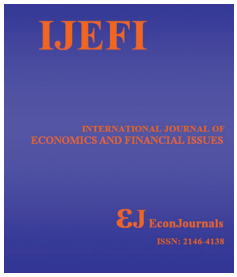

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A Panel-corrected Standard Error (PCSE) Framework to Estimate Capital Structure and Banking Performance within the Tunisian Context

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ABSTRACT

The objective of this article is to empirically examine the effect of financing structure on the market share of banks, and their performance in Tunisian banks. To this end, we gathered financial statements of ten commercial banks over the period 2012-2019, and we employed the panel-corrected standard error (PCSE) regression. The empirical results show that the bank capital structure measured by the equity to total assets ratio negatively affects bank performance while the debt to total assets ratio can be a robust and positive driver of bank performance. Through this research, we recommend to Tunisian commercial banks to reduce their operating costs through a better management of their resources, and to find cheaper sources of financing such as increasing equity. We also recommend to Tunisian commercial banks to diversify further their revenues in order to enhance their performance and to generate more profits.

Keywords: Capital Structure, Bank Profitability, Bank Performance
JEL Classifications: G21, C23, L2

1. INTRODUCTION

Financing a business and realizing an optimal capital structure is one of the primary issues for non-financial businesses. Capital structure is also important for banking institutions as they are subject to strict prudential regulation. It is the financial leverage, which makes it possible to measure the financial structure of a company, that will be influenced by several factors including the size of the company, financial risk, bankruptcy costs, agency costs, the sector of activity, information asymmetry, etc. Among these factors, some encourage debt while some limit its use.

Literature on corporate capital structure was first studied by Modigliani and Miller (1958) who showed that the financial structure of a company does not influence its value. In the late 60s, new studies developed further the Modigliani and Miller (1958) viewpoint, and they showed that the value of a company can increase by changing its capital structure. In 1984 Myers and Majluf (1984) relaunched the debate on optimal capital structure by developing the so called "Pecking Order Theory (POT henceforth). This theory states that the cost of financing increases with the asymmetry of information between managers and investors. Companies that minimize debt in favor of equity are the most profitable companies (Doku et al., 2019). Following the POT, the Static Trade-off Theory (STT) was proposed by Adair and Adaskou (2011). It states that the optimal financial structure is constituted based on a trade-off between the bankruptcy costs linked to debt, and the tax advantages resulting from an increase in leverage. The STT is similar to the Agency Theory presented by Jensen and Meckling (1976), according to which the introduction of debt into the capital structure makes it possible to minimize agency costs (costs caused by conflicts of interest between shareholders and managers) because lenders follow the actions of managers. Thus, the choice of the optimal structure would make it possible to reduce these costs.

Given the importance of the banking sector in granting credit and in the stability of the financial system, the problems of agency costs and capital structure could raise several issues. In fact, agency costs can be high for banks given that they are by nature not informationally transparent, hence the importance of the optimal structure for banks (Doku et al., 2019; Adesina and Mwamba, 2016; Kusi et al., 2016; Ojiako et al., 2013; Hassan et al., 2012). According to the study by Merton (1977) banks are limited liability entities and they tend to reduce their capital and to take more risk. Therefore, the optimal capital composition must consider the financial stability, regulatory requirements, and profitability of the bank.

According to the different corporate finance theories cited above, finding the appropriate capital structure is difficult due to the many financing possibilities it faces. In fact, holding more capital would threaten bank profitability and lead to granting fewer loans is a hypothesis that bankers defend (Diamond Douglas and Rajan, 2001). According to Koehn and Santomero, (1980); Besanko and Kanatas, (1996), the increase in bank capital could negatively affect performance because it increases risk taking. However, some other theories support the idea that strengthening capital improves a bank's probability of survival. By maintaining the bank's assets and liabilities unchanged, the increase in capital would increase the ban's probability of survival (Freixas and Rochet, 2008). Also, Calomiris Charles and Mason (2003) and Calomiris Charles and Wilson (2004) during their empirical studies support the theory according to which capital strengthens the competitive position of a bank in the markets and can therefore improve its chances of survival.

