

Privatization of banks and value creation

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ABSTRACT: The Tunisian banking sector is a major component of the financial system. In fact, bank credits represent a high proportion of the financing of Tunisian companies. However, despite this decisive weight of banking intermediation for the financing of the Tunisian economy, bank assets, in relation to GDP, are relatively low. Privatization is seen as an important factor that could improve the performance of banks. This paper seeks to study the effect of privatization on the financial performance of banks in the Tunisian context. The contribution of this article is twofold. On the one hand, it focuses on one particular aspect of performance, namely the creation of shareholder value, since proponents of privatization argue that it could help firms achieve the objectives of productive efficiency and maximizing shareholder value. On the other hand, this work could provide managers and supervisory authorities with diagnostic tools that would enable them to identify good (bad) practices in the sector and to detect sources of inefficiency in Tunisian banks. Tunisia constitutes one of the countries in which the banking sector trains the pit of the financial system. In fact, the financing of the Tunisian companies is mainly made by bank credits. However, in spite of this determining weight of the banking intermediation for the financing of the Tunisian economy, the assets of banks, reported to the PIB, are relatively low. The privatization is considered as an important factor which can improve the performance in banks. This paper tries to study the effect of the privatization on the financial performance of banks in the Tunisian context. The contribution of this article is double. On one hand, it is interested in a particular aspect of the performance to know the shareholder value creation given that the partisans of the privatization move forward that this one could help firms to reach the goals of productive efficiency and maximization of the shareholder value. On the other hand, this work could supply to the leaders managers and to the authorities of supervision of the tools of diagnosis which allow them to identify the good (bad) practices of the sector and to reveal the sources of inefficiency of the Tunisian banks.

I. INTRODUCTION

The ultimate objective of privatization is to improve the performance of enterprises. For this reason, the main research question posed by the numerous studies on the privatization of firms concerns the determinants of their performance. The literature has recently devoted attention to the results of privatization in the banking sector. The empirical validations present heterogeneous conclusions. Some previous studies find a causal link between private ownership and performance. Others confirm the role of competition as a key driver of business performance. An important issue in privatization in general, and in banks in particular, is indeed the ownership structure (public-private) as well as foreign participation. These two components can be key determinants of the success or failure of a privatization. Moreover, studying the operational efficiency of public and private firms can highlight the effect of privatization on the performance of both organizational forms in a competitive environment.

A number of research studies have increasingly focused on the various factors that influence performance and value creation by banks. The global crisis in the banking sector since 2007 has called into question the performance of banks and has had a significant impact on the allocation of capital, corporate growth and economic development in general. Therefore, it is essential to assess how banks make profits and create value for their owners. In this framework, privatization is seen as an important factor that can influence improved performance in banks. Even in a regulated environment it has been shown that privatization has a positive effect on the performance of private banks (Beck et al. 2005). In this context, several questions were raised: how does privatization affect the bank's performance? Does the method of privatization affect the results of the privatization? Does foreign ownership have an effect on performance? ...etc. In addition, several research studies have examined the impact of privatization on bank performance. However, few studies have used measures of shareholder value creation as a performance indicator in the context of bank privatization. This is surprising given that the creation of shareholder value has been the main strategic objective of banks in the last decade. Proponents of privatization argue that it could help firms achieve the goals of productive efficiency and maximizing shareholder value. Indeed, it is well documented theoretically and empirically that transfer ownership from the public to the private sector should lead to increased profitability. In many developing

countries where banks are in the process of privatization, we believe that a study on privatization and its impact on value creation are very important for researchers and policy makers. Moreover, although the literature on the impact of bank privatization is abundant, we have noticed an absence, to our knowledge, of studies specifically devoted to Tunisian privatization. Privatized Tunisian banks are present in the samples of the international studies. However, due to the diversity of legal, regulatory and accounting frameworks, and because of national economic particularities, it will be interesting to carry out national studies in order to overcome these discrepancies. This paper seeks to study the effect of privatization on the financial performance of banks in the Tunisian context. The contribution of this article is twofold. On the one hand, it focuses on one particular aspect of performance, namely the creation of shareholder value, since proponents of privatization argue that it could help firms achieve the objectives of productive efficiency and maximizing shareholder value. On the other hand, this work could provide managers and supervisory authorities with diagnostic tools that would enable them to identify good (bad) practices in the sector and to detect sources of inefficiency in Tunisian banks. The rest of this paper will be organized as follows: a first section will be devoted to the study of the relationship between privatization and the creation of shareholder value. A second section will look at performance measurement indicators in terms of value creation. A third section will present a review of previous empirical work on this topic. The presentation of data and methodology will be the subject of a fourth section. The results and their interpretations will be presented in a final section.

