FACTORS SHAPING CAPITAL STRUCTURE: EVIDENCE FROM PRIVATE COMMERCIAL BANKS IN BANGLADESH

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ABSTRACT

This study investigates how various determinants shape the capital structure of commercial banks in Bangladesh, employing panel data, structured from available secondary sources, covering 22 banks as samples from 61 scheduled banks for the period of 2011 to 2020, conducting Feasible Generalized Least Squared (FGLS) Regression Model. Several diagnostic tests have been conducted to ensure the robustness and stability of the model. The study results reveal that return on assets, earnings per share, asset growth, asset structure, investment structure, cost per loan assets, and loan loss provisioning considerably influence the capital structure or the leverage of commercial banks. On the contrary, the

authors find no explicit evidence that bank size, liquidity, capital adequacy, and non-performing loan ratio have significant impacts on the capital structure of the banking industry of Bangladesh. The findings of this study advocate that return on assets, earnings per share, asset structure, and cost per loan assets as the dominant explanatory factors of capital structure. Besides, asset growth, investment structure, and loan loss provisioning affect less significantly on determining the capital structure of the banking industry. This study also brings the academicians, researchers, and analysts with corroborating new routes for exploring further research in this field.

INTRODUCTION

The banking sector is considered one of the major contributors to economic expansion and development, ensuring stable financial welfare. Every country has a central bank that serves for the betterment of the banking sector, regulates their activities (Shih et al., 2010), observes capital structure, monitors the performance of the banks, and influences the economic growth (Lassiter et al., 2010). After about ten years of the financial crisis globally in 2007 and 2008, it started to get back its health. As a vulnerable sector, the banks can face further deterioration and credit crunch anytime if any bank fails to effectively manage the negative shocks throughout the country (Golder et al., 2021; and Rajadhyaksha, 2004). However, competition in this sector has increased significantly because of technical progress and crucial changes in the banking environment (Anarfo, 2015).

Commercial banks capitalize profits by mobilizing funds and utilizing resources in productive areas (Bhattarai, 2019). Banks need to be more concerned regarding liquidity and solvency issues because those have to be approached with varied types of risks from time to time (Amidu, 2007). Banks collect funds and provide loans to other parties to run business smoothly. For this purpose, banks also need to maintain a strong capital structure consisting of equity and debt. Banks issue shares in the capital market to compile funds (Golder et al., 2020), accumulate deposits through different lucrative accounts and use these reserves for loan disbursement to ensure borrowers' liquidity. Ultimately, the prosperity of banks depends on the arrangement of their capital because the maintenance of debt and equity is a vital task to reduce the risk effectively. Maintaining a strong capital structure for banks is required to fight against unexpected circumstances in future. Evidence from 1991 unveiled that Japan faced a crisis in the banking sector where one of the prepotent reasons was inefficient management of leverage (Fuji & Kawai, 2012). In the same vein, Amidu (2007) added that every bank needs to have effective strategies to address the uncertainties and to administer the risks.

An ideal structure of capital consisting of debt and equity (Sadiq et al., 2017) ensures expansion of the firm's value and detraction of expenses (Sheikh & Qureshi, 2017). Researchers over the globe worked regarding the optimal structure of capital of banks and other organizations. Bukair (2019) stated that equity is much expensive than debt, and it hinders the strength of banks to take part in various financial markets. In this context, Sheikh and Qureshi (2017) expressed that financing through debt ensured a higher return and boosted the company's worth. However, there requires a balance between this leverage framework and determinants because only debt financing creates systematic problems and a wrong mix subsequently affects banks' efficiency. Several analysts from different countries have investigated the impact of some particular factors of firms on capital formation (Booth et al., 2001; Bukair, 2019; Deesomsak et al., 2004; Harun et al., 2020; Sheikh & Qureshi, 2017; and Wald, 1990).

The capital structure of banks surmises the ideas of Modigliani and Miller (MM) Proposition, trade-off theory, and pecking order theory. MM Proposition (1958) demonstrated the equality between levered and unlevered firms. Later, the MM Proposition (1963) considered tax shield benefits which differentiated debt and equity financing. Trade-off theory deals with the cost-benefit assumptions (Kraus & Litzenberger, 1973) that ensure the maximization of the firm's wealth (Anarfo, 2015). Pecking order theory deals with information asymmetry (Myers & Majluf, 1984), which creates contradiction against

financial decision-making. Besides, Jensen, and Meckling (1976) conveyed to explore the pros and cons of issuing the debt for capital structure.

Some analysts, scrutinizing the capital structure of banks and leasing companies, found that profitability and size of the firm had contributory effects on the leverage structure (Shah & Jam-e-Kausar, 2012; and Sheikh & Qureshi, 2017). In Bangladesh, Sharif and Muhammad (2019) analyzed the leverage structure of scheduled banks in Bangladesh and indicated that ROA, total assets, firm age, the tangibility of total assets had significant impacts on leverage ratio. In the substance of Islamic banks in Bangladesh, Bukair (2019) noted that the capital framework of the selected banks consisted of both equity and debt, where current and investment accounts were the prominent sources of debt. Here, total assets, liquidity and bank age had significant positive impacts on leverage ratio.

The present study context and stated problems related to determining factors in shaping optimum capital structure is the burning issue of this study. Thus, exploring the elements of capital structure and appraising the related impact of these factors on capital structure of commercial banks in Bangladesh forms the main objective of this review.

The study steered on contributing factors that shape capital structure of corporate firms and financial institutions is limited around the world. Besides, research on this specific area considering the determining factors of capital structure of emerging countries like Bangladesh is scant. Moreover, the authors added two explanatory variables, e.g., non-performing loan ratio and loan loss provision to total non-performing loan as explanatory variables to have better understanding of the effect on capital structure which was absent in other researches. Period covered in this study also gives the readers the latest information on the consequence of determining factors of capital structure of financial institutions in general and banking intuitions in particular.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Extensive reviews of related studies have been imputed to reveal compact opinions regarding this area and develop hypotheses of how the capital structure is shaped grounded on the dominant factors. Substantial discussions of the determinants have attributed immense knowledge which affects the states of capital structuring. Relevant determinants have been constituted to revive justifications concerning the findings of prior studies in this area. The stated determinants are bank size, profitability, liquidity, growth, asset structure, investment structure, cost per loan assets, capital adequacy, non-performing loan ratio, and coverage ratio.

