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BANK CHARACTERISTICS, FINANCIAL STRUCTURE AND BANK PERFORMANCE

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Key Words

Banking; Performance; Financial Structure; Accounting Profit.

Abstract

This study investigates whether the Jordanian economy is considered as a bank or more a market-based economy, reflecting the level of the relative reliance on banks vs. market finance. As a further concern, this study also tests whether financial structure (levels of bank and stock market developments), together with bank characteristics have zero impact on bank performance, typified by the banks accounting profits and interest rate margins. The evidence revealed that banks performance measures responded significantly to the increase in capital and loan ratios, reflecting the fact that adequate capital ratios and loan portfolios have empirical evidence in explaining performance measures. The results also showed that well capitalized banks achieved higher net interest rate margins and more profitability, implying that banks with higher capital ratios tend to face lower funding costs due to lower probability of bankruptcy costs. For their part, the financial structure results indicated that with more competitive banking industry, in which total banks assets constitute a larger proportion of GDP, lower interest rate margins and profitability have been reached. This shows that more bank development creates tougher competition, causing higher efficiency, and hence lowers profits, and in turn, lower interest rate margins. On sub-sample basis, the results indicated that non-major banks have experienced, on average terms, lower performance measures, reflecting lower operating costs, lower overhead costs and lower pre-tax profitability. This result shows more reliance from non-major banks toward deposits as main funding costs, leading to the conclusion under which major banks tend to profit more in inflationary and high-tax environments. This also indicates that major banks are more able to pass on at least part of their taxes and overhead expenses to their clients, in the form of lower deposit rates and/or higher loan rates.

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Introduction

Given the wide variety among financial systems around the world, variations in their relative reliance on banks vs. market finance exist. In part, since 1970s, banks have entered a new and riskier world. This is, in part, due to broad deregulation movements around the universe, as well as economic trends that are creating new competitive pressures and global financial markets. As suppliers, banks responded to these developments by expanding their branch network, providing new banking products, and offering more services to meet their clients needs. On the other hand, the developments created a shift in the clients (namely, suppliers of deposits) behavior toward yields attitude, by searching for higher yields. Nevertheless, most of these developments created a significant impact on the banks overall structure and performance.

Locally, like other countries, the Jordanian banking industry had to face recent trends in the banking deregulation, technological advances and innovations, in addition to globalization. These new developments posed challenges for banks and reshaped their structure in regard to internal operations, interactions with clients, and inter-banking relationships. The overall impact of these developments would certainly have implications on the costs and revenues, and hence on the financial performance and profitability of Jordanian banks. Nevertheless, given the above challenges, some studies have already shown that the development in the banking industry, together with share market development, normally has important financial implications, and causes long run-economic growth for individuals, firms, and for the overall country as well.(1)

As a main concern, this study investigates whether the Jordanian economy is considered as a bank or more a market-based economy, reflecting the level of the relative reliance on banks vs. market finance.(2) This study also aims to investigate whether financial structure (levels of bank and stock market developments), together with bank characteristics, has zero impact on bank performance, typified by the banks accounting profits and interest rate margins.

The rest of the study is organized as follows. In Section 2, the study provides an overview of the literature.

(1) See, for example, Demirgue and Levine (1999), Stulz (1999), King and Levine (1993a,b), Levine and Zervos (1998), and Rajan and Zingales (1998).

(2) Both primary and secondary markets are considered.

Section 3 defines the empirical specification, in which the economic rationale, the proxies and initial tests are specified. The sample and data specification are given in Section 4. Section 5 presents the estimation results. We conclude the empirical tests with a summary of the results and their implications in Section 6.

Literature Review

Actually, the performance issue and its influential factors have received a special focus for a while now. Studies in such an area of research rely on different financial and banking hypotheses, among which, earlier research has used the Structure Conducted Performance Hypothesis (SCPH), and has examined the impact of market structure, market concentration in particular, on banks performance.[3] Other studies have used the alternative market structure hypothesis, in which the efficient structure hypothesis and the risk aversion hypothesis are employed to test for banks performance (See Heggestad (1977), Short (1979), Hanson and Rocha (1986), Bourke (1989), Molyneux and Thornton (1992), Stinenherr and Huveneers (1994), and Williams *et al.* (1994).

