: NDTS	12.885**	2.227	-7.742	-1.353	22.667***	3.444	-13.757*	-1.855	6.137	1.010	-26.979***	-4.362	30.144***	5.067	-13.811**	-1.970
F6: LIQ	-.308***	-7.283	-.331***	-7.930	-1.249***	-25.982	-1.245***	-22.989	-.353***	-7.958	-.376***	-8.315	-1.662***	-38.235	-1.568***	-30.614
F7: INTR	-.905***	-4.449	-.738***	-3.680	-1.908***	-8.249	-1.751***	-6.716	-.723***	-3.385	-.515**	-2.371	-.881***	-4.213	-.857***	-3.478
F8: VOL	.080	.293	-.222	-.830	.353	1.145	-.132	-.379	.050	.176	-.386	-1.332	.256	.918	-.528	-1.607
I1 MUN	.875	.280	-12.166***	-3.929	-3.767	-1.059	-29.714***	-7.412	.427	.130	-14.591***	-4.364	-5.187	-1.613	-32.674***	-8.623
I2: DYN	5.829	.454	17.862	1.406	10.734	.735	43.575***	2.649	9.158	.680	28.968**	2.111	-1.513	-.115	43.713***	2.811
I3: HHI	-9.437***	-3.196	-6.874**	-2.348	-6.226*	-1.854	4.064	1.074	-10.484***	-3.381	-5.395	-1.708	-7.484**	-2.465	9.809***	2.741
C1: SMD	.005	.574	-.028***	-3.574	.014	1.597	-.038***	-3.816	.007	.870	-.031***	-3.671	.023***	2.881	-.045***	-4.753
C2: BANK	-.033	-1.584	-.084***	-4.048	-.046*	-1.930	-.116***	-4.320	-.019	-.854	-.072***	-3.204	-.031	-1.429	-.096***	-3.794
C3: GDP	-.024	-.352	-.235***	-3.532	-.091	-1.188	-.454***	-5.269	-.009	-.134	-.272***	-3.791	-.104	-1.502	-.456***	-5.601
C4: INF	.110	1.208	.673***	7.491	.283***	2.735	1.201***	10.297	.188*	1.964	.824***	8.476	.304***	3.255	1.249***	11.328
C5: TAX	.244**	2.187	.252**	2.286	.143	1.124	.224	1.567	.233**	1.990	.161	1.348	-.010	-.091	.088	.655
d_idind0	6.847***	6.188	2.844**	2.589	1.989	1.580	-4.882***	-3.442	6.859***	5.903	2.545**	2.151	6.412***	5.635	-4.039***	-3.012
d_idind1	-1.323**	-2.177	.366	.610	.516	.747	1.894**	2.431	-1.219*	-1.910	.061	.095	1.006	1.611	1.922***	2.609
d_idind2	3.390***	7.504	3.712***	8.303	.481	.936	.475	.820	3.247***	6.843	3.272***	6.770	3.502***	7.539	3.289***	6.008
d_idind4	.152	.154	-3.402***	-3.482	-2.998***	-2.668	-9.640***	-7.614	-.134	-.129	-4.953***	-4.691	-.928	-.914	-10.390***	-8.681
d_idind5	3.628***	5.871	2.269***	3.706	-3.160***	-4.495	-6.357***	-8.024	4.443***	6.847	2.762***	4.180	1.033	1.625	-4.178***	-5.580
d_idind6	6.965***	3.713	-4.220**	-2.277	-1.432	-.671	-18.082***	-7.520	6.073***	3.084	-6.891***	-3.437	3.244*	1.682	-17.945***	-7.895
d_idind9	1.355*	1.808	.505	.680	-4.391***	-5.149	-7.468***	-7.768	1.244	1.580	.331	.413	-1.097	-1.424	-4.930***	-5.428
d_idctry1	2.671	1.385	-6.262***	-3.281	.598	.273	-11.541***	-4.665	6.552***	3.234	-3.280	-1.590	2.952	1.488	-9.902***	-4.235
d_idctry2	-.567	-.746	5.196***	6.908	-4.228***	-4.890	6.053***	6.211	.717	.899	6.946***	8.546	-5.687***	-7.276	7.127***	7.738
d_idctry3	-2.167	-1.026	-8.229***	-3.939	-6.792***	-2.828	-15.390***	-5.686	1.764	.796	-2.919	-1.293	-3.275	-1.508	-12.673***	-4.953
d_idctry4	-1.480	-.784	2.184	1.168	-7.065***	-3.291	1.264	.523	-.520	-.263	2.933	1.454	-6.492***	-3.346	4.239*	1.854
d_idctry6	7.443***	6.884	3.230***	3.022	10.158***	8.258	3.797***	2.739	8.437***	7.432	3.381***	2.926	10.461***	9.409	3.054**	2.331
N	12107		12035		12107		12102		12105		12102		12107		12105	
Adj. R2	.211		.211		.194		.185		.221		.215		.220		.193	
F-Stat	116.520***		115.933***		104.985***		99.220***		123.626***		119.223***		122.790***		104.605***	
DW	.975		.840		.734		.771		1.085		.870		.788		.837	

Note: d_idind3; Consumer Goods and d_idctry5; Thailand are the controlling variables

has statistically significant positive relations to the long-term debt leverage and others, but corporate tax has insignificant effect on long-term debt leverage.

