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Impact of capital on financial performance of banks: the case of Tunisia

Abstract

The capital and the financial performance are two important variables in the banking sector. They show the ability of banks to achieve sustainable benefits and to address systemic shocks. The author used a static panel to study empirically the relationship between capital and financial performance by approximating the capital by the ratio (equity/total assets) and financial performance by 3 measures: ROA (return on assets), ROE (return on equity), NIM (net interest margin). Through a sample of 19 banks in Tunisia over the period of 2000-2009, the author found that the relationship between capital and financial performance (ROA, ROE, NIM) is positive. But only the relationship between capital and return on assets is statistically significant.

Introduction

The capital is important in modern banking. It can withstand shock and reduce the likelihood of failures. It indicates the ability of the bank to attract more customers and make better investment opportunities.

On the other hand, financial performance demonstrates the efficient use of resources and the ability to make a profit. It is an important point of view for stakeholders (depositors, creditors, shareholders, state, managers). For depositors, it show them the profitability generated for their deposited funds. For creditors, it shows them the ability of the bank to meet the commitments to them. For the state, financial performance indicates the ability of the bank to pay the tax. For shareholders, the financial performance indicates the return on their invested funds. For managers, financial performance indicates the benefit of their effort and human capital invested.

Moreover, Abumin (2009) stated that the importance of bank profitability can be assessed at the microeconomic level and macroeconomic level. At the microeconomic level, the result is essential for the competition and it is the source of funds. At the macroeconomic level, a solid and profitable banking sector can withstand adverse shocks and contributes to the strength of the banking and financial system. The profits of the bank are an important source of capital in particular if they are reinvested in the business.

This should lead to healthy banks, high profits could promote financial stability (Flamini et al., 2009). But a very large profit is not necessarily good. As a result, it is interesting to study the impact of capital of the financial performance of banks in the Tunisian context. We will adopt a methodology of three sections. At first, we will show the literature after we make an empirical study. Finally we draw the conclusion.

1. Literature review

Under this section, we will show the importance of capital and financial performance in the banking sector, then we will study the influence of capital on financial performance. Indeed, the capital of the bank has always been a central issue in the context of the health and financial security of the bank.

Resistance to failure by the bank is linked to its own funds, given their importance as a tool to meet obligation in the event of financial crisis and against the vagaries of the market.

The point of departure for all modern research on capital structure is the Modigliani-Miller proposition (1958) that in a frictionless world of full information and complete markets, a firm's capital structure cannot affect its value.

Berger, Herring and Szego (1995) define the capital requirement as the capital ratio that maximizes the value of the bank in the absence of regulatory capital requirement and all the regulatory mechanisms that are used to enforce them, but in the presence of the rest of regulatory structure that protects the safety and soundness of banks.

Moreover, there are several studies that have shown the importance of capital in the banking sector. The capital adequacy is important for banks (Morgan, 1984). Commercial banks have a legal obligation to maintain adequate capital. Moreover, it should be noted that the main function of the bank is to provide the funds necessary to absorb potential future losses.

But there is a dilemma (regulation wants to raise the capital for security in banking while bankers want less capital to exploit more opportunities for investment and securitization in financial market). From the point of view of the banker's shareholders, the function of capital is to earn the rate of return sufficient.

It gave benefits to highly capitalized banks compared to poorly capitalized banks that sell assets to raise their capital. In 1990, the capital adequacy has become the major reference for financial institutions.

The capital adequacy was considered as the primary measure of security and strength. Jeff (1990) found that the return on assets is a key measure of a well managed banks. Bensaid et al. (1995) considered the exigency of capital in the context of both adverse selection and moral hazard. Adverse selection is as asset quality of the bank is a private information for shareholders of bank, moral hazard arises as a result of the bank depends on the influence of unobservable efforts chosen by the manager.

On the other hand, it should be noted that the rules on minimum capital requirements are following an international organization guided by the Basel Committee[1].