Further studies have examined the performance issue from both the supply and demand perspective. In their study, Foyston and Almeida (1992) point out that there are fundamental shifts that take place in the banking industry, which are driven by changes in some influential factors that affect supply (radical deregulation, internationalization of local banks and increasing legitimacy of capital markets), as well as changes that affect demand side (rapid economic growth, expanding middle class transaction, and increase in credit consumption). A comprehensive review of determinants of bank performance is offered by Hanson and Rocha (1986), in which they conclude that implicit and explicit taxes, inflation, scale economies, and market structure have a crucial impact on raising banks profitability represented by the banks spreads. By using cross-country data, Bartholdy *et al.* (1997) examine the impact of international differences in bank regulation on banks performance. They show that the existence of explicit deposit insurance lowers the deposit interest rates. By employing a set of bank characteristics and macro indicators,[4] Barth *et al.* (1997)

(3) This hypothesis asserts that banks in highly concentrated markets have a tendency to collude and accordingly earn monopoly returns.

(4) The bank characteristics set include size, leverage, type of business, foreign ownership, while the macro-indicators include taxation, regulatory variables, financial structure variables, in addition to legal and institutional environment indices.

examine the banking powers on banks performance, represented by the banks Return on Equity (ROE). Their results indicate that bank characteristics and macro-indicators all significantly affect bank performance. On the other hand, they show that variations in banking powers, bank concentration and the existence of explicit deposit insurance do not significantly affect the return on the banks equity.

Other studies have focused on the variations among countries in their reliance on banks and their impact on economic growth. In this regard, Demirgue and Levine (1999) conclude that developing countries, in general terms, are shown to have less developed banks and stock markets compared to developed countries. They show that developed countries are market-based countries, while developing countries are bank-based financial systems. They also indicate that the financial sector becomes larger and more active and efficient as countries become richer. However, Stulz (1999) concludes that the development in the banking sector and the stock market causes higher growth at the firm, industry and country level. Furthermore, such development has important implications for performance and long-run economic growth.

In the same vein, Demirguc and Huizinga (2000) point out that countries vary in the extent to which their financial systems are structured. They argue that the movement of the underdeveloped financial systems towards more developed and open financial systems causes a reduction in banks profitability. The impact of financial systems on firm performance and economic growth is analyzed by Bashir (2000) and Levine (2000). For their part, King and Levine (1993 a,b) and Levine and Zervos (1998) provide evidence regarding financial development and economic growth. Further, Rajan and Zingales (1998) show that industries with more reliance on external finance grow more rapidly in countries with developed financial systems compared to those in developing countries.

Regarding the interrelationship between profitability and bank capitalization, Buser *et al.* (1981) examine this issue and conclude that banks generally have an interior optimal capitalization ration in the presense of deposit insurance. The same issue is examined by Caprio and Summers (1993), Stiglitz and Marilou (1996), and Berger (1995), who provide empirical evidence for a positive relationship between profitability and bank capitalization. This leads to the conclusion that well capitalized banks will face lower expected bankruptcy costs for their clients and themselves as well, thus causing less funding costs.

Empirical Specification

This study uses pooled cross-section time series data, in which the linear functional form is applied to investigate the interrelation between measures of bank performance on the one hand, and levels of financial development and financial structure, on the other hand.(5) Based on the general consensus in the literature reviewed on the area of this study, it has been concluded that the relevant functional form for investigation is the linear form. The use of this form is supported by other related studies which reveal that the linear model form is widely used in the literature and produces satisfactory results as any other functional form.(6)

The subsequent analysis starts with the following basic equation:

$$\prod_{it} = f(\Phi_{it}^{*}(.), \gamma_{it}, \varepsilon \qquad (1)$$

Where $\prod_{it}$ is the measure of performance (either before tax profit/ta or spread/ta) for bank (i) at time t.$\Phi_{it}^{*}(.)$ is a function defining bank characteristic variables impacting the desired performance for bank (i) at time t.γ_{it} it is a vector defining indices of financial structure factors, bank and stock market development variables, which have an impact on bank performance.εi: is the residual term that is included to reflect all other influences on bank (i)'s performance.

To examine whether the Jordanian financial system is a bank-based or a market-based system, we use an index of financial structure constructed by Demirgue and Levine (1999), and followed by others such as Demirque and Huizinga (2000). This structure index is the means-removed average of relative size, relative activity and relative efficiency measures. The ratio of the stock market capitalization divided by total deposits is used as a relevant proxy to relative size. The relative activity size is measured by the total value of stock traded divided by the total value of bank credit provided to the private sector. The relative efficiency is measured by comparing the total value of stock traded and average overhead costs of banks to total assets. In all cases, higher values of structure indicate a more market-base financial system, while lower values of structure indicate a more bank-based financial system.

(5) The use of panel data has a number of advantages. First, it provides an increased number of data observations and creates additional degrees of freedom. Second, it incorporates information relating to both cross-section and time series variables, thus causing a reduction in the problems that arise from omitted variables.

(6) See for example, Short (1979), Bourke (1989), and Williams *et al.* (1994). These studies have considered several functional forms and concluded that the linear model produces results as good as any other functional form.

