

## Capital Structure Impact on Classical and Islamic Banks Profitability: Evidence from Moroccan Context

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### Abstract

The focus of this paper is to clarify how capital structure affects Moroccan banks profitability and to answer the question about the impact of the participative banks introducing into the Moroccan banking system on bank's profitability. Thus, the sample concerns, on one hand, data from 2007 until 2018 about the most important Moroccan banks regarding their market share and the collected data is analyzed using OLS regression. Therefore, in this work we introduce the participative banks data into the model to see how it behaves. Our findings show an increasing relationship between banks profitability and debt ratio with acceptable indicators. Therefore, leverage would be preferable to equity under study's specific conditions, which means that bank's profitability is generally related to bank's capital structure. Although, when participative banks data are included we observe capital structure has no important effect on banks profitability in spite of the fact that the model is still significant.

**Keywords:** Profitability, Capital structure, Participative banks, Return on equity, Equity ratio.

### INTRODUCTION

In the context of financial and banking changes, banks are awake to the constraints that affect their structures and policies (Orazalin & Mahmood, 2018). In this case, the banking and financial system is considered as the fundamental institution that guarantees the secured intermediation between lenders and borrowers (Caselli, Corbetta, Cucinelli, & Rossolini, 2021). Hence, the introducing of Islamic banks into the Moroccan banking and financial system should have an important impact on banks policies and practices. Moreover, banks must take into consideration all factors, which affect their profitability. Therefore, Moroccan banking has been already adapted to Basel II and III regulation about banking risk management and rating that would be able to make banks more competitive in order to attain the best profitability (Derbali, 2021). Furthermore, the question is how Islamic banks recently introduced in Moroccan banking system can affect the Moroccan banks profitability.

According to the literature, the capital structure, and consequently, the cost of capital has an influence on the financial profitability (Baker & Wurgler, 2015). Indeed, the question to ask is: How firm's profitability can be affected by its capital structure. This question leads us to set an empirical study about relationship between the banks profitability and the capital structure using a comparative analysis between classical and participative banks. The purpose of this work is to analyze how the equity and debt proportion, measured by own funds ratio, impact the banking profitability, measured by the return on equity. The used sample concerns, on one hand, data from 2007 until 2018 about the most important Moroccan banks regarding their market share, on other hand, the available data of participative banks recently introduced into Moroccan banking system in 2017.

Where from the search results of previous research we found the profitability of classical banks is generally related to the bank's capital structure (Boussaada & Hakimi, 2020; Hachimi, Salahdine, & Housni, 2017; Hoque & Pour, 2018). Although, when participative banks data are included, we observe

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Received: April 10, 2022; Revised: May 29, 2022; Accepted: June 14, 2022

that the Islamic banks capital structure has no important effect on their profitability. Even though, the model is still significant. To cover the shortcomings of previous research in this area, we have divided this paper into four parts: First, we present a summarized literature review about capital structure impact on firm value, starting by a presentation of traditional view in the theory of finance, and then we discuss a Modigliani and miller (Modigliani & Miller, 1958) irrelevancy theory and modern theories, which are in contrast with Modigliani & Miller. Thus, we set the methodological approach with main hypotheses form theoretical model to be validated by an econometric model using data of the most important Islamic, and Classical Moroccan banks regarding their market share. Then, we show the results statistical analysis. At the end, we discuss our finding with general conclusion.

## RESEARCH METHOD

Our methodology focuses on a comparative approach between the impact of the capital structure on profitability of classical banks and that of participative banks by choosing a positivist paradigm. The purpose is to verify if the debt advantage compared to equity financing is still suitable, by studying the impact of the capital structure measured by Own funds/Liability on Moroccan banks profitability measured by return on equity. First, we applied an econometric model based on a linear least square regression by using panel data on Stata application. The panel data concerns most important Moroccan classical banks that represent over 75% of market share during the period 2007-2018. Then, we add the available participative banks data, until December 2018, into the model in order to see their impact on the relationship between the capital structure and the banking profitability. Indeed, and according to the literature review, following hypothesis would be set:

1. H1: there is no relationship between the debt ratio and the banks profitability.
2. H2: there is on one hand a relationship between the debt ratio and the banks profitability, and on the other hand the introducing of participative banks has an impact on the banking profitability.
3. H3: there is on one hand a relationship between the debt ratio and the banks profitability, and on the other hand the introducing of participative banks has no impact on the banking profitability.