Bank Size

Bank size drives dominant attributes to the capital structure. Large-sized banks have greater opportunities to finance debt capital in comparison to small-sized banks (Titman & Wessels, 1988). Because large financial institutions impose fewer transaction costs (Noulas & Genimakis, 2011), deserving less chances to be bankrupt (Smith & Warner, 1979). In contrast, Rajan & Zingales (1995) argued that size inversely affected the leverage position. Banks with larger sizes tend to use their profits and cash flows to those areas where they seem discrepancies. The profitability of banks is determined by bank size, where leverage confronts profitability (Bunyaminu et al., 2021). Costs of issuing debt instruments for larger companies were diversified (Byoun, 2008) because of the non-existence of asymmetric information (Kayo & Kimura, 2011), conducting a study based on 1,27,340 observations over 40 countries. There existed some mixed outcomes regarding this area of the stated determinant. Some shreds of evidence uncovered a noteworthy positive association between size and leverage (Al-Hunnayan, 2020; Amidu, 2007; Anarfo, 2015; Bukair, 2019; Heider & Gropp, 2008; Khan et al., 2020; Kuč & Kaličanin, 2020; Manos & Ah-Hen, 2003; M'ng et al., 2017; Oino, 2014; Režňáková et al., 2010; Shah & Jam-e-Kausar, 2012; Sheikh & Qureshi, 2017; Ukaegbu & Voulgaris et al., 2004), conversely, there existed some significant negative impacts of size on leverage (Güner, 2016; Handoo & Sharma, 2014; Kayo & Kimura, 2011; Khan et al., 2020; and Sharif & Muhammad, 2019). In addition, some studies uncovered that there were no significant impacts of size on leverage (Islam, 2016; and Ullah et al., 2017). Those findings determine the following hypothesis:

H_1 = There is no significant relationship between bank size and capital structure.

Profitability
Profitability of any firm, determining the capital structure (Shah & Jam-e-Kausar, 2012), is one of the dominant factors and is specified by return on assets (Sharif & Muhammad, 2019; and Anarfo, 2015). Firms with higher profits tended to go for leverage to reduce the chance of bankruptcy (Ooi, 1999). It is concluded that profitability incurred more capabilities to finance debt by redeeming costs, supporting the trade-off theory (Gharaibeh & Saqer, 2020). Režňáková (2010) analyzed panel data of 1100 non-financial companies for 2002 to 2007, concluding that profit had a significant positive effect on capital structure. Alternatively, profitability blocked the opportunities of funding debt capital because internal earnings or retained earnings fulfilled the financing needs, supporting pecking order theory (Al-Sakran, 2001; Hoque & Pour, 2018; and Shah & Jam-e-Kausar, 2012). However, there was a mixed result between profitability and leverage, where some scholars found positive relationship (Režňáková, 2010; and Ukaegbu & Oino, 2014), some found negative relationship (Al-Hunnayan, 2017; Amidu, 2007; Anarfo, 2015; Črnigoj & Mramor, 2009; Güner, 2016; Handoo & Sharma, 2014; Heider & Gropp, 2008; Kayo & Kimura, 2011; Khan et al., 2020; Kuč & Kaličanin, 2020; Manos & Ah-Hen, 2003; M'ng et al., 2017; Režňáková, 2010; Sakunasingha et al., 2018; Shah & Jam-e-Kausar, 2012; Sharif & Muhammad, 2019; Sheikh & Quereshi, 2017; Ukaegbu & Oino, 2014; and Voulgaris et al., 2004), and many others identified even no relationship (Bukair, 2019; Hossain & Hossain, 2015; Noulas & Genimakis, 2011; and Ullah et al., 2017) between the two. These findings develop the following hypotheses:
H_2 = There is no significant relationship between return on assets and capital structure.
H_3 = There is no significant relationship between earnings per share and capital structure.

Liquidity
How shorter period is recommended to convert assets into cash determines the provision of liquidity, and is one of the significant issues shaping the capital structure (Režňáková, 2010), measuring the institutional capability of redeeming short-term obligations. Liquidity and investments are on different sides of the same coin (Lalon & Naher, 2020). Trade-off theory suggests that higher liquidity navigate higher opportunities to capitalize debt instruments (Al Shubiri, 2011; Ukaegbu & Oino, 2014; and Teixeira et al., 2014). Besides, Ukaegbu and Oino (2014) administered a study based on the data of 2004 to 2008 in Nigeria also supported the previous findings. On the contrary, Amidu (2007), based on the data of 19 banks, argued that liquidity incurred financial stress, which had driven limited leverage opportunity. Prior evidence focused on significant positive influences of liquidity on leverage (Bukair, 2019); conversely, some evidence revealed a significant negative relationship (Güner, 2016; Hossain & Hossain, 2015; Režňáková, 2010; Sakunasingha et al., 2018; Shah & Jam-e-Kausar, 2012; and Ullah et al., 2017). Extracts from the studies shape the following hypothesis:
H_4 = There is no significant relationship between liquidity and capital structure.

Asset Growth
High growth rate conveyed high financial costs, confirmed by trade-off theory (Al-Hunnayan, 2020) by examining a study based on 12 Islamic banks in the GCC for 10 years of data. On the contrary, pecking order theory opposed to that said that high growth rate demonstrated low costs of bankruptcy, leading to constructive affiliation between growth rate and leverage (Kayo & Kimura, 2011). In the same vein, Režňáková (2010) substantiated that non-financial companies with high growth corroborated with the high option to debt financing, experienced from the study based on 6 years data in Slovakia. Sakunasingha et al. (2018) deduced that the growth rate of assets had significant impacts on leverage ratio evidenced from the Fixed Effects Model using the data of 14 local banks in Thailand. Growth had a significant positive influence on leverage (Al-Hunnayan, 2020; Cassar & Holmes, 2003; Frank & Goyal, 2009; Kayo & Kimura, 2011; Manos & Ah-Hen, 2003; Noulas & Genimakis, 2011; and Sakunasingha et al., 2018), contradicting the studies (Hossain & Hossain, 2015; Režňáková, 2010; and Sheikh & Quereshi, 2017) who found significant negative impacts on leverage. Besides, fewer studies

preferred to conduct growth as explanatory variables (Güner, 2015; Kayo & Kimura, 2011; Shah & Jam-e-Kausar, 2012; and Ukaegbu & Oino, 2014). Based on the stated literature, the subsequent hypothesis was derived:

H_5 = There is no significant relationship between asset growth and capital structure.

