

# Impact of Managerial Factors on Commercial Bank Profitability: Empirical Evidence from Jordan

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**Abstract** *The objective of this paper is to determine the management controllable factors that determine bank's profitability of the Jordanian commercial banks listed in Amman Stock of Exchange (ASE). For this, the bank-specific variables are derived from the income statements and the balance sheets of commercial banks published in ASE. Excluding Islamic banks, thirteen Jordanian commercial banks listed in ASE since 2000 were selected (91 observations) over the 2005-2011 intervals. This paper uses descriptive analysis (includes the mean, minimum, maximum, median and standard deviation), financial ratios analysis, Pearson correlation analysis, regression analysis, analysis of variance (ANOVA) and the natural logarithm to implicate the results with the hypotheses. The factors taken into consideration are Profitability measured by ROA, measured by Cost efficiency CIR, measured by Liquidity LADST, measured by Credit Composition measured by NCTA, Credit Risk measured by PRCF, Capital adequacy measured by TETA and the Bank Size measured by SZE. The major outcome of this study is that the cost income ratio is the major endogenous factors under the control of management that determines the profitability of the commercial banks in Jordan. Other variables, such as LADST, NCTA, PRCF, TETA and SZE did not show any statistical effect on profitability.*

**Key words** *Managerial Factors, Cost efficiency, Liquidity, Credit Risk, Capital adequacy*

DOI: 10.6007/IJARAFMS/v3-i3/203

URL: <http://dx.doi.org/10.6007/IJARAFMS/v3-i3/203>

## 1. Introduction

The profitability became one of the challenges faced by the commercial banks to strengthen their financial positions in order to meet the risks associated with openness and globalization. A profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. The determinants of profitability are well observed and explored, as it is increasingly important to strengthen the foundations of domestic financial system as a way to buildup flexibility for capital flow volatility. The profitability of commercial banks is affected by Managerial (internal) and Environmental (external) factors. Managerial factors are affected by management decisions and goals to be achieved by the management of the bank; such as capital ratio, credit risk, productivity growth and size of the bank performance. Environmental factors are affected by external forces such as financial market structure, trade interdependence, economic growth, inflation, market interest rates and ownership structure. In this context, the importance of this study is to identify the managerial factors that affect commercial banks profitability in general, and Jordanian banks in particular.

This paper contributes to literature in a unique way. The dataset, made up of thirteen Jordanian commercial banks (91 observations) consist of 81.3% of banks listed in Amman Stock Exchange (ASE). This enhances the generalization of our result to all the banks operating in Jordan. The rest of the paper is divided as follows:

- Highlights on the Jordanian banking sector;
- Review of related literature;
- Methodological issues are discussed;

- Presentation of the data and results are then analyzed;
- Hypotheses summary;
- Conclusions and Implications.

## 2. Overview on the Jordanian Banking Sector

Commercial banks play a key role in Jordan by pushing forward the economic growth rates, through the mobilization of national savings and using them to finance productive economic sectors. Jordanian banking sector has witnessed significant developments during the period 2005 -2011. These developments can be attributable to the Central Bank of Jordan (CBJ) supervisory and regulatory roles, as well as following the latest global financial practices were implemented to develop and upgrade the banking sector performance in Jordan. The period 2005-2011 witnessed a forced consolidation exercise with a regulatory option of mergers and acquisitions. This exercise brought about a landmark change in the number of Jordanian banks as the banking system is comprised, (as of the end of 2011) of **26** banks, with a combined total of **695** branches spread across the Kingdom (CBJ annual report 2012). The CBJ classifies the banks into two major categories; namely National Banks and Branches of Foreign Banks. Each of these categories is further divided into Commercial Banks and Islamic Banks. Nonetheless, the services provided by the banking sector remain relatively immature, and therefore offer a wide range of opportunities for expansion, rendering the sector attractive to new entrants. The removal of restrictions by the Central Bank of Jordan, which hindered the entry of new banks to the market, brought **five** new banks to begin its operations in the Kingdom. In spite of the CBJ permitting the entry of new banks to the sector, it has made efforts to nudge the existing banks into consolidation through mergers or acquisitions, by raising the minimum paid-up capital requirement for local banks to JD100 million. It is therefore important to understand the determinants of banking sector profitability in Jordan. This is essentially important in the light of the above notable changes that have occurred in the operating environment of the banks in Jordan. In this sense, the efficient functioning of the commercial banks has become one of the main objectives of financial reforms.

