



## THE IMPACT OF CREDIT AND CAPITAL RISK ON THE BANKING PERFORMANCE: EVIDENCE FROM SYRIA

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### Abstract

Banks as financial institutions cannot make profits without dealing with different risks. This study aim at investigating the impact of credit risk and capital risk on the performance of Syrian private banks for a period of eight years (2009-2016) depending on a sample of 6 Syrian private banks. The results have been consistent with the ones of previous studies in term of a negative relationship between performance represented by the return of equity (ROE) and credit risk represented by non-performing loans to total loans, while have differed with previous studies in terms of the negative relationship between performance and capital risk represented by capital adequacy ratio. In order to enforce sustainability and soundness of private Syrian banks. Several recommendations have been presented by the end of the study.

KEY WORDS: Credit risk, Capital adequacy, ROE, Syria.

### Introduction

Financial performance plays a critical role in the banking industry as a sign of the bank's success in achieving stakeholder objectives at the micro level, as well as good banking performance indicates the healthy and strong financial system at the macro level.

Otherwise, banks are exposed to many risks during the practice of their activities that affect performance and determine the efficiency of resource use. Thus, literature have concerned the study of the relationship between various risks and banking performance. On the other hand, banking industry has witnessed many developments after 2000 within the economic opening-up policy pursued by Syrian government to rebuild the economic sectors, where it has allowed the establishment of private banks owned and managed by the private sector in 2001, as well as reorganization of the central bank's role in the control of banks. The first private bank was established in 2003, and the number has increased annually. (EMFIP, 2006)

By the end of 2009, the number of private banks achieved 14, added to 6 public banks. The Syrian private banks achieved a quick growth and acquire a significant market share in Syrian market compared with old public banks during a few years.

However, this growing performance is naturally accompanied by increased levels of risk, due to the structure of banks as a financial institution faced by a set of risks play a primary role in banks success, in other words, banks results depend heavily on risk. Accordingly, this study aims to analyze the effect of two types of risks

“credit and capital” on the performance of Syrian private banks during period 2009-2016 by reason of the economic importance of these banks in the stability and development. In addition, studying the relationship between risk and performance can be a good entry point to enhance control activities in the banking sector. Also, to develop banking performance depending on risk management mechanisms is to be considered.

### Literature review

The risk, in general, is the possibility of loss or damage and any likelihood of undesirable events (Brigham and Ehrhardt, 2005), which affected the achievement of project objectives (Chapman and Ward, 2003).

Since banks deal with risks when they offer their productions as financial institutes (Anthony, 1996), while banks are exposed a possible loss directly in revenues or banks capital, also indirectly through some restrictions that effect negatively on goals achieving, continuing activities and exploit opportunities in the banking market. (FSR, 1999)

In spite of the risk commensurate with the returns in the banks in profit case, but they may threaten bank's survival in case of high level of losses, So today the banks aim to achieve two objectives, the first is profit and second is to continue in the market. (Marrison, 2005)

Joel (2000) classified losses resulting from the risks in banks into three categories, according to their recurrence values:

1. Expected losses: they occur frequently with low value, and it is hedged by the various provisions within the operating expenses.

2. Unexpected losses: they occur slightly with high value, bank capital absorbs these losses and protects deposits.

3. Exceptional losses: they occur rarely with huge value more than capital; it may lead to bankruptcy of the bank.

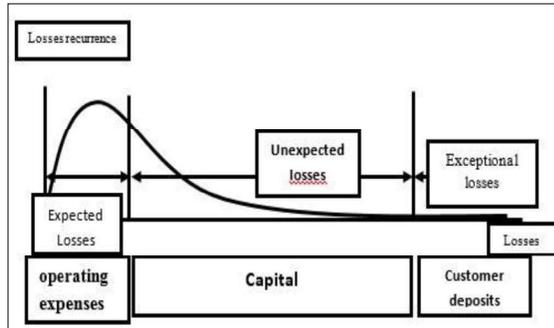


Fig. 1. Losses resulting from the risks in banks.  
(Source: Joel, 2000)

Banking risks arise as a result of external causes related to the external environment and economic conditions in general, which are identified as systemic risks, and be unexpected as well as unavoidable. Risks may also arise from within the internal environment of the bank which is called unsystematic risk, which is related to the bank's activities. (Ahmad and Ariff, 2004)

Furthermore, there are several categories of banking risk according to their characteristics, nature and components, where are categorized into financial and non-financial risks as one of the most used classification, under each one there are some kinds of risks (Gleason, 2000).