To prevent bank failures and protect the interests of depositors, it is necessarily to require banks to maintain a high level of capital adequacy. The basic idea of the Basel accord in 1988 has two parts. First, it established the definition of capital and the distribution between the elements (Tier 1) and additional elements (Tier 2).

The Basel 1988 took explicitly credit risk[2]. Hold at least equal to 8% of risk adjusted assets, with a share capital Tier 1 capital (equity, public reserves). Tier 2 (long-term debt, hidden reserves and hybrid investments).

Basel 2 (which revised accord of 1988) has developed a framework to enhance the stability and solidity of banking. Basel 2 is more risk sensitive than the 1988 (Celik and Higil, 2008; Thampy, 2004). The Basel 2 covers not only the calculation of capital adequacy but procedures such a process control and market discipline. In addition, the bank has a responsibility to the depositors. It must have a strong capital, proof of his power and a tool for operational profitability so that shareholders can raise funds though the statutory and general reserves.

Also it should be noted that the financial capital means the equipment and intangible assets (Klise, 1972). Arogondade (1999) defines capital as the participation of owners in business and therefore a commitment to its success.

However, opinions are different from experts banks which is equity. Unoh (1991) noted that capital adequacy is an important variable business and especially for the use of funds of others. Insured banks must have sufficient capital to absorb losses

to provide the funds for their needs and for internal expansion as well as insure deposits.

Kidwell et al. (2000) reported that the view of the adoption of capital are different depending on the bank and regulations because they have different target of capital. The main function of capital is to finance the purchase of buildings, machinery and equipment, while its secondary function is to protect creditors (Ross, 1964; Gross and Hamsel, 1980; Economist, 1999).

Shack and Clihak (2007) reported that banks operating in a commercial environment tend to maintain a greater ratio of equity. Brewer et al. (2008) showed that if the banking sector is relatively low, banks will maintain of higher capital adequacy ratio. Afeon et al. (2005) have shown that capital adequacy is a positive signal to the market and partners to change their perceptions.

On the other hand, financial performance is important for banking development. There are several studies that have indicated the importance of financial performance of banks. Indeed, the financial performance of the bank is measured using a combination of comparative financial ratios analysis. The measurement of performance against budget or a mixture of methodology (Avkiran, 1995). The objective of the bank is to earn an acceptable return which minimizing the risk (Hempel and Goleman, 1996).

On the other hand, in a competitive financial market, financial performance is important in terms of participants. The financial performance is important for stakeholders (depositors, regulators, governments, shareholders, creditors). The financial performance of banks provides a signal to depositors (investors) to decide to invest or withdraw their capital from bank.

Depositors need the previous financial performance (if beneficial) to deposit additional money to earn profits. Regulators are supposed to be interested to know the financial performance to regulate properly. The government may decide to increase the number of foreign banks or not. So, the analysis of financial performance is used to obtain information about the strength of these banks.

The study of financial performance helps to know where to put savings with more confidence. The financial performance of the bank in terms of revenue and profitability reflects its ability to support current and future operations.

More precisely, the performance of the bank reflects its ability to absorb losses for adequate capital structure, fund expansion and pay adequate dividends to shareholders.

In addition it should be noted that the capital has an impact on the financial performance of the bank.

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[1] The direction of the Basel Committee on banking supervision is a committee of banking supervisory authorities which was created by the central bank governance group of 10 countries in 1975. The first date (1988) is the date on which the first agreement was reached (see Borji, 2010).
[2] In 1988, The Basel Committee introduced the capital regulation adopted by over 100 countries (Jabson et al., 2002; Chair and Cosiam, 2003).

used for lending activities and profitable investments. But the very large capital may reduce investment opportunities which negatively impact firm performance.

Indeed, a strong banking system is built on profitability and capital adequacy. Profitability indicating the effectiveness of the bank, its competitiveness, the quality of its management.

