Capital Structure Determinants in the Food and Beverage Industry in ASEAN: The Moderating Role of Firm Size

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ABSTRACT

The study investigates the impact of the firms' capital structure indicators in Indonesia, the Philippines, Thailand, and the entire sample from 2013 to 2022. It measures the moderating role of firm size on the impact of capital structure determinants of 10 top-performing publicly listed food and beverage firms using the Refinitiv Eikon database. The researcher applied Random Effect, Fixed Effect, and Panel Corrected Standard Errors (PCSE) models to analyze the data. Except for Indonesia, firm size provided a positive impact on capital structure. The results for profitability, liquidity, tangibility, and asset turnover ratios are similar for the country groups except for the Philippines. Liquidity and profitability are the primary predictors of the firms' capital structure. Findings revealed that firm size moderates the impact of liquidity and profitability on capital structure decisions. However, its moderating effect weakened the impact of the non-debt tax shield, growth opportunities, asset turnover ratio, and tangibility ratio. The results provide policy implications for firms to closely monitor their capital structure to sustain long-term growth and increase firm value.

Keywords: Firm Size, Capital Structure, Profitability, Interaction Term.

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1. INTRODUCTION

The firm's capital serves as its financial foundation as it supports its operational activities and to ensure its continuity or long-term growth. Many bankruptcies and financial distress that were reported can be ascribed to mismanagement of their capital or business operations, resulting in high financial leverage (Ghasemzadeh et al., 2019; Opoku-Asante, 2021) or earnings volatility (Custodio *et al.*, 2023). While increasing debt structure improves the financial health of the firm, using too much debt could result in financial losses and, eventually, business closure (Kok Thim *et al.*, 2011; Opoku-Asante, 2021), especially among medium and large firms. However, small firms usually resort to internal financing and trade credits as part of their short-term debt financing. In most cases, capital funds are infused among themselves, particularly for family-owned or private firms, as contrasted to large firms that utilize debt financing to finance long-term investments or go public (Al-Husainy, 2019; Balios, 2016; Gunardi and Firmansyah, 2020; Panova, 2020).

Many studies on capital structure were undertaken on its impact on the financial performance or firm value as contrasted to the impacts of its determinants on capital structure. In many instances, studies were undertaken among publicly listed financial and non-financial firms in a particular country due to the availability of data. There are also limited studies that concentrate on small and medium enterprises. Psillaki and Daskalakis (2009) investigated the determinants of capital structure of small and medium enterprises in Greece, France, Italy, and Portugal to find out if capital structure and its determinants are similar to publicly listed firms. Their findings revealed differences and commonalities in the capital structure of firms in these countries, with French firms having the highest debt-to-asset ratio compared to Italian firms and Greek firms having more tangible assets and being more profitable compared to SMEs in other countries. However, it was revealed that firm-specific variables drive their capital structure more than country-specific determinants. It only shows the commonalities among firms, irrespective of firm size, no matter their size, on the factors affecting their capital structure.

Psillaki and Daskalakis (2009) also proved the statistical and positive impact of size and the negative of asset structure on capital structure. Like any other small and private firm, they prefer internal financing over external financing and have a low-risk profile. These findings support the findings of De Jong *et al.* (2007) in their examination of the capital structure of firms worldwide, and they revealed that their capital structure choices are driven more by firm-specific determinants rather than country-specific determinants. Their findings further show that institutional or country-specific factors drive the use of long-term debt financing between developed and developing countries, and the latter could explain the differences in leverage between small and large firms. They added that in most countries, some firm-specific predictors are common, and the determinants differ quite a lot among firms in other countries.

Few studies measured the factors that affect firms' capital structure in various countries or regions. Chadha and Sharma (2015) measured the impact of size, leverage, non-debt tax shield, business risk, uniqueness, tangibility, interest coverage ratios, profitability, uniqueness, and ownership structure on two leverage ratios of the manufacturing companies in India. All other variables were statistically significant except for the impact of dividend ratio, liquidity, interest coverage ratio, and cash flow coverage ratios, which weakly affect capital structure decisions. Kahya et al. (2020) compared the capital structure determinants of firms listed in the Dow Jones Islamic Market World Index in emerging and developed economies. All firm-level time-variant endogenous indicators showed statistical effects of profitability, moral hazard variables, size, lag of leverage, liquidity, and price-to-book ratios on the firms' capital structure for both developed and developing countries. The results of the country-level time-variant exogenous data vary. Stock market capitalization was a significant leverage indicator for developed and developing countries. Among the Muslimdominated countries, STR, inflation, and GDP growth rate were essential indicators of the companies' capital structure. Also, Saif-alyousfi et al. (2020) measured country-level and firm-level determinants of capital structure among Malaysian firms covering 2008-2017. He applied three (3) static panel regression models and two dynamic models to measure the impact of the factors affecting the capital structure of companies located in developed economies. Kumar and Bindu (2021) measured the effects of firm size, profitability, growth in assets, and interest coverage on the capital structure decisions of automobile firms in India using firm-specific indicators. Except for the two and three-wheeler automobile firms, the other groups, including the entire sample, showed a weak effect on the debt-to-equity ratio. Using debt-to-asset ratio as a capital structure indicator, the overall impact of the firmspecific variables was statistically significant.