We identify values of the structure variables above the mean as market-based, while values below the mean are considered as bank-based.

For measurement purposes, two measures of bank performance are used. Firstly, the bank profitability, measured as the percentage of net profits before tax to total assets, and, secondly, the bank net interest rate margin, measured as net interest income (spread), relative to total assets. The bank interest spread is defined as the difference between the yield on average interest earning assets and the cost of interest bearing liabilities. The margin, commonly known as the net interest margin, is defined as the difference between interest revenues and interest expenses expressed as percentage of average interest earning assets.(7)

The major motivation for using these performance measures is that such measures reflect both the volume and mix of a bank's assets and liabilities, and cover the costs of the intermediation function. In this regard, the bank net interest rate margin is considered as a summary measure of bank Net Interest Rate of Return (NIRR), and it is a major component of their profitability. A further motivation is that both measures are indicators of the efficiency/inefficiency of the banking system. The reason is that these performance measures drive a wedge between the interest rate received by depositors (affecting the cost of funds for banks) and the interest paid by lenders (affecting the range of profitability regarding the investment products for banks). All will result in the economic growth.

Bank Characteristic Variables

For estimation purposes, the bank characteristic variables include specific balance sheet items that have direct indication of banks earning power and costs. These comprise five bank characteristic variables. First, there is the book equity relative to total assets (EQTA).(8) The literature provides evidence for a significant relationship between this variable and a banks performance. This is attributed to the argument that well performing banks will remain well capitalized, and consequently enjoy better access to less risky sources of funds, causing improvements in the performance measures (controls). Second, we have

(7) Both the spread and the margin are expressed in percentage terms. Loan loss provisions (annual provisions for doubtful debts), are an area of disagreement amongst bankers. Some bankers include the provision as part of interest expense, while others argue that it belongs to other expenses.

(8) This represents the book value of equity (net assets measured as assets minus liabilities) over total assets.

total loans relative to total assets (TLTA). In fact, banks loans represent the major source of returns, and, hence, are expected to have a positive impact on banks performance. However, since most banks loans are provided in a highly competitive and deregulated environment, it is expected (not surprisingly) to find a low impact on banks performance measures.

Third, there are non-interest earning assets divided by total assets (NETA).[9] Since the bulk of bank returns are from interest earning activities, the ratio of (NETA) is expected to have a negative impact on banks performance. Fourth, we have clients and short term funding divided by total assets (CSTA).[10] While this variable represents liquidity, expense, and liability side variable, an increase in holding such liquidity components will have a negative impact on banks performance. As a result, the coefficient of this proxy is expected to be negative. Fifth, there are overhead costs to total assets (OHCT). This measure provides information on variation in bank operating costs across banks. In addition, sometimes it reflects variation in employment as well as wage levels across bank. As in (CSTA), while the OHCT variable represents expense and it is a liability side variable, an increase in such cost component will have a negative impact on banks performance.

Financial Structure Variables

The variables regarding financial structure indicators are classified to include two sets of financial development variables. The first consists of levels of bank developments variables, while the second includes stock market developments variables. The overall set of financial structure variables measures the importance of bank and stock market finance relative to GDP and to each other. It is normally acknowledged that financial structure indicators typified by financial development variables have a crucial impact on bank performance, where it could be argued that underdeveloped financial systems might have significantly higher performance levels typified by the range of bank profits and margins. This could be attributed to what is known as diminishing returns (the benefit from an extra unit of an input decline as the quantity of the input increases) and the catch-up effect (economies that start off poor (under-developed economies) tend to

(9) Non-interest earning assets include cash, non-interest earning deposits due from other and correspondent banks, in addition to other non-interest earning assets.

(10) For the purposes of this study, clients and short term funding comprise current, savings, and investment deposits.

grow more rapidly than economies that start off rich (developed economies)).

In this discussion, it is expected that higher bank development might cause lower bank performance represented by lower profitability and lower interest rate margins, leading to more efficiency due to the increased levels of competition among banks. On the other hand, given lower levels of financial development, a development in the stock market would cause improvements in bank performance (higher bank performance represented by higher profitability and higher interest rate margins), leading to complementarities between banks and stock market. Furthermore, the availability of an information system and relevant distributed information related to firms stocks, in addition to enhancement of the legal and regulatory environment, will provide the possibility to improve the functioning of banks performance.