Profitability in the form of retained earnings is usually a source of capital generation. Gross and Hamsel (1980) indicated that the capital is consistent with the ability of the bank to generate income and it is a way to expand its operations and provide quality service and thus remain competitive.

Moreover, the growth of total assets is not possible without sufficient capital (Gering, Bratonivic 1993). The capital adequacy, therefore, an important indicator of bank soundness. Direct involvement of the capital requirement is that it limits the benefits of investment risk of bank and therefore affects its ability to reach a target level of profitability.

The capital adequacy presides in the need to generate to restructure the balance sheet, taking into account the linear relationship between the profitability of banks, capital ratios and core capital ratios based on risk.

According to Goddard et al. (2004), the relationship between profitability and capital must be negative. Overcapitalization of bank is usually a sign of investment opportunities unused, which is generally in line with the results found by Thakor (1996).

On the other hand, some authors argue that well capitalized banks are normally reduced need for external financing which may lead to improved profitability (Pasiouras et al., 2006).

The capital increase allows the bank to invest more aggressively because of the convergence of capital that may possible lead to a higher return on assets (Maro and Minza, 2008). The recent financial crisis has raised questions about the role of bank capital. Various proposals have been made, said that banks must hold more capital (Hashyap, Rajan and Stein 2009; Hart and Singales, 2009; Acharya, Mehran and Thakor, 2010; Basel III, 2013).

With more capital, there is improved stability and social efficiency of banks during the financial crisis. But bankers have indicated that the requirement to hold more capital decreases performance.

$CAP_{i,t} = a_0 + b_1\, ROA_{i,t} + b_2\, ROE_{i,t} + b_3\, NIM_{i,t} + b_4\, CEA_{i,t} + b_5\, CFC_{i,t} + b_6\, PRA_{i,t} + b_7 + T\, deposit_{i,t} +$

$+ b_8\, CPA_{i,t} + + b_9\, Size_{i,t} + b_{10}\, TLA_{i,t} + E_{i,t}.$ (1)

i is the bank, t is the time, a_0 is the constant, where b_1, b_2, b_3, b_4, b_5, b_6, b_7, b_8, b_9, b_{10} are parameters to be estimated.

We will test two hypothesis:

H_0: *The capital has a positive and significant relationship with the financial performance of banks.*

H_1: *The capital has a positive but insignificant relationship with the financial performance of banks.*

2. Empirical study

Under this section, we will identify the sample at the beginning and then we specify the variables and the empirical model. Consequently, we will analyze the descriptive statistics of the variables. After, we show the econometric tests. Finally, we will show the interpretation model.

2.1. Sample. The sample consists of 19 banks belonging to the professional association of banks of Tunis through the period of 2000-2009. The period is chosen (form 2000) because it is after the adoption of a new accounting system in Tunisia (1998). The end of the period it is before the revolution (late 2010).

Table 1. Specification of sample

Index of bank	Bank name
AB	AMEN BANK
ABC	ARAB CORPORATION BANKING
ATB	ARAB TUNISIAN BANK
Attijari bank	Attijari bank of Tunisia
BH	Bank of Housing
BT	Bank of Tunisia
BTE	Tunisia and Emirates Bank
BFT	Franco Tunisian Bank
BIAT	Arab international bank of Tunisia
BNA	National agricultural bank
BTS	Tunisian solidarity bank
BTK	Tuniso Kwaiti bank
BTL	Tuniso Libyan bank
CB	CITI BANK
STB	Tunisian banking company
SB	STUSID BANK
TQB	Tunisian Qatari Bank
UBCI	Banking Union for trade and industry
UIB	International banking union

2.2. Specification of variables and model. We will use a model of static panel to control the heterogeneity of individuals and reduce multi-colinearity variables (Baltagi, 2005).

The model is as follow:

CAP = equity / total assets.

CAP = capital adequacy.

CAP indicates the importance of capital in the banking (Ongore and Kusa, 2013).