From table 1 it can be observed that at the end of Dec 2011, total bank assets grew by 86.3% compared to the end of 2007, reaching JD 39,275.3 million. Moreover, bank deposits increased by 79.4% during the same period to reach JD 6816.0 million. Bank credit to the private sector increased by 384.1 % to JD 9030.8 million. Banks are well capitalized and the total amount of capital and reserves increased by 43.4 % during the same period to reach JD 637.4 million at the end of 2011. The Capital Adequacy Ratio (CAR) measures the extent of capital adequacy retained by the bank to absorb unexpected losses or risks involved. The CAR during the period 2005 -2011 averaged to 19.63%, the ratio maintained a comfortable margin well above 12%, which is the least required ratio in Jordan, and 8%, which is the minimum ratio set by the Basel Committee. This noticeable rise was mainly due to the increase in banks' capital and the high profits attained by most banks during the study period. Attaining such high levels of the CAR is a positive sign that the banks in Jordan hold sufficient capital to hedge against risks, which enhances the financial stability in Jordan. Despite the repercussions of the global financial crisis and its adverse impacts on banks' profits in most countries of the world, it is clear from table 1 that Jordanian banks are doing well in the issue of profitability, the return on assets ratio(ROA), and return on equity ratio(ROE) averaged at 1.43% and 12.27% respectively during the study period.

Table 1. Key Banking Indicators in Jordan

	Total Assets (million JD)	Total Credit (million JD)	Total Deposits (million JD)	Total Capital (million JD)	CAR	ROE	ROA
<b>2005</b>	21,086.5	1865.4	3799.9	444.4	17.6%	20.9%	2.0%
<b>2006</b>	24,237.6	2312.4	3877.2	477.8	21.4%	15.0%	1.7%
<b>2007</b>	26,815.6	3077.4	4144.1	526.7	20.8%	12.6%	1.6%
<b>2008</b>	29,796.6	4353.1	4732.0	561.1	18.4%	11.5%	1.4%
<b>2009</b>	31,956.9	5203.4	5290.0	780.9	19.6%	8.8%	1.1%
<b>2010</b>	34,973.1	5686.3	5992.2	665.8	20.3%	8.8%	1.1%
<b>2011</b>	39,275.3	9030.8	6816.0	637.4	19.3%	8.30%	1.10%
<b>average</b>	29,734.5	4,504.1	4,950.2	584.9	19.6%	12.3%	1.43%

growth rate	86.3%	384.14%	79.4%	43.4%	9.7%	-60.3%	-45.0%
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Throughout the above analysis, it could be concluded that most of the improvements in the banking industry were attributable to market conditions and the structural factors such as the advanced technology and competitive behavior. These conditions transformed the banking industry to become more open and more competitive causing an overall enhancement in the macroeconomic performance.

### 3. Literature Review

Determinants of bank profitability have received much attention from academic researchers. This section provides the overview of previous studies reviewed related to the determinants of the profitability of banks. Some studies were country specific and few of them considered panel of countries for reviewing the determinants of profitability.

Abuzar (2013) explored the determinants of profitability of Islamic banks in Sudan. The study found that only the internal factors to these banks have a significant impact on banks' profitability, as measured by return on assets (ROA), return on equity (ROE), and net financing margin (MARG). More specifically, cost, liquidity, and size of the bank are found to have positive and significant effects on profitability. However, external macroeconomic factors are classified as redundant and have no significant effects on profitability.

Yilmaz et al. (2013) analyzed profitability and its determinants for nine emerging countries including Turkey. The results reveal that operating expenses management, capitalization, credit risk, bank size and inflation are important determinants for both, return on asset and net-interest margin dependent variables.

Zeitun (2012) measured some influential factors (foreign ownership, banks-specific variables, and macroeconomic factors) on Islamic and conventional banks in Gulf Cooperation Council (GCC) countries, during the period 2002-2009. The results show that a bank's equity is important in explaining and increasing conventional banks profitability only. The cost-to-income had a negative and significant impact on Islamic and conventional banks performance. Additionally, the estimated effect of size provides evidence of economies of scale in Islamic banking using the ROE, while it is not significant for conventional banks. Foreign ownership, however, does not improve Islamic and conventional banks performance. Furthermore, bank's age and banking development have no effect on bank performance. Finally, GDP is positively correlated to bank's profitability, while inflation is negatively correlated to bank's profitability.

Ani, Ugwunta, Ezeuduand Ugwuanyi (2012) investigated the determinants of the profitability of deposit money banks in Nigeria. Major outcomes of the study include that increase in size (higher total assets) may not necessarily lead to higher profits due to diseconomies of scale; higher capital-assets ratio and loans and advances contribute strongly to bank profitability. Overall, the paper suggests bank size, capital and asset composition as the major endogenous determinants of bank profitability in Nigeria.

Syafri (2012) analyzed the factors that affect the profit of commercial banks in Indonesia. The empirical results show that loan to total assets, total equity to total assets, loan loss provision to total loan have positive effect on profitability, while inflation rate, the size of bank and cost-to-income ratio (BOPO) have negative effect on profitability. Economic growth and non-interest income to total assets have no effect on bank profitability.