These findings show that small, medium or large firms have their capital structure, and their choices depend on the company's needs or the industry to which they belong. It also shows the crucial role of managing the firm's capital. Firms with significant capital can use excess funds or capital as a buffer for any unexpected losses from their operations and investments.

The capital structure is the firm's mixture of debt (long-term or short-term) and equity (retained earnings and equity capital). However, finding the firm's optimal capital structure is one of the most crucial decisions faced by finance managers to increase shareholders' wealth. The strategic plans it will undertake are contingent upon the available resources, the risks it is willing to take, and other external factors consistent with the firm's goals.

2. LITERATURE REVIEW

2.1. Firm Size

Neves *et al.* (2020) and Balios *et al.* (2016) mentioned that larger companies borrow more and have greater access to capital than small firms. Rajan and Zingales (1995) argued that since larger firms have diverse activities, the chances of failure are higher while smaller firms rely heavily on private equity funds due to the difficulty of securing bank financing. Given the reputation of large firms, debt financing is more accessible and, therefore, increases the firm's leverage. Jaworski and Czerwonka (2021) corroborate their findings by examining energy firms in the European Union, where the firm's size increases its debt.

There were mixed results related to the impact of firm size on the firm's choice of capital. Most studies on the capital structure found a statistically significant and positive effect of firm size on the capital structure (Basri *et al.*, 2019; Belen *et al.*, 2019; Czerwonka, 2021; Vijayakumaran and Vijayakumaran, 2019). Czerwonka (2021) applied Pooled OLS, fixed effect, and random effect models to measure the impact of firm size on the firm's leverage. They found a positive and significant effect of size on the debt-to-asset ratio (capital structure) of publicly listed firms in Central Eastern Europe. Mirza (2015) also found that its impact was positive and significant for UK, German, and French firms. Kuč and Kaličanin (2021) also revealed similar results among large firms in Serbia during 2009-2017. Mardan *et al.* (2023) expected its impact to be negative, but their findings showed a significantly positive influence on Indonesia's manufacturing firms' capital structure.

They noted that this predictor represents the firm's stability, market, and power, given that its cash flows will be able to lower rather than withstand bankruptcy risks. Typically, they utilize debt as the preferred financial source of these firms. Jadah *et al.* (2019), Ali *et al.* (2022), Ghani *et al.* (2023), Marimuthu *et al.* (2023), and Kahya *et al.* (2020) did not find a significant effect. However, its influence was positive at a 10% level. Marimuthu *et al.* (2023) initially applied pooled OLS, random effect, and fixed effect models to measure the impact of the determinants of Malaysian oil and gas firms' capital structure. After performing diagnostic tests, they used REM with Cluster-Robust Standard Errors as their final model, and their results revealed positive and weak effects.

The findings of Chadha and Sharma (2015) and Tamba and Purwanto (2021) showed a negative and significant impact of firm size on the firms' capital structure in India and Indonesia, respectively. Mardan *et al.* (2023), Mendoza *et al.* (2023), and Pham (2023) also revealed firm size's significant and adverse effects on the firms' capital structure. Hussain *et al.* (2020) measured the influence of size on the debt-to-capital ratio of listed sugar firms on the Karachi Stock Exchange. They found that it also has a statistically negative influence. On the other hand, Aini and Habibah (2018) and Arilyn (2020) also showed a negative but weak influence on the capital structure of listed firms in the food and beverage industry in Vietnam and the chemical industry in Indonesia, respectively. Sari *et al.* (2019) showed mixed results, with a negative effect of firm size on the capital structure of firms in Indonesia

and a positive and significant impact among firms in Malaysia.

H1a: Firm size positively influences food and beverage firms' capital structure in selected ASEAN countries.

2.2. Profitability

There were mixed results on the impact of profitability on firms' capital structure. Arilyn (2020), Belen, Prieto, and Lee (2019), Chadha and Sharma (2015), Czerwonka (2021), Ghani *et al.* (2023), and Mardan *et al.* (2023) revealed that profitability negatively and significantly affects the capital structure of a firm. Chadha and Sharma (2015) found a negative and significant effect on the capital structure using financial leverage among 422 listed manufacturing companies on the Bombay Stock Exchange. Belen *et al.* (2019) applied long-term debt and short-term debt as capital structure variables to measure the impact of profitability. They found its negative effect on the capital structure of large firms in Korea for the period 2010-2017. These are consistent with the findings of Czerwonka (2021), Mardan *et al.* (2023), and Mendoza *et al.* (2023).

On the other hand, Gunardi and Firmansyah (2020) and Sari *et al.* (2019) revealed the positive effect of profitability on firms' capital structure. Sari *et al.* (2019) investigated manufacturing firms, and their findings indicate that profitability does not affect the capital structure choice of these companies. They added that it adversely affected Indonesian companies, while its positive effect on the capital structure of Malaysian companies was evident. Gunardi and Firmansyah (2020) showed a positive and significant impact of profitability on the capital structure of 30 construction companies in Indonesia. However, the interaction between firm size and profitability negatively and significantly influences capital structure decisions. The studies by Ali *et al.* (2022) and Vijayakumaran and Vijayakumaran (2019) also affirmed profitability's statistically significant and positive impact on the leverage of the UK and USA multinational energy companies and Chinese-listed non-financial firms, respectively.