Empirically, several studies (Abor, 2005; Majumdar and Chhibber, 1999; Yat Hung et al., 2002) have studied the relationship between capital structure and business performance. Majumdar and Chhibber (1999) studied Indian firms and found that there is an inverse relationship between capital structure measured by debt-to-equity ratio and firm performance. Yat Hung et al. (2002) confirmed the findings of Majumdar and Chhibber (1999) studied firms in Hong Kong and found that firms with low profitability are associated with a high degree of indebtedness (debt ratio). For Ghana, Abor (2005) found a positive relationship between profitability and the debt/current assets ratio and between profitability and the debt/total assets ratio, while he found a negative relationship between the debt to total assets ratio and profitability. His study focused on companies listed on the capital market at the time, which were mostly manufacturing entities. This was confirmed by the study by Doku et al. (2019) who studied the banking sector in Ghana. Furthermore, Kyereboah-Coleman (2007) found that microfinance enterprises in sub-Saharan Africa that exhibit high leverage (measured in long-term and short-term debt ratios) are profitable.

Zemenu (2021) studied the effect of capital structure (total debt and short-term debt ratio) on bank performance (measured by return on assets ROA and net interest margin NIM) by considering a sample of private banks in Ethiopia for the period 2013-2019. The study shows that debt ratios and credit risk positively affect both measures of bank profitability. On the other hand, the study shows that the banks in the sample are not efficient given that the size of the bank has a negative effect on ROA.

Zerrouki and Talem (2022) studied the relationship between capital structure and performance of Algerian banks (measured by return on equity ROE and net interest margin NIM) for the period 2010-2018. Their results show a positive effect of customer liquidity indebtedness on banking performance. Debt would thus make it possible to stimulate banking performance.

Amanj et al. (2023) examined the relationship between capital structure (total debt ratio and the ratio of total debt to market capitalization), performance (ROA, Tobin's Q and earnings per share EPS) by studying a sample of 156 manufacturing companies listed in Tehran for the period 2011-2019. The results showed that capital structure is affected by size, which has a positive effect on company performance. The larger the size of the company, the more it has the possibility of resorting to long-term debt for financing, which would have a positive impact on profitability. Their tests showed that total debt has a negative effect on ROA and EPS and a positive effect on Tobin's Q. While the debt/market capitalization ratio has a negative effect on ROA and Tobin's Q. The authors assert that their results are consistent with the trade-off theory because when SMEs reduce their debt, they reduce their performance but, will improve their values. Unlike large companies with higher profitability with low debt will have a lower value.

Fahad et al. (2024) studied the capital structure of 78 listed companies in Bangladesh for the period 2017-2021. Capital structure was measured by total debt ratio, leverage ratio while business performance was measured by return on equity ROE, return on assets ROA and earnings per share EPS. The results showed that when return on assets is considered as a performance indicator, debt measured by total debt ratios, both short-term and long-term, presents a negative effect. Whereas if the return on equity is considered as a performance indicator, the ratio of total debt and short-term debt affects it positively. The equity ratio has a positive but insignificant effect. Thus, the authors showed that financing a company based more on debt than equity would reduce its performance.

Given the importance of the effect of capital structure on banking performance, the objective of this article is to empirically examine the effect of financing structure on the market share of banks and their performance in Tunisia. To the best of our knowledge, this is the first research that deals with this topic for the Tunisian Context. Our methodology is based on the panel-corrected standard error (PCSE) framework which was implemented as it simultaneously corrects for autocorrelation, residual correlation, and heteroscedasticity to improve parameter efficiency and generate more accurate statistics (Doku et al., 2019; Beck and Katz, 1995). Overall, our results show that show that the bank capital structure measured by the equity/total assets ratio negatively affects bank performance while the debt/total assets ratio can be a robust and positive driver of bank performance.

The rest of the paper is structured as follows: Section 2 presents the model specification and estimation; Section 3 displays the output of the model and discussion of results. Section 4 concludes.

2. EMPIRICAL STRATEGY

2.1. Data

The data for this study was extracted from the annual financial statements (balance sheets and income statements) of 10 commercial banks[1] over an 8-year period from 2012 to 2019. The data consists of dependent variables called performance (Perf), proxied by five different indicators including: Return on Assets (ROA), Returns on Equity (ROE), deposit market share (DS), loan market share (LS) and net interest margin (NIM). As for the independent, we consider the following variables: Size of the bank measured by the natural logarithm of Assets. The size squared ($Size^2$) to capture the advantage of economy of scale. We also use the ratio of loan loss provisions to total loans to capture the credit risk (CR) and, the ratio of customer deposits to total deposits to proxy the liquidity risk (LR). Net interest income to total assets ratio (INI) is also employed. Efficiency (EFF) is measured by the overhead to total assets ratio. Capital structure is measured by two indicators: The first is Equity to total assets ratio (EA) and the second is the total debts to total assets ratio (DA). To control the macroeconomic environment which influences the profitability of banks, we consider the rate of inflation measured by the Consumer Price Index (Inf) and the growth rate of real GDP per capita (GDPpc).