Uremandu (2012) presented empirical evidence of the effect of bank capital structure and liquidity on profitability using Nigerian data for the period 1980-2006 studied. The study found a positive influence of cash reserve ratio, liquidity ratio and corporate income tax; and a negative influence of bank credits to the domestic economy, savings deposit rate, gross national savings (proxy for deposits with the central bank), balances with the central bank, inflation rate and foreign private investments, on banking system profits. It also observed that liquidity ratio leads banks' profits in Nigeria, closely followed by balances with the central bank and then, gross national savings and foreign private investments, followed suit in that order. The study recommended a drastic reduction in balances with central bank, liquidity ratio and cash reserve ratio profiles by the monetary authorities to enable banks create adequate credits and release more money into circulation for effective financial intermediation to occur; ensure effective and efficient management of bank liquidity by banks to moderate levels so as to optimize profitability, and curb perennial unethical banking practices such as directly engaging in trading, importation and exportation of goods, and other speculative deals, instead of lending to the domestic economy.

Ramadan, Kilani and Kaddumi (2011) investigated the nature of the relationship between the profitability of banks and the characteristics of internal and external factors. Results showed that the Jordanian bank's characteristics explain a significant part of the variation in bank profitability. High Jordanian bank profitability tends to be associated with well-capitalized banks, high lending activities, low credit risk, and the efficiency of cost management. Results also showed that the estimated effect of size did not support the significant scale economies for Jordanian banks. Finally, the estimation results indicated that individual effects on the profitability are present; this is concluded due to the fact that some of the differential slope coefficients are statistically significant.

Alpera and Anbar (2011) examined the bank-specific and macroeconomic determinants of the banks' profitability in Turkey over the time period from 2002 to 2010. The results showed that asset size and non-interest income have a positive and significant effect on bank profitability. However, size of credit portfolio and loans under follow-up have a negative and significant impact on bank profitability. With regard to macroeconomic variables, only the real interest rate affects the performance of banks positively. These results suggest that banks can improve their profitability through increasing bank size and non-interest income, decreasing credit/asset ratio. In addition, higher real interest rate can lead to higher bank profitability.

Javaid, Anwar and Abdul Gafoor(2011) aimed to give the analysis of the determinants of top 10 banks' profitability in Pakistan over the period 2004-2008. The study focused on the internal factors only. They used the Pooled Ordinary Least Square (POLS) method to investigate the impact of assets, loans, equity, and deposits on one of the major profitability indicator return on asset (ROA). The empirical results have found strong evidence that these variables have a strong influence on the profitability. However, the results show that higher total assets may not necessarily lead to higher profits due to diseconomies of scales. Also, higher loans contribute towards profitability but their impact is not significant. Equity and Deposits have significant impact on profitability.

Kumbirai and Webb (2010) investigated the performance of South Africa's commercial banking sector for the period 2005- 2009. The study found that overall bank performance increased considerably in the first two years of the analysis. A significant change in trend is noticed at the onset of the global financial crisis in 2007, reaching its peak during 2008-2009. This resulted in falling profitability, low liquidity, and deteriorating credit quality in the South African Banking sector.

Hamiltona, Qasrawiband Al-Jarrah (2010) aimed to measure and analyze cost and profit efficiency in the Jordanian banking sector over the period 1993-2006 using a parametric approach, stochastic frontier analysis. The results obtained from this research show (i) the existence of profit efficiency levels well below those corresponding to cost efficiency and (ii) alternative profit efficiency being below standard profit efficiency. These results imply either the existence of market power in the Jordanian banking sector with respect to the setting of prices and/or the existence of differences in the quality of bank outputs, reflected in the differences in prices. Additionally, the research shows that while Islamic banks are less cost efficient than commercial and investment banks, they are more profit efficient.

Kosmidou(2007) examined how a bank's specific characteristics and the overall banking environment affect the profitability of commercial domestic and foreign banks operating in the 15 EU countries over the period 1995–2001. The results indicate that profitability of both domestic and foreign banks is affected not only by bank's specific characteristics but also by financial market structure and macroeconomic conditions. All the variables, with the exception of concentration in the case of domestic banks profits, are significant although their impact and relation with profits is not always the same for domestic and foreign banks.

Athanasoglou , Delis, and Staikouras (2006) found that, with the exception of liquidity, all bank-specific determinants significantly affect bank profitability in the anticipated way. More over he found that the effect of concentration is positive, which provides evidence in support of the structure-conduct-performance hypothesis, even though some ambiguity arises given its interrelationship with the efficient-structure hypothesis. In contrast, a positive relationship between banking reform and profitability was not identified, whilst the picture regarding the macroeconomic determinants is mixed. The paper concludes with some remarks on the practicality and implements ability of the findings.

Sudin Haron (2004) Found that internal factors such as liquidity, total expenditures, funds invested in Islamic securities, and the percentage of the profit-sharing ratio between the bank and the borrower of funds

are highly correlated with the level of total income received by the Islamic banks. Similar effects are found for external factors such as interest rates, market share, and size of the bank. Other determinants such as funds deposited into current accounts, total capital and reserves, the percentage of profit-sharing between bank and depositors, and money supply also play a major role in influencing the profitability of Islamic banks.