II. PRIVATIZATION AND SHAREHOLDER VALUE CREATION

Privatization can be defined as the transfer of ownership from public to private agents involving the ownership of these assets. Their partial or total transfer results in a change in the nature and structure of ownership. Three sources of inefficiency are linked to the structure of public ownership in which the state is considered the sole owner, delegated by the citizens. The multiplicity and contradiction of the objectives of the State and the government hamper the incentive for productive efficiency [R. Caves 1990]. Moreover, since the length of the leader's term of office is correlated with that of the government in power, the decision-making process would have a political rather than an economic basis and could therefore be confronted with costly contradictions of objectives in terms of strategic choices [J. Vickers, G. Yarrow 1991]. Moreover, the incentive and control systems of public enterprise are a priori different from those of private enterprise. On the one hand, the complexity of the leader's relationship with his or her constituents is linked to the multiplicity of ministerial and parliamentary controls [J. Kay, D. Thompson 1986; R. Caves 1990]. In the extreme case of a strong public intervention on decisions (especially financing decisions), the director of the public enterprise seems to be subject to a more restrictive system of control than that of the managerial firm, in the sense of Berle and Means [1932], which would explain the costly behavior linked to the search for personal income. On the other hand, the ex-post nature of the control system in the public enterprise limits the incentives for effective management of the firm by the manager, since the nature of the controls relates less to the relevance of the decisions taken than to budgetary compliance. Privatization would thus substitute the objectives of productive efficiency and creation of shareholder value for political behavior. The competitive environment was still considered a key driver of the performance of privatized companies.

The value created in the market is undoubtedly one of the best measures of a firm's performance. Several researches have uncovered value creation typologies in order to better understand the different stages of value-axed policy development. Other research has also focused on the analysis of banks' strategies and their effects on value creation, including through acquisition, restructuring, downsizing, partial asset disposals and incentives ...etc. For example, privatization makes value creation the ultimate goal of the firm, and the strategy must be formulated in such a way as to direct actions in a way that is in the shareholders' interests. Consequently, reflection must be directed towards identifying the strengths and weaknesses of the various activities, their level of risk and the financial conditions for their development (Hoarau and Teller, 2001). Charreaux et al (2004) argue that privatization, through governance mechanisms, influences the process of shareholder value creation. In the agency relationship between the manager and the government, centralized decision-making seems to limit the manager's activities, but the reduced effectiveness of controls seems to give the manager the possibility of directing some of the value creation choices that may be appropriate by the government. Thus, public governance gives the leader the opportunity to influence strategic choices of diversification and/or internationalization. Within the limits of his or her discretionary space, the public manager is all the more stimulated by the fact that the risks of bankruptcy, although potential, pose a low threat. The State implicitly offers a guarantee and, in some cases, also provides privileged political support for this type of strategy, as it may do with private companies. In this sense, the disciplinary role of debt appears more reduced in the context of public governance, as does that of the financial market. Besides, the strong correlation between the mandate of the public leader and the electoral deadlines contributes to the development of an over-investment strategy

which, in certain cases, can be favorable to all partners (heavy infrastructure investments favorable to the development and quality of public service for example) or unfavorable when the cost is too high in relation to the benefit produced, and therefore, borne by all the real owners, holders of the right to claims and residual losses. During privatization, the mixed governance system introduces the informational role of the financial market and the stricter control of the dominant shareholders in a long-term perspective. The abandonment by public authorities of decision-making control is likely to be accompanied in particular by the abolition of formulas for compensating for public service constraints or balancing competitions that reflect the assumption of uncertainty about net results (loss/profit) by public owners. Privatization is therefore expected to increase the threat associated with the risk of default and bankruptcy, compared to the status of the state owned firm. By activating debt and financial market discipline, it is therefore likely, on the one hand, to reduce the managerial incentive to develop risky projects compared to the public context and, on the other hand, to favor a rather short-sighted investment policy due to the introduction of financial control exercised by the stock market. All other things being equal, privatization could therefore be detrimental to an optimal investment policy, in particular by forgoing investments that are beneficial in the long term. However, the presence of partner shareholders, in particular financial partners, on the Board of Directors is likely to guide the evaluation of managerial behavior. On the basis of strategic control criteria that are more favorable to a long-term investment policy and a level of risk in line with shareholder interests.