H1b: Profitability negatively influences the capital structure of food and beverage companies in selected ASEAN countries.

H2a: Firm size significantly moderates the impact of profitability on the food and beverage firms' capital structure in selected ASEAN countries.

2.3. Opportunity for Growth

Regarding the firm's long-term sustainability, key officials regard the importance of growth, especially when there are opportunities for the company to invest or expand its operations. This variable influences the capital structure choices of firms, and in most instances, they tend to utilize debt financing for these investments. Czerwonka (2021) found a positive and significant effect of growth opportunities on firms' capital structure in Central and Eastern Europe (CEE). The same findings were evident in the study of Mardan *et al.* (2023) on the capital structure of companies in Indonesia. Zulvia and Linda (2019) examined the effect of growth opportunities on the capital structure of manufacturing companies in the Philippines. Their findings revealed a positive and significant impact and noted that companies with different levels of capital structure will respond differently to the factors affecting it. While Belen *et al.* (2019) did not find any effect on the capital structure of publicly listed firms, the results revealed a positive impact. Additionally, the findings of Kuč and Kaličanin (2021)

and Tamba and Purwanto (2021) showed positive effects.

On the other hand, Neves *et al.* (2020) mentioned that known gurus in corporate finance (Jensen and Meckling, Myers, Rajan, and Zingales) proved that there is a negative relationship between growth opportunities and leverage. Mendoza *et al.* (2023) also found growth opportunities to have a significant and negative influence on capital structure adjustments of firms in Peru, Mexico, Chile, and Argentina. However, they found that it weakened the companies' leverage in Brazil and Colombia. They added that firms use capital funds to finance their future investments. The findings of Mendoza *et al.* (2023) are consistent with the study of Chadha and Sharma (2015) among manufacturing companies in India and by Vijayakumaran and Vijayakumaran (2019) using pooled OLS and fixed effect models. Aini and Habibah (2018), Jadah *et al.* (2019), Basri *et al.* (2019), and Marimuthu *et al.* (2023) did not find any effect.

H1c: Growth opportunities positively influence firms' capital structure in the F&B industry in selected ASEAN countries.

H2b: Firm size significantly moderates the impact of growth opportunities on the food and beverage firms' capital structure in selected ASEAN countries.

2.4. Liquidity

While liquidity has a direct impact on the financial performance of a firm, there were mixed results. Aini and Habibah (2018), Arilyn (2020), and Belen *et al.* (2019) found adverse and significant effects of liquidity on long-term debt and short-term debt ratios. Kuchler (2019, cited in Cahyaningtyas *et al.*, 2022), Panova (2020), Ali *et al.* (2022), Ghasemi and Razak (2016), Kuč and Kaličanin, 2021) also showed a statistically significant adverse effect on the financing decision of the company. Tamba and Purwanto (2021), on the other hand, showed its positive but insignificant effect. Based on the trade-off theory, liquidity directly affects the firm's capital structure decision (Neves *et al.*, 2020). Thus, companies will be more inclined to borrow using debt to fund their long-term requirements. Likewise, others argue that the impact of liquidity on the use of debt depends on the type of debt, short-term or long-term. Under the trade-off theory, a direct relationship exists between the firm's capital structure and liquidity. When a company is liquid, it can support a higher debt ratio as it can pay its maturing obligations.

H1d: Liquidity negatively influences the capital structure of food and beverage companies in selected ASEAN countries.

H2c: Firm size significantly moderates the impact of liquidity on the food and beverage firms' capital structure in selected ASEAN countries.

2.5. Tangibility

Many firms use tangible assets or fixed assets for their operational activities. Companies with significant tangible assets have high liquidity, particularly when creditors extend loans to borrowers using these assets as collateral to secure loans. Arilyn (2020) investigated publicly listed firms in the chemical industry sector in Indonesia, and their findings revealed that it significantly and positively affected their capital structure. The same findings were evident in the study by El-diftar (2020) and Gunardi and Firmansyah (2020), where they found a positive and significant effect on firms' capital structure in the MENA region and among construction companies in Indonesia, respectively. Marimuthu *et al.* (2023) examined

the impact of firm-specific variables on the capital structure of Malaysian oil and gas firms and found a positive and significant effect. Chadha and Sharma (2015) found tangibility to be a vital determinant of a firm's capital structure in India, and it revealed a significantly positive effect on the manufacturing companies' capital structure. Hussain *et al.* (2020) also proved that tangibility reduces the financing costs for the firm. While the study of Ali *et al.* (2022) and Aini and Habibah (2018) revealed that tangibility did not affect the firms' capital structure, the effect was positive.