The first hypothesis is supported by the Modigliani and Miller theoretical model known as "irrelevancy theory" with the conclusion of neutrality between the financial structure and the firm value. However, the majority of literature confirms that there is a relationship between the debt ratio and the firm value (Myers, 1984). The econometric model is following  $ROE_i = \beta * Cstruct_i + C + \epsilon$ . Such as:

1. **ROE<sub>i</sub> (Return on equity: Net earnings after taxes/Equity)**, equal: Standard deviation of banking market index;
2. **Cstruct (Equity ratio: Own funds/Total liability)**, equal: Standard deviation of banking market index;

With i: a bank, C: Constant and  $\epsilon$ : the standard error.

## RESULTS AND DISCUSSION

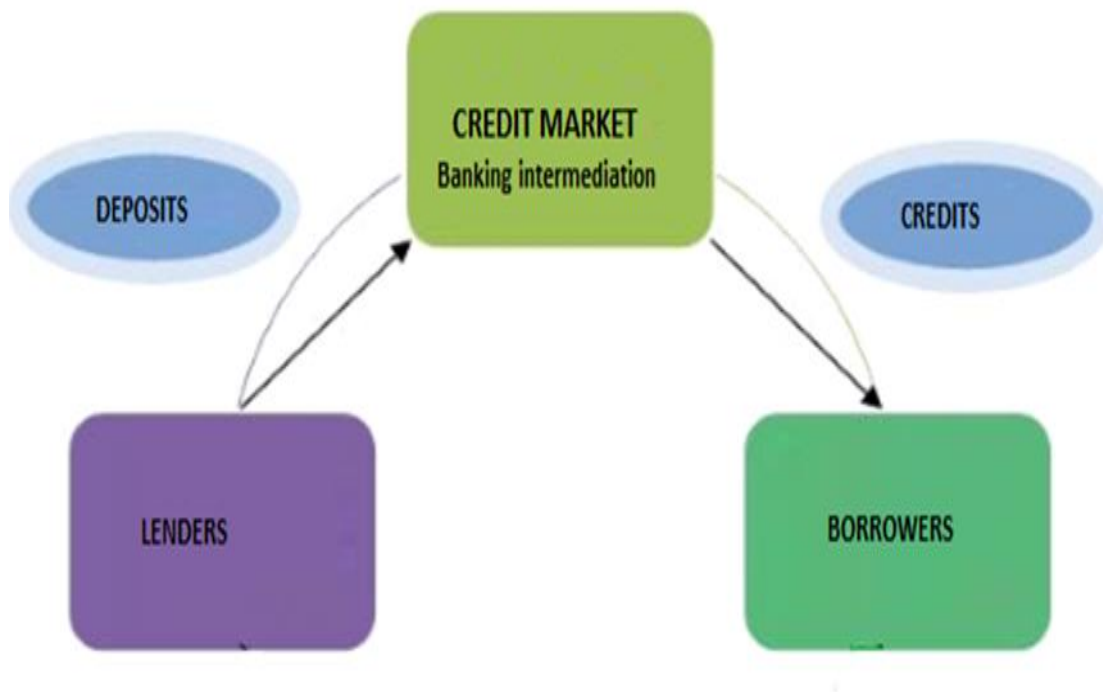
### Theoretical and Conceptual Framework

The traditional financial theory based on the assumption of pure market in an environment where information is perfect and market mechanisms are efficient in a world of free initiative, argue that debt is always preferable to equity because the interest rate is generally lower than the internal rate of return. In contrast with the traditional theory, Modigliani and miller<sup>1</sup> affirmed that the firm's financial profitability,

under efficient capital market assumptions, is independent on its capital structure. Consequently, the cost of capital or the internal rate of return is still unchanged despite of the firm's financial decision. Therefore, the firm profitability is independent on its capital structure and cost of capital.