- **Financial risk:** includes all risks connected with banking assets and liabilities management, it consists primarily of four types:
  - Credit risk: reflect that debtor's inability to meet his obligations towards the bank.
  - Liquidity risk: rise when bank's inability to meet its maturing obligations.
  - Market risk: related with volatility in the prices of financial instruments and assets which are traded in the market, and are classified to: price stocks risk, interest rate risk, exchange rate risk and commodity price risk.
  - Capital risk: Describe the ability of bank's equity to cover risky assets.
- **Non-financial risks:** they are Synonymous with operational risk and have three sources that come from human faults, technical faults and operations faults. Likewise, Basel Committee added legal risk and regulatory risks to operational risk (BCBS, 2001), also divided into several groups: Financial fraud (embezzlement), forgery, currency counterfeiting, theft and robbery, electronic crimes and occupational hazards (Altaweel, 2000). The typology of banking risks is included in the table (1), as proposed by the researchers.

## Credit risk

Lending is the bank primary activity and contributes to the largest part of profit, therefore the credit risk is the most important risk facing bank (Joseph, 2006) Many banking assets include the likelihood of defaults, whether inside or outside the balance such as loans and Letters of credit, but the largest of which is a loan when borrower cash flows are affected by as a result of many of the general conditions and internal operations, and hence debt service payments, this defaults directly affects the bank net income and Equity market value, It can be harder forecasting, the banks use credit analysis of each case separately, In addition to diversification of credit portfolio in accordance with law of large numbers. In general credit risk increases as a result of four factors: Concentrations of credit, lack of credit portfolio diversification, credit portfolio growth and when Credit analysis procedures are less strict (Koch and Scott, 2005).

Moreover, credit risk associated with non-performing assets issue, where banking system soundness depends on assets quality, and banks need to manage this problem to survive in the market (Arunkumar and Kotreshwar, 2005).

In Syria, Central Bank of Syria issued a number of resolutions concerning the segmentation of loans which included instructions and forms of debt classification according to risk level coupled with required provisions and reserves for each class (CBS, 2009). Many studies tried to analyze the relationship between credit risk and banking performance Fois et al (2010) showed that Loan growth leads to an increase in risky assets and related negatively with Interest income and hence profitability and solvency of banking. Likewise, Kargi (2011) examined the relationships between level of non-performing loans and profit in Nigerian banks between 2004 - 2008 found that adversely correlation, but Kitthinji (2010) showed that amount of credit and non-performing loans had no correlation with profit to the same period in Kenyan commercial banks (Flex and Claudine, 2008) measured profitability by return on equity and return on assets, it turned out that both indicators adversely linked to non-performing loans ratio. Kolapo (2012) also has proved that profitability represented by return on assets is a function of credit risk represented by non-performing loans ratio, the ratio of total loan and advances to total deposit and the ratio of loan loss provision to classified loans. Therefore, in this research, the credit risk was measured by non-performance loans to total loans, while the performance was measured by return on equity.

**Table 1.** Typology of banking risk

Financial risk		Operational risk		Business risk		Events risk	
systemic	Un systemic	systemic	Un systemic	systemic	Un systemic	systemic	Un systemic
credit	Market		Internal systems	Country	Reputation	Market collapse	
Liquidity			Technology		Legal	natural disasters	
Capital			Miss-Management			Political events	

### Capital risk

Banking capital is calculated by the difference between the market value of assets and liabilities, which equal equity. Capital plays an important role against the potential risk, especially in the case of provisions inadequate, for this reason, the central banks have moved to increase banks' capital to provide a margin of safety for stakeholders and principally depositors (Saunders and Cornett, 2002). Briefly, the volume of capital inversely proportional to risks (Thomas, 2015). Since 1976, Basel committee through three versions focused on identifying suitable ratio of capital adequacy to ensure banking stability, It has developed the components of the capital adequacy ratio in response to international banking developments, so that the ratio should not be less than 8% in Basel 1 and Basel 2, and the percentage was increased to 12% in Basel 3 (Hassan et al, 2016).

Central Bank of Syria also issued Resolution No. 253 for 2007, which determined elements of capital adequacy in each of numerator (capital Tier 1,2) and denominator (weighted assets risk), as well as the ratio, should not be less than 8% , and these forms must be submitted quarterly to Central Bank of Syria (CBS, 2007).