Czerwonka (2021) applied a fixed-effect model and found that tangible assets negatively influence firms' capital structure in 6 countries in the Baltics region. These results were consistent with those of the studies conducted by Sari *et al.* (2019) and Kuč and Kaličanin (2021). While the study of Jadah *et al.* (2019) showed a negative effect on the capital structure decisions of Iraqi banks, the effect was insignificant.

H1e: Tangibility positively influences the capital structure of food and beverage companies in selected ASEAN countries.

H2d: Firm size significantly moderates the impact of tangibility on the food and beverage firms' capital structure in selected ASEAN countries.

2.6. Non-debt Tax Shield

Mendoza *et al.* (2023) examined the adjustments in the capital structure of firms in six (6) countries in Latin America. They found that NDTS negatively and significantly affects their target capital structure, except for Argentina. Pham (2023) also examined the factors influencing SMEs' capital structure operating in Visegrad, and their findings revealed mixed results for the three regression models used. Using FEM and REM models, NDTS also has a negative and significant impact. At the same time, the Pooled OLS showed its positive effect on financial leverage using long-term and short-term debt ratios as capital structure variables. Czerwonka (2021) also corroborates the findings of Pham (2023), where the results revealed its negative and significant impact among companies in 6 countries except for Slovakia. These findings were also confirmed by Mardan et al. (2023) when they investigated manufacturing firms in Indonesia for the period 2011-2017. Hussain et al. (2020) also revealed a negative and moderate effect using OLS, but the results were positive when the PCSE model was applied. Despite the negative findings made by Kuč and Kaličanin (2021), Marimuthu et al. (2023), and Shalini (2021), the results were insignificant. It means that NDTS does not affect the capital structure of publicly listed construction firms in the S&P BSE 500.

Chadha and Sharma (2015) used two leverage proxies and found that non-debt tax shields significantly influenced manufacturing firms' capital structure decisions. Aside from this predictor variable, they used non-business risk, tangibility, cash flow coverage, liquidity, and dividend payout ratios. They found that they are primary predictors of capital structure, along with inflation and GDP growth rate as macroeconomic variables. In another study, Ali *et al.* (2022) also found this variable to positively and significantly influence the long-term and total debt ratios of the MNCs from the United Kingdom and the United States of America. However, Ghani *et al.* (2023) found no significant effect, but its impact was positive.

H1f: Non-debt Tax Shield (NDTS) negatively impacts the capital structure of food and beverage companies in selected ASEAN countries.

H2e: Firm size significantly moderates the impact of non-debt tax shield on the food and beverage firms' capital structure in selected ASEAN countries.

2.7. Asset Turnover Ratio

The firm's asset turnover ratio measures the activity usage or efficiency of firms using its resources (Data *et al.*, 2020). Agustiningtias *et al.* (2013) recognized its importance as an asset management ratio among firms. Data *et al.* (2020) added that when the firm has a high asset turnover ratio, more internal funds are available, and the faster it recovers its funds. To date, limited studies have investigated the impact of the total asset turnover ratio on the capital structure choices of firms. Some studies (Alkomsan, 2024; Nasution *et al.*, 2018) measured its impact on the firm's performance. Serghiescu *et al.* (2014, cited in Arilyn, 2020) showed a positive effect of the total asset turnover ratio on the capital structure of Romanian publicly listed firms for the period 2009-2011. On the contrary, Arilyn (2020) found its negative and significant influence among listed Chemical firms in Indonesia.

H1g: Asset turnover ratio positively impacts firms' capital structure in the F&B industry in selected ASEAN countries.

H2f: Firm size significantly moderates the impact of profitability on the food and beverage firms' capital structure in selected ASEAN countries.



Figure 1. Conceptual Framework.

The study utilized capital structure as the dependent variable, which is influenced by the following independent variables: growth opportunities, profitability, liquidity, tangibility, non-debt tax shield, and asset turnover ratios. The researcher believes that these variables can affect the capital structure of F&B firms operating in these countries. Company size was also used as a moderating variable to measure its interaction with the other independent variables: growth opportunity, profitability, liquidity, tangibility, NDTS, and asset turnover ratios.

The following are the variables used in the study and their expected signs:

Variables	Ratio	Expected Sign
Leverage (Capital Structure)	Total Debt/Total Assets	
Profitability	Return on Average Assets	-
size	Total Assets	-,+
Growth	Revenue Growth	-,+
Current Ratio	Current Assets/Current Liabilities	-
Tangibility	Fixed Assets/Total Assets	+
Non-debt Tax Shield (NDTS)	Depreciation to Total Assets	_
Asset Turnover Ratio	Total Revenues/total Average assets	+

Table 1. Description of Variables

3. METHODOLOGY

The study used a Causal-Explanatory Research Design to measure the impact of firmspecific factors on the firms' capital structures and the moderating effect of firm size on the impact of the predictor variables on capital structure. The author used descriptive research design to describe the data and explain the underlying reasons for the firms' capital structures.

The study used secondary sources to gather the needed data. The researcher used financial statements and ratios obtained from the Refinitiv Eikon database. The researcher selected 12 food and beverage firms belonging to the Top 20 based on their total assets as of 2022. These firms operate in Indonesia, the Philippines, and Thailand. The entire sample, comprising the firms for each country, was included in the analysis, which covered the ten years from 2013 to 2022.