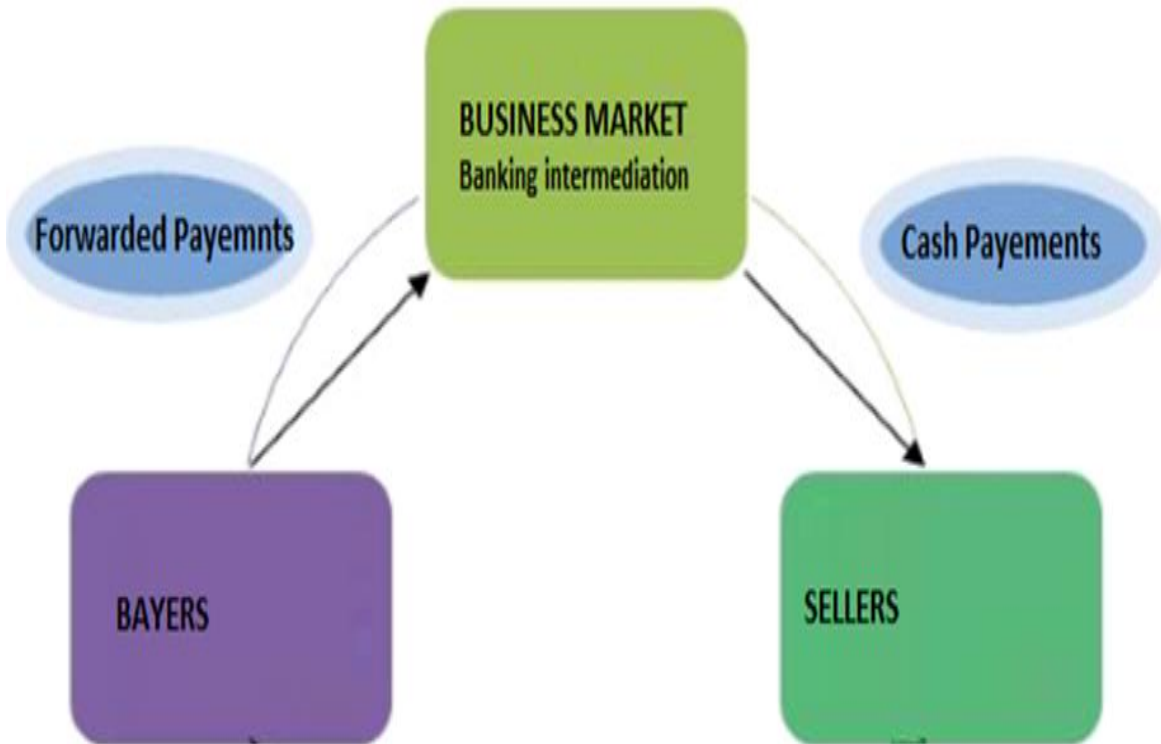
However, modern authors bring out their conclusions in contrast of MM propositions (Modigliani & Miller, 1958). Then, they argue that the firm profitability depends on financing choice between equity and debt, so they affirm that the cost of capital is one of the most important factors of financing decision. Therefore, the search for an optimal financial structure leads to favoring the costless mode of financing (El Ouafy & Ed-Dafali, 2014). Although, other models affirm that there is not a debt target ratio or a proportion of debt over equity, which is preferred by all firms, and then, all financial choices depend on the firm specific situation (Chang, Chen, & Dasgupta, 2019). Nevertheless, according to the same theory, debt financing is still preferable to equity if there is not a considerable risk of bankruptcy (Yapa Abeywardhana, 2017).