The motivation behind including levels of bank development variables and levels of stock market development variables is attributed to the fact that these variables provide indicators of market power. Furthermore, these variables reflect the complementation or substitutability between bank and stock market finance, as well.[11] To estimate the financial development impact, relevant size and activity variables are used in order to measure the levels of bank and stock market development, respectively. The size variables include the overall size of the banking industry, which is estimated by the ratio of the total domestic or local deposits divided by GDP (OVSI). This ratio reflects the overall level of the banking industry (sector) development and the overall size of the regulatory authority, measured as the Central Bank total assets divided by GDP (OVRH).

The activity variables include the stock market capitalization divided by GDP (SMCA). This variable measures the extent of stock market development, in which this measure controls the markets ability to allocate capital to the investment projects, in addition to value its capability to

(11) Based on Modigliani and Millers theorem, given the non-existence of taxes and bankruptcy costs, debt and equity are pure substitutes. Furthermore, both debt and equity might be complementary, as modeled by Boyd and Smith (1996). In this regard, as argued by Demirgue and Huizinga (1999), Demirgue and Maksimovic (1996) provide empirical evidence showing that more ability to attract equity capital might improve the borrowing capacity of organizations. This is particularly true in underdeveloped financial markets. In this discussion, development in the stock market, represented by providing the easier opportunity to obtain equity, will enhance the ability for asking for debt financing, indicating that the two sources of fund (finance) are complements.

provide significant risk diversification opportunities for investors. Such capital market is expected to enhance banks performance by improving banks ability to trade their stocks and maximize their capital requirements. Furthermore, such markets provide the chance for banks to meet their liquidity needs and diversify their financing and investing portfolios. As a result, more capital can be translated into higher yields to clients, shareholders and the banks, as well (See Smirlock (1985), Berger (1995), Demirgue and Maksimovic (1996), and Demirgue and Huizinga (1997)). In this respect, while the Jordanian stock market is considered as an emerging market, the market capitalization ratio is expected to be highly significant. Two other activity variables are added to capture the impact of the banking industry and the stock market activities, of which credit to private sector divided by the GDP (CPSE) is used to capture the banking sector activity, while the total value of stock traded divided by the GDP (TVST) is used to capture the stock market activity.[12]

Sample and Data Specification

The study sample is based on eighteen Jordanian commercial, Islamic and investment banks. The sample coverage is approximately a comprehensive one, in which the banks included roughly accounted for 97 percent of all banks assets, banking wide.[13] The sample period spans over a period that encompasses twelve annual financial years, 1990 to 2001. Actually, this period represents an era of a significant challenge, in which bank management attempted to improve and measure their performance while facing several changeable economic conditions, i.e., movement towards deregulation, high inflation, high volatility in interest rates, high variability in structuring and pricing (repricing) traditional and non-traditional banking products, high volatility in foreign exchange rates, and the reduction in demand for some banking products. Most, if not all, of these factors had a significant impact on banks performance. In this regard, the pressures are expected to continue due to deregulation, competition, and increased levels of future uncertainties.

(12) We relate these variables to the GDP in order to capture the effects of GDP on banks performance.

(13) While two Islamic banks are included in the study sample, there was an attempt to include foreign banks in the overall sample. But, unfortunately, due to lack of data they were dropped from the final estimation of the study.

To estimate the empirical version of the model, the time series/cross-sectional sample includes a total of 216 observations. Our data are derived from the published annual reports. Another source of data is the Jordanian Central Banks monthly bulletins and other publications.

Empirical Evidence

On an aggregate basis, the average values for profit and interest rate margins are 2% and 1.5%, respectively. The mean values of bank profitability and bank interest rate margins are relatively low. In principle, the mean values might be misleading, and may not provide an overall accurate valuation, since they do not control for the financial sector development or account for the other determinants related to the performance measure. On a sub-sample basis,(14) non-major banks experienced, on average terms, lower performance measures (profits and margins) compared to major banks. It seems that major banks profits and interest rate margin values are higher compared to non-major banks. This is attributed to possible loan default. The implication of this creates the need to adjust interest rate margins as a response to the fact that banks which charge high interest rates may experience equally high loan default rates.

Non-major banks lower interest rate margins reflect lower operating costs and lower pre-tax profitability. Hence, it is expected that this group tends also to have low overhead costs represented by the banks non-interest expenses. By comparing banks profits for both sub-samples, the higher profitability generated by major banks compared to non-major banks suggests that major banks tend to profit more from inflationary and high-tax environments. Taking the tax environment into account, this study suggests that major banks have the chance to earn higher pre-tax profits in order to pay the higher taxes. This also suggests that major banks are more able to pass on at least part of their taxes expenses to their clients.