To effectively implement the objectives of the study, the researcher used two statistical models: Random Effect and Fixed Effect models. The Durbin-Hausman test was applied to eliminate the issue of collinearity related to the dataset used in the study, as shown in Tables 3 and 4, respectively. Likewise, the researcher used Modified Wald and Wooldridge tests to measure the presence of autocorrelation and multicollinearity in fixed effect estimates.

IV. RESULTS AND DISCUSSIONS:

Table 2 shows the summary statistics of the variables used in the study.

Variable	Oha	Indor	Indonesia		Philippines		Thailand	
variable	Obs	Mean	SD	Mean	SD	Mean	SD	
lnDCR	120	-1.538	1.183	-1.952	1.101	-2.007	1.679	
lnCSiz	120	20.877	1.335	19.562	1.371	19.622	1.163	
ROAa	120	0.082	0.082	0.063	0.083	0.076	0.064	
CRat	120	1.881	1.070	1.998	1.115	2.391	2.510	
RGrw	120	0.109	0.387	0.177	1.041	0.135	0.719	
NDTS	120	0.03	0.008	0.031	0.027	0.041	0.016	
Tang	120	0.519	0.199	0.471	0.146	0.569	0.168	

 Table 2: Descriptive Statistics

IAIO	120	0.910	0.344	0.905	0.482	1.120	0.433
$T \Lambda T_{O}$	120	0.010	0 544	0.005	0 482	1 1 2 0	0 453

Note: Author's computation

As shown above, the logarithm of leverage, proxied by the total debt/total assets ratio, is - 2.079 for Malaysia, -1.952 for the Philippines, and -1.534 for Indonesia. The mean scores of total assets revealed the highest in Indonesia. Thailand's food and beverage firms posted the highest current ratio of 2.391, reflecting high liquidity, followed by the Philippines ($\mu = 1.998$) and Indonesia ($\mu = 1.881$). The growth rate of the firms in the Philippines ($\bar{x} = .177$) also has the highest standard deviation (SD = 1.041) compared to Indonesia ($\bar{x} = 0.109$, SD = 0.387) and Thailand ($\mu = 0.135$, SD = 0.719). Food and beverage companies in Thailand are very liquid with a current ratio of 2.391 as contrasted to the Philippines and Indonesia which recorded mean scores of 1.998 and 2.881, respectively. Profitability using Return on Average Assets ratio ranges from 6.3% in the Philippines to 8.2% in Indonesia. Thailand's food and beverage companies have a high-efficiency ratio, as shown in their total asset turnover ratio of 1.120, compared to 0.910 and 0.905 among Indonesian and Philippine firms.

_	Indo	nesia	Phi	lippines	Т	hailand	Entire	Sample
Variable	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
Tang	2.57	0.389	1.29	0.773	2.45	0.408	1.52	0.66
ROAa	2.12	0.473	1.7	0.587	1.38	0.725	1.46	0.684
ТАТо	2.09	0.478	1.97	0.508	2.96	0.338	1.73	0.577
Crat	2.07	0.482	1.06	0.947	1.34	0.748	1.2	0.836
lnCSiz	1.5	0.667	1.31	0.765	2.18	0.459	1.27	0.785
NDTS	1.23	0.815	1.57	0.639	1.74	0.575	1.23	0.813
RGrw	1.04	0.962	1.04	0.963	1.37	0.732	1.04	0.966
Mean VIF	1.8		1.42		1.92		1.35	
Tang_lnCSiz	2.38	0.421	1.19	0.842	2.76	0.362	1.51	0.661
CRat_lnCSiz	2.07	0.482	1.06	0.942	1.39	0.718	1.22	0.82
ROAa_lnCSiz	1.96	0.509	1.7	0.589	1.42	0.705	1.38	0.726
TATo_lnCSiz	1.7	0.588	1.96	0.511	2.35	0.426	1.65	0.607
NDTS_lnCSiz	1.15	0.869	1.44	0.693	1.48	0.675	1.16	0.859
RGrw_lnCSiz	1.04	0.966	1.01	0.992	1.1	0.911	1.01	0.989
Mean VIF	1.72		1.39		1.75		1.32	

 Table 3: Multicollinearity Test (Pre-diagnostic Test)

Note: Author's computation

Table 3 provides the variance inflation factor of the independent variables used and the interaction of size (total assets) and the other independent variables used in the study. The variance inflation factor and coefficient of determination were applied to avoid problems related to potential collinearity. As a rule of thumb, the VIF value should not be greater than 5. As can be gleaned in The variance inflation factor values for the independent variables and the moderated variables are below 5, where the highest values generated were 2.58, 1.97, 2.76, and 1.52 for Indonesia, the Philippines, Thailand, and the entire sample, respectively. As expected, the VIF values generated for the interaction terms between the firm size (CSiz) and other independent variables are higher than the individual construct's VIF values. The

diagnostic results prove the absence of multicollinearity.