The combination of the disciplinary role of the debt, the financial market and the role of dominant private shareholders is therefore likely to reduce certain sources of costs that accompany investment policy within the public organization (reduced autonomy, multiple objectives, and cost of partially neutralizing the centralization of decision-making by an over-investment policy). This combination is also accompanied by a clearer definition of the objectives of the main owners compared to public owners who combine them. The informational role of the financial market complements the development of managerial human capital. In the period following privatization, particularly by OPV, the manager seems to have more incentive to make financial choices that are favorably assessed by the market and to undertake customs clearance activity with regard to the entire shareholder community. In this perspective, in the case of a privatization (total or partial), the State shareholder ultimately delegates all or part of the control to private shareholders. This control concerns the investment objectives specific to the development of the firm. Control by the public authorities is then limited to public service or more political objectives, reflecting a real delegation of the company's general policy to the manager. In this sense, the organizational architecture following privatization appears more conducive to the creation of shareholder value by the manager. The mixed governance system associated with privatization provides greater incentives for the manager to increase shareholder-appropriate value, compared to the incentives associated with the public governance system. The organizational processes underlying privatization thus seem to lead to a strengthening of the incentive mechanisms for value creation.

2.1 Indicators for measuring value creation

The measurement of wealth creation, based on financial theory, provides an answer to the problem of valuation by the market or by the balance sheet and income statement. The conclusion that can be drawn from a reading of the abundant literature is that performance is a subject of prime importance for management. It is synonymous with growth, efficiency, effectiveness, economic performance, financial profitability and competitive advantage...the question of these measures is subject to many variations. The number of indicators for measuring shareholder value is increasing. Some (and I should mention a few references) consider earnings per share (EPS) as a possible measure of value creation, next to a commonly used stock market ratio which is the P/E ratio (Price-Earnings Ratio, i.e. the price-to-earnings ratio). There is also a series of profitability ratios, starting with the various economic profitability ratios such as ROCE (Return on Capital Employed) or ROA (Return on Assets). ROA only takes into account operating capital (operating fixed assets and working capital requirements) when ROA includes the acquisition price of the business units themselves (and is therefore intended for operational managers with a higher level of responsibility than those concerned by ROA). But the shareholder's point of view is better represented by the financial return on equity, or ROE (Return on Equity) ratio. The TSR (Total Shareholder Return), proposed by the Boston Consulting Group, is the ratio of dividends received and final capital appreciation on invested share capital. This could not be more closely aligned with the outlook for stock market profitability. The TSR, which responds to an external financial evaluation perspective, has itself given rise, by extension, to a concept that is less stock market-orientated and more economical, which Mottis and Ponsard [2000] present as its "internal equivalent": the TBR (Total Business Return). Of the TSR, the TBR retains the idea of aggregating the difference between an initial and a terminal value, and the value of intermediate cash flows. Of course, it is the evaluation of the initial and terminal values of the company in question that is problematic, and the uncertainty of processes using multiples of EBIT (Earnings Before Interest