Bavoso (2022) defined bank as a business with a certain production function associated with the provision of intermediation services. Indeed, he finds that an increasing of the bank external financing capital (from monetary market) due to a change in monetary policy such as the interbank rate evolution has a significant and positive impact on the bank's profitability (Ho & Saunders, 1981). In the 70's years, a new change occurs within the banking system, this change brings out the Islamic banks who provide crucial updates to the concept of banking intermediation, and then Islamic banks as classical ones have many similarities with the firm purpose and characteristics. In spite of their same purpose of financial intermediation and their similar organizational framework, Islamic and Classical banks have different business models as explained in the two following figures:



**Figure 1: Islamic banks business Models**

Source: Process by Author



**Figure 2. Classical banks business models**

Source: Process by Author

According to figure 1 and figure 2, we observed that the two business models are quite different, the Islamic business model is based on real market business intermediation, but classical business model is based on credit relationship between lenders and borrowers. Most important studies about a higher Islamic banks performance indicate that high loan-to-asset ratios lead to a higher profitability, everything else is equal (Salman & Nawaz, 2018).

**Data analysis before introducing of participative banks**

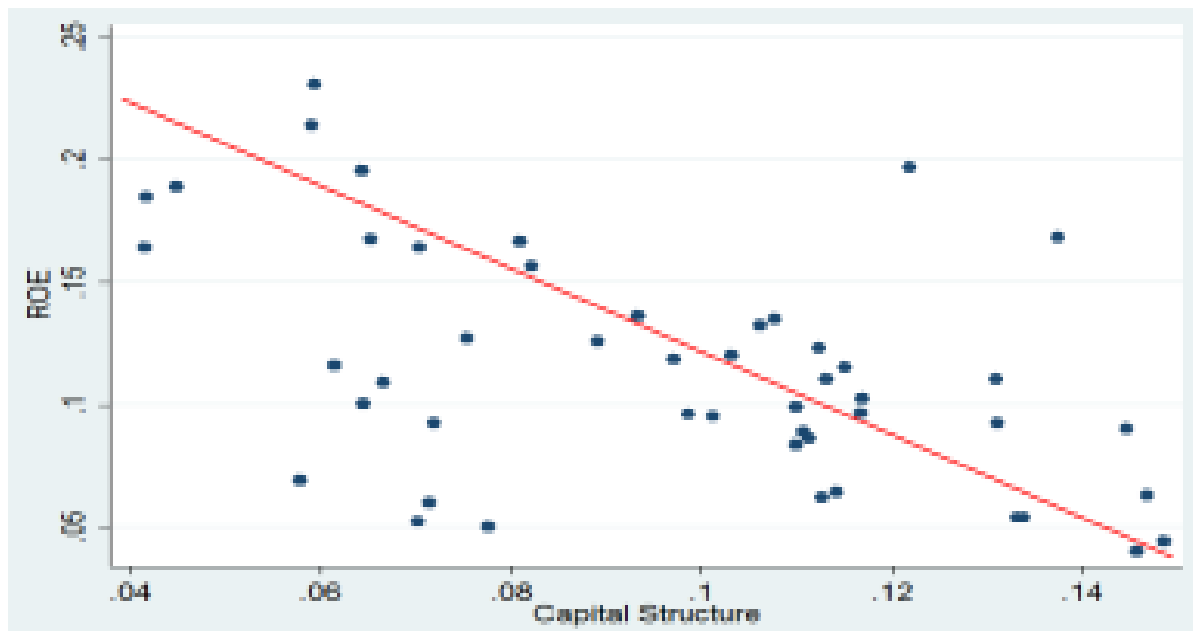
In table 1 and figure 2, we observe a negative correlation (dependence) between return on equity as proxy or banking profitability and equity ratio as proxy of capital structure.