A high level of capital is likely to reduce the probability that the bank act prudently in granting credit. High magnitudes of capital induced losses for shareholders in the event of bank failure (Repullo, 2004).

The higher capitalization may reflect the strength and soundness of banks.

Generally, the capital is positively related to the financial performance of banks (Gull, 2011).

ROA= Net income / Total assets = Return on assets.

ROA shows to generate income from the assets of the banks. This ratio is widely used to compare the financial performance of banks (Khrawish, 2011).

ROA shows the profit per unit of invest assets. It shows the profitability of banking operations and its ability to perform.

ROE = Net income / Equity = Return on equity.

ROE reflects the ability of banks to use capital to generate profits (Ani et al., 2012).

ROE shows the profit per unit of capital invested. It is important to view the shareholders because it shows the profitability of their invested in the bank.

ROE reflects the ability of the bank to use its own funds for generates profits (Yilmaz, 2013).

NIM = Net interest margins = Net interest income / Total assets.

Interest margins = Interest receivable – Interest incurred interest received from borrowers, interest incurred by depositors.

NIM indicates the cost and efficiency of financial intermediation by banks (Awadhi and Hamdi, 2012).

CEA= Operating expenses / Total assets.

CEA shows the percentage of costs in relation to total assets.
Operating expenses include personal expenses and cost of market transactions and customer transactions. *CEA* should be low for effective bank management.

Generally, *CEA* should not be great for convinced and profitability in banking (Athansoglou et al., 2005).

PRA= Total liability / Total assets.

PRA indicates the share of provisions in relation to total assets. *PRA* should be low for effective management of banking resources.

T deposit = Total deposits / Total assets.

T deposit indicates the percentage of deposits relative to total assets.

T deposits showas money left by depositors in the banks. There are deposits (short term) and term deposits (long terme).

T deposit is a sign of market power of the bank and its ability to attract customers.

CPA= Personal expenses / Total assets.

CPA shows the share of wage and salary employees in relation to total assets.

CPA must be well managed for efficient use of cash in the bank.

Size= Size of the bank = Natural logarithm of bank assets.

The size indicates the economy or diseconomies of scale. The natural logarithm of total assets si used as an indicator of the size of the bank similarly to several studies (Pathan et al., 2007; Pathan et al., 2004, Azofra and Santamaria, 2011).

Banks may adopt different behavior with the risk depending on their size and especially their economies of scales. Large banks tend to be more diversified which allows them to make riskier and more profitable loans.

TLA = Total loans / Total assets.

TLA shows the percentage of credits reports by total assets.

It can be considered as credit risk (Mandos Gueurra, 2004).

The high *TLA* is an indicator of excessive risk.

2.3. Analysis of descriptive statistics.

Table 2. Descriptive statistics

Variable	Observations	Average	Standard deviation	Minimum	Maximum
CAP	190	0.1965462	0.2040428	0.106	0.97240
ROA	190	0.0124041	0.017501	0	0.1291
ROE	190	0.0730886	0.0904251	0	0.9572
NIM	190	0.0419455	0.01698422	0.154	2.34125
CEA	190	0.0272423	0.0098025	0.0016423	0.051585
CFC	190	0.03799450	0.0374835	0.002377	0.3532
PRA	190	0.0023141	0.002178	0.000104	0.02297

Table 2 (cont.). Descriptive statistics

Variable	Observations	Average	Standard deviation	Minimum	Maximum
T deposit	190	0.6210422	0.2888983	0.006616	0.9668
CPA	190	0.015427	0.0061703	0.0007582	0.056762
Size	190	13.54419	1.324849	10.19	15.66
TLA	190	0.6622749	0.1961527	0.07115	0.9329

$190 = 19 \times 10$, where 19 is the number of banks, 10 is the number of years of the sample.

The average *ROA* is low (1.24%). The net result is the average 1.24% of total assets. Its standard deviation is not high indicating that there is no much difference in return of bank's assets.