Asset and Investment Structure

The structure of assets complemented the proportion of debt and equity against total assets. Amidu (2007) documented that asset structure played an essential character in the capital structure of banks, examining a study based on 6 years of data from 19 banks in Ghana. In the same context, Shah and Jam-e-Kausar (2012) appraised that investment was one of the contributing factors of capital structure. Agency costs were depressed by using assets as security against the issuance of debt instruments (Stulz and Johnson, 1985). There was a substantial constructive connection between asset structure and leverage (Ukaegbu & Oino, 2014). On the contrary, Manos and Ah-Hen (2003) highlighted a substantial negative connotation. In the case of investment structure, relevant evidence is scant; instead, some findings enumerated a significant relationship between investment and capital structure (Shah & Jam-e-Kausar, 2012) who researched from 2003 to 2008. Extracts from the reviews, the following hypotheses are developed:

H_6 = There is no significant relationship between total equity to total assets and capital structure.

H_7 = There is no significant relationship between total debt to total assets and capital structure.

H_8 = There is no significant relationship between total loans and advances to total assets and capital structure.

Cost per Loan Assets and Capital Adequacy

Cost per loan assets measures the cost per unit loans and advances provided to the borrowers of banks. Operating costs are distributed among all sorts of loans and advances. Management of loans and advances upheld the operating costs of commercial banks (Berger & DeYoung, 1997). Banks contended to alleviate the operating costs to ensure performance (Gadzo et al., 2019). Basel Accords deduced minimum capital requirements to be kept against risk-weighted assets. Capital adequacy is employed to fight against credit, market, and operational risks (Ukaegbu & Oino, 2014). Instead, maintaining capital adequacy is not an alternative to mitigate risks inherent in monitoring (Kahane, 1977). It was observed negative association between capital adequacy and loan disbursement (Altman et al., 2002). Some banks were restructured through mergers due to limited capital requirements (Peek & Rosengren, 1995). Using balanced panel data, Pooled OLS and Random Effects model exposed a significant relationship between minimum regulatory capital and leverage for 2004 to 2008 in Ghana (Ukaegbu & Oino, 2014). It has tried to reveal a few related studies on cost per loan assets and capital adequacy as independent variables for determining the dependent variable. The succeeding hypotheses are:

H_9 = There is no significant relationship between cost per loan assets and capital structure.

H_{10} = There is no significant relationship between capital adequacy and capital structure.

Non-performing Loan Ratio and Coverage Ratio

The non-performing loan ratio is a dominant tool to evaluate financial performance (Vatansever & Hepsen, 2013). The quality of the assets of the bank was assessed through this NPL ratio which was scrutinized to reduce the negative influence of NPL on assets (Irawati et al., 2019). Van Greuning and Bratanovic (2020) indicated that credit risk was the prime reason for failure in banks and increased non-performing loans. These factors were negatively related to the banks' performance to a large extent. The risk-taking nature of banks was hindered by NPL volume (Lestari, 2018). To reduce the loss, every bank maintains a coverage ratio where provision on loan loss is taken as per the volume of NPL. Loan loss provision affects the bank's profitability. A well-organized bank enables to manage higher profitability to keep lower loan loss provision. The high volume of NPL deteriorates the credit policy (Bhattarai, 2018). However, this study develops hypotheses to relate NPL ratio and coverage ratio to the capital structure of banks.

H_{11} = There is no significant relationship between non-performing loans to total loans and advances and capital structure.

H_{12} = There is no significant relationship between loan loss provision to total non-performing loans and capital structure.

RESEARCH METHODOLOGY

Sample and Data

The research is intended to analyze the factors that affect or have significant impacts on the capital structure of the banks. Bangladesh has 61 scheduled banks, out of which there are 33 conventional private banks (Bangladesh Bank, 2021). However, 22 private conventional commercial banks are taken as samples based on data availability and annual reports for conducting the research. This study deals with 10 years of data from 2011 to 2020, thereby constructing a panel dataset of 220 observations collected from available secondary sources, including annual reports, websites, academic papers, journals, and original newspapers.

Framework and Measurements of the Variables

After analyzing the literature, twelve variables are selected as independent or explanatory variables, which are assumed to have significant effects on the dependent variable.

Table 1. Descriptions and Measurements of Variables

Variables	Sl.	Abbr.	Description	Indication
Dependent		TDTE	Total Debt/Total Equity	Capital Structure or Leverage
Independent/ Explanatory	1	LGA	Logarithm of Total Assets	Bank Size
	2	ROA	Net Profit After Tax/Total Assets	Profitability
	3	EPS	Net Profit After Tax/Numbers of Outstanding Shares	
	4	TLATDE	Total Loans and Advances/Total Deposits	Liquidity
	5	GRTA	(Current Year's Assets- Previous Year's Assets)/Previous Year's Assets	Asset Growth
	6	TETA	Total Equity/Total Assets	Asset Structure
	7	TDTA	Total Debt/Total Assets	
	8	TLATA	Total Loans and Advances/Total Assets	Investment Structure
	9	CLA	Operating Costs/Total Loans and Advances	Cost Per Loan Assets
	10	CAR	(Tier 1 Capital + Tier 2 Capital)/Risk-Weighted Assets	Capital Adequacy
	11	NPLR	Non-performing Loan/Total Loans and Advances	Non-performing Loan Ratio
	12	LLPNPL	Loan Loss Provision/Non-performing Loan	Coverage Ratio

The dependent variable is total debt to total equity (TDTE), which measures capital structure or leverage or how many times total debt is compared to total equity of banks. Independent variables include bank size proxied by total assets, profitability proxied by net profit after tax to total assets (ROA) and net profit after tax to the number of outstanding shares (EPS), liquidity proxied by total loans and advances to total deposits (TLATDE), asset growth proxied by the growth rate of assets of the banks (GRTA), asset structure proxied by total equity to total assets (TETA) and total debt to total assets (TDTA), investment structure proxied by total loans and advances to total assets (TLATA), cost per loan assets proxied by operating cost to total loans and advances (CLA), capital adequacy proxied by (tier 1 capital + tier 2 capital) to risk-weighted assets (CAR), non-performing loan ratio proxied by non-performing loan to total loans and advances (NPLR), and coverage ratio proxied by loan loss provision

to non-performing loan (LLPNPL). Only bank size is in natural logarithm form to avoid any extreme value.