Goddard et al. (2004) found that despite intensifying competition there was significant persistence of abnormal profit from year to year. Their results suggests that evidence for any consistent or systematic size–profitability relationship is relatively weak; the relationship between the importance of off-balance-sheet business in a bank’s portfolio and profitability is positive for the UK, but either neutral or negative elsewhere. Furthermore the relationship between the capital–assets ratio and profitability was positive.

Naceur (2003) found that: first individual bank characteristics explain a substantial part of the within-country variation in bank interest margins and net profitability. High net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital, and with large overheads. Other important internal determinants of bank’s interest margins bank loans which have a positive and significant impact. The size has mostly negative and significant coefficients on the net interest margins. The latter result may simply reflect scale inefficiencies. Secondly, the paper finds that the macro-economic indicators such as inflation and growth rates have no impact on bank’s interest margins and profitability. Thirdly, turning to financial structure and its impact on bank’s interest margin and profitability, the study finds that concentration is less beneficial to the Tunisian commercial banks than competition. Stock market development has a positive effect on bank profitability. This reflects the complementarities between bank and stock market growth. We have found that the disintermediation of the Tunisian financial system is favorable to the banking sector profitability.

Bashir (2003) found that high capital-to-asset and loan-to-asset ratios lead to higher profitability. The results also indicated that foreign-owned banks are likely to be profitable. Everything remaining equal, the regression results showed that implicit and explicit taxes affect the bank performance and profitability negatively while favorable macroeconomic conditions impact performance measures positively. Results also indicated that stock markets and banks are complementary to each other.

#### 4. Research methodology

The objective of this paper is to determine the management controllable factors that determine bank’s profitability of the Jordanian commercial banks listed in Amman Stock of Exchange (ASE) using industrial data set from 2005 to 2011. This study investigated the nature of the relationship between the profitability of banks and the characteristics of internal factors affecting profitability of banks. For the purpose of this study Descriptive analysis (includes the mean, minimum, maximum, median and standard deviation), Financial Ratios Analysis, Pearson Correlation Analysis, Regression Analysis, Analysis of variance (ANOVA), and the natural logarithm were applied to test the hypotheses.

##### 4.1. Research variables

Explanation of dependent variable (profitability) and independent variables (internal factors) along with their proxies are specified in Table 2.

$$ROA = \beta_0 + \beta_1 CIR + \beta_2 LADST + \beta_3 NCTA + \beta_4 PRCF + \beta_5 TETA + \beta_6 BSZ + \varepsilon \quad (1)$$

Where: ROA represents Return on Asset.  
CIR represents Cost efficiency.  
LADST represents Liquidity.  
NCTA represents Credit Composition.  
PRCF represents Credit Risk.  
TETA represents Capital adequacy.  
SZE represents the size of the bank.  
 $\varepsilon$  = Error term.

Table 2. Explanation of dependent and independent variables along with their proxies

Variables	Ratio	Symbol	Equations
Profitability	<i>Return on Assets</i>	<b>ROA</b>	<i>net profit/total assets</i>
Cost efficiency	<i>Cost to Income</i>	<b>CIR</b>	<i>total cost /total income</i>
Liquidity	<i>Liquid Asset to Customer Deposit and Short Term Borrowed Funds</i>	<b>LADST</b>	<i>Liquid Asset /Customer Deposit and Short Term Borrowed Funds</i>
Credit Composition	<i>Net Credit to Total Assets Ratio</i>	<b>NCTA</b>	<i>Net Credit/Total Assets Ratio</i>
Credit Risk	<i>(Provision for Credit Facilities + Interest in Suspense) to Credit Facilities</i>	<b>PRCF</b>	<i>(Provision for Credit Facilities + Interest in Suspense)/Credit Facilities</i>
Capital adequacy	<i>Total equity to total assets</i>	<b>TETA</b>	<i>Total equity/total assets</i>
Banks Size	<i>logarithm of total assets</i>	<b>SZE</b>	<i>Natural logarithm of total assets</i>

#### 4.2. Hypothesis

This study seeks to test the following hypothesis:

- H1: There is a negative relationship between Cost efficiency and profitability.
- H2: There is a negative relationship between Liquidity and profitability.
- H3: There is a positive relationship between the Credit Composition and profitability.
- H4: There is a negative relationship between credit risk and profitability.
- H5: There is a positive relationship between the Capital adequacy and profitability.
- H6: There is a positive relationship between the size of bank and profitability.

#### 4.3. Study sample

The sample will cover all local Jordanian banks listed in ASE since 2000. In this context, Islamic banks were excluded because of their specific-characteristics, a sample of thirteen Jordanian commercial banks (91 observations) over the 2005-2011 interval were used to investigate the managerial factors that affect commercial bank profitability in Jordan.