The data was obtained from the annual reports of the Tunisian Professional Association of Banks and Financial Institutions. Macroeconomic variables were obtained from online indicators of World Bank national accounts data.

2.2. Methodology

Before choosing the optimal technique of estimation, we set some tests to check for the stability of the data and model using the Breush-Pagan LM/Cook-Weisberg test for heteroskedasticity and the Wooldridge test to check for the autocorrelation problem[2]. They show that the time panel data suffers from these problems which could affect the validity of regression analyses. Therefore, to curb with these issues, the panel-corrected standard error (PCSE) framework was implemented as it simultaneously corrects for autocorrelation, residual correlation, and heteroscedasticity to ameliorate parameter efficacy and produce better *z*-statistics (Doku et al., 2019; Beck and Katz, 1995).

The PCSE is initially introduced by Beck and Katz, (1995), and the framework suggests an estimator that pools information across clusters to estimate the error variances. The Beck and Katz panel corrected standard error consists in organizing the residuals from the fitted model according to cluster, so that the residuals from the clusters are $\hat{e}_1$, $\hat{e}_2$..., $\hat{e}_N$[3]. These are vectors with T elements each, and they can be grouped together as a T × N matrix (the $\hat{e}_i$ are columns):

$$E = [\hat{e}_1\ \hat{e}_2 \cdots \hat{e}_{N-1}\ \hat{e}_{N\,i}]$$

The panel corrected standard errors are obtained as the square roots of the diagonal elements of the matrix:

$$\text{cov}(b) = (X'X)^{-1}\ (X'(\Phi \otimes {}_T)X)\ (X'X)^{-1}$$

where Φ is an N × N matrix with the $(i, j)^{th}$ element estimated by:

$$(\sum_{t=1}^{T} \hat{e}_{i,t}\ \hat{e}_{j,t}) / T$$

The empirical model is similar to the one developed by Tarek al-Kayed et al. (2014) and Doku et al. (2019), and it is expressed as follows:

$$R_{it} = \propto_0 + \propto_1 Size_{it} + \propto_2 (Size_{it})^2 + \propto_3 CR_{it} + \propto_4 LR_{it} + \propto_5 INI_{it} + \propto_6 Eff_{it} + \propto_7 EA_{it} + \propto_8 DA_{it} + \propto_9 Inf_t + \propto_{10} GDPpc_t + \varepsilon_{it}$$

$$\varepsilon_{it} = \lambda_{it} + \gamma_t + v_{ti}$$

$$i = 1, \ldots\ldots, N;\ t = 1, \ldots., T$$

$\propto_0$ is a constant and $\propto_1$ to $\propto_9$ are the parameters to be estimated,

ε_{it} is the error term decomposed into $\varepsilon\_i_t = \lambda\_i_t + \gamma_t + v\_i_t$, where λ_i represents the bank-specific effects, γ_t the time-specific fixed effects and v_{it} is the disturbance term assumed to be independent (but not necessarily) distributed identically across individual banks.

3. EMPIRICAL RESULTS

3.1. Descriptive Statistics and Correlation Matrix

The descriptive statistics of the variables used in our model are presented in Table 1. The average profitability in terms of ROA, ROE, PMC, PMD and MNI for all the sample banks is 2.17%, respectively, 15.45%, 10%, 10% and 2.73%; while the maximum values for the same sample are 1.01%, 9.42%, 20.38%, 20.84% and 19.35%, respectively. The minimum and maximum values of the total debt ratio are 82.51% and 101.62%, respectively, with an average of 90.99%. This indicates that commercial banks in Tunisia are highly indebted. The equity/total assets ratio has a minimum of −1.62% and a maximum of 17.48% with an average of 9%.

Table 2 displays the output of the correlation matrix. The results reveal a negative relationship between the equity/total assets ratio and both bank profitability indicators (ROE and ROA), but a positive one between the total debt ratio and both bank profitability indicators (ROE and ROA). The correlation coefficients between the remaining variables are weak, suggesting the absence of multicollinearity problem.

