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Banking Crisis and External Financial Liberalization: A Panel Data Analysis on a Few Countries in the MENA Region

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Abstract — **Since the early 1980s, most developed countries are based on the financial liberalization process to increase their economic growth. However, this experience is often accompanied by a banking crisis that undermined the objectives of financial liberalization. This paper provides an econometric analysis of external financial liberalization effect on the failure of the banking system of five countries in the MENA region during the period 1980 - 2013. Using a panel data approach, this article shows that, under certain conditions, more external liberalization is low, more a banking crisis can occur.**

Keywords — **Banking Crisis, Financial Liberalization, MENA, Panel Data.**
Jel code **: C33 ; F36 ; G15 ; G28**

I. Introduction

Following the process of financial globalization in the 1970s, developed countries have been hit by severe banking crises. Kaminsky and Reinhart (1996) showed that the majority of banking crises were preceded by financial liberalization policies. The latter is a set of measures taken to eliminate restrictions on the financial sector. It concerns the liberalization of interest rates, the elimination of restrictions on the capital account and the outer opening of the financial sector, etc. financial liberalization may increase competition between countries for capital flows, not to mention the existence of the state in the economy, which exercises control and supervision over the financial and economic activities, to increase the pace of economic growth.

The concept of financial liberalization has emerged in the work of McKinnon (1973) and Shaw (1973) for which financial repression characterized by a direct or indirect government control over the banking sector is detrimental to economic growth. These authors believe that the free determination of the interest rate to its equilibrium level would have a positive effect on economic growth. This idea has been adopted by major international institutions like the World Bank and the IMF (Bouzid, 2013). Recently, several studies confirm the interest of financial liberalization (Atiyas, Capiro and Hanson; 1994 King and Levine; 1993a, Gelos and Werner; 1999, Sancak; 2002). In the same vein Alfaro and Hammel (2007), Kim and Kenny (2006), Menzie and Hiro (2005), Bekaert et al. (2005) suggest that developing countries need to liberalize the financial system to increase economic growth through better allocation of capital. However, successful financial liberalization experiences are very rare.

The process of financial liberalization in emerging markets is often accompanied by banking crises leading to a fall in growth and a contraction of GDP. Many studies have sought to understand the origins of these crises. The latter argue that liberalization policies are factors of financial instability. Most of these analyzes mainly macroeconomic nature put forward two sets of operations: firstly, financial liberalization increases the vulnerability of banks to macroeconomic shocks and, secondly, the financial fragility of the latter would be aggravated by the lack of oversight mechanisms, particularly in emerging countries. Banking crises are more likely to occur in a liberalized financial system (Demirguç-Kunt and Detragiache; 1998).

Mehrez and Kaufman (2000), on a panel of 56 developed and developing countries during the period 1977-1997, showed that banking crises are more likely in the post-liberalization period. This is explained by the lack of transparency increases the uncertainty of the banks' expectations. Arestis and Demetriades (1999) and Arestis (2000) confirm these results and argue that financial liberalization is the main cause of banking and financial crises. At the microeconomic level, banking crises have their origins in the banks' participation in riskier activities. Menkhoff and Suwanaporn (2007) and Currie (2006) showed that financial liberalization pursued in an underdeveloped institutional environment may be the main cause of banking crises. According Plihon and Miotti (2001), banks must strengthen their prudential supervision and a better risk management.

In this paper, we will study the relationship between banking crises and financial liberalization. The first section discusses the various previous works in this area. In the second section, we try to explain this relationship for five countries in the MENA region including: Algeria, Morocco, Tunisia, Egypt and Turkey during the period 1980 - 2013 using a panel data methodology. The last section is devoted to different results.

II. Literature Review

In recent decades a vast theoretical and empirical literature has tried to address the link between financial liberalization and economic growth. These studies conclude that financial liberalization is the most effective way to improve the economic growth of countries. According to McKinnon (1973) and Shaw (1973), financial liberalization is the best way to ensure good savings mobilization and hence sustainable economic growth. This idea has been criticized by several economic and political thoughts. Post-Keynesians suggest that financial liberalization policy leads to slower growth.

According to the neo-structuralists, financial liberalization led to adverse effects on growth. They argue that government intervention is the best solution for out of fragility (Bouzid, 2013).

