Banking Regulations and Supervising, and the Soundness of Banks in MENA Countries

Dr. Mohammad O. Al-Smadi

Faculty of Administrative and Financial Sciences, Philadelphia University, P.O.Box: 19392, Amman, Jordan

Abstract

The consequences of the last financial crisis have increased the debates about the role of banking regulations and supervision in maintaining banks' soundness. This study investigates the impact of banking regulations, supervision on bank soundness, using a sample of 177 banks operating in 10 MENA countries. Four explanatory variables were used: capital regulatory requirements, regulatory restrictions on banks' activities, independence of supervisory authorities, and official supervisory power, while controlling for other macroeconomic and banking industry characteristics. The results show that bank soundness increases when the stringency of capital requirements increase. Greater restrictions on bank activities enhance bank soundness. Moreover, banks operating in countries with greater independence of supervisory authorities have more soundness, while official supervisory power does not have an impact on bank soundness. The outcome of the study provides empirical evidence for supervising authorities and banks' management about the role of banking regulations and supervising in maintaining banks' safety and soundness in MENA countries. **Keywords:** Regulations, Supervising, Soundness, MENA banks.

1. Introduction

The associated conditions with globalization, deregulation and banking crises increased challenges for the banks' management and supervision agencies in managing risk, and thus maintaining banks' safety and soundness (Barth, Dopico, Nolle, & Wilcox, 2002). The last global financial crisis and its consequences provided evidence that weakness in the banking system in a country could affect and threaten financial stability of other countries, and stressed the need for a closer control and supervision of the banking system. The extent of the last financial crisis varied by country, which increases the question about the factors that affect the degree of crisis (Boudriga, Taktak, & Jellouli, 2009; Kim, Koo, & Park, 2013). Previous related studies found that weakness in regulation and supervision arrangements is one of the factors leading to the crisis (Cihak, Demirguc-Kunt, Martinez Peria, & Mohseni-Cheraghlou, 2013; Kim et al., 2013). The significant events that occurred during the global financial crisis increase the debate and attention to the role of bank regulation and supervision in supporting and protecting banking systems. Despite the impact of the crisis began to fade, the debate is still continuing. Hence, international regulators such as International Monitory Fund, World Bank, and Bank of international settlement have started an assessment of what regulating and supervising reforms can promote better functioning banking system (Barth, Lin, Ma, Seade, & Song, 2013).

Banks in emerging economics are working in highly uncertain environment that can cause excessive risk taking. Among emerging economics, banks in Middle East and North Africa (MENA) region have a weak supervisory environment since they are still in the early stages of financial development, and they dominate the financial systems of their economies (Anzoategui, Martinez Peria, & Rocha, 2010; Olson & Zoubi, 2011). Despite banks in MENA countries experienced fewer losses comparing with other banks in the United States and Europe during the global financial crisis, this does not mean that they have more soundness. The soundness of banking systems in MENA countries face major challenges because regulations are less stringent compared with other countries (Sahut & Mili, 2011). MENA countries is important because it links between Asia and Europe and includes Arab oil-rich countries as well as it is a fast growing region in terms of population and wealth, and they are seeking to improve the efficiency of their financial and monetary performance (Kobeissi & Sun, 2010; Olson & Zoubi, 2011).

The relationship between the banks' regulations and supervising have considerable attention in banking literature, there is a growing literature that documents a relationship between bank regulations and banks' efficiency (Barth, Lin et al., 2013; Chortareas, Girardone, & Ventouri, 2012; Gaganis & Pasiouras, 2013), risk taking (Agoraki, Delis, & Pasiouras, 2011; Cihak et al., 2013; Laeven & Levine, 2009), and banking crisis (Cihak et al., 2013; Ellaboudy, 2010; Kim et al., 2013). In view of the lack of empirical evidence about the impact of regulations and supervising practices on banks' soundness and the mixed results of the mentioned studies, this study aims to fill this gap. On another hand, despite the remarkable growth and growing role of banks in MENA countries, prior researchers have paid little attention to this region, to the best of the author's knowledge, no article has studied empirically the effect of bank regulation and supervision on banks' soundness in MENA countries. Most of the