The average *ROE* is respectable (7.3%). Net income represents on average 7.3% of total equity. Its standard deviation is high indicating that there is a big difference between banks in term of return of equity.

Also, the average *NIM* is 4.19%, indicating that the net interest margin is 4.19% of average of return on assets.

The standard deviation of *NIM* is high indicating that there is a big difference between banks in term of net interest margin. In addition, the average *CEA* is 2.72% indicating that operating expenses are 2.72% of average total assets. This is an acceptable proportion showing the effective management of bank.

There is not much difference between banks at operating expenses weight compared to total assets.

On the other hand, the average of *CFC* is 3.79% indicating that the costs represent on average 3.79% of total loans. There is not much difference between banks about *CFC*. The average of *PRA* is 0.23% indicating that the provisions represent 0.23% of total assets. This is a logical proportion showing the risk of banking and the vagaries of financial environment. There is not much difference between banks at *PRA*.

The average *T deposit* is 62.10% indicating that total deposits represent 62.10% of total assets. This shows the importance of financial intermediation. The standard deviation of *T deposit* is high (28.88%). As a result there is a big difference between banks in collecting deposits due to the difference of popularity and the resources allocated to publicity and strategy to attract customers.

On the other hand, the average *CPA* is 1.54% indicating that personal costs represent 1.54% of total assets. This is an acceptable level. Banks do not invest heavily in staff training and recruitment of new staff because they primarily seek to maximize profitability and reduce costs.

The standard deviation is low. There is not much difference between bank at *CPA*. Also, the average size (13.54%). This shows the most of the banks in the small are small and medium size. The standard deviation is not very large. As a result, there is not much difference between banks at the size.

The average *TLA* (66.22%). These loans represent 66.22% of average total assets. This shows the importance of extension of credit in the banking business. There is a big difference between banks in credit due to their market share and their growth strategies and business.

2.4. Econometrics tests. *2.4.1. The Multi-collinearity test.*

Table 3. Correlations between the variables

Variable	CAP	ROA	ROE	NIM	CEA	CFC	PRA	T deposit
CAP	1.00							
ROA	0.3953	1.00						
ROE	-0.0724	0.1766	1.00					
NIM	-0.0118	-0.0006	0.0063	1.000				
CEA	-0.2942	-0.2723	0.1019	0.0658	1.000			
CFC	-0.1340	-0.1091	0.0649	0.0189	0.3458	1.0		
PRA	0.0208	-0.1182	-0.0781	-0.0005	-0.1085	-0.4	1.0	
T deposit	-0.6479	-0.3043	0.1235	0.0299	0.5482	0.2	0.1	1.00
CPA	-0.1281	-0.1589	-0.2001	-0.0320	-0.1087	-0.4	0.2	0.2140
Size	-0.3698	-0.0770	0.3041	0.0622	0.1240	0.5	-0.3	0.4142
TLA	0.0127	-0.1759	-0.1235	0.0575	-0.1030	-0.1	0.3	-0.0875

Table 3 (cont.). Correlations between the variables

Variable	CPA	Size	TLA
CPA	1.000		
Size	-0.0736	1.000	
TLA	0.0781	0.1975	1.000

All the coefficient are inferior than 0.8. There isn't a problem of multi-collinearity.

2.4.2. Hausman test. Hausman test is a test specification which determines whether the estimated coefficients of both models (fixed and random effects) are statistically different. The idea of this test is to provide two estimates and compare the slope coefficients. If those are not statistically different, then the random effect model prevails. For this, we will build the Hausman statistic H (P-value). If P-value is greater than 10%, therefore, we accept the random effect model.

In our situation, p-value = 0.99, we accept the random effect model.

2.4.3. Test of homoscedasticity. The notion of heteroscedasticity is not constant variance of the error. If heteroscedasticity is presented, the ordinary least square (MCO) estimators do not have minimum variance.