#### 4.4. Data Collection

The present study has been undertaken to examine the empirical relationship between stock prices and selected internal factors variables (book value per share, dividend per share, earning per share, price earning ratio, dividend payout, size in terms of total assets) for the period 2005-2011. Data have been derived from the income statements and the balance sheets of the listed banks published in the ASE and CBJ. In addition, data was gathered from Books, papers, articles and Specialized International Journals.

### 5. Results

#### 5.1. Descriptive Statistics and Ratio Analyses

Table 3 shows the descriptive analysis of the dependent variable profitability and the independent variables. It includes the mean, minimum, maximum, median, and the standard deviation of the selected banks.

Table 3. Descriptive analysis of all the dependent variable and the independent variables

	ROA	CIR	LADST	NCTA	PRCF	TETA	SZE
2005	2.54%	40.68%	52.93%	42.86%	11.92%	13.02%	8.98
2006	1.81%	43.22%	49.12%	41.43%	358.58%	13.81%	9.05
2007	1.51%	50.99%	48.42%	46.37%	7.17%	14.31%	9.11
2008	1.58%	50.99%	39.19%	49.80%	6.04%	14.79%	9.14
2009	1.18%	60.18%	37.44%	45.82%	7.15%	14.57%	9.18
2010	1.31%	58.59%	34.71%	45.86%	8.12%	14.50%	9.21

	ROA	CIR	LADST	NCTA	PRCF	TETA	SZE
<b>2011</b>	1.12%	65.64%	31.50%	46.35%	9.41%	14.57%	9.23
<b>Mean</b>	1.58%	52.90%	41.90%	45.50%	58.34%	14.22%	9.13
<b>Median</b>	1.49%	54.11%	42.44%	45.53%	6.42%	14.44%	9.07
<b>Minimum</b>	-0.17%	15.29%	19.28%	0.28%	0.47%	7.70%	8.21
<b>Maximum</b>	4.97%	102.96%	63.49%	60.28%	4564.56%	20.66%	10.38
<b>Std. Deviation</b>	0.75	15.03	10.33	8.85	477.67	3.01	0.48

ROA shows the ability of management to acquire deposits at a reasonable cost and invest them in profitable investments (Ahmed, 2009). This ratio indicates how much net income is generated per JD of assets. The higher the ROA, the more the profitable is the bank. ROA is the ratio of net income to total assets. For any bank, ROA depends on the bank as well as the uncontrollable decisions related to economic conditions and government policies (Sufian, 2011). It is clear from table 3 that despite the repercussions of the global financial crisis and its adverse impacts on banks' profits in most countries of the world, the ROA of the commercial banks operating in Jordan has obtained mean (median) 1.58% (1.49%) over the study period. This ratio was minimum (-0.17) and maximum (4.97) during the study period in term of standard deviation, this ratio registered (0.48) during the study period. This indicates the possible improvement of commercial banks profitability in the future, especially with the decline in the intensity of the global financial crisis.

CIR measures the income generated per JD cost. That is how expensive it is for the bank to produce a unit of output. The lower the CIR, the better is the performance of the bank. Efficient Cost management can be considered the most important determinant of profitability, and unless banks manage to transfer their costs to the lenders, operating expenses are expected to have a negative effect on the profitability Bourke (1989). It is clear from table 3 that CIR of the commercial banks in Jordan has obtained a mean (median) 52.90% (54.11%) over the study period. This ratio was minimum (15.29) and maximum (102.96) during the study period in terms of standard deviation, this ratio registered (15.03) during the study period. The steady increase in CIR is mainly ascribed to increasing operating expenses reported by the banks, which was a consequent of the higher loan loss provisions and relatively higher operating expenses experienced by the commercial banks during the study period. This is because of the increased level of competition, in addition to the increase in deposit interest cost of funds.

LADST is the percentage of short term obligations that could be met with the bank's liquid assets in the case of sudden withdrawals. The high LADST of commercial banks is a positive indicator demonstrating the safety of banks' financial positions, and their ability to meet their obligations, which promotes the financial stability in economy. It is worth mentioning that the considerable increase in liquidity ratios in general reflects banks' inefficiency in investing their funds, while the decrease of such ratios is a negative indicator that reflects high liquidity risk. Liquid assets to deposit-borrowing ratio (LADST) indicate clear from table 3 that the LADST of the commercial banks in Jordan has obtained mean (median) 41.90% (42.44%) over the study period. This ratio was minimum (19.28) and maximum (63.49) during the study period in term of standard deviation, this ratio registered (10.33) during the study period. However as much as banks have been increasing their percentage of liquid assets that mainly consist of current accounts/reserves with the CBJ and other banks, customer deposits and short term funding have also been increasing such that the overall trend continued to show reduced levels of liquidity.