and Taxes) renders the method non-usable. Less financial and more economical than TSR, EVA (Economic Value Added) promoted by Stern Stewart and Co. in 1982 (According to M. J. Stern(1997), has emerged as the most analytically rich and ultimately the most representative definition of value. The EVA is intended to expose the inability of the standard accounting information system to highlight the true gains of the owners of the business. The Net Accounting Result, in particular, is extremely misleading in this respect. A company may very well make seemingly substantial profits and yet still not properly remunerate the capital contributed by its shareholders. But what exactly is this "fair compensation" claimed by shareholders? Stern and Stewart respond to the cost of capital, i.e. the return that could be expected from an alternative investment with similar risk. Put another way, the cost of capital is an opportunity cost: capital must be remunerated to the extent that it could be found elsewhere. EVA measured by the difference between Net Operating Profit After Tax (NOPAT) and the return on total capital employed (equal to the weighted average cost of capital). The company is said to create value ($EVA > 0$) not when the company is profitable, but when its result largely covers the return on equity measured at the weighted average cost of capital. In many empirical studies, at this level, we also regularly find Tobin's Q, the Market-to-Book, the Sharpe or Treynor index, or Jensen's alpha. Alongside, of course, the historical measurement of the PER. Tobin's Q and Market-to-Book are measures built on book value, while Sharpe and Treynor's indices, as well as Jensen's alpha, are measures based on future performance prospects. Charreaux (1998) identified the scope and limitations of each. The major disadvantage of the latter is that they are based on portfolio theory: such measures will indicate the value created only if it is possible to calculate equilibrium profitability. For this reason, value creation measures based on accounting information are preferred. However, Varaiya, Kerin, and Weeks (1987) show that the Q and Market-to-Book ratios are theoretically and empirically equivalent for measuring value. In itself, the Market-to-Book has three advantages over Tobin's Q. Simplicity first. The other variables are more difficult to assess. Tobin's Q requires an estimate of the replacement cost of assets, whereas the book value of equity capital is directly available in the annual reports. Another advantage is that this ratio is also used by professionals. It can therefore be thought that it is the object of particular attention, which it serves as a support for shareholders to measure value creation and to evaluate the bank's management (Hirigoyen 1993). A final advantage is that it is frequently used in research, allowing scientific results to be compared with each other.

III. IMPACT OF PRIVATIZATION ON BANK PERFORMANCE: A REVIEW OF THE LITERATURE

Over the past decade, research interests have expanded to include developing and transition economies. Privatization and the governance structure of banks are two important and well explored topics. Theoretical and empirical work on bank privatization has focused on the impact of bank privatization on either financial or operational performance. Moreover, these studies have been carried out on non-financial enterprises as well as banks, although few studies deal explicitly with the privatization of banks. Privatization literature provides good reasons to expect that bank privatization will be favorable. The question is whether, and under what circumstances, privatization will improve the bank's performance and value creation. Empirical research provides new evidence on this important issue and generally documents the negative impacts of state ownership. The empirical study of Nouaili et al (2015) on the Tunisian banking sector explains the internal and external determinants of banking performance in Tunisia after the financial reforms. This study aims to explain the difference in performance through factors specific to banks and the macroeconomic and financial environment. Four performance measurement indicators are used: ROA, ROE, NIM on total assets (NIM, Net Interest Margin: Interest and similar income - Interest generated and similar expenses) and the LIQ ratio (measured by total Deposits / total Assets). Empirical results show that bank performance is positively related to capitalization, privatization and rating.

The study by Jiang et al (2013) on the static effect of ownership and the dynamic effect of privatization on bank performance shows that the ownership structure is critical to bank performance. The results show that banks with minority foreign ownership are more profitable. Also, privatization through IPOs has improved banks' performance in terms of revenues and efficiency in the short and long term. Thus, there is empirical evidence to explain the impact of privatization on bank performance or efficiency. Omran's (2007) study tested the effect of privatization on the financial and operating performance of a sample of 12 Egyptian banks for the period 1996-1999, during which control was transferred from the state to the private sector. The Bank's performance as measured by: (1) Profitability [ROE and ROA], (2) Asset quality, (3) Capital risk, (4) Operational efficiency [net interest margin, interest income from production revenues, return on loans], (5) Liquidity risk and (6) Growth. Overall, it finds that profitability decreased after privatization, while asset quality increased slightly after privatization. Capital risk indicators refer to a stable position for privatized banks. Functional efficiency ratios show no significant change after privatization. The liquidity indicator decreased significantly. The paper then

explored the relationship between the performance of privatized banks and ownership structure. The results show that majority privately owned and privatized banks are more profitable and efficient than banks with state majority ownership. Focusing on banks in several developing countries, Boubakriet al. (2005) examined the impact of privatization on bank performance as measured by four performance dimensions: financial performance (as measured by return on equity (ROE)), economic efficiency (as measured by net interest margin), credit risk and capital adequacy. For these four aspects of performance, the relationship with the factors or determinants of performance was investigated, i.e. types of ownership (state, foreign, industrial group and individual investor participation). The results show that, following privatization, profitability has increased. However, depending on the type of property, both effectiveness and exposure to risk may increase or decrease. Moreover, in the long term, bank privatization leads to an improvement in economic efficiency and credit risk exposure.