I LIVI								
	Indone	esia	Philip	pines	Thai	iland	Entire	Sample
Variables	REM	FEM	REM	FEM	REM	FEM	REM	FEM
lnCSiz	0.019	0.324	0.160	0.132	0.094	-0.585	-0.030	-0.105
	(0.127)	(0.256)	(0.124)	(0.159)	(0.167)	(0.403)	(0.081)	(0.131)
ROAa	-4.903***	-3.963***	-0.091	-0.803	-8.149***	-2.611	-1.467*	-0.959
	(1.328)	(1.456)	(1.393)	(1.556)	(1.802)	(1.801)	(0.863)	(0.923)
CRat	-0.406***	-0.427***	-0.549***	-0.537***	-0.354***	-0.474***	-0.483***	-0.500***
	(0.078)	(0.076)	(0.073)	(0.078)	(0.054)	(0.064)	(0.038)	(0.040)
RGrw	0.179	-0.114	0.019	0.022	-0.278*	0.214	0.037	0.062
	(0.169)	(0.209)	(0.054)	(0.055)	(0.153)	(0.201)	(0.054)	(0.057)
NDTS	-11.032	-15.914*	1.852	1.622	7.502	19.497**	2.574	4.229
	(8.608)	(8.541)	(3.687)	(3.952)	(8.453)	(8.612)	(3.380)	(3.606)
Tang	0.528	0.008	-0.547	-0.498	0.088	-0.874	-0.100	-0.217
	(0.674)	(0.751)	(0.685)	(0.731)	(1.008)	(1.098)	(0.464)	(0.507)
ТАТо	0.542**	0.965***	-1.499***	-1.594***	0.686*	-0.532	-0.359**	-0.489***
	(0.273)	(0.348)	(0.237)	(0.260)	(0.383)	(0.427)	(0.157)	(0.170)
Constant	-1.217	-7.569	-2.419	-1.787	-3.494	11.055	0.185	1.824
	(2.840)	(5.561)	(2.510)	(3.206)	(3.714)	(8.218)	(1.730)	(2.718)
Observations	120	120	120	120	120	120	360	360
R-squared		0.302		0.594		0.460		0.378
No. of Firms	12	12	12	12	12	12	36	36
Diagnostic Tests		p-value		p-value		p-value		p-value
Hausman	FEM	0.0299	REM	0.9718	FEM	0.0000	REM	0.0528
Mod. Wald		0.0000				0.0000		

Table 4:	Regression Results of	f the Capital	Structure and	its Determinants	using REM and
FEM					

Note: Author's computation; standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4 shows the random and fixed effect estimation for the impact of the independent variables on capital structure. The Durbin Wu Hausman test was applied to determine the most appropriate model. For Indonesia and Thailand, the p-value is less than 0.05; thus, the author chose the fixed effect model over the random effect model. The author applied the RE model for the firms in the Philippines and the entire sample as the p-value result of the Hausman Test is greater than 0.05. The same results were generated for the impact of the interaction terms, with firm size as the moderator, on sources of capital of F&B firms in Indonesia using FEM for the Philippines, Thailand, and the entire sample.

The researcher used the Modified Wald test to determine the presence of heteroscedasticity in fixed effect estimates for Indonesia and Thailand. Since the p-value < 0.05, the results revealed a chi-square value of less than 0.05 significance level and proves the presence of heteroscedasticity. Therefore, we reject the null hypothesis. The results of Wooldridge's autocorrelation test revealed the presence of autocorrelation. Thus, the researcher decided to use the Panel-corrected Standard Errors (*PCSE*) model as the final model for the paper. A statistical test was conducted for the Philippines and the entire sample to treat the presence of autocorrelation. On the other hand, the author conducted two tests for Indonesia and Thailand to correct heteroscedasticity and autocorrelation. The final results using PCSE regression model is shown in Table 6.

Table 5. Regression Results of the Capital Structure and its Determinants using REM and

FEM								
	Indo	nesia	Philip	pines	Thai	land	Entire	Sample
VARIABLES	REM	FEM	REM	FEM	REM	FEM	REM	FEM
ROAa*lnCSiz	-0.211***	-0.244***	0.019	-0.051	-0.355***	-0.150	-0.073*	-0.047
	(0.069)	(0.061)	(0.076)	(0.085)	(0.091)	(0.091)	(0.044)	(0.046)
Crat*lnCSiz	-0.020***	-0.019***	-0.028***	-0.027***	-0.021***	-0.026***	-0.025***	-0.026***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)
RGrw*lnCSiz	0.003	0.011	0.002	0.002	-0.006	0.001	0.002	0.003
	(0.008)	(0.008)	(0.003)	(0.003)	(0.006)	(0.005)	(0.002)	(0.002)
NDTS*lnCSiz	-0.680*	-0.488	0.094	0.106	0.520	1.123***	0.124	0.203
	(0.397)	(0.397)	(0.199)	(0.211)	(0.410)	(0.426)	(0.174)	(0.185)
Tang*lnCSiz	0.003	0.028	-0.011	-0.012	-0.016	-0.064	-0.005	-0.011
	(0.035)	(0.030)	(0.035)	(0.037)	(0.051)	(0.054)	(0.023)	(0.025)
TATo*lnCSiz	0.033**	0.024**	-0.073***	-0.081***	0.016	-0.016	-0.018**	-0.023***
	(0.014)	(0.011)	(0.012)	(0.013)	(0.018)	(0.018)	(0.008)	(0.008)
Constant	-0.623	-0.822	0.463	0.672	-1.084	-0.441	-0.367	-0.283
	(0.523)	(0.524)	(0.544)	(0.515)	(0.838)	(0.858)	(0.365)	(0.366)
Observations	120	120	120	120	120	120	360	360
R-squared	0.302			0.592		0.482		0.394
No. of firms	12	12	12	12	12	12	36	36
Diagnostic								
Tests		p-value		p-value		p-value	5516	p-value
Hausman	FEM	0.0149	REM	0.5913	FEM	0.0002	REM	0.2335
Mod. Wald		0.0000		0.0000		0.0000		0.0000
Wooldridge		0.0000		0.0000		0.5537		0.0017