On another hand, the impact of capital risk on the banking performance has been researching in a number of directions, Berge (1995) compared the relation between capital and profit in USA banks through two periods (1983-1989) and (1990-1992), he founded a strong positive relation on the first when capital was less than optimal level, on the contrary there was a negative relation on the second period when capital was more than optimal. Altayb and Shahateet (2011) examined the effect of capital adequacy on profitability measured by twelve ratios in whole commercial Jordan banks, the results showed that capital adequacy had no statistical effect on profitability. In general, Brewer et al (2008) and Memmel and Raupach (2010) documented the importance of keep higher level of adequacy ratio at various times during crisis and other times, Ben Moussa (2013) concluded that in spite of positive correlation between capital measured by equity at total assets ratio and performance measured by each of the return on assets, return on equity and net interest margin, but significant relationship had been limited between capital and return on assets over the period of 2000-2009 in Tunisia. Ravindra and Manmeet (2008) discussed the capital adequacy roll in banking profit measured by three ratios: return on assets, on-interest income and net interest margin in Indian banks, the results indicated that

adequacy improved performance using the three measures. Based on these literature, this research used capital adequacy to measure capital risk.

### Credit and Capital Risks

There are many studies tried to analyse the relationship between risks and performance in banking industry besides of other variables, Al-Khoury (2011) studied the impact of some financial risk on banks performance through profitability in GCC countries for 11 years ended on 2008, study found difference result in case of return on assets as a measure of profitability where he founded the risk of credit , liquidity and capital effect on performance, but in case of return on equity as a measure of profitability liquidity risk only effect on performance. Ben-Naceur and Omran (2008) found that credit risk and bank capital positivity impact on Performance measured by profitability, net interest margin and cost efficiency in MENA countries. While Epure and Lafuente (2012) concluded similar results regarding the impact of capital risk on net interest margin, and differ with respect to the negative impact of credit risk. As well as another research have focused on credit risk role in particular in banks performance. Rina and Yovin (2016) examined the impact of capital adequacy and non-performing ratio addition to other factors on return on assets in government and private banks in Indonesia during 2004 – 2013, the result pointed out that capital risk influence on performance in private banks, while credit risk influence on government banks performance.

Whatever, these previous studies are consistent in many objectives, particularly in testing the relationship between banking risk and performance but differed in the used indicators of examined variables, as well as the results, in addition to these studies applied in various environments during different periods. Therefore, the purpose of this study is to develop a model for banking performance function of credit risk and capital risk in Syrian environment, further determining the nature and direction of the relationship can be an approach to improve the performance of banks depending on appropriate levels of risk.

## Methodology

To test the impact of credit and capital risk on banking performance in Syria, this study used the methodologies adopted in earlier related studies. Six Syrian private banks out fourteen were selected as sample: The International Bank For Trade and Finance, Bank of Syria and Overseas, Banque Bemo Saudi Fransi, Bank Audi Syria, Arab Bank-Syria and Byblos Bank Syria, which are the first private established banks in Syria, simultaneously their facilities and loans exceeded 50% of total private banks loans in the whole period of study. This research depends on secondary data for sample banks through their quarterly published financial reports at Syrian commission on financial markets and securities (SCFMS) for period between 2009 to 2016 contesting of 12 sub-periods, 2009 year is chosen as beginning of period because it is the year of adoption the new classification of banking loans by central bank of Syria.

The regression method was used to examine the relationship between the variables as well as descriptive statistics for analysis of data, based on Statistical Package for Social Sciences (SPSS) version 21.

## Model Specification

According to relevant reviewed literature (Al-Khourri, 2011), (Felex and Claudine, 2008) and (Ben Moussa, 2013), the study used return on equity (ROE) as the dependent variable to measure banking performance. This ratio is exhaustive measure refer to bank capability to generates profits through its own funds (Yilmaz, 2013).

As well as there are two independent variables: The first is credit risk measured by non-performing loans to total loans (NPL/TL) (Kargi, 2011 and Kolapo, 2012), the second is capital risk measured by capital adequacy ratio. Therefore the model is expressed mathematically as:

$$ROE = F [(NPL/TL),(ADQ)]$$

$$ROE = \alpha_0 + \alpha_1 (NPL/TL) + \alpha_2 (CAcq) + e$$

Here, ROE is the ratio of net income to equity.  $\alpha_0$ ,  $\alpha_1$ ,  $\alpha_2$  are coefficients. NPL/TL is the ratio of non-performing loan to loan. CAcq, a capital adequacy ratio, is an error term.

## Descriptive Statistics

The descriptive statistics for all variables in table (2) showed that the mean of NPL/TL ratio is 3% and stander deviation is 0.023, this low average refers to a good quality of loans in sample banks during the period under study, likewise the mean of capital adequacy (CAcq) is 14.46% Which is more than Basel and central bank of Syria requirements in 8%, as for dependent variable (ROE), the mean is 0.082 and stander deviation is 0.08 showed that for every dollar invest of capital, 0.08 was earned as profit in banks sample during the studied period.

On the other hand, the low values of standard deviation indicating that there is no much difference in the three variables of sample banks.