3.2. Regression Results

Table 3 shows the output of the empirical model. The question of endogeneity of regression model has been inspected using the

1 The selected 10 banks hold 92% of total banking system assets, 89% of total banking deposits and, 91% of total banking sector credits. Therefore, they are the main player in the Tunisian banking sector.

2 The Breush-Pagan LM/Cook-Weisberg tests results reveal the presence of a problem of heteroscedasticity as the p-value of the test is less than 1% (Prob > chi2 = 0.0068). These results lead us to reject the null hypothesis. Moreover, a problem of autocorrelation was detected as the Wooldridge test for autocorrelation in panel data was also lower than 1 (Prob > F = 0.0001).

3 Johnson, P (2004), Cross Sectional Time Series: The Normal Model and Panel Corrected Standard Errors. WP. University of Kansas

Table 1: Descriptive statistics

Variables	Definitions	Nbr Obs	Moyenne	Std. Dev.	Min.	Max.
ROA	Net profit/Total Assets	80	0.02177	0.08713	−0.1030	1.0143
ROE	Net profit/Equity	80	0.15452	0.67551	−1.2396	9.42262
DS	Deposits/Total Bank Deposists	80	0.1	0.03787	0.03745	0.20849
LR	Credits/Total bank Credits	80	0.1	0.03912	0.00609	0.20389
NIM	Interest revenues-Interest expenses/total Assets	80	0.02728	0.01806	−0.0295	0.19353
Size	Log Total Assets	80	15.1601	0.65176	13.7834	16.6086
Size²	Log Total Assets Squared	80	230.261	19.7095	189.982	275.846
CR	loan loss provisions/total loans	80	0.01546	0.01852	0	0.19337
LS	customer deposits/total deposits	80	0.93950	0.22540	0.01678	3.49177
NII	Non-Interest Income/Total Assets	80	0.02371	0.00749	0.00879	0.05210
Eff	Overshead/Total Assets	80	0.01809	0.01223	0.17481	0.04388
DA	Deposits/Total Assets	80	0.90997	0.03098	0.82518	1.01622
EA	Equity/Total Assets	80	0.09002	0.03098	−0.0162	0.17481
Inflation	Consumer Price Index	80	0.0424	0.01492	0.01983	0.0747
GDPpc	Real GDP per capita growth.	80	0.02920	0.02172	−0.0191	0.0670

Table 2: Correlation matrix

Variables	ROA	ROE	LS	DS	NIM	SIZE	SIZE²	CR	LR	NII	EFF	EA	DA	INF	GDPPC
ROA	1.000														
ROE	−0.066	1.000													
LR	−0.011	−0.018	1.000												
DR	0.001	−0.063	0.833	1.000											
NIM	−0.188	0.019	−0.200	−0.230	1.000										
SIZE	0.087	−0.063	0.493	0.555	−0.300	1.000									
SIZE²	0.086	−0.062	0.494	0.555	−0.297	1.000	1.000								
CR	−0.004	0.352	−0.092	0.062	−0.129	−0.004	−0.004	1.000							
LR	−0.065	0.012	0.072	−0.096	−0.004	0.106	0.104	0.038	1.000						
NII	0.037	−0.015	−0.286	−0.246	0.111	−0.089	−0.089	−0.011	−0.024	1.000					
EFF	−0.176	0.033	−0.003	−0.009	0.140	−0.678	−0.681	0.108	−0.024	−0.068	1.000				
EA	−0.207	−0.189	−0.316	−0.292	0.277	−0.267	−0.265	−0.235	−0.040	0.220	0.086	1.000			
DA	0.207	0.189	0.316	0.292	−0.277	0.267	0.265	0.235	0.040	−0.220	−0.086	−1.000	1.000		
INF	0.162	−0.018	0.000	0.000	−0.042	0.648	0.651	−0.053	0.007	0.182	−0.633	−0.083	0.083	1.000	
GDPPC	−0.023	0.100	0.000	0.000	0.017	−0.499	−0.501	0.157	0.046	0.051	0.657	0.003	−0.003	−0328	1.000

Instrumental variables (IV) technique in which we found that the Wu-Hausman Test for Endogeneity is insignificant[4]. Therefore, we can conclude that there is no existence of endogeneity issue.