EEM

Note: Author's computation; standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5 provides results for the effect of the interaction between firm size and IVs on the capital structure of F&B firms in selected ASEAN countries and the entire sample. The Hausman test reveals that FEM is the preferred estimation for Indonesia and Thailand. In contrast, the author utilized REM over FEM for the regression results for the Philippines and the entire sample. The Modified Wald test shows the presence of heteroscedasticity in the fixed effect estimates. The Wooldridge autocorrelation test was conducted and revealed the presence of autocorrelation for the results generated for Indonesia, the Philippines, and the entire sample. The researcher opted to use the PCSE model as it is the appropriate model to eliminate the presence of the issues of heteroscedasticity and autocorrelation (see Table 7 for the final model).

	Model 1						
VADIADIES		DLIII	ТЦАІ	ENTIRE			
VARIADLES	INDO	FIIL	IIIAI	SAMPLE			
lnCSiz	-0.026	0.142*	0.137	0.072*			
	-0.06	-0.082	-0.122	-0.043			
ROAa	-4.204***	1.191	-8.293***	-5.207***			
	-1.591	-1.281	-1.993	-0.859			
Crat	-0.321***	-0.494***	-0.324***	-0.386***			
	-0.122	-0.057	-0.068	-0.035			
RGrw	0.229*	-0.007	-0.216	-0.07			
	-0.118	-0.029	-0.152	-0.073			

 Table 6: Regression Results of the Moderation Effect of Company Size on the

 Relationship between Capital Structure and its Determinants Using PCSE Model

NDTS	-0.535	1.025	2.266	-6.631**	
	-8.21	-4.049	-8.562	-3.135	
Tang	0.528	-0.669	0.483	0.45	
	-0.566	-0.68	-0.878	-0.383	
TATo	0.221	-1.167***	0.664	0.197	
	-0.257	-0.252	-0.416	-0.143	
Constant	-0.505	-2.505	-4.434	-2.282**	
	-1.346	-1.527	-3.061	-0.986	
Observations	120	120	120	360	
R-squared	0.327	0.477	0.457	0.416	
No. of Firms	12	12	12	36	

Note: Author's computation; standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6 shows the effect of firm size, profitability, liquidity, growth opportunities, tangibility, NDTS, and asset turnover ratio on the capital structure of top food and beverage firms in Indonesia, Philippines, Thailand, and the entire sample. Except for Indonesia, firm size positively influences the firm's capital structure. Thus, the hypothesis (H1a) is supported. The results support the findings of Basri *et al.* (2019), Mirza (2015), and Vijayakumaran and Vijayakumaran (2019). As shown in the table above, H1b is supported, considering the Return on Average Assets showed a negative effect on the capital structure of the firms operating in Indonesia, Thailand, and the entire sample. It corroborates the findings of Ali *et al.* (2022), Chadha and Sharma (2015), Mardan *et al.* (2023), and Mendoza *et al.* (2023).

At the same time, a negative impact was evident among food and beverage firms in the Philippines, Thailand, and the entire sample. Thus, hypothesis H1d is only supported in Indonesia. There are mixed results on the impact of a non-debt tax shield on the firm's capital structure. The results generated for Indonesia and the entire sample are consistent with Czerwonka's (2021) and Pham's (2023) findings. On the other hand, the positive effect results for the Philippines and Thailand corroborate the conclusions made by Ali *et al.* (2022) and Ghani *et al.* (2023). The results for the impact of tangibility and asset turnover ratios in Indonesia, Thailand, and the entire sample are favorable for the firm's capital structure, which supports hypotheses H1e and H1f.