Table 7 shows the ASEAN's estimates for regression models of firms in unregulated industries, and dummies of industry and country. The results in Table 7 confirm that influences of firm-specific; firm size, profitability, tangible assets, firm growth, liquidity, interest rate and business volatility; on leverages are same as in Table7. However, non-debt tax shield in Table 7 has insignificant relation with the long-term debt leverage. For industry-specific factors in Table 7, munificence has a statistically significant negative to all market leverages, but insignificant relations to book leverages. Dynamism has insignificant relations to the long-term debt market leverage, but significant relations to other three proxies of market leverages. HH index has statistically significant negative relations to long-term debt market leverage. For country-specific factors in Table 7, development of stock market, banking, and economic have statistically significant negative effects on the long-term debt market leverage, while inflation rate and corporate rate have statistically significant positive effects on the long-term debt market leverage.

Based on the controlling industry; Consumer Goods; in Table 7, the results show that firms within industries of Oil & Gas has significantly higher leverage for long-term debt book and market leverages, and long-term liabilities market leverage; however significantly lower leverage for total debt and liabilities leverages. Industrials has significantly higher long-term debt market leverage and other five leverages. Health Care has significantly lower long-term debt market leverage and other four leverages. Consumer Services has significantly higher leverage, but lower for some leverage. Telecommunications industry has significantly lower long-term debt market leverage. Basic Materials and Technology industries have insignificant long-term debt market leverage. Overall, the industry that shows the significant highest long-term debt market leverage is Industrials, followed by Gas & Oil, Consumer Services. However, the industry that shows the significant lowest long-term debt market leverage is Telecommunications, followed by Health Care.

With regard to the controlling country; Thailand; in Table 7, Indonesia has significantly lower market leverage than Thailand. Malaysia has significantly higher leverage in term of all market-value definitions, but significantly lower total debt book leverage than Thailand. The Philippines has significantly lower leverages in term of long-term debt market value, total debt of book and market values, and total liabilities market value. Singapore has insignificant higher long-term debt market leverage, but weakly significant higher total liabilities market leverage.

Though, Singapore has significantly higher leverages, in term of total debt and total liabilities book value. Lastly, Vietnam has significantly higher leverages in all proxies. In sum, the country that provides the highest long-term debt market leverage is Malaysia, followed by Vietnam. But the country that indicates marginal lowest long-term debt market leverage is the Philippines, followed by Indonesia.

5. Conclusion

The paper examines firm-, industry-, and country-specific effects on financial leverage of listed firms in Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam (ASEAN). Most of prior papers focus on firm characteristic and few mentions industry-specific variables. Hence, the paper discusses whether all three level attributes as independent variables affect to capital structure decisions. The results shows firm size and tangibility are significantly positive related to leverage, consistent to trade-off theory and prior studies. Profitability is significantly negative related to leverage, consistent to pecking order theory, while growth opportunity is significantly negative related to leverage, consistent to trade-off theory. Liquidity and interest rate are significantly negative related to leverage. Non-debt tax shield is insignificant related to long-term debt market leverage, but significant negative related to other market leverages. Business volatility is insignificant related to all leverages.

Munificence and HH index as industry-specific factors are significantly negative related to long-term debt market leverage, consistent to Kayo and Kimura (2011), but dynamism of industry is insignificant. The stock market development of the country is significantly negative related to long-term debt market leverage, consistent to the hypothesis that equity financing can be raised from stock exchange resulting to lower leverage. Banking and economic development are significantly negative related to long-term debt market leverage, contrasting to those hypotheses. Inflation rate is significantly positive related to long-term debt market leverage, contrasting to the hypothesis, implying that the higher inflation in ASEAN, the higher long-term debt is used. Corporate tax is significantly positive related to long-term debt market leverage, consistent to the hypothesis.

Generally, there is different leverage across industries. The only industry that has the higher leverage than based industry; Consumer Goods; is Industrials for all proxies of leverage. Specifically, the industries that have significant higher long-term debt leverage than Consumer Goods are Industrials, followed by Gas & Oil, Consumer Services. However, the industries

that have significant lower long-term debt leverage than Consumer Goods are Telecommunications, followed by Health Care.

Comparing leverage among countries, there are differences of leverage across countries in ASEAN. Countries that have significant higher long-term debt market leverage than Thailand are Malaysia, followed by Vietnam, while countries that have lower one are the Philippines, followed by Indonesia. However, Singapore has higher long-term debt market leverage than Thailand, but insignificant.

Overall, there are influences of the firm-specific factors on all definitions of capital structure except business volatility, consistent to theories and prior studies. Also, the country-specific factors are significant related to capital structure, especially to the long-term debt market leverage. However, some industry-specific factors are significant related to some capital structure.

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Appendix

Dummy Variables by Country and Industry

Country / Industry	Dummy Variable	Number of Firms
Country:	d_idctry	
Indonesia	d_idctry1	437
Malaysia	d_idctry2	941
Philippines	d_idctry3	236
Singapore	d_idctry4	740
Thailand	d_idctry5	567
Vietnam	d_idctry6	829
Industry:	d_idind	
Oil & Gas	d_idind0	103
Basic Materials	d_idind1	374
Industrials	d_idind2	1,172
Consumer Goods	d_idind3	629
Health Care	d_idind4	98
Consumer Services	d_idind5	338
Telecommunications	d_idind6	38
Utilities	d_idind7	77
Financials	d_idind8	694
Technology	d_idind9	219
Unclassified	d_idind999	8