previous studies on the bank regulations and soundness have concentrated on developed countries. Agoraki et al. (2011) mentioned that the regulatory and supervisory effort in developing banking systems is different from the efforts in the devolving country, which implies that the results found in developed countries may not apply to the developing countries. In addition, Gaganis and Pasiouras (2013) mentioned that the availability of cross country data about bank regulations and supervisions help researchers to study how regulations and supervision work in different environments. Four worldwide surveys about banks' regulations and supervision were carried out by the World Bank in 2001, 2003, 2007 and 2012. They provide comprehensive information about how banks are regulated and supervised in different countries around the world. Thus, using updated version of World Bank's survey, this study examines whether and how bank soundness is influenced by factors relates to banking regulations and supervision, namely: capital regulatory requirements, regulatory restrictions on banking activities, independence of supervisory authorities, and official supervisory power in MENA banks. The findings from the study would help regulators, supervisors, and policy makers to reform outstanding regulations and supervising practices if needed, and to enhance better functioning of the banking systems. In addition, researchers can extend this work to expand knowledge about this area.

2. Previous Research

Kim et al. (2013) studied empirically the impact of financial regulations and innovations on the global financial crisis in 132 countries. They argued that deregulation and financial liberalization led to financial crises, this is due to the fact that regulating and supervising agencies has not been able to keep risk under control. Hence, prudent regulations are important to maintain the soundness of the financial system. They found a significant and negative impact of restrictions on banking activities and entry requirements on banking crisis, which suggest that stronger restriction on banking activities and most difficult entry requirements decrease probability of banking crisis. On another hand, Cihak et al. (2013) examined regulatory and supervisory practices within the context of the global financial crisis. By comparing crisis and non crisis countries in terms of the role of regulations and supervision in banking crisis, they found: (i) crisis countries had fewer stringent and lower capital ratio, (ii) banks' regulations to engage in non banking activities are less restrictive in crisis countries, (iii) crisis countries were not strict in the treatment of bad loans and loan losses, and (iv) crisis countries had been lower intensive for the private sector monitoring. However, the sub sections that follow provide a brief discussion on the selected regulations and supervising factors that are used in the related literature.

2.1 Capital Regulatory Requirements

With an introduction of Accord of the Basel Committee, capital requirements have received increased attention in the related literature. Capital regulations determine the amount that bank must have to face various risks associated in its work. However, regulators believe that there is a positive association between capital requirements and soundness of the banking sector. Theoretically, Barth, Caprio, and Levine (2006) mentioned that the capital adequacy requirements prompt bank to be more careful in lending, and it considers as a buffer against losses and consequently, protects banks form failure. On another hand, Barth, Caprio, and Levine (2008) argued that although many countries strengthen capital regulations based on Basel guidelines, the banking system stability and efficiency were not affected, but in some cases affected negatively as a result of banks shifting toward risky behavior. However, Barth et al. (2013) found a significant positive relationship between capital requirements and banks' efficiency, which suggest that the higher capital stringency the higher banks' efficiency. Moreover, Pasiouras, Tanna, and Zopounidis (2009) found a significant and negative relationship between capital requirement and cost inefficiency, and positive relationship between capital requirements and profit inefficiency. They argued that increasing in cost efficiency of the bank due to the increasing of cost of capital, and reduction of profit efficiency resulting from replacement loans with another type of financial assets to meet capital requirements. On another hand, Pasiouras, Gaganis, and Zopounidis (2006) found a significant negative relationship between capital requirement and banks' soundness measured by Fitch rating. In contrast, Barth, Caprio, and Levine (2004) found that capital stringency is not related with banking sector stability or bank performance, while it associated negatively with nonperforming loans. A same result found by Agoraki et al. (2011), which suggests that capital requirements can be an effective tool in reducing credit risk. Finally, Boudriga et al. (2009) did not document a significant relationship between capital stringency and nonperforming loans.