**Table 2.** Descriptive statistics

Variab le	Rang	Minim um	Maxim um	Me an	Std.Deviat ion
NPL /TL	.07	.01	.08	.03	.02247
CAcq	.08	.12	.20	.14	.02261
ROE	.06	.05	.11	.08	.01391

(Source: own)

## Results of regression

Table (3) shows that a good significant correlation between NPL/TL and return on equity (ROE), the coefficient of correlation is 0.742 and the coefficient of multiple determinations (R2) is 0.55, this means that 55%(adjusted R2 50.6%) of the variations in banking performance (ROE) are explained by dependent variable a credit risk (NPL/TL).

In the same manner, CAcq correlates with return on equity (ROE) by coefficient of 0.775 and the coefficient of multiple determinations (R2) is 0.60, which refers to 60% (adjusted R2 56%) of the variations in banking performance (ROE) are explained by dependent variable capital adequacy (CAcq). the rest of these percentages of return on equity variations (45%, 40%) is affected by other factors other than non-performing loans ratio and capital adequacy ratio.

## Models fit

Models fit between banking performance and independent variables are measured by F and T-tests as in table (4), where the significant value of F is 0.006 for credit risk variable, it is less than 5%, which refers to linear relationship between two variables, respectively T-test statistics results show that statistically significant negative correlation between independent and dependent variables. The calculated value of F\* is less than 5%, this refers to the linear relationship between two variables, which was confirmed by T-test result according to the following model:

$$ROE = 0.096 - 0.467 (NPL/TL)$$

The model displays that in every unit increase in ROE, a 0.467 unit decrease in (NPL/TL) ratio. As a result, there is a significant relationship between credit risk and performance of Syrian private banks.

Also with regards to capital risk measured by capital adequacy (CAcq), Fisher's and T-test statistics results show that statistically significant negative correlation between capital risk and banking performance measured by ROE, according to the mathematic model:

$$ROE = 0.151 - 0.477 (CAcq)$$

Where in every unite increase in ROE, a 0.477 unit decrease in (CAcq).

As a result, there is a significant relationship between capital risk and performance of Syrian private banks.

**Table 3.** Results of regression between variables

Independent Variable	R	R Square	Adjusted R Square	Std. Error of the Estimate
NPL/TL	.742a	.551	.506	.00978
CAdq	.775a	.600	.560	.00922

Dependent Variable: ROE

**Table 4.** Models fit

		B	Std. Error	Beta	T Sig	F Sig
Credit risk	consent	.096	.005	-.742-	.000	.006b
	NPL/TL	-.467-	.133		.006	
Capital risk	consent	.151	.018	-.775-	.000	.003b
	CAdq	-.477-	.123		.003	

Dependent Variable: ROE

## Discussion

The aim of this study is to examine the impact of credit risk and capital risk on banking performance in Syrian private banks, from the findings: the performance is negatively affected by percentage of non-performing loans from a total loans portfolio, this is because of the non-performing loans losses which increased in conjunction with an increase of lending level. Besides that, Syrian banks had increased the provisions and reserves to cover loan risks, which in turn led to increased expenses, this result is consistent with the results of (Felex and Claudine, 2008), (Kargi, 2011), (Altayb and Shahateet, 2011) and (Epure and Lafuente, 2012). More findings show that capital risk measured by capital adequacy affects inversely on return on equity as a measure of banking performance due to increasing percentage of risky assets that were more than the increasing percentage of profit in Syrian banks during the period under study. A low level of return on equity because of uninvested liquidity during the same period, It is different from all previous studies findings such as Altayb and Shahateet (2011), Ravindra and Manmeet, (2008).

Generally, non-performing loans ratio in Syrian private banks was acceptable during the period under study, ranging between 1 to 8 percent, in an average of 3.3 percent. Furthermore, capital adequacy ranging between 12 to 20 percent, in an average of 14.46 percent, it may be acceptable evidence of Syrian private banks soundness in that period.

## Conclusion and recommendations

In accordance with the results of applied analysis, banks management and the central bank of Syria should be concerned with enhancing credit risk management practices and policies to maintain the stability Syrian banking industry, on the other hand it is importance to issuing periodical rating reports to rank the Syrian banks according to risk levels either from regulatory authorities or other specialized parties as companies of financial consulting and services, in addition to Strengthen and developing risk disclosure methods which can be supports the investors decisions and contributes to financial market stability especially

that all Syrian private banks are listed in Damascus securities exchange.

For future research, we recommend further research on factors that may affect on banking performance in general and other types of risks in particular, additional analysis of the impact of the Syrian crisis on banking performance after 2011, furthermore of the nature of the relationship between risk and performance during the crisis.

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RECEIVED: 6 February 2018

ACCEPTED: 7 June 2018

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