Moreover, analysis of bank privatization in one African country (the case of Nigeria) also shows improved performance after privatization (Beck et al. 2005). They focused the analysis on three measures of financial performance: return on equity (ROE), return on assets (ROA) and the share of non-performing loans (NPLs). Similarly, they assessed the effect of ownership structures beyond privatization on bank performance. The results show that private banks perform better than banks that had state ownership. They show that after privatization the performance in terms of profitability and portfolio quality has improved significantly. In addition, the study by Choi et al (2011) traced the magnitude of the performance gap between privatized and established private banks in 30 countries. This comparison examines the potential role of banking regulation in terms of supervision, market structure, ownership and governance, as well as the specific characteristics of individual banks with respect to the variation in the performance gap of privatized banks across countries. Performance is measured by return on assets (ROA), net interest margin (NIM), return on equity (ROE) and annual dividend yield. The results show that, in general, privatization generally tracks the improvement in bank performance.

In addition, Bonin, Hassan, and Wachtel (2005a and 2005b) argue that banks with greater foreign ownership are associated with greater efficiency. In these studies, private banks are found to be more efficient than state-owned banks, and the gap increases when private banks are controlled by foreign interests. Similarly, Megginson in her survey paper (2005a) and a book (2005b) concludes that privatization generally improves the performance of financial firms. Thus, foreign ownership has a positive impact on the bank's performance. Clarke, Cull, and Shirley (2005) concluded, based on a synthesis of the results of several papers that appeared in the special issue of the *Journal of Banking & Finance* (2005) on bank privatization in developed countries, that bank privatization generally improves bank efficiency, and that the gains are greatest when the government relinquishes full control, when banks are privatized to strategic investors, when foreign banks are allowed to participate in the privatization process, and when the government does not restrict competition. Furthermore, these results also show that a sale to strategic investors, which results in a concentration of ownership, will lead to performance gains. Referring to several empirical studies, therefore, there is evidence that privately owned banks perform better than publicly owned banks. The results testing the relationship between privatization performance and ownership structure provide further evidence that private ownership is associated with better performance. Moreover, the analysis of the impact of privatization and ownership structure on bank performance supports the view that better bank performance is essentially based on a low degree of state ownership. Thus, it can be argued that the reduction of state ownership in banks is associated with better performance. Several previous studies suggest that public ownership of banks is supposed to be less efficient than private ownership (Omran, 2003; Bonin et al., 2005a; Isik and Hassan, 2002).

IV. DATA, VARIABLES AND METHODOLOGY

4-1- Data presentation

The data to be used in this work are drawn from the balance sheets of 10 Tunisian commercial banks over the period from 1996 to 2010 (15 years). The sample includes three public banks¹, two recently privatized banks² and three private banks³.

¹ Banque Nationale Agricole (B.N.A.), Banque d'Habitat (B.H) and Société Tunisienne des Banques (S.T.B)

² Attijari Bank (before 2007 called Banque du Sud (B.S)) and the International Banking Union (U.I.B.)

³ ArabTunisian Bank (A.T.B), Union Bancaire pour le Commerce et l'Industrie (U.B.C.I), Amen Bank (A.B), Banque Internationale Arabe de Tunisie (B.I.A.T) and Banque de Tunisie (B.T)

Public banks		Banks recently privatized		State banks	
ATB	7.043%	Attijari Bank	7.849%	BNA	15.421%
UBCI	4.883%	UIB	6.874%	BH	11.888%
AB	8.819%			STB	16.681%
BIAT	13.834%				
BT	6.707%				
Total	41.286%	Total	14.723%	Total	44%

4-2- Choice of variables

With reference to previous studies, we have classified the banking performance measures used and according to data availability into six categories:

	Measure	Notation	Explication
Return	ROE = Net profit / Equities	V1	ROE=ROA*(balance sheet total)/(Equities). For the same return on assets, the higher the debt, the higher the return on equity. This leverage effect is at the heart of a bank's activities (intermediation)
	ROA = Net profit / Assets	V2	
Risk	loans /sum of deposits	V3	measures the size of the bank's lending relative to the main source of funding for its lending (deposits)
Intermediation efficiency	net banking income / customer loans	V4	reflects the profitability of lending as the main part of the banks' income comes from this source
	Interest expenses / (total liabilities - equity)	V5	measuring the cost of bank resources
	net banking income / Total Assets	V6	Average bank lending return indicator
Growth	(T.Assets _t -T.Assets _{(t-1)])/T.Assets_(t-1)}	V7	Measures the annual growth of banking assets
Assets quality	NPL/Costumer loans	V8	NPL : Non Performing Loans
Shareholder value creation	Q-Tobin = Market Value of equities/ book Value	V9	Value creation should be the focus of all the metrics. When organization creates value for shareholders, it means that they are creating value for all the stake holders.

	Notation	Explication
Privatization	D-priv	A dummy variable that takes 0 if the bank is state-owned and 1 if the bank is privately-owned (totally or partially)
	T-priv	The number of years since privatization
Bank Age	Age	The number of years since the bank was established
Capital structure	V10	Financial autonomy ratio, measured by (Equity / total assets)
Banking Concentration Indicators	HHIA	Hirshman-Herfindhal asset concentration index
	HHID	Hirshman-Herfindhal deposit concentration index
	condepot	Bank deposit concentration ratio (percentage of deposits collected by the top 3 banks)
	conactif	Bank asset concentration ratio (percentage of assets held by the top 3 banks)

The Hirshman-Herfindhal concentration index (HHI) is calculated as follows:

$$HHI = 10^4 \cdot \sum_{i=1}^n S_i^2 \text{ with } : S_i = \frac{q_i}{\sum_{j=1}^n q_j}$$

For any bank, we have 0 < If ≤ 1; (q) denotes either deposits or assets, (i) is an index relative to the bank, and (n) is the number of banks in the sample.

If HHI ≤ 1000, bank deposits are not concentrated

If 1000 < HHI < 1800, the deposits are said to be moderately concentrated...

If $HHI \geq 1800$, it is said that the deposits are very concentrated.

4.3 Methodology

According to a literature review conducted in 2005 by Megginson, three approaches can be found in the literature depending on the concept of performance studied:

- If the performance is apprehended through the concept of profitability, regressions made on panel data (simultaneously on cross-sectional and temporal data) are used.

This approach increases the number of observations, thus avoiding the limitations of small sample sizes when working on privatizations within a single country. - If the performance of banks has been captured by the concept of efficiency, i.e. the ability to transform multiple resources into various financial services, then two approaches are used to construct the efficiency frontier (allowing the performance of banks to be judged) are:

- Non-stochastic approaches: the most widely used approach is "Data Envelopment Analysis" (D.E.A.) developed by Charnes et al in 1978.
- So-called stochastic approaches: the most widely used approach is the "Stochastic Frontier Approach" (S.F.A.) developed by Aigner et al (1977) and Meeusen and Van den Broeck in 1977. In 2010, Duygun et al. (2010) presented a literature review of 196 studies related to these approaches. In this work, we will study the effect of bank privatizations on performance as measured by the concept of profitability and creation of shareholder value, using the first approach found in the literature.

Based on the existing literature, we will carry out a regression between the selected performance indicators and the privatization and control variables. The methodology used is based on panel techniques, which have several advantages (Sevestre (2002)). Indeed, the dual dimension of panel data is a decisive advantage over other types of data (time series and cross-sections). This double dimension makes it possible to report simultaneously on the dynamics of behaviors (time series) and their possible heterogeneity (cross-sections). On the other hand, from an econometric point of view, panel data, which include a larger number of observations compared to time series or cross-sections, allow a better quality of estimates. Thus, as the number of observations is high, the bias and variance of the estimators approaches zero.

The aim of this paper is to deepen the existing literature on the subject by mobilizing recent developments in non-stationary panel econometrics and the SUR (Seemingly Unrelated Regression) estimation method. To our knowledge, no such analysis has ever been conducted to study the links between public/private ownership and banking performance. The addition of the individual dimension to the usual time dimension is indeed of great interest for the analysis of non-stationary series since it increases the power of these tests (Baltagi and Kao (2000)). Furthermore, we estimate the model using the SUR method developed by Zellner(1962), which takes into account the existing interdependencies between banks. This approach allows us to obtain an estimate of the parameters related to the explanatory variables in a panel framework, taking into account the interrelationships between banks.