NCTA measures the percentage of assets that is tied up in loans. The higher the ratio, the less liquid the bank is. Deposits and loans reflect the bank's primary activity. Assuming other variables constant, the higher the rate of transforming deposits into loans, the higher the profitability will be. It is clear from table 3 that the NCTA of the commercial banks in Jordan has obtained mean (median) 45.50% (45.53%) over the study period. This ratio was minimum (0.28) and maximum (60.28) during the study period in terms of standard deviation, this ratio registered (8.85) during the study period.

Theoretically, the greater the exposure to credit risk, the lower is the bank's profitability. Credit risk can be defined as the potential loss of all or part of the interest owed, or the origin loan, or both together. Credit performance is concerned with the examination of the risk associated with a bank's asset portfolio. Table 3 shows that the PRCF of the commercial banks in Jordan has obtained mean (median) 58.34% (6.42%) over the study period. This ratio was minimum (0.47) and maximum (4564.56) during the study period in terms of

standard deviation, this ratio registered (477.67) during the study period. The environment in which the commercial banks are working affects the bank’s credit risk. Lack of accurate information about borrowers, and weak economic growth, may expose the bank to higher credit risk.

The TETA measures the extent of capital adequacy retained by the bank to absorb unexpected losses or risks involved. During the period 2005 to 2011, the ratio maintained a comfortable margin well above 12%, which is the minimum required ratio in Jordan, and 8%, which is the minimum ratio set by the Basel Committee. Table 3 shows that the TETA of the commercial banks in Jordan has obtained mean (median) 14.22% (14.44%) over the study period. This ratio was minimum (7.70) and maximum (20.66) during the study period, in terms of standard deviation this ratio registered (3.01) during the study period. Attaining such high levels of the TETA is a positive sign that the banks in Jordan hold sufficient capital to hedge against risks, which enhances the financial stability in Jordan. The Central Bank's efforts during the study period have contributed to maintaining monetary and financial stability, ensuring the convertibility of Jordanian dinar according to interest rates' structure consistent with the level of economic activity and maintaining a sound and strong banking system to provide an attractive investment environment. This has been reflected in the increase in capital adequacy ratio of the commercial banks

In most of the finance literature, the total assets of the banks are used as a proxy for bank size. Consequently, a positive relationship is expected between size and profits. Size is used to capture the fact that larger banks are better placed than smaller banks in harnessing economies of scale in transactions to the plain effect that they will tend to enjoy a higher level of profit. However, since the dependent variable in the model ROA was deflated by total assets it would be appropriate to take the natural logarithm total assets. Table 2 shows that the SZE of the commercial banks in Jordan has obtained mean (median) 9.13% (9.07%) over the study period. This variable was minimum (8.21) and maximum (10.38) during the study period in terms of standard deviation, this variable registered (0.48) during the study period. The commercial banks in the Jordanian banking industry include banks with varying sizes and business mixes. Credit Risk and Cost efficiency has the highest standard deviation of 477.67 and 15.03 respectively. This indicates that the observations in the data set are widely dispersed from the mean.

### 5.2. Pearson’s’ Correlation Analysis

Pearson correlation was used to find the relationship between variables at 5% level of confidence according to the SPSS software package and the outcomes are presented in Table 4.

Table 4. Pearson’s Correlation Matrix of Jordanian commercial banks

Variables		ROA	CIR	LADST	NCTA	PRCF	TETA	SZE
ROA	Pearson Correlation	1	-.815	.276	-.002	.061	.042	-.151
	Sig. (2-tailed)		.000	.008	.981	.564	.696	.153
CIR	Pearson Correlation		1	-.399	.050	-.022	-.072	.042
	Sig. (2-tailed)			.000	.641	.837	.497	.695
LADST	Pearson Correlation			1	-.351	.097	-.022	.046
	Sig. (2-tailed)				.001	.359	.834	.665
NCTA	Pearson Correlation				1	-.544	.159	-.050
	Sig. (2-tailed)					.000	.133	.640
PRCF	Pearson Correlation					1	.043	-.208
	Sig. (2-tailed)						.687	.048
TETA	Pearson Correlation						1	-.009
	Sig. (2-tailed)							.933
SZE	Pearson Correlation							1

The Pearson’s Correlation matrix stated in Table 3 shows PRCF (.061) and TETA (.042) are weakly positive correlated with ROA and statistically insignificant. NCTA (-.002) and SZE (-.151) are found to be uncorrelated with ROA. CIR is found to be strongly negative (-.815) and statistically significant (.000) correlated with ROA. LADST is found to be weakly positive (.276) and statistically significant (.008) correlated with ROA.



### 5.3. Regression Analysis

Regression was used to find the coefficients and Analysis of variance (ANOVA) in testing the hypotheses and to measure the differences and similarities between the sample banks according to their different characteristics. The regression results by using enter method are stated in Table 5.