Model Selection and Specification

Possible estimations are shaped based on appropriate statistical models to test hypotheses. Balanced panel data are checked to derive the best model among alternative options to provide significant results with fitted values.

Table 2. Model Selection and Specification

Test Types	Estimations	Specifications
F-test (12, 186)	46.12***	Fixed Effects Model
Hausman Test chi2 (12)	107.93***	Fixed Effects Model
Breusch and Pagan LM Test chibar2 (01)	22.46***	Random Effects Model
Modified Wald Test chi2 (22)	3017.17***	Heteroskedasticity
Wooldridge Test F(1, 21)	29.622***	Autocorrelation
Notes: $p<0.01$=***, $0.05>p\geq0.01$=**, and $0.10>p$=*, *F*-test derived from Fixed Effects Model		

     F-test from Fixed Effects Model extracted significant results constituting that Fixed Effects Model represented fitted values. Hausman Test also conferred to go for the Fixed Effects Model due to rejecting the null hypothesis at 1% level of confidence. Oppositely, Breusch and Pagan Lagrangian Multiplier (LM) Test suggested Random Effects Model over the Ordinary Least Square (OLS) Estimation, estimating p<0.01. Modified Wald Test identified heteroskedasticity in panel data, and Wooldridge Test picked out autocorrelation, specifying that Random Effects GLS (Generalized Least Squares) Regression Model and Feasible GLS Regression Model had been used to find significant results. Extracts from the estimations, three statistical models were developed to navigate hypotheses testing.

$$TDTE_{it} = \alpha_0 + \beta_1 LGA_{it} + \beta_2 ROA_{it} + \beta_3 EPS_{it} + \beta_4 TLATDE_{it} + \beta_5 GRTA_{it} + \beta_6 TETA_{it} + \beta_7 TDTA_{it} + \beta_8 TLATA_{it} + \beta_9 CLA_{it} + \beta_{10} CAR_{it} + \beta_{11} NPLR_{it} + \beta_{12} LLPNPL_{it} + u_{it} \dots\dots \textbf{Model I (Fixed Effects Model)}$$

$$TDTE_{it} = \alpha_0 + \beta_1 lga_{it} + \beta_2 ROA_{it} + \beta_3 EPS_{it} + \beta_4 TLATDE_{it} + \beta_5 GRTA_{it} + \beta_6 TETA_{it} + \beta_7 TDTA_{it} + \beta_8 TLATA_{it} + \beta_9 CLA_{it} + \beta_{10} CAR_{it} + \beta_{11} NPLR_{it} + \beta_{12} LLPNPL_{it} + u_{it} + \mathcal{E}_{it} \dots\dots.\textbf{Model II (Random Effects GLS Regression Model)}$$

$$TDTE_{it} = \alpha_0 + \beta_1 LGA_{it} + \beta_2 ROA_{it} + \beta_3 EPS_{it} + \beta_4 TLATDE_{it} + \beta_5 GRTA_{it} + \beta_6 TETA_{it} + \beta_7 TDTA_{it} + \beta_8 TLATA_{it} + \beta_9 CLA_{it} + \beta_{10} CAR_{it} + \beta_{11} NPLR_{it} + \beta_{12} LLPNPL_{it} + \mathcal{E}_{it} \dots\dots..\textbf{Model III (Feasible GLS Regression Model)}$$

     Where α_0 confers constant/intercept, $\beta_{1\ to\ }\beta_{12}$ represents coefficients, u_{it} denotes between-entity error term, and $\mathcal{E}_{it}$ represents within-entity error.

Tools for Analysis

To check the panel data and to select or specify the best statistical models, several tests are attributed, e.g., *F*-test, Breusch and Pagan LM Test, Modified Wald Test, and Wooldridge Test. Descriptive statistics is performed to pull out mean, standard deviation, minimum, and maximum values. Correlation analysis and Variance Inflation Factor (VIF) Test have been constructed to check multicollinearity issues. In addition, regression outputs are derived from running Fixed Effects Model, Random Effects GLS Model, and Feasible GLS Model.

EMPIRICAL RESULTS AND INTERPRETATIONS

Descriptive Statistics

Table 3. Results of Descriptive Statistics

Variables	Obs.	Mean	SD	Min	Max
TDTE	220	11.693	2.988	2.479	19.822
LGA	220	5.320	0.195	4.830	5.752
ROA	220	0.010	0.005	0.0001	0.036
EPS	220	3.01	2.351	0.020	21
TLATDE	220	0.869	0.117	0.106	1.194
GRTA	220	0.149	0.095	-0.266	0.769
TETA	220	0.082	0.021	0.048	0.264
TDTA	220	0.915	0.053	0.713	1.467
TLATA	220	0.668	0.080	0.088	1.048
CLA	220	0.0386	0.024	0.002	0.253
CAR	220	0.125	0.016	0.090	0.179
NPLR	220	0.054	0.045	0.007	0.446
LLPNPL	220	0.463	0.340	0.0002	3.938

The mean result of the total debt to total equity ratio of the selected banks is 11.693, indicating that a higher proportion of the banks' assets is financed by liabilities from deposits and non-deposits accounts. Khan et al. (2020) mentioned this scenario as the nature to take deposits more by the commercial banks. This mean value of leverage is akin to the earlier studies informed by Sakunasingha et al. (2018), Khan et al. (2020), and Anarfo (2015). This variable also exhibits the highest variation determined by standard deviation, which is 2.479. It also presents a wide gap between the minimum and maximum values ranging from 2.479 to 19.822. EPS exhibits a mean value of Tk. 2.32 and indicates a wide gap between minimum and maximum values than other variables. The mean value of ROA is 10% which reveals that at the time of sampling, about 10% of profits were earned by the banking industry of Bangladesh. On the contrary, return on assets shows a small gap between minimum and maximum value. In addition, the minimum asset growth rate is -0.266% which is the only negative growth value among all of the variables.