In reference to the first objective, given the index of financial structure constructed by Demirgue and Levine (1999) and followed by others such as Demirque and Huizinga (2000), the results show higher values of structure, reflecting a more market-based

(14) The overall sample has been subdivided into two sub-samples named as major and non-major banks. The classification is based on the total average earning assets. Major and non major groups represent higher and lower interest earning assets, respectively.

financial system. Regarding the second objective, Tables 1 and 2, the significance test of coefficients is based on the t-statistics for all coefficients. The t-statistic for all variables indicates that it is different from zero. Therefore, the null hypothesis that bank determinants (financial structure, together with bank characteristics) have a zero impact on bank performance is rejected. The ANOVA output shows the final result for the p-value, which indicates that the null hypothesis of no impact is rejected.

The following section presents empirical evidence for the interrelationship between the bank performance measures and the determining factors within a regression setting. The panel data method is used as an estimation technique, while the Whites heteroscedasticity test is used to test whether there is heteroscedasticity in the data. Table 1 reports the results of the bank profits along the lines of equation (1), in which different specifications are used. Specification 1 estimates the relation between the bank performance as measured by the bank profit as well as measures of bank characteristic variables. Specification 2 estimates the joint impact of both variables categories (bank characteristics and financial structure measures) and the bank performance, as well. Table 2 presents the results of the bank net interest rate margin regression, along the lines of equation (1), including the 2 specifications mentioned earlier. In order to test for the differences among banks, the overall sample has been divided into two subsamples labeled as major and non-major banks. In Table 3, we investigate the differences in means for the two groups of banks.

Bank Characteristic Results

The empirical estimation results are presented in Tables 1 and 2. The results show that the lagged equity variable of EQTA is significant and positive in its relation with banks profits. This indicates that banks with a well-capitalization position face a lower expected default risk, leading to lower probabilities of bankruptcy and bankruptcy costs for the clients and for the banks themselves, as well. This will create the chance of reducing the banks costs of funding. The EQTA result is in line with empirical evidence provided earlier by Buser, *et al.* (1981), Caprio and Summers (1993), Stiglitz and Marilou (1996), Demirgue and Huizinga (1999), and Demirgue and Huizinga (2000). The coefficient of TLTA variable is positive and significant, reflecting the positive impact of the loans portfolio as main interest

earning assets on the interest rate margin. The sign of TLTA variable is positive and insignificant in the before-tax-profit/ta equation, indicating that banks with higher lending levels tend to be more profitable. This confirms earlier findings. Intuitively, higher leverage and higher loans to assets ratios predict higher future profitability.

The non-interest earning assets proxy (NETA) has a negative and insignificant coefficient in the net interest margin equation, and the before-tax-profit/ta equation. The sign presents an indicator that profits appear to decline with a greater proportion of non-interest earning assets relative to total assets. Short-term and consumer funding (CSTA) have not revealed the predicted negative association with bank performance, although this is statistically insignificant. This indicates that this variable does not affect significantly the net interest margin, and does not lower banking profitability. This finding suggests that banks hold low levels of liquidity, causing a positive impact on bank profitability. Furthermore, on

Table 1
Pooled Least Squares (PLS) Estimates of Bank Performance Function: Profits

	Specification 1		Specification 2	
Variable[1]	**PLS**	**t-Stat.**	**PLS**	**t-Stat.**
Intercept	0.016	2.506***	0.020	1.166
Coefficients estimates[2]				
EQTA	0.905	9.682***	0.873	8.765***
TLTA	0.013	0.586	0.014	0.600
NETA	-0.023	-0.072	- 0.010	- 0.028
CSTA	0.266	0.796	.320	0.877
OHCT	-0.261	-2.836***	-0.271	-2.749***
OVSI			-0.012	-0205
OVRH			0.031	1.264*
SMCA			0.001	0.027
CPSE			-0.009	-0.144
TVST			0.022	0.591
Adjusted R^2	0.897			0.896
SEE	0.043			0.024
P value	0.000			0.000

(1) Dependent variable (before-tax-profit/ta).

(2) One asterisk (*) indicates significance at 10% level, two asterisks (**) indicate significance at 5% level, and three asterisks (***) indicate significance at 1% level.

average, clients and short term funding may carry a low interest cost, but they are costly in terms of the required branching network.

The overhead proxy (OVHC) has a negative and significant impact on banks performance. This finding suggests that banks, in general terms, have not got the capability to fully (not partially) pass over their non-interest expenses to their clients in the form of lower deposits rates and/or higher lending rates. This indicates that banks experience higher levels of competition and expanded levels of deregulation. It also reflects variation among banks toward employment as well as wage levels. There are differences in the overhead, reflecting differences in bank businesses and product mix, as well as variation in the range and quality of services. The OVHC estimated coefficient in the net interest margin regression suggests that part of a banks overhead costs is passed to the banks clients (depositors and lenders).