Table 5. The Results of Regression Analysis

Variables	B	Beta	t	Sig
(Constant)	5.209		4.715	.000
CIR	-.042	-.830	-12.254	.000
LADST	-.003	-.037	-.516	.607
NCTA	.005	.057	.698	.487
PRCF	.000	.059	.752	.454
TETA	-.008	-.032	-.498	.620
SZE	-.157	-.100	-1.554	.124
R	.826			
R-Square	.683			
Adjusted R Square	.660			
F	30.168			
Sig. Prob (Fstatistic)	.000			
Durbin-Watson	1.579			

The relatively high coefficient of multiple determination suggest that with a conservative coefficient of multiple determination of **R-Square** = .683 (Table 4), the model summary shows that 68.3% of the variations in the profitability of Jordanian commercial banks are explained by the banks internal factors in the research model. The **adjusted R- square** value is .660 which shows that 66 % of the ROA is explained by the independent variables. The value of **F** is 30.168 and statistically significant. This indicates that the combination of the predictors significantly ( $P < 0.05$ ) predict the profitability. The **Durbin- Watson** statistics value is 1.579 which means that the error term is independent and is free of autocorrelation.

The regression result presented in Table 4 reveals that not only does **CIR** have strong negative relationships with bank profitability; it also impacts significantly on bank profitability. The beta value shows that 83 % changes in the ROA is observed as a result of 1% decrease in the CIR. Bank profitability can be improved by using advanced technologies in communication, information and financial technologies. The use of advanced technologies will improve the efficiency of banking operations. As a result, CIR, as a proxy of operational efficiency, will decline and the impact on bank profits will increase (Trujillo-Ponce, 2012). Our result is in consonance with the findings of Zeitun (2012) and Aleksiou & Sofoklis (2009) who found an inverse relationship between cost-to-income ratio and profitability.

**LADST** of the commercial banks has the negative and insignificant relation with the ROA. The beta value shows that 3.7 % changes in the ROA is observed as a result of 1% decrease in the LADST. Bourke (1989) finds some evidence of a positive relationship between liquid assets and bank profitability for 90 banks in Europe, North America and Australia from 1972 to 1981, while Molyneux and Thornton (1992) and Goddard, et al (2004) find mixed evidence of a negative relationship between the two variables for European banks in the late 1980s and mid-1990s, respectively. Liquid assets are generally included as a control variable in these studies with very limited discussion around the estimated parameter. Linbo Fan (2004) measured risk verses efficiency in national banks of USA and indicated that profit efficiency has strong relationship with insolvency and credit risk while liquidity risk could not contribute in profit efficiency of USA national banks. In general, in order to safely and successfully run the business operations and to build healthy relations with the stakeholders, banks have to hold a specific portion of liquid assets. Liquidity, to be specific, refers to the ability of the financial intermediary in meeting up deposit withdrawals, honoring loan request at maturity (Ghannadian and Goswami, 2004). Along with holding cash in vaults and accounts with the central bank, banks generally invest in relatively liquid assets to avoid further liquidity crisis. If the firm fails to manage this demand and supply then it may lead to certain irregular exposures i.e. the risk to maintain the high bank reserve, high interest rate risk and the risk to decrease the reputation of banks (Ismal, 2010). The liquidity problem might arise in the banks either due to mismanagement of funds or volatile withdrawals of funds by

the depositor at the time of unfavorable economic conditions in the society. Therefore, to manage the liquidity positions in the banks are extremely difficult and challenging in the current unusual external influencing environment along with the competitive economic conditions.

**NCTA** of the commercial banks has positive and insignificant relation with the ROA. The beta value shows that 5.7 % changes in the ROA is observed as a result of 1% increase in the NCTA. The larger the loan, the greater is the net interest margin, and the higher the bank profits. Aper & Anbar (2011) found an inverse relationship between bank loans and profitability while Gur, Irshad and Zaman (2011), Sufian (2011) and Sasrosuwito DanSuzuki (2011) reported a direct relationship between the loan and profitability. This suggests that with increase in inflation in the economy, the banks interest rate on all kinds of advances would increase and in this way the bank's interest earnings would show significant increase. Assuming other variables remain constant, the higher the rate of transforming deposits into loans, the higher the profitability of the bank. Thus a positive relationship between the loans and advances of a bank with profitability is as expected and is as documented by Imad et al. (2011). This result is consistent with the study of Athanasoglou et al. (2006).

**PRCF** of the commercial banks has positive and insignificant relation with the ROA. The beta value shows that 5.9 % changes in the ROA is observed as a result of 1% increase in the PRCF. Credit risk can arise either from the activities of banks in extending credit and other activities such as trading and capital market activities (Alexiou and Sofoklis, 2009). Expansion in the banking sectors that are considered high risk will increase the credit risk and lower profits to be obtained by banks. Therefore, the relationship between credit risk and bank profit is expected to be negative (Sufian, 2011). Sufian (2011), Alexio & Sofoklis (2009) and Alper and Ambar (2011) found an inverse relationship between credit risk and profitability.