**Table 1. Descriptive statistics**

Variable	Obs	Mean	Std. Dev	Min	Max
ROE	48	.1148125	.0481796	.0398	.2311
CStruct	48	.0966625	.0301703	.0415	.1485

**Table 2. Correlations**

	ROE	CStruct
ROE	1.0000	
CStruct	-0.5039	1.0000



**Figure 2. Capital structure effect on banking profitability**

As presented in figure 2, we observe a negative effect of Equity/Total liability ratio on ROE (Return or equity). Then, more equity ratio is important; more the relationship becomes linear with an important dependency in reciprocal way.

**OLS Model**

**Table 3. OLS Model**

Source	SS	df	MS
Mode	.027699672	1	.027699672
Residual	.081400341	46	.001769573
Total	.109100013	47	.002321277

ROE	Coef.	Std. Err.	t	p> t	95% Conf.	Interval
CStruct	-.8046538	.2033789	-3.96	0.000	-1.214034	-.3952732
_cons	.1925923	.0205754	9.36	0.000	.1511762	.2340085

**Note.**

1. Number of obs = 48
2. F(9, 46) = 15.65
3. Prob > F = 0,0003
4. R-squared = 0.2539
5. Adj R-squared = 0.2377
6. Root MSE = .04207

We can also observe in table 3 a negative and significant relationship between equity ratio and ROE ( $\beta = -0.7858$ ). However, the equity ratio may not explain perfectly all ROE variance ( $R^2 = 0.2656$ ). The model maybe acceptable ( $\alpha < 0.05$ ) under abstraction and conditions.

**Data analysis after introducing of participative banks:**

On the table 4, we report the stylized facts about Islamic and Classical banks ROE and equity ratio variables .

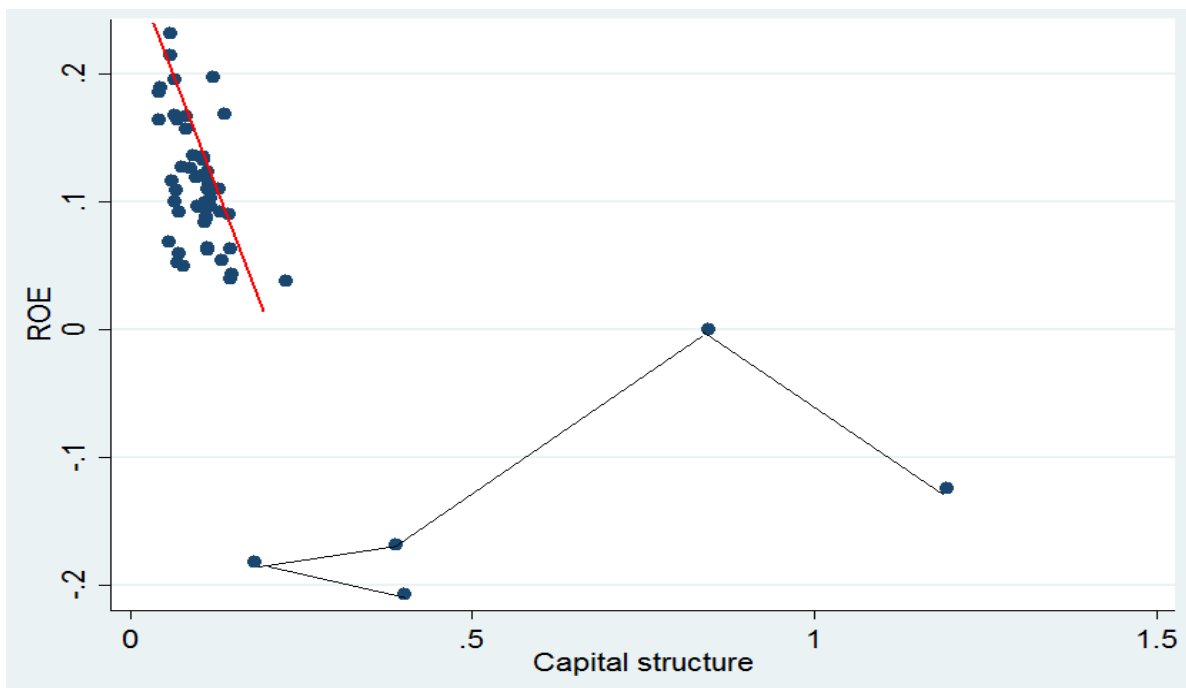
**Table 4. Descriptive statistics**

Variable	Mean	Std. Dev	Min	Max
ROE	.0901396	.0894467	-.207065	.231105
CStruct	.145933	.1883341	.0414564	1.94688