Table 2
Pooled Least Squares (PLS) Estimates of Bank Performance Function: Interest Rate Margins

	Specification 1		Specification 2	
Variable[1]	**PLS**	**t-Stat.**	**PLS**	**t-Stat.**
Intercept	0.003	3.783***	0.001	0.166
Coefficients estimates[2]				
EQTA	0.006	0.478	0.003	0.289
TLTA	0.088	1.824**	0.082	1.641**
NETA	1.013	6.156***	1.096	6.486***
CSTA	-0.646	-3.738***	-0.683	-3.744***
OHCT	0.540	11.325***	0.501	10.186***
OVSI			0.013	0.450
OVRH			0.005	0.439
SMCA			0.044	3.747***
CPSE			-0.023	-0.737
TVST			0.026	1.49*
Adjusted R^2	0.972			0.974
SEE	0.007			0.007
P value	0.0000			0.000

(1) Dependent variable (spread/ta).

(2) One asterisk (*) indicate significance at 10% level, two asterisks (**) indicate significance at 5% level, and three asterisks (***) indicate significance at 1% level.

Financial Structure Results

Due to the fact that pre-tax-profit is equal to net interest income plus non-interest income, all minus overhead and loss provision expenses, the two measures of performance are interrelated. It seems that the interest margin measure, as a performance proxy, reflects how financial structure impacts the banks clients including depositors and lenders, more than impacting the bank itself. In fact, levels of bank development and stock market development variables (including size and activity variables) show negative but a statistically significant impact on banks profits. This suggests that banks have reached lower levels of profitability due to the expanded deregulation process and the increased level of competition among the members of the banking industry.

The OVSI proxy has a negative impact on bank profitability and a positive impact on interest rate margins, although this is statistically insignificant. This suggests higher levels of intense competition among banks, particularly in improved financial systems that have, to some extent, developed banking industry. Examining the impact of OVSI proxy major-and non-major banks, we observe a smaller effect on major banks compared to non-major banks. The (OVRH) has a positive coefficient, although it is statistically insignificant on banks profits. This indicates a high level of regulatory supervision (activity), reflecting lower (private) financial system development. This result is in line with previous evidence presented by Demiguc and Levine (1999).

The proxy of SMCA variable has a positive and significant impact on the interest rate margin measure. This implies that stock market development creates the chance for banks to gain a higher level of interest margin and higher level of profitability, which supports what has been stated earlier regarding the complementaritys effect debt and equity financing (see footnote 7). More precisely, in reference to the efficient market hypothesis, it could be argued that more developed stock market (more efficient market) will be reflected positively on the flow and availability of information to the market participants. This will maximize the potential pool of borrowers, indicating more monitoring ability and capability for banks toward most borrowing clients. This will increase the banks businesses, leading to higher level of interest rate margin and higher profitability. The low explanation

power suggests that larger stock market relative to the banking sector lowers the banks interest rate margins. This, also, supports the substitution possibility between debt and equity.

The CPSE proxy has a negative impact on bank profitability and interest rate margins, although statistically insignificant. This result indicates that high bank credit to GDP ratio reflects high demand for banking services fueling competition among banks. The TVST variable obtains a significant impact on the interest rate margin measure. The impact is positive on both - the margins and profitability. The impact on bank profitability might give a general impression that we no longer identify a significant effect of TVST on banks profits.

This finding suggests that controlling the level of the banking industry development together with well developed stock markets will lead to higher profits opportunities toward banks. In fact, as mentioned above, developed stock market normally causes an increase in banks profits. This behavior is explained by the fact that with developed stock markets, banks will be allowed to be better capitalized, causing a risk reduction of loan default. A further explanation is that a high or well-developed stock market would provide more information availability on most publicly traded organizations, leading to enhanced assessment opportunity to banks to evaluate credit risks. This finding provides evidence that would lead to higher relative levels of bank profits, although Jordan is considered as more market-based financial structure.

Based on the sub-sample level (Table 3 and Table 4 below), it seems that the relatively higher levels of profits and margins tend to be relatively high in non-major banks regardless of the financial structure. Furthermore, it seems that interest rate margins and profits decline significantly as the financial systems become more developed. This result implies that financial structure is specifically important at lower levels of economic development. As a general impression, it appears that the set of financial structure variables has a more significant effect on bank interest rate margins, but are less significant to bank profitability. This indicates that such variables have a greater influence on banks loan and deposit clients compared to other banking services clients.