V. RESULTS AND INTERPRETATIONS

5.1 Descriptive statistics

Performance Indicators

	V1	V2	V3	V4	V5	V6	V7	V8	V9
Observations	150	150	150	150	150	150	150	150	150
Banks	10	10	10	10	10	10	10	10	10
Mean	0.0923	0.009	0.999	0.066	0.028	0.046195	0.040709	0.175232	1.329498
Median	0.106	0.0094	0.999	0.063	0.029	0.042576	0.089329	0.143500	1.120118
Maximum	0.374	0.035	1.782	0.536	0.0734	0.373975	0.578227	0.452000	4.508239
Minimum	-1.765	-0.081	0.498	0.031	-0.035	0.024476	-0.999697	0.008595	-7.763412
St-deviation	0.163	0.0094	0.217	0.041	0.0139	0.028399	0.253290	0.109680	1.112706

	V10	T_priv	Age
Observations	150	150	150
Banks	10	10	10
Mean	0.091385	14.75333	32.40000
Median	0.087848	9.500000	34.50000
Maximum	0.174818	49.00000	53.00000

Minimum	-0.010985	0.000000	7.000000
St-deviation	0.030615	15.92471	11.67111

From this table, we note the disparity in the mean values of the endogenous and explanatory variables and their standard deviations, which shows the disparity between the different banks in the sample. These two quantities suggest that the sample structure is not homogeneous and that further testing is needed to select the appropriate estimator.

5.2 Unit Root Panel Tests

The literature on panel unit root tests has undergone important developments in recent years and distinguishes between first generation tests based on the hypothesis of inter-individual independence of panel individuals (with the exception of common temporal effects), and second generation tests, incorporating various possible forms of inter-individual dependencies. It is now well known that panel data make it possible to work with small samples in the time dimension, considering a large number of observations in the individual dimension, which in fact reduces the probability of being confronted with structural breaks and also makes it possible to overcome the classic problem of the low power of small-sample tests. To test the existence of interdependence between the banks in our sample, we implemented the Pesaran (2004) test and calculated the CD (Cross Dependence) statistic. Its null hypothesis being the absence of interdependence between banks, under H0 the test statistic is asymptotically distributed according to a normal distribution. Our results indicate that the null hypothesis is always rejected regardless of the number of lags included in the auxiliary augmented Dickey-Fuller regression (up to five lags), at the five percent level of significance. This confirms that banks are, as expected, very interdependent. The results suggest that the null hypothesis of unit root cannot be rejected at the usual levels of significance for all the series considered. We can therefore conclude that all our series are integrated of order one in our panel of 10 Tunisian banks.

5.3 Estimation results and Interpretations

Estimation of the Seemingly Unrelated Regression (SUR) model on panel data yielded the following results:

Variables	Return		Equity risk	Intermédiation efficiency		
	V1	V2	V3	V4	V5	V6
V10	0.293712** *	0.120847***	2.417269***	0.070747** *	0.079868***	0.037316** *
D_PRIV	0.021315** *	0.001686***	-0.178524***	0.002814**	-0.012032***	0.000417
T_PRIV	0.000723** *	6.33E-05***	-0.002084**	0.000233** *	0.000298***	0.000103** *
AGE	- 0.00205***	-0.000162***	-0.001184	-6.89E-05	-0.000110***	3.63E-05
CONACTIF	-0.283140	-0.020795	4.425638***	0.159655** 0.205749**	0.288066***	0.000931
CONDEPOT	0.401222	0.035687	1.468301*	*	-0.145752***	0.039334
HHIA	0.000125	-3.38E-06	-0.000446	-8.53E-06	-0.000144***	-1.65E-06
HHID	-7.59E-05	-1.30E-06	-0.001099***	5.28E-05	0.000113***	1.97E-05
R ²	0.808651	0.900993	0.760869	0.634115	0.775376	0.381697
Ajusted R ²	0.799219	0.896112	0.749081	0.616078	0.764303	0.351218

Privatization has a significant positive effect on profitability. This could be explained by the fact that private banks are more efficient than public banks in terms of organization, management and also in terms of cost control. Efficiency reflects the best allocation of the bank's resources to profitable operations and therefore reflects the organization and quality of management within the bank. We found a significantly positive relationship between privatization and the profitability of bank credits (measured by V4 and V6), as well as a significantly negative relationship between privatization and the cost of bank resources (measured by V5), which proves that privatization reduces the cost. This proves that Tunisian commercial banks have higher financial income than financial charges despite the difficulties and the high rate of classified debts (20.9%, according to the IMF report of 2006).