**Table 5: Correlations**

	ROE	CStruct
ROE	1.0000	
CStruct	-0.5968	1.0000

In table 5, we observe a negative correlation (dependence) between return on equity as proxy or banking profitability and equity ratio as proxy of capital structure. Furthermore, we observe that the plot below draws the trend of Islamic banks profitability which is seem to be nonlinear and no significant in contrast with the Classical banks profitability line.



**Figure 3. Capital structure effect on banking profitability**

As presented in figure 3, we observe a negative effect of lever age ratio on classical banks profitability. Then, more equity ratio is important; more the relationship becomes linear with an important dependency in reciprocal way. However, this conclusion cannot be applied to participative banks profitability because the relationship between participative banks leverage and their R.O.E is not linear.

**OLS Model****Table 6. All panel OLS Model**

Source	SS	df	MS
Mode	.151017737	1	.151017737
Residual	.273019774	52	.00525038
Total	.42403751	53	.008000708

ROE	Coef.	Std. Err.	t	p> t	95% Conf. Interval
CStruct	-.2834308	.052848	-5.36	0.000	-3894781 -1773836
_cons	.1315015	.0125183	10.50	0.000	.1063817 .1566214

**Note.**

1. Number of obs = 54
2. F(1, 46) = 28.76
3. Prob > F = 0,0000
4. R-squared = 0.3561
5. Adj R-squared = 0.3438
6. Root MSE = .07246

We can also observe in table 6 a negative and significant relationship between equity ratio and ROE ( $\beta = -0.2828$ ). However, the equity ratio may not explain perfectly all ROE variance ( $R^2 = 0.3550$ ). The model maybe acceptable ( $\alpha < 0.05$ ) under abstraction and conditions.

**Discussion**

As a result, we can conclude that the debt financing is preferable to the equity since we have already observed that an increase in the proportion of equity over debt provides a less profitability measured by the ROE (Hunjra, Ijaz, Chani, Irfan, & Mustafa, 2014). Though, the model is still significant with P value less than 5%. Although, the capital structure is not able to explain the return on equity behavior because there are other variables which are ignored in order to focus on the closer relationship between the ROE and the equity ratio. Even though, our model confirms the positive effect of the debt financing on the classical banks profitability or return on equity. However, the Islamic banks profitability does not fit to the model due to the lack of data from Islamic banks. The result concerns especially the specific context of the banking sector and circumstances of the present empirical work.

The second hypothesis is verified under our study results only for classical banks and not for Islamic banks because of their operating losses due to the structural costs of starting investments and their small market in comparison with classical banks because of the recent introducing of participative banks into the Moroccan banking system (Hachimi et al., 2017; Hanieh, 2015). Hence, we must wait for more Islamic banks financial data, during the following years, for next studies. At the end, we observe that when the equity ratio varies in the reciprocal way with bank profitability, the debt ratio varies in the same direction with the profitability. So, the debt financing can be considered as preferable to the equity under study's specific conditions, such factors and variables affecting the return on equity are ignored.

**CONCLUSION**

The question of this paper is one of the most problematic discussions in financial theory which is still difficult to be resolved. In fact, our findings are significant in terms of the negative impact of equity on the profitability. Although, the research study has limitations in terms of the lack concerning Moroccan

participative banks data, it is also expected that in the farther research we will examine other factors and variables outside this study that are thought to influence Moroccan banks profitability.

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