Table 3
Pooled Least Squares (PLS) Estimates of bank Performance - Category Basis Function: Profits and Interest Rate Margins

	Major Banks			
	Profits		Margins	
Variable[1]	PLS t-Stat.	PLS t-Stat.	PLS t-Stat.	PLS t-Stat.
Intercept	0.003	0.024	0.002	0.004
	(0.238)	(1.167)	(2.060)**	(0.557)
Coefficients Eestimates[2]				
EQTA	0.013	0.577	0.013	0.049
	(0.524)	(4.459)***	(0.025)	(2.221)**
TLTA	0.915	0.881	0.017	0.012
	(9.304)***	(8.222)***	(0.325)	(0.213)
NETA	0.066	0.042	0.591	0.711
	(1.077)*	(0.116)	(3.069)***	(3.467)***
CSTA	0.214	0.284	-0.260	-0.306
	(0.611)	(0.713)	(-1.315)*	(-1.411)*
OHCT	-0.261	-0.275	0.646	0.575
	(-2.700)***	(-2.556)***	(12.190)***	(10.191)***
OVSI		-0.047		- 0.005
		(1.231)*		(0.172)
OVRH		-0.032		0.009
		(-1.230)*		(0.694)
SMCA		-0.016		-0.024
		(-0.357)		(-1.302)*
CPSE		-0.020		-0.026
		(-0.442)		(-1.324)*
TVST		0.018		0.029
		(0.443)		(1.491)*
Adj. R^2	0.899	0.897	0.976	0.978
SEE	0.025	0.026	0.006	0.006
F	0.000	0.000	0.000	0.000

(1) Dependent variable (before-tax-profit/ta and spread/ta).

(2) One asterisk (*) indicates significance at 10% level, two asterisks (**) indicate significance at 5% level, and three asterisks (***) indicate significance at 1% level.

Table 4
Pooled Least Squares (PLS) Estimates of bank Performance - Category Basis Function: Profits and Interest Rate Margins

	Non Major Banks			
	Profits		Margins	
Variable[1]	PLS t-Stat.	PLS t-Stat.	PLS t-Stat.	PLS t-Stat.
Intercept	0.002	0.039	0.002	0.004
	(0.401)	(1.280)*	(2.242)**	(0.557)
Coefficients Eestimates[2]				
EQTA	0.014	0.577	0.003	0.015
	(0.497)	(4.459)***	(0.25)	(0.268)
TLTA	0.971	0.667	0.024	0.024
	(7.735)***	(4.178)***	(0.469)	(0.341)
NETA	0.542	0.342	0.792	0.565
	(1.077)**	(0.606)	(3.785)***	(2.307)***
CSTA	-0.141	-0.252	-0.340	-0.139
	(-0.274)	(-0.428)	(-1.594)*	(-0.543)
OHCT	-0.437	-0.389	0.520	0.530
	(-2.989)***	(-2.622)***	(8.554)***	(8.213)***
OVSI		0.049		0.007
		(1.321)*		(0.441)
OVRH		-0.051		0.004
		(-1.619)**		(0.291)
SMCA		.002		0.024
		(0.004)		(1.302)*
CPSE		-0.020		-0.026
		(0.442)		(1.324)***
TVST		-0.004		-0.016
		(-0.117)		(-1.059)*
Adj. R^2	0.902	0.916	0.983	0.984
SEE	0.030	0.028	0.006	0.007
F	0.000	0.000	0.000	0.000

(1) Dependent variable (before-tax-profit/ta and spread/ta).

(2) One asterisk (*) indicates significance at 10% level, two asterisks (**) indicate significance at 5% level, and three asterisks (***) indicate significance at 1% level.

Conclusions and Implications

The preceding empirical test allows us to shed some light on the relationship between banking characteristics, and financial structure variables, on the one hand, and measures of banks performance, on the other hand. It is obvious that banks performance measures respond significantly to the increase in capital and loan ratios, reflecting the fact that adequate capital ratios and loan portfolios present empirical evidence for explaining performance measures. The results show that well- capitalized banks have higher net interest rate margins and more profitability. This implies that banks with higher capital ratios tend to face lower funding costs due to the lower probability of failure or bankruptcy costs. This result also implies that banks with higher equity capital needs a smaller amount of borrowing funds in order to finance or support a given level of assets.

The regression coefficients of the financial structure variables, including levels of banks and stock market developments, indicate that they, with more competitive banking industry, where total banks assets constitute a larger proportion of GDP, have lower interest rate margins and lower profitability. The results also indicate that more bank development leads to lower profits and margins. This implies that more bank development creates a tougher competition, causing higher efficiency, and hence lower profits and lower interest rate margins. In this respect, the results reveal that larger stock market capitalization to GDP has a positive influence on banks net interest margins and banks profitability. This implies possible complementation between equity and debt financing. A larger stock market capitali-zation to bank assets, together with a negative coefficient sign in relation to banks interest rate margins, supports the fact that well developed stock market can serve as a relevant substitute for bank finance.