Correlation Matrix and Multicollinearity Test

Table 4. Results of Correlation Matrix and VIF Test

	TDTE	LGA	ROA	EPS	TLATDE	GRTA	TETA	TDTA	TLATA	CLA	CAR	NPLR	LLPNPL
TDTE	1.000												
LGA	0.163	1.000											
ROA	-0.433	-0.274	1.000										
EPS	0.066	0.029	0.414	1.000									
TLATDE	-0.022	0.374	0.054	-0.069	1.000								
GRTA	-0.002	-0.265	0.157	0.074	-0.034	1.000							
TETA	-0.793	-0.121	0.434	-0.049	0.046	-0.031	1.000						
TDTA	0.527	0.067	-0.038	0.076	-0.058	-0.251	-0.268	1.000					
TLATA	0.128	0.162	0.108	-0.074	0.702	-0.069	-0.016	0.379	1.000				
CLA	-0.240	-0.197	0.053	0.208	-0.449	-0.018	0.068	-0.317	-0.616	1.000			
CAR	0.030	0.498	0.025	0.223	0.278	-0.192	-0.036	-0.035	-0.008	0.005	1.000		
NPLR	-0.062	0.033	-0.127	-0.161	-0.213	-0.185	0.037	-0.034	-0.238	0.294	-0.137	1.000	
LLPNPL	0.164	0.084	0.031	0.095	0.080	0.051	-0.130	0.008	0.039	-0.038	0.126	-0.243	1.000
VIF TEST		1.84	1.95	1.58	3.49	1.29	1.53	1.97	3.99	1.94	1.66	1.33	1.10
Mean VIF = 1.97													

The correlation matrix including explained and explanatory variables is conducted to scrutinize the presence of multicollinearity. The leverage ratio has the highest positive correlation with the total debt to total assets ratio, indicating a significant association. The total debt to total equity ratio has the highest negative correlation with the total equity to total assets ratio (-0.793), specifying that when the total equity to total assets ratio decreases, the leverage ratio of the sampled banks steps up. ROA, cost per loan assets, asset growth, liquidity and non-performing loan ratio are also inversely correlated to the leverage ratio, signifying trade-off theory. The leverage ratio and bank size are heading in the same direction, similar to the study reported by Bukair (2018). According to Kennedy (2008), there exists no multicollinearity between two variables, signifying that the correlation of coefficients does not exceed 80%. So, this research output does not convey multicollinearity problems between independent variables or dependent to independent variables. Multicollinearity issue arises when there is a VIF value of more than 10 (Hair et al., 2006), signifying the non-existence of multicollinearity problem in the dataset.

Regression Results

Analysis of Variance (ANOVA) discerned how these three pre-stated models are statistically fitted for further analyses and estimations of variables.

R-squared values 74.9%, 63.0%, and 65.9% for within, between, and overall, respectively, uncovered that the dependent variable (TDTE) is explained with these stated percentages by explanatory variables in *Model I* (Fixed Effects Model). In the same way, R-squared for *Model II* confirms 71.3%, 87.8%, and 77.65 for within, between, and overall, respectively. F-test for *Model I* is statistically significant, rejecting the null hypothesis at 1% level of significance. Wald chi2 (12) for both *Model II* (Random Effects GLS Regression) and *Model III* (Feasible GLS Regression) dispensed significant outcomes, striking model significances, predicting at *p*<1%. *Model III* (FGLS) propels no autocorrelations and no heteroskedasticity, confirming that panel data is homoskedastic.

Table 5. Test of ANOVA

Variables	Model I	Model II	Model III
	Fixed Effects Model	Random Effects GLS Regression	Feasible GLS Regression
No. of observations	220	220	220
No. of groups	22	22	22
R-sq: within/between/overall	0.749/0.630/0.659	0.713/0.878/0.776	
F (12, 186)	46.12***		
Wald chi2 (12)		2207.80***	807.64***
Notes: p<0.01=***, 0.05>p≥0.01=**, and 0.10>p=*			

Empirical findings have been derived from stated regression models specified based on autocorrelation and heteroskedasticity issues. Feasible GLS Regression constitutes the confirmation of robustness in Random Effects GLS Regression. Standard errors and coefficients confirm the reliability and the connection between the dependent variable and explanatory variables.

Table 6. Estimations and Tests of Significances

Variables	Model I			Model II			Model III		
	Fixed Effects Model			Random Effects GLS Regression			Feasible GLS Regression		
	β	*SE*	*p*	*β*	*SE*	*p*	*β*	*SE*	*p*
LGA	3.842	0.764	**0.000***	1.094	0.717	0.180	-0.233	0.649	0.719
ROA	-77.951	28.49	**0.007***	-119.28	27.17	**0.036****	-132.57	26.61	**0.000***

EPS	0.136	0.092	0.141	0.158	0.062	**0.033****	0.145	0.050	**0.004*****
TLATDE	6.801	1.808	**0.000*****	3.067	1.652	0.202	2.050	1.489	0.169
GRTA	2.109	0.980	**0.033****	2.575	1.083	0.119	2.904	1.120	**0.010****
TETA	-51.074	5.328	**0.000*****	-70.753	5.431	**0.016****	-81.08	5.429	**0.000*****
TDTA	24.061	2.274	**0.000*****	22.896	2.462	**0.004*****	21.956	2.476	**0.000*****
TLATA	-12.809	2.461	**0.000*****	-6.870	2.409	**0.038****	-4.624	2.315	**0.046****
CLA	-6.954	5.338	0.194	-15.438	5.461	**0.039****	-16.85	5.347	**0.002*****
CAR	-22.019	7.738	**0.005*****	-7.035	7.860	0.224	-0.126	7.517	0.987
NPLR	-0.950	2.212	0.668	1.168	2.382	0.408	1.804	2.390	0.450
LLPNPL	-0.086	0.271	0.751	0.368	0.289	0.371	0.693	0.288	**0.016****
_cons	-20.799	4.309	0.000	-5.838	4.189	0.626	1.434	3.894	0.713
Notes: p<0.01=***, 0.05>p≥0.01=**, and 0.10>p=*									

Regression results under Fixed Effects (FE) Model reveal that bank size is statistically noteworthy at 1% level with a positive coefficient, determining that bank size positively affects the total debt to total equity ratio (leverage ratio). This estimation rejects the null hypothesis H_1. In the same way, some similar studies also found that bank size had contributory positive effects on capital structure or leverage ratio (Al-Hunnayan, 2020; Amidu, 2007; Anarfo, 2015; Bukair, 2019; Heider & Gropp, 2008; Khan et al., 2020; and Sheikh & Qureshi, 2017). In contrast, bank size in some researches was found significant negative relationship (Sharif & Muhammad, 2019). In the case of Random Effects (RE) GLS Regression and Feasible GLS Regression, those results do not predict in the same way.