**TETA** of the commercial banks has a negative and insignificant relation with the ROA. The beta value shows that 3.2 % changes in the ROA is observed as a result of 1% increase in the TETA. TETA, which is measured by total equity over total assets, should capture the general safety and soundness of the commercial banks. It indicates the ability of a bank to absorb unexpected losses (Javaid et.al, 2011:66). Moreover, an increase in capital may raise expected earnings by reducing the expected cost of financial distress, including bankruptcy (Berger, 1995) as quoted by Sufian (2011). Gul, Irshad and Zaman (2011) and Zeitun (2012) found a positive relationship between capital and profitability. In the presence of asymmetric information and bankruptcy costs, the way the assets are funded could affect the banks value. A well-capitalized bank may send a good signal to the market regarding its performance (Imad et al., 2011). The **SZE** of the commercial banks has negative and significant relation with the ROA. The beta value shows that 10 % changes in the ROA is observed as a result of 1% decrease in the SZE. Theoretically a large bank could create economies of scale which lower the average cost and has a positive impact on bank profits. But if the size of the bank becomes larger, phenomenon of the diseconomies of scale appears, the more difficult for management to conduct surveillance (Nicholson, 2000) and the higher the level of bureaucracy that has a negative impact on bank profits (Athanasoglau, Brissimis and Delis, 2005). Alper & Anbar (2011) and Gur, Irshad and Zaman (2011) found a direct relationship between the size of banks and profitability.

## 6. Hypotheses summary

The hypotheses summary is as follows:

<i>H1: There is a negative relationship between Cost efficiency and profitability.</i>	Accepted
<i>H2: There is a negative relationship between Liquidity and profitability.</i>	Rejected
<i>H3: There is a positive relationship between the Credit Composition and profitability.</i>	Rejected
<i>H4: There is a negative relationship between credit risk and profitability.</i>	Rejected
<i>H5: There is a positive relationship between the Capital adequacy and profitability.</i>	Rejected
<i>H6: There is a positive relationship between the size of bank and profitability.</i>	Rejected

## 7. Conclusions and Implications

This paper has attempted to assess the managerial factors that affect commercial banks' profitability in Jordan. The main conclusions are summarized as follows.

1. The major outcome of this study is that the profitability of the Jordanian commercial banks is influence by operational efficiency. Other variables, such as Liquidity (LADST), Credit Composition (NCTA),

Credit Risk (*PRCF*), Capital adequacy (*TETA*) and the size of the bank (*SZE*) did not show any statistical effect on profitability on profitability.

2. Cost income ratio is the major endogenous factor under the control of management that determines the profitability of the commercial banks in Jordan.

3. Higher Liquidity may lead to lower profitability but with less significant impact on overall profitability.

4. Higher Credit to total assets ratio may contribute towards profitability. This reveals that more dependence on one major asset, may lead to profitability but with less significant impact on overall profitability.

5. Higher Credit Risk may lead to higher profitability but with less significant impact on overall profitability.

6. Higher Capital adequacy may lead to lower profitability but with less significant impact on overall profitability.

7. Higher total assets may not necessarily lead to higher profits. The negative coefficient of size indicates that this relation might be negative due to diseconomies of scale suffered by banks due to uncontrollable increased size.

8. Most of the regulatory reforms and structural changes, particularly those undertaken during the study period, had a significant impact on the Jordanian banking behavior.

9. Most measurement controls adopted during the 2005 and 2011 provided the chance for more competition, which had greater incentive for banks to lower holding of excess liquid assets and thus improve profitability and cost efficiency.

10. Commercial banks began to expand their banking operation toward non-traditional banking businesses, and granting a greater scope of business, in addition to providing more focus on the local market.

11. The increased competition forced commercial banks to focus on increasing their expenses by expanding their market share. Under this conclusion, it is assumed that the new banking behavior is reflected negatively through cost efficiency of commercial banks in Jordan.

The overall outcomes suggest the following:

1. The need for the CBJ to undertake more comprehensive and drastic steps for restructuring the banks, particularly those with low and unstable levels of performance efficiency.

2. In order to have more viable and modern commercial oriented banking sector, the results suggest further emphasis on the expansion of scope of businesses, and more entry deregulations for banking members that are well capitalized and technologically advanced.

3. The study suggests also that the movement toward more deregulation should not tend to create more fragile financial firms, whose aggressive credit policy and assets liabilities mismatch might lead to face more risk exposure.

4. Commercial banks in Jordan should endeavor to manage adequately the liquidity and profitability trade-off while diversifying their asset in a way to remain profitable and sustainable.

5. Future research need to be done in order to improve the results of this study that among other things can be done by increasing the number of observations, both the data time series and cross section. In addition variables such as inflation, GDP and market concentration could be incorporated to ascertain the determinants of bank profitability in Jordan.

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