The results reveal that the equity/total assets ratio used to study the effect of capital structure is negatively related to the banking performance of our sample. Theoretically, the expected relationship between this variable and banking performance should be positive (Doku et al., 2019, Chortareas et al., 2011 and Claeys and Vennet, 2008). This is justified by the fact that the cost of equity is lower than the cost of external financing sources, which represents a safety cushion for the bank (Goddard et al., 2004 and Abreu and Mendes, 2002). In addition, the importance of equity capital in relation to external resources makes the bank more financially autonomous and would therefore reduce bankruptcy costs (Tarek al-Kayed et al., 2014). Therefore, we could explain the result of our study by the cost that a capital increase could generate, and which could turn out to be high given that in Tunisia the stock markets remain a little limited. These results are in line with those of the study by Eriotis et al. (2002) on Indonesian companies as well as the study by Sheikh and Wang (2011) on Pakistan.Turning now to the debt variable (total liabilities/total assets), it is found to be positively associated with bank profitability. This may be explained by the fact that Tunisian banks try to compensate for their lack of capital by increasing debts even if this would cost them more and would therefore be less financially autonomous. Banks will subsequently pass on the costs of their debts to their clients and will thus be able to cover their financial charges and improve their performance to remain competitive. This result brings us back to the trade-off theory which shows that the larger the company is, the more it has the possibility to diversify its activities to improve its profitability, given that diversification remains the best way to reduce risks. As a result, a large company could afford a high level of debt being the possibility of combining the diversification of risks with the fact of being able to benefit from tax advantages on interests (Sheikh et al., 2011).

The results also show that the size of the bank, the credit risk as well as the deposit ratio are negatively associated with the profitability of the bank. These results could be explained as follows. Firstly, the larger the size is, the more the bank benefits from economies of scale. This will in turn allow the bank to gain an advantage over the competition and will facilitate its access to less expensive sources of financing, which will increase its profitability and increase its market share. This result is in line with the finding of Doku et al. (2019) and Bikker et al. (2002). Secondly, credit risk is found to be negatively associated with

4 Wu-Hausman F test: P-value = 0.2335842 and the Durbin-Wu-Hausman) P-value = 0.255521

Table 3: Output of the panel-corrected standard error (PCSE)

Dependents Var.	ROA (1)	ROA (2)	ROE (1)	ROE (2)	DS (1)	DS (2)	LS (1)	LS (2)	NIM (1)	NIM (2)
SIZE	0.244 (1.15)	0.244 (1.15)	−2.755 (−1.24)	−2.755 (−1.24)	−0.228*(−1.90)	−0.228*(−1.90)	−0.344***(−2.57)	−0.344***(−2.57)	−0.084(−0.81)	−0.084(−0.81)
SIZE²	−0.008 (−1.25)	−0.008 (−1.25)	0.084 (1.13)	0.084 (1.13)	0.010**(2.50)	0.010**(2.50)	0.013***(3.03)	0.013***(3.03)	0.0020.70)	0.002 (0.70)
CR	−0.190 (−0.58)	−0.190 (−0.58)	11.791***(3.49)	11.791***(3.49)	−0.089(−1.33)	−0.089(−1.33)	−0.450***(−4.55)	−0.450***(−4.55)	−0.064(−1.06)	−0.064(−1.06)
LR	−0.022**(−1.98)	−0.022**(−1.98)	0.064 (0.62)	0.064 (0.62)	−0.040***(−4.23)	−0.040***(−4.23)	−0.007−0.48	−0.007(−0.48)	0.004 (1.32)	0.004 (1.32)
NII	0.293 (0.45)	0.293 (0.45)	−1.173 (−0.20)	−1.173 (−0.20)	−0.064 (−0.32)	−0.064 (−0.32)	−0.344*−1.66	−0.344*(−1.66)	0.023 (0.12)	0.023 (0.12)
Eff	−1.860 (−1.50)	−1.860 (−1.50)	−6.553 (−1.24)	−6.553 (−1.24)	1.300***(4.02)	1.300***(4.02)	1.189***4.32	1.189***(4.32)	0.194 (1.09)	0.194 (1.09)
EA	−0.652**(−2.40)		−3.325*(−1.67)		−0.067**(−1.99)		−0.188***−4.77		0.085***(2.79)	
DA		0.652**(2.40)		3.325*(1.67)		0.067**(1.99)		0.188***(4.77)		−0.085***(−2.79)
Inf.	0.713 (0.79)	0.713 (0.79)	2.113 (0.50)	2.113 (0.50)	−1.318***(−5.52)	−1.318***(−5.52)	−1.132***−5.25	−1.132***(−5.25)	0.320**(2.13)	0.320**(2.13)
GDPpc	0.424 (0.72)	0.424 (0.72)	1.756 (0.65)	1.756 (0.65)	0.416***(2.66)	0.416***(2.66)	0.393***2.80	0.393***(2.80)	−0.156*(−1.63)	−0.156*(−1.63)
Constant	−1.582 (−1.00)	−2.235 (−1.33)	22.491 (1.35)	19.166 (0.12)	1.316 (1.46)	1.249 (1.39)	2.251**(2.26)	2.063**(2.06)	0.730 (0.94)	0.816 (1.03)
Nbre d'ob.	200	200	200	200	200	200	200	200	200	200
R^2 between	0.1030	0.1030	0.1581	0.1581	0.7602	0.7602	0.6256	0.6256	0.1942	0.1942
Wald chi^2	9.42	9.42	16.19	16.19	520.90	520.90	402,23	402,23	32.25	32.25
Prob >Chi^2	0.3993	0.3993	0.0631	0.0631	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002