Moreover, a negative relationship is found between privatization and capital risk, which proves that private banks are able to control risk better than public banks. This result is consistent with previous work that found a negative relationship between the bank's public ownership and its performance. This could be explained by the fact that the objective of public banks is not always profit maximization, but rather the financing of strategic sectors with a relatively high level of risk.

	Growth	Assets quality	Shareholder value creation
	V7	V8	V9
V10	-1.249417***	-0.274347****	1.787797**
D_PRIV	-0.038354**	0.052870***	0.577558***
T_PRIV	0.002180***	-0.003602***	-0.001892*
AGE	-0.001173***	0.004759***	-0.015896***
CONACTIF	-0.399229	1.436808**	-17.38712**
CONDEPOT	0.825216	-0.887466	17.36154**
HHIA	0.000212	-0.000392	0.006694*
HHID	-0.000202	0.000234	-0.005569
R ²	0.241388	0.983786	0.769796
adjusted R ²	0.203992	0.982987	0.758448

A positive and significant relationship is found between privatization and non-performing loans, but the number of years since privatization is negatively related to asset quality. Upon privatization, the bank proceeds to a reclassification of these claims, as public banks are generally under provisioned because their claims are misclassified. As the number of years since privatization increases, bad loans decrease, privatization therefore improves the quality of assets, which will have a positive effect on profitability, which is strongly affected by the large volume of non-performing loans of public banks. The capital structure (the V10 measure exists in the table on explanatory variables) has a significant positive relationship with the economic profitability of Tunisian banks. This result corroborates previous work that indicates that well-capitalized banks are considered less risky and can therefore access funds on better terms. The role of capital is also to involve shareholders in covering the losses incurred by their banks' risk-taking. As a result, shareholders, by investing more in their banks, exercise more effective control over the decisions taken by managers. - The age of the bank has a negative and significant relationship with the profitability of Tunisian banks. This could be explained by the fact that the majority of the oldest banks are state-owned, obliged to respond to state priorities in terms of risky strategic investments.

VI. CONCLUSION

This paper sought to study the effect of privatization on the financial performance of banks in the Tunisian context. The Seemingly Unrelated Regression (SUR) model on panel data was used. The aim of this paper is to deepen the existing literature on the subject by mobilizing recent developments in non-stationary panel econometrics and the SUR (Seemingly Unrelated Regression) estimation method. Specifically, we use the panel root test and the cointegration test, both of which allow us to take into account possible interdependencies between the banks under consideration. To our knowledge, no such analysis has ever been conducted to study the links between public/private ownership and banking performance. The addition of the individual dimension to the usual time dimension is of great interest for the analysis of non-stationary series since it increases the power of these tests [Baltagi and Kao (2000)].

Since the effect of public/private ownership on bank performance can change from one bank to another, the analysis of the effect of privatization therefore needs to be examined for each bank individually. With this in mind, the SUR approach provides specific results for each bank, thus complementing the panel analysis. Since there is a cointegration relationship for each of the banks in the sample in our panel, we estimate the model using the SUR method developed by Zellner (1962), which takes into account the interdependencies existing between banks. The estimation of the models on a sample of 10 banks observed over a 15-year period showed that privatization has a significant positive effect on profitability. This could be explained by the fact that private banks are more efficient than public banks in terms of organization, management and also in terms of cost control. Efficiency reflects the best allocation of the bank's resources to profitable operations and therefore

reflects the organization and quality of management within the bank. We found a significantly positive relationship between privatization and the profitability of bank credits, as well as a significantly negative relationship between privatization and the cost of bank resources, which proves that privatization reduces the cost. This proves that Tunisian commercial banks have higher financial income than financial charges despite the difficulties and the high rate of classified debts (20.9%, according to the IMF report of 2006). Moreover, a negative relationship is found between privatization and capital risk, which proves that private banks are able to control risk better than public banks.

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