Many studies have shown that the relationship between financial development and financial liberalization policies is often negative. Most of these analyzes have two sets of explanation banking crises: first, financial liberalization makes banks more vulnerable to macroeconomic shocks and, secondly, the financial fragility of the latter would be aggravated by inadequate public policy and lack of supervision.

Several empirical studies have shown that banking crises have typically been preceded by financial liberalization policies. Two streams of research have attempted to identify the main causes of banking crises. The first assumes that current macroeconomic and institutional foundations are behind these attacks. For cons, the second current stipulates that banking crises based on microeconomic foundations such as the transformation of the banking environment.

The study Kaminsky and Reinhart (1996), on 20 countries in Asia, Latin America, Europe, Middle - East during the period 1970-1995, shows that the process of financial liberalization has led to increased banking crises. Ranciere et al (2006), Barell et al (2006) and Tornell et al (2004) suggest that financial liberalization may increase the probability of occurrence of banking crises by increasing risk and volatility of macroeconomic indicators. Demirguç-Kunt and Detragiache (1998) in their study of 53 countries over the period 1980-1995, showed that financial liberalization increases the probability of a banking crisis due to the decline in franchise value of banks. The study of Fischer et al (1997) conducted on Malaysia, Thailand and Taiwan, using the method of individual data showed that banks are more vulnerable in times of financial liberalization. Honohan (1997), Fischer and Chenard (1997) Plihon and Miotti (2001) suggest that the adoption of new behaviors by banks increases the risk taking and leads to instability of the banking system. Daniel and Jones (2006) found that most financial liberalization policies have led to banking system failures. Noy (2004) states that the liberalization of the banking sector led to its failure, Levine (1996) argues that external liberalization should help develop the financial markets as well as the banking system. The liberalization of the banking sector should help increase competition and allow the transfer of know - how.

According Bousrih and Trabelsi (2005), in the absence of public control ex post on the behavior of banks in the form of prudential supervision and on meadows activities, this may increase bank insolvency and probability of banking crises.

The importance of the implementation of a framework of supervision and regulation in banks was the subject of several empirical studies. The study by Goldstein and Turner (1996) of 15 developing countries over the period 1990-1997, shows that banking crises are more likely during periods of weak prudential regulations. Lindgren et al (1996) report the deficiency of regulation and banking supervision at liberalization. The study of Levine (1998) shows that banking crises are caused by institutional variables such as law enforcement and property rights. According to Barth et al (2002), the regulatory and supervisory practices reinforce control and force the dissemination of information which improves the performance and stability of the banking system.

Mitton (2002) argues that a low level of democracy and weak law enforcement undermine the banking system. Dress and Pazarbasioglu (1998) and Kaminsky and Reinhart (1999) showed that financial liberalization, when coupled with a weak prudential regulation, exposes banks to a risk of bankruptcy.

Abaoud et al (2008) have attempted to study the relationship between financial liberalization and banking crises on the one hand, and the relationship between these and bank governance (prudential regulation) on the other side, 10 countries emerging during the period 1980 - 2003. the results of this study show a positive relationship between financial liberalization and the likelihood of the emergence of banking crises, and a negative and significant relationship between bank governance and the probability of birth of banking crises this suggests that the strengthening of bank governance during periods of financial liberalization is an important condition for an efficient banking system.

Ben Gamra and Clévenot (2006) attempted to study the effect of a part of financial liberalization and secondly, the quality of the institutional and regulatory structure on the probability of occurrence of banking crises in a panel of 27 emerging countries over the period 1975 - 2002. The results showed that liberalization is an important factor in bank failures. The authors add that the banks need a clear legal system to facilitate the application of financial controls and the repayment of loans. According to the authors, an internal and external control is necessary to avoid bank crises.

The study of Ben Gamra and Plihon (2007) of 22 emerging countries from 1970 to 2002 shows that financial liberalization policies have a negative effect on the stability of banking systems.

Bousrih and Trabelsi (2005) studied the link between financial liberalization and banking crises and tried to see especially if the probability of occurrence of banking crises depends on other factors such confidence, as those related to market considerations. They found that: 1) banking crises are likely to occur in countries that have liberalized their financial systems, 2) banking crises problems are more significant in countries with a less developed institutional environment, and 3) social infrastructure developed with high levels of trust and cooperation between financial intermediaries and individuals can limit adverse effects of liberalization policies on the banking sector and induce more financial development. The authors also point out that this same level of confidence seems to be a significant condition of the financial development effect on economic growth.