More precisely, in reference to the stock market development impact, the results provide evidence that more stock market development lead to higher profits and margins, reflecting the complementarities between bank and stock market developments. As mentioned in earlier discussion, the improvement in the stock marker would enhance the efficiency of the banking industry. This is justified by the availability of the equity financing of firms, causing an increase in the firms borrowing capacity. Furthermore, improved stock market will provide more capability for banks to engage in a better credit risk valuation, due to the availability of easier and more relevant information provided by the stock market. The over-

head result suggests that income tax appears to be not passed on fully (not partially) to bank customers. This finding is consistent with the notion that bank stock investors require net of firm tax returns independent of the level of corporate taxation. The finding also implies that corporate income tax on banks is likely to distort the underlying investment and saving decisions.

Regarding the differences among major and non-major banks activities, the results indicate that non-major banks have relatively high non-interest earning assets, and hence are less profitable. The lower profitability of non-major banks is attributed to the heavy reliance on deposits, which need more branching and other expenses, as main funding sources. In addition, the results show that major banks have higher profits and interest rate margins, particularly under the case of less developed or emerged financial systems (markets). Nevertheless, major banks tend to have higher interest rate margins and higher levels of profitability. This is attributed to the banks concentration ratio, in addition to the benefits generated by major banks from economies of scale and economies of scope. However, the results indicate that non-major banks have more variation in overhead costs (non-interest costs) and that other operating expenses create more variation toward non-major banks interest rate margins and profitability. This result implies that non-major banks have less power to pass over their overhead costs and other operating costs to their clients, by charging more interest lending rates and/or paying less deposit interest rates.

Based on the results from this study, banks are advised to review the determinants of their performance by focusing on explicit and implicit taxes, inflation, explicit deposit insurance, scale economies and market structure. Further, given the evidence under which banks performance measures respond significantly to increase in capital and loan ratios, banks are asked to insure their full compliance with the capital adequacy guidelines.

Given the fundamental shifts that took place in the banking industry, particularly those affecting supply, i.e., deregulation, internationalization and capital markets developments, and those that have an impact on demand, i.e., rapid economic growth, expanding middle class transactions, and increase in credit consumption, banks are asked to provide more focus to their capital. This can be essential given the fact that banks with higher capital ratios tend to face lower funding costs due to lower probability of bankruptcy costs.

Regulators are advised to provide more concern toward the link between the development in the banking sector and developments in the stock market. Such an increased concern will be highly beneficial in order to: (1) achieve higher growth rates at the firm industry and country levels, (2) achieve long-run economic growth, and, (3) achieve possible complementation between equity and debt financing. Using the evidence of the positive relationship between banks profitability and capitalization, regulators are advised to provide more focus to banks capitalization, as well-capitalized banks will face lower expected bankruptcy costs, thus leading to lower funding costs.

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الملخص

خصائص البنك، الهيكلية المالية، وأداء البنك

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هدفت هذه الدراسة إلى اختبار درجة اعتمادية الاقتصاد الأردني على السوق المالي مقارنة بالسوق المصرفي، كما هدفت إلى اختبار أثر الهيكلية المالية والخصائص البنكية على الأداء المصرفي، ممثلاً بالربح المحاسبي وهامش سعر الفائدة. أظهرت النتائج استجابة ذات دلالة إحصائية للأداء المصرفي تجاه الزيادة في نسب رأس المال والديون؛ لتعكس أهمية ملاءمة نسب رأس المال ومحافظ الديون على الأداء المصرفي. دلت النتائج على أن البنوك ذات مستويات رأس المال العالية تواجه مستويات أدنى من تكاليف التمويل بوصفها استجابة لانخفاض احتمالية تكاليف الإفلاس. أظهرت النتائج المتعلقة بالهيكلية المالية انخفاض مستويات هامش سعر الفائدة والربحية، وهو الأمر الذي يعزى إلى زيادة مستويات البيئة التنافسية في السوق المصرفي الأردني. أظهرت النتائج أيضاً أن البنوك غير الرئيسة قد حققت مستويات أقل من الأداء، وهو ما يعكس مستويات أقل من تكاليف التشغيل والتكاليف الإضافية. دلت هذه النتيجة على اعتمادية أكبر للبنوك غير الرئيسة تجاه الودائع بوصفها مصدر للتمويل، ويمكن من خلال ذلك استنتاج أن مستويات الأداء للبنوك الرئيسة ستكون أفضل في الظروف التضخمية والبيئة الضريبية المرتفعة، ويعكس ذلك قدرة هذه البنوك على تحميل جزء من التكاليف الضريبية والتكاليف الإضافية إلى عملائها.

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