2.2 Regulatory Restrictions on Banks' Activities

Restrictions on banks activities are considered to have an impact on banks' soundness. Barth et al. (2006) argued that allowing banks to engage in a broad range of banking activities, increase risk, and banks monitor become more difficult. In addition, conflict of interest could increase as a result of banks engaging in securities, insurance, and real estate activities. They also suggested that, fewer restrictions on banks activities help banks to diversify its

income sources, and thus increase its stability. In addition, fewer restrictions increase the franchise value to the banks, and allow the utilization of economies of scope and scale. However, the empirical results of Barth et al. (2004) showed a significant negative relationship between restricting bank activities and banks' development and stability. In contrast, the results of Kim et al. (2013) indicated that restrictions on bank activities associated with lower probability of banking crisis. This result supported by the result of Agoraki et al. (2011) who found that stricter restrictions on bank activities decrease insolvency risk. On another hand, Barth, Lin et al. (2013) found a significant negative relationship between bank activity restrictions and bank efficiency. While Pasiouras et al. (2009) reported a significant negative relationship between the level of restrictions of banks' activities and cost efficiency, and significant positive relationship between the level of restrictions of banks' activities and profit efficiency. Finally, Pasiouras et al. (2006) mentioned that imposing restrictions on banks' activities by regulatory agencies supports bank soundness. Against their expectations, they found a significant negative relationship between restrictions on banks' activities and banks rating.

2.3 Independence of Supervisory Authority
As mentioned by Barth et al. (2013), the supervisory independence has a vital role in supporting a wellfunctioning banking system. It isolates supervising agencies from the political and business influences. Empirically, they found that the independence of supervisory authority has a significant positive impact on bank efficiency, which suggest that increasing the independence of the authority helps to enhance bank efficiency. Klomp and de Haan (2009) supported the view that supervisory independence is important to achieve financial stability. They found a significant positive relationship between central bank independence and financial stability based on data of 70 countries. In contrast to previous results, Gaganis and Pasiouras (2013) who studied commercial banks in 78 countries found a strong significant negative relationship between independence of the central bank and bank profit efficiency. On another hand, Boudriga et al. (2009) analyzed cross countries' determinants of nonperforming loans, they found that supervisory independence does not influence nonperforming loans.

2.4 Official Supervisory Power
Barth et al. (2004) reported the advantages and disadvantages of granting powerful supervising to bank supervisors, they argued that granting power to the supervisor supports bank performance and stability, through preventing managers from engaging in risky activities. In contrast, they mentioned that powerful supervising can affect bank performance negatively, and may lead to corruption when powerful supervisors may use their power to obtain private benefits instead of the banking industry benefits. On another hand, there are two different theoretical points of view regarding bank supervision, which are: official supervision approach and private monitoring approach. According to the official supervising approach, the official supervisor has the right and expertise to avoid market failure through directly regulating and supervising banks due to imperfect information, and thus improves the functioning of the banks and enhances their corporate governance (Beck, Demirguc-Kunt, & Levine, 2006). While, the private monitoring approach suggests that private monitoring from equity and debt holders in addition to depositors enhances market discipline and thus improved private governance of banks and consequently, promotes bank performance (Pasiouras et al., 2009). Empirically, Agoraki et al. (2011) found a significant negative relationship between the power of the supervisory agencies and insolvency risk. Pasiouras et al. (2009) reported a significant negative relationship between the power of the supervisory agencies and both cost and profit inefficiency. In addition, Barth, Lin et al. (2013) found that the official supervisory power is positively associated with bank efficiency in countries with independent supervisory authorities. Moreover, Barth et al. (2002) found a significant positive relationship between official supervisor power and nonperforming loans, which suggest that more official supervisor power lead to higher level of nonperforming loans, while more private supervisor power led to lower level of nonperforming loans. Finally, Boudriga et al. (2009) found no association between both of official supervising power and private supervision power and nonperforming loans.

3. Research Method
3.1 Definitions of Variables
The dependent variable in this study is bank soundness; it is measured by Z-score developed by Boyd & Graham (1986), which is widely used in finance and banking literature. It is defined as Z-score=(ROAi+EAi)\σROAi, where (ROA) is the average return on assets for bank i, (EA) is the average equity to assets ratio for bank i, and (σROAi) is the standard deviation of the return on assets for bank i. The Z-score is considered as an overall indicator of bank soundness, it represents the inverse of the probability of bank's insolvency; the higher value of Z-score indicates higher solvency and greater bank soundness (Demirguc-Kunt, Detragiache, & Tressel, 2008; Laeven & Levine, 2009).