Model I, Model II, and *Model III* uncover that return on assets (ROA) predicts debt to equity ratio by rejecting the null hypothesis H_2 at 1%, 5%, and 1% level of significances. The coefficient is slightly higher with negative values, stating that ROA negatively affects the capital structure of banks. Earnings per share (EPS) estimates the leverage ratio (TDTE) at 5% level of confidence for *Model II* and 1% level of confidence for *Model III*, rejecting the null hypothesis, H_3. Earnings per share positively explain the dependent variable with positive coefficients. Some similar studies found that ROA significantly affects the leverage ratio negatively (Al-Hunnayan, 2020; Amidu, 2007; Anarfo, 2015; Heider & Gropp, 2008; Khan et al., 2020; Sakunasingha et al., 2018; Sharif & Muhammad, 2019; and Sheikh & Quereshi, 2017). In contrast, few studies found that profitability insignificantly affected the leverage ratio (Noulas & Genimakis, 2011; and Bukair, 2019).

The ratio of total loans and advances to total deposits (TLATDE) indicates the liquidity position of the sampled banks. Liquidity ratio (TLATDE) has positively affected leverage ratio (TDTE) with significant prediction at 1% level inducing rejection of null hypothesis, H_4 under the *Model I*. It means that higher liquidity intends to higher capacity to take risks through the issuance of debt instruments. Bukair (2019) found that liquidity was positively affecting the leverage ratio. On the contrary, some studies also found that liquidity significantly affects the leverage ratio negatively (Sakunasingha et al., 2018; and Güner, 2016). However, few studies found liquidity insignificantly affecting the leverage ratio (Al-Hunnayan, 2017; and Sharif & Muhammad, 2019).

The growth rate of total assets (GRTA) has positive contributory explanations on leverage ratio in Fixed Effects Model and FGLS Model, estimating $p<0.05$, rejecting the null hypothesis, H_5. The growth of assets induces positive outcomes for the banks by which the banks arrange more debt financing in capital structure. In some research, growth was found to positively affect the leverage ratio (Al-Hunnayan, 2020; and Sakunasingha et al., 2018). Similar studies also found that growth significantly affects the leverage ratio negatively (Sheikh & Qureshi, 2017), where few studies found growth insignificantly affecting the leverage ratio (Anarfo, 2015; and Bukair, 2019).

Total equity to total assets (TETA) attributes significant contributions to the capital structure of banks rejecting the null hypothesis, H_6 at 1%, 5%, and 1% for *Model I, Model II*, and *Model III*, respectively. When the total equity to total assets is composed of high equity compared to debt, the leverage ratio is negatively affected and reduced by the values of coefficients. Empirical results uncover that total debt to total assets (TDTA) has positively influenced capital structure, predicting the non-

acceptance of null hypothesis, H_7 at 1% level of significance for all the three predefined models. High debt to assets ratio indicates a high percentage of debt in the firm size, with favorable debt issuances for financing banks' capital. The investment structure of banks in terms of total loans and advances to total assets (TLATA) constitutes dominant forces to the leverage ratio and predicts the dependent variables at 1%, 5%, and 5% levels of significance under *Model I*, *Model II*, and *Model III*, rejecting null hypothesis, H_8. Some similar studies perceived that asset structure significantly affects the leverage ratio negatively at 1% significance level (Amidu, 2007).

Cost per loan assets (CLA) negatively influenced the leverage ratio (TDTE) because the higher the cost, the lower the chances of raising funds from debt financing. *Model II* and *Model III* represent that cost per loan assets has contributory effects on leverage of banks, estimating $p<0.05$ and $p<0.01$ respectively, rejecting null hypothesis, H_9. Capital adequacy ratio (CAR) explained dependent variable at 1% significance level under Fixed Effects Model, concluding that null hypothesis, H_{10} is rejected. The stated coefficient is negatively affecting the leverage structure of banks.

The study result reveals no significant association between non-performing loan ratio (NPLR) and debt to equity ratio and hence fails to reject the hypothesis H_{11}. Feasible GLS Regression propels that loan loss provision to non-performing loans has contributory attributes on the capital structure of banks. Independent variable (LLPNPL) predicts the dependent variable (TDTE) at $p<0.05$, rejecting the null hypothesis, H_{12}.

CONCLUSION

The decision regarding the capital structure is a vital phenomenon to the relevant bodies of any financial institution. To ensure optimal capital structure, banks intend to understand the financing behavior, techniques, and implications. This study explores the effects of relevant factors on the capital structure of commercial banks in Bangladesh through employing FGLS Regression Model, constituted through the data of 22 commercial banks in Bangladesh for 10 years of data. Study results have uncovered that capital structure is significantly explained by profitability, asset growth, asset structure, investment structure, cost per loan assets, and loan loss provisioning. In contrast, bank size, liquidity, capital adequacy, and non-performing loan ratio do not significantly affect capital structure. Profitability, asset structure, and cost per loan assets play dominant roles in financing the capital needs of the sampled banks. Return on assets has high contributory enlightenment to the capital structure because this item negatively influences the leverage conditions in a greater aspect, fetching a slightly higher coefficient. The authors concluded that when a bank possesses more profits, it increases the chances to finance from the earnings it has generated, ensuring fewer usages of debt capital in financing capital needs.

Conversely, asset growth has positive impacts, indicating that the commercial banks with large-sized have strong ground to finance more debt capital in comparison to small-sized banks. These findings provide useful indications to the concerned bodies, regulators, and stakeholders to diagnose and assess the dominant factors for exploring complementary decision supports. However, this study is not free from limitations and in this context, researchers, analysts, and academicians may have scopes to explore new avenues for further investigation covering preferred shares and retained earnings, which are also vital elements of the capital structure. This study overlooks the state-owned commercial banks, Islamic banks, and foreign commercial banks of Bangladesh. There are some scopes to conduct studies on these three stated areas and a comprehensive study on the whole banking sector of Bangladesh with applying more statistical tools and models.