White test (1980) is to test the null hypothesis of homoscedasticity against the alternative hypothesis of heteroscedasticity. In practice, we compare the probability of test threshold considered.

When this probability is greater than the threshold, we accept the hypothesis of homoscedasticity resdius.

2.1.4. Test of Breush-Pagan. It is utilized for knowing if residuals are dependent of independent variables. It is based on Chi (λ), K degree of liberty.

Hypothesis null of homoscedasticity. In our situation, there isn't a problem of heteroscedasticity.

$$CAP_{i,t} = 0.6354597 + 1.903401 \times ROA_{i,t} + 0.0212347 \times ROE_{i,t} + 0.0099926 \times NIM_{i,t} + 0.8048738 \, CEA_{i,t} +$$
$$\qquad\quad (3.30)\;*** \qquad (2.54)\;*** \qquad\qquad (0.17) \qquad\qquad\qquad (0.17) \qquad\qquad\qquad (0.50)$$

$$+ \; 11.03401 \times PRA_{i,t} - 0.3938629 \times T\,deposit_{i,t} - 0.5185598 \times CPA_{i,t} - 0.02038 \times Size_{i,t} +$$
$$\quad (2.07)** \qquad\qquad (-6.11)*** \qquad\qquad\qquad (-0.25) \qquad\qquad\qquad (-1.47)$$

$$+ \; 0.0254258 \times TLA_{i,t} + E_{i,t.}$$
$$\quad (0.40) \hspace{11cm} (2)$$

where $R^2 = 0.74$, i = bank, t = time.

4. Interpretations

There is a positive relationship between *ROA* and *CAP* (increase in 1% of *ROA* corresponds to increase of *CAP* by 1.90%). This relationship is statistically significant at the 1% level. The increase of return on assets has a positive impact on capital. This is similar with the result of Naceur (2003), Sufian and Chang (2008), Tobias and Thunbas (2011), Javid et al. (2011), Imad et al. (2011), Scott and Arias (2011), Hong and John (2010), Fdzalan and Muzzafar (2009), Ben Naceur and Goaied (2008), Yilmaz (2013).

The capital increases leads to a reduction of external borrowing which increases bank performance (Berger, 1995). The growth of capital increases the ability of the bank to cope with potential shocks and assigns greater financial strength. Overcapitalized banks provide less cost of bankruptcy for their accounts and their customers which reduces their cost of capital. In addition, there is a positive relationship between *CAP* and *ROE* (*ROE* increased by 1% corresponds to the increase in *CAP* by 0.021%). The increase of return on equity has a positive effect on capital. This relationship is not statistically significant. This is contrary to result found by Ahmed and Hassan (2012). But this result is similar to results found by Javaid et al. (2011), Molyneux and Thorton (1992), Berger (1995), Abreu and Mendes (2001), Ben Naceur and Goaied (2001), Ben Naceur (2003), Tunay and Silpar (2006), Havrylchyk at al. (2006), Dietrich and Wanzenried (2009), Sufian (2011), Gul at al. (2011), Zeitun (2012), Trujilo and Ponce (2011).

The capital must capture the overall safety and soundness of financial institutions. It indicates the ability of the bank to absorb the expected losses (Javaid at al., 2011). Banks that have a high level of capital reduce the cost of capital (Molyneux and Thornton, 1992), there is a positive impact on the profitability of banks.

In addition, a capital increase may increase revenues by reducing the expected costs of financial distress, including bankruptcy costs (Berger, 1995).

On the other hand, there is a positive relationship between *NIM* and *CAP* (if *NIM* increased by 1%, *CAP* increased by 0.0099%). The increase in net interest margin has a positive effect on capital. This relationship is not statistically significant.

This result is similar to that found by Ben Naceur (2003), Ben Naceur and Goaied (2008). The large capitalization ratio could imply that the bank expects to increase loan losses in the future as it deals with risky customers.