Four regulations and supervising variables are used in the study, namely: capital regulatory requirements (CAPR), regulatory restrictions on banks' activities (RRES), independence of supervisory authority (ISA), and official supervisory power (OSP). CAPR is an index of capital regulatory requirements, which considers both of initial and overall capital stringency. Initial capital stringency indicates whether assets used to initially capitalize a bank and whether they are officially, while overall capital stringency indicates whether regulatory capital reflects risk elements and deducts market value losses before minimum capital adequacy determined. CAPR can take values between 0 and 10. The higher values indicate greater stringency. RRES is the index of overall regulatory restrictions on banking activities. It represents the extent to which banks have regulative restrictions for bank participation in securities' activities, insurance activities, real estate activities, and owning of non financial firms. This index can range from 3 to 12, higher values indicates greater restrictions. ISA is the index of the overall independence of the supervisory authority. It measures the degree to which supervisory authority is independent and legally protected from government and banking industry. The values of this index range between 0 to 3, the higher value indicates greater independence. Finally, OSP is the index of official supervisory power. It indicates whether supervisory agency has the authority to intervene to take corrective actions and prevent problems. This index can take values from 0 to 14, with higher values indicating more supervisory power.

To isolate the impact of regulations and supervision on bank soundness, two sets of control variables that might affect bank soundness were used. First set contain two macroeconomic variables, which are: real GDP growth (RGDP), and annual rate of inflation (INF) (Barth, et al., 2013; Cihak et al., 2013). The second group capture conditions of the banking sector, which are: banking industry concentration (CONS) measured by the percentage of assets held by the three largest banks in a given country, and banking industry claims measured by the ratio of banks' claims to the private sector to GDP in a given country (CLAIM), which is an indicator of activity in the banking sector (Gaganis & Pasiouras, 2013; Pasiouras et al., 2009) .

3.2 Data and Sample Selection

The original sample of the study is all banks in MENA courtiers. The final sample was chosen based on the following criteria: (i) Banks from countries not included in banking regulations and supervision database were excluded. (ii) Banks for which not has information for the calculation of the control variables, and Z-score were excluded. Thus, the final sample of the study comprises 177 banks operating in 10 MENA countries, which are: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Tunisia, and United Arab Emirates.

The financial data of banks needed to calculate Z-score was obtained from BankScope database. Data for measurement of RGDP, INF, and CLAIM were sourced from World Bank database, the Global Market Information Database (GMID). As for regulations and supervising variables, data were obtained from the database of bank regulations and supervision constructed by Barth, Caprio Jr, and Levine (2013). It is a comprehensive database compiled based on answers of hundreds of questions of four surveys carried out by the World Bank and released in 2001, 2003, 2007, and 2012.1 It covers a wide range of issues related to banking regulations and supervision around the world. Data of the study were collected from the database of last survey, which is an updated and expanded version of previous surveys. It provides information about the recent state of bank regulation and supervision during the period from 2008 to 2011. Finally, data of CONC were also obtained from Barth, Caprio Jr et al. (2013). The data sources of all variables and their definition are presented in Table 1. Table 1: Definitions of variables and data sources

Variable	Definition	Source
Bank soundness	Natural logarithm of Z-score.	BankScope
Capital regulatory requirements	The sum of initial and overall capital stringency capital stringency. (range between 0 to 10)	(Barth, Caprio Jr et al., 2013)
Regulatory restrictions on banks' activities	The extent to which banks have regulative restrictions for participation in securities' activities, insurance activities, real estate activities, and owning of nonfinancial firms. (range between 3 to 12)	(Barth, Caprio Jr et al., 2013)
Independence of supervisory authority	The degree to which supervisory authority is independent and legally protected from government and banking industry. (range between 0 to 3)	(Barth, Caprio Jr et al., 2013)
Official supervisory power	The extent to which supervisory agency has the authority to take corrective actions and prevent problems. (range between 0 to 14)	(Barth, Caprio Jr et al., 2013)

Gross domestic product	Annual percentage growth rate of GDP.	GMID
Inflation	Annual percentage change of consumer price index.	GMID
Banking industry concentration	Percentage of assets held by the three largest banks.	(Barth, Caprio Jr et al., 2013)
Banking industry claims	Percentage of banks claims for the private sector to GDP.	GMID

Note: GMID: Global Market Information Database.