	Model 2						
VARIABLES	INDONESIA	PHILIPPINES	THAILAND	ENTIRE			
	INDONEDIN	T THEIT T IT (ED		SAMPLE			
ROA*Csiz	-0.338***	0.116	-0.426***	-0.221***			
	-0.078	-0.072	-0.102	-0.056			
Crat*lnCSiz	-0.014**	-0.025***	-0.018***	-0.021***			
	-0.007	-0.003	-0.003	-0.002			
RGrw*lnCSiz	0.019***	0.001	-0.005	-0.001			
	-0.005	-0.001	-0.005	-0.004			
NDTS*lnCSiz	0.460	-0.004	0.047	-0.379**			
	-0.390	-0.222	-0.426	-0.192			
Tang*lnCSiz	0.022	-0.022	0.024	0.022*			

 Table 7: Regression Results of the Moderation Effect of Firm Size on the Relationship

 between Capital Structure and its Determinants Using PCSE Model

	-0.029	-0.037	-0.045	-0.012
TATo*lnCSiz	0.009	-0.051***	0.022	0.007
	-0.008	-0.013	-0.02	-0.008
Constant	-1.141**	-0.038	-1.388*	-0.740***
	-0.518	-0.492	-0.830	-0.252
Observations	120	120	120	360
R-squared	0.573	0.455	0.48	0.424
No. of Firms	12	12	12	36

Note: Author's computation; standard errors in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

Table 7 shows the moderation effect of firm size on the impact of profitability, liquidity, growth opportunities, non-debt tax shield, tangibility, and asset turnover ratio on the capital structure of top food and beverage firms. As expected, the interaction between liquidity ratio and firm size consistently provided a statistically negative effect on the firms' capital structure in the four (4) groups shown above (Indonesia, the Philippines, Thailand, and the entire sample). hypothesis H2c is supported across all countries, but the same is not supported on its impact on the capital structure of F&B firms in the Philippines, Thailand, and the entire sample proves that firm size plays an important role in the impact of liquidity on the firm's capital structure. The effect of the interaction between profitability and firm size on the capital structure of F&B firms in Indonesia, Thailand, and the entire sample is negative. For growth opportunities, the findings on its influence on Indonesian firms' capital structure are consistent with the findings of Zulvia and Linda (2019). Thus, hypotheses H2a and H2b are supported, which means that the interaction of firm size increases the impact of profitability and growth opportunities on the firms' capital structure. On the other hand, the moderating effect of firm size on the influence of tangibility and non-debt tax shield was only statistically significant for the entire sample and its moderating effect showed either positive or negative effects for different country groups. The interaction between firm size and asset turnover is negatively significant for food and beverage firms in the Philippines, thereby, supporting hypothesis H2F. It showed no moderating but positive effect for firms in Indonesia, Thailand, and the entire sample.

5. CONCLUSIONS

The study examined the impact of the firm-specific indicators (firm size, profitability, liquidity, growth opportunities, tangibility, asset turnover ratios, and tangibility) on the capital structure of food and beverage firms in the Philippines, Indonesia, Thailand, and the entire sample. Twelve of the top companies in each county were selected as samples and the data was initially run using fixed effect and random effect regression models. To address autocorrelation and heteroscedasticity problems, the panel-corrected standard error was finally utilized.

The results reveal that firm size, profitability, and liquidity are the primary determinants of the capital structure of food and beverage firms in Indonesia, the Philippines, Thailand, and the entire sample, comprising 36 companies. Liquidity and profitability provided negative and significant impacts on the capital structure of firms in all countries except for profitability where the effect of the latter is weak and positive. Growth has a positive effect on the capital structure of firms in Indonesia while it inversely affected firms in Thailand and the entire sample. Mixed results were also evident for the impact of NDTS, tangibility, and total asset turnover ratio. These findings are consistent with the findings of Psillaki and

Daskalakis (2009) for small and medium enterprises and Czerwonka's (2021), Mendoza *et al.* (2023), and Pham (2023) for listed and large firms.

Only the interaction between liquidity and firm size on the capital structure of the food and beverage firms was statistically significant and negative across all countries. The results for the moderating role of firm size on the impact of the other predictor variables vary, but there is a statistically negative impact of profitability on the capital structure of firms in Indonesia, Thailand, and the entire sample. The moderating role of firm size also showed weaknesses in the impact of other predictor variables on their capital structure when its interaction with growth, non-debt tax shield, and asset turnover ratios were measured. The findings also revealed that firms in each country have different determinants impacting their capital structure. Growth opportunity positively impacts Indonesia's food and beverage companies and the entire sample. At the same time, it provides a negative and weak impact on the capital structure of firms in Thailand. Given the variations in the factors affecting their capital structure, it is suggested that researchers conduct studies comparing firms in a specific industry from developed and developing countries. Despite the limitation in the accessibility of data, future researchers can conduct a similar study using data that can be accessed from the websites of different agencies and government offices in developed countries or large emerging economies with large databases. They can use the data in conducting studies for private companies or small and medium enterprises.

To effectively perform the static regression models used and address potential biases, it is suggested to increase the sample size or use other panel data regression models such as dynamic or Bayesian regression models. One of the limitations of the study is the use of only one capital structure indicator. It is highly recommended to use other measures of capital (both short-term and long-term) and leverage ratios to effectively compare firms from different industries, between publicly listed and private or small enterprises, and between family-owned vis-à-vis other private firms. This can facilitate investigating not only similarities but also differences in the use of capital and its determinants. A follow-up study can be undertaken in these countries using other industries with the same sets of variables or with the use of other variables or by measuring the capital structure on the firm performance or firm value.

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