REFERENCES

Al-Hunnayan, S. H. (2020). The capital structure decisions of Islamic banks in the GCC. *Journal of Islamic Accounting and Business Research*, *11*(4), 745-764.

Al-Sakran, S. A. (2001). Leverage determinants in the absence of corporate tax system: the case of non-financial publicly traded corporations in Saudi Arabia. *Managerial Finance*, *27*(10/11), 58-86.

Al-Shubiri, F. N. (2011). Capital structure and market power: Evidence from Jordanian banks. *Managing Global Transitions*, *9*(3), 289-310.

Altman, E. I., Bharath, S. T., & Saunders, A. (2002). Credit ratings and the BIS capital adequacy reform agenda. *Journal of banking & finance*, *26*(5), 909-921.

Amidu, M. (2007). Determinants of capital structure of banks in Ghana: an empirical approach. *Baltic journal of management, 2*(1), 67-79.

Anarfo, E. B. (2015). Determinants of capital structure of banks: Evidence from Sub-Sahara Africa. *Asian Economic and Financial Review*, *5*(4), 624.

Bangladesh Bank. (2021). *Banks & FIs.* Retrieved from Bangladesh Bank: https://www.bb.org.bd/en/index.php/financialactivity/bankfi

Berger, A. N., & DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking & Finance*, *21*(6), 849-870.

Bhattarai, B. P. (2018). Assessing banks internal and macroeconomic factors as determinants of non-performing loans: Evidence from Nepalese commercial banks. *International Journal of Accounting & Finance Review*, *3*(1), 13-32.

Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *The journal of finance*, *56*(1), 87-130.

Bukair, A. A. A. (2019). Factors influencing Islamic banks' capital structure in developing economies. *Journal of Islamic Accounting and Business Research*, *10*(1), 2-20.

Bunyaminu, A., Yakubu, I. N., & Bashiru, S. (2021). The Effect Of Financial Leverage On Profitability: An Empirical Analysis Of Recapitalized Banks In Ghana. *International Journal of Accounting & Finance Review*, *7*(1), 93-102.

Byoun, S. (2008). How and when do firms adjust their capital structures toward targets?. *The Journal of Finance*, *63*(6), 3069-3096.

Cassar, G., & Holmes, S. (2003). Capital structure and financing of SMEs: Australian evidence. *Accounting & Finance*, *43*(2), 123-147.

Črnigoj, M., & Mramor, D. (2009). Determinants of capital structure in emerging European economies: Evidence from Slovenian firms. *Emerging Markets Finance and Trade*, *45*(1), 72-89.

Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure: evidence from the Asia Pacific region. *Journal of multinational financial management*, *14*(4-5), 387-405.

Frank, M. Z., & Goyal, V. K. (2009). Capital Structure Decisions: Which Factors are Reliably Important? *Financial Management*, *38*(1), 1-37.

Fujii, M., & Kawai, M. (2010). Lessons from Japan's Banking Crisis 1991 - 2005. *Asian Development Bank Institute (ADBI), Tokyo, Working Paper 222*, 1-19.

Sharif, M. J., & Muhammad, T. (2019). Determinants of Capital Structure: Empirical Evidence from Listed Banks of Bangladesh. *The Cost and Management, 47*(5), 49-57.

Gadzo, S. G., Kportorgbi, H. K., & Gatsi, J. G. (2019). Credit risk and operational risk on financial performance of universal banks in Ghana: A partial least squared structural equation model (PLS SEM) approach. *Cogent Economics & Finance*, 7(1), 1-16.

Gharaibeh, O. K., & Saqer, A. T. (2020). Determinants of capital structure: evidence from Jordanian service companies. *Investment Management & Financial Innovations*, *17*(2), 364.

Golder, U., Islam, M. N., & Kayser, M. S. (2020). Impact of Foreign Exchange Reserve, Exchange Rate and Crude Oil Price on Dhaka Stock Exchange Index: An Empirical Evidence from Vector Error Correction Model. *Indian Journal of Finance and Banking*, *4*(1), 134-143.

Golder, U., Sultana, F., Hossain, M. K., Hossen, M. A., & Hossain, M. M. (2021). Finance-Growth Nexus in Bangladesh: Is it Important to Quantify Financial Development? *Accounting and Finance*, *9*(5), 961-971.

Güner, A. (2016). The determinants of capital structure decisions: New evidence from Turkish companies. *Procedia economics and finance*, *38*, 84-89.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. & Tatham, R. L. (2006). *Multivariate Data Analysis*, (6th ed.), Pearson Prentice Hall.

Handoo, A., & Sharma, K. (2014). A study on determinants of capital structure in India. *IIMB Management review*, *26*(3), 170-182.

Harun, T. W. R., Kamil, N. K. M., Haron, R., & Ramly, Z. (2020). Determinants of Banks' Capital Structure: A Review of Theoretical and Selected Empirical Research. *International Journal of Business and Social Science*, *11*(12), 131-141.

Heider, F., & Gropp, R.E. (2008). *The Determinants of Capital Structure: Some Evidence from Banks,* (No. 08-015), ZEW Discussion Papers, ZEW-Leibniz Centre for European Economic Research.

Hoque, H., & Pour, E. K. (2018). Bank-level and country-level determinants of bank capital structure and funding sources. *International Journal of Finance & Economics*, *23*(4), 504-532.

Hossain, I., & Hossain, M. A. (2015). Determinants of capital structure and testing of theories: A study on the listed manufacturing companies in Bangladesh. *International Journal of Economics and Finance*, *7*(4), 176-190.

Irawati, N., Maksum, A., Sadalia, I., & Muda, I. (2019). Financial performance of Indonesian's banking industry: The role of good corporate governance, capital adequacy ratio, non-performing loan and size. *International Journal of Scientific and Technology Research*, *8*(4), 22-26.

Islam, R. (2016). Determinants of capital structure choices for listed manufacturing companies in Bangladesh. *Research Journal of Finance and Accounting*, *7*(7), 44-55

Jenson, M. C., & Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of financial economics*, *3*(4), 305-360.