[1] Online database is available at http://faculty.haas.berkeley.edu/ross_levine/Regulation.htm.

3.3 Basic Econometrics Model

The independent variables in the study are the country's regulation and supervision indexes, these indexes are available only in one point of time. Hence, the empirical model is a basic cross-sectional regression model. The model is expressed as follows:

$$Z_j = \alpha_0 + \beta_1 x^1_j + \beta_2 x^1_j + \beta_3 x^3_j + \varepsilon_j$$

Where the subscript j denotes the country, Z_j is the Z-score of the country j, x^1_j is a vector of regulations and supervising variables in country j, x^2_j is a vector of macroeconomic variables in country j, x^3_j is a vector of banking industry variables in country j, and ε_j is a random error. Z-score was measured based on the following approach: first, Z-score was measured at the individual bank level in a given country using the average return on assets, the average capital ratio, and standard deviation of ROA of each bank in 2008, 2009, 2010, and 2011. Then, Z-score was measured at the county level by calculating the average of Z-score of all banks in a given country. While in the regression, the natural logarithm of the four year average of Z-score (Inz) is used to address non-liner effects and outliers. All control variables are four-year average.[2]

4. Empirical Results

4.1 Descriptive Statistics

Table 2 presents the summary statistics of the variables for the whole sample of 177 banks in 10 MENA countries. The average value of Z-score which is a measurement of bank soundness is (26.2). It can be noted that Z-score values present a higher disparity between countries with a minimum of (11.03) and a maximum of (50.25). This indicates that banks vary according to their soundness in MENA countries. A similar pattern is observed for the claims of banking industry ranging between (31%) and (90%). Furthermore, the average value of banking industry concentration indicates that banking systems in MENA countries are highly concentrated with an average of (68%). As for regulations and supervision variables, the values of standard deviation indicate no significant variation between countries. In addition, most of the regulations and supervision variables reached or approached the upper limit of the measurement index. This indicates greater stringency of capital requirements, greater independence of supervising authorities, and more official supervisory power. Finally, some countries have a negative GDP growth rate and negative inflation.

Table 2: Summary statistics of variables

Variable	Min	Max	Mean	SD
Z-score	11.03	50.25	26.20	12.85
CAPR	8	10	8.67	0.87
RRES	4	9	7.44	1.59
ISA	1	3	1.86	0.90
OSP	7	13	9.74	1.9
RGDP (%)	-7.07	17.66	4.94	5.52
INF (%)	-0.05	10.05	4.23	9.55
CONC (%)	50.63	94.95	67.80	14.05
CLAIM (%)	31.15	89.65	62.03	17.10

4.2 Regression Results

[1] Some variables are averaged over a shorter time period because of missing data.

The (OLS) technique was used to estimate the impact of four measures of banking regulations and supervision on the bank soundness, while controlling macroeconomic and banking industry variables. The omitted version of Hausman test was used to examine the possibility of simultaneously between dependent variable and key explanatory variables, which are CAPR, RRES, ISA, and OSP. The results of the tests imply that simultaneity is not present. Thus, (OLS) estimates are not biased. In addition, to ensure that there is no multicollinearity problem; Variance Inflation Factor (VIF) was measured for all independent and control variables. The results showed that all VIF values are less than five, which indicate that is no multicollinearity problem between the variables included in the regression model. Table 3 presents the regression results.

Table 3: Summary of regression results

Variable	Beta Coefficient	t-value	p-value	VIF
CAPR	0.721***	12.215	0.000	2.425
RRES	0.283**	2.863	0.005	1.841
ISA	0.166**	2.553	0.012	3.415
OSP	0.026	0.438	0.662	1.331
RGDP	0.114**	2.288	0.023	2.779
INF	-0.075**	-2.010	0.046	3.101
CONC	-0.185**	-2.395	0.018	2.449
CLAIM	0.053	0.936	0.351	3.690
Adjusted R2	0.504			
F-statistics	30.333***			

Note: See Table 1 for the variable definitions. Statistical significance: *p<0.10**p<0.05 ***p<0.01