If risky customers pay high rates, the expected relationship between the capital adequacy ratio and the net interest margin is positive (Dumicic and Ridzak, 2012).

Moreover, well capitalized banks can change more for loans or pay less on deposits because they face less risk of bankruptcy (Buyuksalvarai and Abdioglu, 2011).

There is a positive relationship between *CAP* and *CEA* (if *CEA* increases by 1%, *CAP* will increase by 0.80%). The increase in operating expense has a positive effect on capital. This relationship is not statistically significant. This is contrary to the result found by Athansoglou at al. (2005), Kosmidou at al. (2006).

On the other hand, there is a strong relationship between capital and *PRA* (if *PRA* increased by 1%, capital increased by 11.034%). This relationship is statistically significant at the 5% level. Increasing provisions has a positive effect on capital.

In addition, there is a negative relationship between capital and *T deposit* (if *T deposit* increases by 1%, capital will decrease by 0.939%). The increase in deposits has a negative effect on capital. This relationship is statistically significant at the 1% level. This result is similar to that found of Asarkaya and Ozcan (2007).

Deposits are generally considered cheaper sources of funds compared to borrowing and similar financing investments (such as financing by bond or syndication and securitization loans for banks) (Kleffand Weber, 2003).

When deposits increase, banks should to be more regulated and controlled to guarantee the depositors rights, and to protect a bank from insolvency (Buyuksalvarai and Abdioglu, 2011). If depositors cannot assess financial soundness of their banks, banks maintain lower than optimal capital ratios.

There is a negative relationship between *CAP* and *CPA* (*CPA* increased by 1% leads to a decrease of capital by 51%). Increased of personnel costs have a negative effect on bank capital. This relationship is not statistically significant.

Besides, there is a negative relationship between *CAP* and *Size* (*Size* increased by 1% leads to a decrease in *CAP* by 0.020%). The increase in size has a negative effect on bank capital. This relationship is not statistically significant. This result is similar to found of Gropp and Heider (2007), Shrieves and Dahl (1992). Bank's size is important because of its relationship to bank ownership characteristics and access to equity capital (Buyuksalvarai and Abdioglu, 2011).

Bank access to equity capital may reflect a relative importance of bankruptcy cost avoidance or managerial risk aversion. Jackson at al. (2002) propose that the large banks wish to keep their good ratings and therefore have considerable market determined excess capital reserves.

On other hand, there is a positive relationship between *CAP* and *TLA* (*TLA* is increased by 1%, *CAP* increase by 0.025%). The increase in loans has a negative effect on capital. This relationship is not statistically significant. When risk increases, depositors should be compensated for loss, so capital adequacy ratio should increase. Mpuga (2002) found a positive relationship between capital adequacy ratio and share of loan.

Conclusion

The capital is important in banking operations and realization of investment. On the other hand, financial performance demonstrates the ability of the bank to make high profits and face the systemic shocks. In the context of this article, we studied empirically the relationship between capital and financial performance on a sample of 19 banks in Tunisia through the period of 2000-2009. We found that the capital increase *ROA*, *ROE* and *NIM*. Only the relationship between capital and *ROA* is significant. So there is a positive and significant impact of capital in return of assets of banks in Tunisia through the period of 2000-2009.

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Appendix

Table 4. Model estimation results (random effect)

CAP	Coefficient	Standard error	z	Z < p
ROA	1.903401	0.749	2.54	0.011
ROE	0.0212347	0.126	0.17	0.866
NIM	0.0099926	0.059	0.17	0.866
CEA	0.8048738	1.6064	0.50	0.616
PRA	11.03401	5.31	2.07	0.038
T deposit	-0.3938699	0.064	-6.11	0.000
CPA	-0.5185898	2.051	-0.25	0.800
Size	-0.02038	0.0138	-1.470	0.142
TLA	0.0254258	0.0634	0.40	0.688
Cons	0.6354597	0.192	3.30	0.001