Kahane, Y. (1977). Capital adequacy and the regulation of financial intermediaries. *Journal of Banking & Finance*, *1*(2), 207-218.

Kayo, E. K., & Kimura, H. (2011). Hierarchical determinants of capital structure. *Journal of banking & finance*, *35*(2), 358-371.

Kennedy, P. (2008). *A Guide to Econometrics*. (6th ed.), Malden, Mass: Blackwell Publishing.

Khan, S., Bashir, U., & Islam, M. S. (2020). Determinants of capital structure of banks: evidence from the Kingdom of Saudi Arabia. *International Journal of Islamic and Middle Eastern Finance and Management*, *14*(2), 268-285.

Khrawish, H. A., & Khraiwesh, A. H. A. (2010). The determinants of the capital structure: evidence from Jordanian industrial companies. *JKAU: Econ. & Adm*, *24*(1), 173-196.

Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *The journal of finance*, *28*(4), 911-922.

Kuč, V., & Kaličanin, Đ. (2020). Determinants of the capital structure of large companies: Evidence from Serbia. *Economic Research-Ekonomska Istraživanja*, *34*(1), 590-607.

Lalon, R. M., & Naher, N. (2020). An Empirical Analysis on Liquidity Management of Commercial Banks in Bangladesh: A Comparative Study between State-Owned and Private Commercial Banks. *Journal of Economics and Business*, *3*(1), 298-312.

Lassiter, J., Bisping, T. O., & Horton, J. (2010). Central banking in transition economies: Estonia and Belarus. *International Journal of Commerce and Management*, *20*(4), 331-338.

Lestari, D. (2018). Corporate governance, capital reserve, non-performing loan, and bank risk taking. *International Journal of Economics and Financial Issues*, *8*(2), 25.

Manos, R., & Ah-Hen, C. (2003). Evidence on the determinants of capital structure of non-financial corporates in Mauritius. *Journal of African Business*, *4*(2), 129-154.

M'ng, J. C. P., Rahman, M., & Sannacy, S. (2017). The determinants of capital structure: Evidence from public listed companies in Malaysia, Singapore and Thailand. *Cogent Economics & Finance*, *5*(1), 1-34.

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review*, *48*(3), 261-297.

Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American economic review*, *53*(3), 433-443.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*, *13*(2), 187-221.

Noulas, A., & Genimakis, G. (2011). The determinants of capital structure choice: evidence from Greek listed companies. *Applied Financial Economics*, *21*(6), 379-387.

Ooi, J. (1999). The determinants of capital structure evidence on UK property companies. *Journal of Property Investment & Finance, 17*(5), 464-480.

Peek, J., & Rosengren, E. (1995). Bank regulation and the credit crunch. *Journal of Banking & Finance*, *19*(3-4), 679-692.

Pervin, R., & Nowreen, R. (2018). Determinants of Capital Structure of Commercial Banks in Bangladesh Listed in the Dhaka Stock Exchange Limited. *ASA University Review*, *12*(1).

Rajadhyaksha, N. (2004). The rise of financial conglomerates. *Business World*, 28-33.

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The journal of Finance*, *50*(5), 1421-1460.

Režňáková, M., Svoboda, P., & Polednáková, A. (2010). Determinants of capital structure: Empirical evidence from Slovakia. *Ekonomický časopis (Journal of Economics)*, *3*(58), 237-250.

Sakunasingha, B., Anekwasinchai, P., & Wiriyawit, V. (2018). Capital Structure Determinants for Local Commercial Banks: Thailand Evidence. *HUMAN BEHAVIOR, DEVELOPMENT and SOCIETY*, *18*, 18-29.

Sadiq, A. I., Kachollom, P. W., Dasuki, S. I., & Yusuf, M. (2017). Effect of capital structure on the performance of deposit money banks. *International Journal of Accounting & Finance Review*, *1*(1), 12-23.

Sheikh, N. A., & Qureshi, M. A. (2017). Determinants of capital structure of Islamic and conventional commercial banks: Evidence from Pakistan. *International Journal of Islamic and Middle Eastern Finance and Management*, *10*(1), 24-41.

Shah, S. Z. A., & Jam-e-Kausar. (2012). Determinants of capital structure of leasing companies in Pakistan. *Applied Financial Economics*, *22*(22), 1841-1853.

Shih, K. H., Chang, C. J., & Lin, B. (2010). Assessing knowledge creation and intellectual capital in banking industry. *Journal of Intellectual Capital*, *11*(1), 74-89.

Smith, C. W., & Warner, J. B. (1979). Bankruptcy, secured debt, and optimal capital structure: Comment. *The Journal of Finance*, *34*(1), 247-251.

Stulz, R., & Johnson, H. (1985). An analysis of secured debt. *Journal of financial Economics*, *14*(4), 501-521.

Teixeira, J. C., Silva, F. J., Fernandes, A. V., & Alves, A. C. (2014). Banks' capital, regulation and the financial crisis. *The North American Journal of Economics and Finance*, *28*, 33-58.

Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of finance*, *43*(1), 1-19.

Ukaegbu, B., & Oino, I. (2014). The determinants of capital structure: A comparison of financial and non-financial firms in a regulated developing country–Nigeria. *African Journal of Economic and Management Studies*, *5*(3), 341-368.

Ullah, G. M., Uddin, M. M., Abdullah, M., & Islam, M. N. (2017). Determinants of capital structure and its impact on the debt maturity of the textile industry of Bangladesh. *Journal of Business and Economic Development*, *2*(1), 31-37.

Van Greuning, H., & Bratanovic, S. B. (2020). Analyzing banking risk: a framework for assessing corporate governance and risk management. *World Bank Publications*. Retrieved from: http://hdl.handle.net/10986/33860

Vatansever, M., & Hepsen, A. (2013). Determining impacts on non-performing loan ratio in Turkey. *Journal of Finance and Investment Analysis*, *2*(4), 119-129.

Voulgaris, F., Asteriou, D., & Agiomirgianakis, G. (2004). Size and determinants of capital structure in the Greek manufacturing sector. *International Review of Applied Economics*, *18*(2), 247-262.

Wald, J. K. (1999). How firm characteristics affect capital structure: an international comparison. *Journal of Financial research*, *22*(2), 161-187.