*, ** and ***significance at the level of 10%, 5% and 1% respectively

profitability (ROE). In fact, when bank customers fail to repay their debt, the amount of provisions increase when the demand for loans increases. This should therefore negatively affect profitability. For the case of Tunisia, the high provision on loans is explained by the high amount of bad debts that the banking sector has been suffering during the past decade. This conclusion is in line with the findings of BenNaceur et al. (2010), Abreu and Mendes (2002) and Miller (1997). Thirdly, the deposit ratio shows a negative and statistically significant relationship with bank performance (ROA and DR). In fact, banks with a high amount of short-term customer deposits are more likely to be less profitable than other competitors. This can be explained by the fact that Tunisian banks use more expensive sources of financing and charge this increase in costs to their customers in order to increase their profitability. Therefore, we can consider that a high ratio would lower the performance of banks, considering that this increases the liquidity risk.

Managerial skills, proxied by the overhead ratio, should also influence the performance of the Tunisian bank since it is found to be positively related to the bank's market share (deposits share and loans share). This can be explained by the fact that Tunisian banks are optimally using their resources. This result is in line with the study of Athanasoglou et al. (2008) on Greek banking sector, and the study of Liu et al. (2010) on the Japanese banks.

Our study also shows that banks would compensate for the decline in profitability linked to high levels of inflation by increasing their interest margins. Therefore, it is the bank's customer who will end up paying the cost so that the banks can achieve satisfactory performance. This conclusion is in line with the results Zidi et al. (2016) for the Tunisian context. Regarding the other macroeconomic variable, our result reveals a negative effect of real GDP per capita on NIM as a performance indicator. Demirgüg-Kunt et al. (2004) argued that during periods of recession, the bank could be affected by default of payment. To minimize the effects of credit and liquidity risks, the bank charges its customers higher interest rates on loans.

4. CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research is to examine the relationship between the financing structure and the performance of a sample of Tunisian commercial banks. To this end, we selected a sample of 10 banks, and we used their annual financial statements to extract the variables used in this research. The Tunisian banking sector is a sector that has been sufferings from the poor quality of assets (non-performing loans) that are becoming a major risk of financial instability. Moreover, the Tunisian banks have been charging their customers high interest rates on loans which in turn have affected their capacity of repaying debt. As a results, bad debt, non-performing loans, and provisioning have increased considerably during the past decade, more precisely since the political unrest that Tunisia experienced in 2011.

The present study explained the channel through which customers are bearing the high cost of borrowing when banks have a high

level of debt (total liabilities/total assets) compared to the level of their equity (equity/total assets) in the structure financing their operations. Given that debt has a positive effect on bank profitability while equity had a negative effect, then we concluded that Tunisian commercial banks rely on the use of external resources compared to internal resources despite the risk that they may generate. As a result, to cover these debt costs, banks bear these charges to customers in the form of high intermediation margins. Moreover, these banks prefer short-term customer deposits over total deposits in their financing structure.

Through this study, we recommend to Tunisian commercial banks to reduce their operating costs through a better management of their resources, and to find cheaper sources of financing such as increasing equity. We also recommend to Tunisian commercial banks to diversify further their revenues in order to enhance their performance and to generate more profits.

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