As for the banking regulations and supervising variables, the results show that CAPR, RRES, and ISA have a significant impact on Z-score. With a higher coefficient, CAPR is positive and significantly related to banking soundness. This implies that greater stringency of capital requirements increase bank soundness. This finding supports the traditional approach of capital regulations that considers capital as a buffer against losses resulting from banking operations, and thus protects the bank from failure. RRES has a significant and positive impact on Z-score. This indicates that greater restrictions on bank activities contribute in increasing bank soundness. As Agoraki et al. (2011) pointed out, although lowering restrictions on bank activities increase diversification opportunities for banks, risk can increase. This is due to the fact that in emerging countries, supervision practices can be weak and law enforcement tends to be a law; therefore, it is difficult to monitor banks that engage in a wide range of activities. In addition, as a result of low transparency and accountability in emerging countries, financial conglomerate groups can face corporate governance problems, which affect negatively the controlling and monitoring of risk by managers. The impact of ISA is the same to that of RRES. This indicates that the greater independence of supervisory authority, the higher is the bank soundness. This is due to the fact that, the independency of supervising authority helps them to handle their role in managing monetary policy, and supervising banks away from political and economic influences, and thus maintains soundness and stability of their banking system. Finally, the coefficient of OSP is not significant, which suggests that there is no relationship between official supervising power and bank soundness. This result does not support the argument of official supervising approach. The potential explanation of the result is that the role of official supervisory power in enhancing bank soundness depends initially on the provision of healthy political and legal environment. This finding is supported by the result of Boudriga et al. (2009), who found a significant and positive relationship between official supervising power and non performing loans after controlling political and legal environment variables. They argued that efficiency of regulations and supervising based on political and legal environment factors such as the rule of law, the level of corruption, and the degree of democracy, especially in the developing markets.

Regarding macroeconomic control variables, RGDP has a significant and positive impact on bank soundness, suggesting that higher growth of GDP increases banks soundness. The coefficient of INF shows a significant and negative association between country's inflation and bank soundness. This suggests that low rate of inflation improves bank soundness. As for banking industry control variables, CONS is significantly and positively related to banking soundness. This suggests that concentrated banking market improves bank soundness. This result is consistent with the findings of Boudriga et al. (2009) who highlight the positive impact of concentration. They argued that in non-concentrated market, competition between banks increased, and profit margin decrease, which encourage banks to have more risk, and thus bank soundness decreases. Finally, CLAIM does not have a significant impact on bank soundness.

5. Summary and Conclusion Remarks

In the light of the world direct towards the unification of the banking regulations and supervisions practices, the recent financial crisis has increased the debate about the role of banking regulations and supervision in maintaining the soundness and stability of the banking systems around the world. Most of the related literatures focused on the impact of banking regulations, supervision on bank efficiency and performance. In addition, previous studies were conducted based on samples comprises both of developed and developing countries around the world. However, previous scholars pointed out to the differences between the structure of financial and banking systems in developed and developing countries, which imply that the results found in developed countries may not apply to the developing countries. In this regard, and based on the recent World Banks survey, this study aims to provide empirical evidence on the impact of banking regulations and supervision on bank soundness in MENA region.

Using a sample of 177 banks operating in 10 MENA countries over the period 2008-2011, an association between banking regulations, supervision variables and bank soundness was found. Particularly, capital regulatory requirement has a strong impact on bank soundness, greater capital stringency increase banks soundness. A similar effect was found between restrictions on banks' activities and bank soundness, suggesting that the tighter restrictions on bank activities lead to increase bank soundness. In addition, the independence of supervisory power was found to have a positive impact on bank soundness. Greater supervisory authority independence tends to enhance bank soundness. Finally, official supervising power is not significantly related to banking soundness.

Further studies could increase the knowledge in this area through the following potential extension of the present study. First: including other explanatory variables available in the survey of banking regulations and supervising. Second: using different measurement of bank soundness that addresses the limitations of accounting data. Third: using a different type of analysis taking into consideration the dynamic scenario between regulations and supervising variables. Finally, it is worthwhile to do comparative studies between developed and developing countries in terms of regulations and supervisory practices based on the recent database of bank regulations and supervision.

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