Salameh (2013), by analysing the influence of factors of financial development, supervision and regulation of banking crises in 36 different economies on four geographical areas between 1997 and 2007, showed that there is a negative relationship between index of the supervisory authority of power and banking crises.

Miotti and Plihon (2001) tried to empirically test the speculative behaviour on the vulnerability of banks. They tried to study the microeconomic variables Argentine and Korean banks from 1996 to 1998. Their results showed that bank failures are explained more by speculative risk taken by mismanagement banking productive resources.

Although a large empirical literature on the relationship between financial liberalization and bank failure, has been widely proposed, it is important to analyze this link in the MENA region. Our study focuses on studying the case of Algeria, Morocco, Tunisia, Egypt and Turkey.

III. Empirical Methodology

The main objective of this study is to empirically analyze the relationship between external financial liberalization and banking crises in the context of five countries in the MENA region including: Algeria, Morocco, Tunisia, Egypt and Turkey, observed during the period 1980 -2013. At first, we start with a presentation of the model used in our approach by identifying the sample and the time of the estimate. Then we will present the different variables considered. The final step is devoted to different results and their interpretation.

A. Sample Presentation and Model to Estimate

Our study focuses on the empirical analysis of the relationship between external financial liberalization and the probability of a banking crisis through a panel data estimation to better understand the factors that explain the banking crisis. Our sample consists of five countries in the MENA region: Algeria, Morocco, Tunisia, Egypt and Turkey over a period from 1980 to 2013.

Most studies were done in developed countries, developing countries or emerging countries. Our study focused on five countries in the MENA region that are characterized by inadequate banking and financial market and a poorly managed financial liberalization.

The specification of the basic model is as follows:

$$Crise = f(LF, X_{it})$$

$$Crise_{it} = \alpha + LF_{it}\beta + X_{it}\delta + \mu_{it}$$

with:

• **Crise$_{it}$**: is the dependent variable. A banking crisis is defined as a situation in which banks face a non-performing credit accumulation and doubtful debts. They face serious financial problems, which cause a wave of bank runs, prolonged closures of banks, panics or bank failures, and involves a large support movement by the state, generalized government guarantees deposit or bank nationalization (Ben Gamra and Plihon, 2007).

The banking crisis variable is a dummy variable that takes the value one (1) if the country is in a period of de-stresses and zero (0) otherwise, during the period 1980-2013.

• LF_{it}: external financial liberalization is measured by KAOPEN indicator. It is an indicator developed by Chinn and Ito (2002). This index takes the value of - 1.86 to 2.17. External financial liberalization concerns liberalization of activities having a relationship with the outside, which can be summarized by the following:

- Removal of constraints on transactions capital account and financial account of the balance of payments;
- Removal of constraints on direct investment.
- The relaxation of rules on trade, or even disposal for current transactions and / or capital.

• X_{it}: corresponds to control variables that could explain the behavior of banking crises. For this study, we have three types of monitoring indicators, namely:

- Macroeconomic variables: While inhaling of economic theory and empirical, we retain two variables macroeconomic:
  - Economic growth (GDP) measured by growth in real GDP. Low economic growth leads to a liquidity crisis, making banks more vulnerable to crises.
  - Trade openness (OPEN): the sum of exports and imports relative to GDP. This variable measures the degree of openness of an economy.
- The financial development variable (M_2): represents the liquidity of banks. This indicator reflects the size of the financial sector and financial deepening.
- The institutional variable (REGUL): represents the quality of regulation. The value of this indicator varies between 4 and 13.

• u_{it}: the error term.

For this study, four control variables were retained where the source comes from the World Bank: World Development Indicators for macroeconomic variables and financial development, and World Governance Indicators for institutional variables.

The final formulation of our model is as follows:

$$Crise_{it} = \alpha + \beta LF_{it} + \delta_1 GDP_{it} + \delta_2 OPEN_{it} + \delta_3 M2_{it} + \delta_4 REGUL_{it} + \mu_{it}$$

B. The Different Results

Results for fixed individual effects method are presented in the following table:

Table III-1: Estimation Results

CRISIS dependent variable: 1 if there is a crisis, 0 otherwise	
Period: 1980 - 2013; T = 34; N = 5; Total panel observations: 34 X 5 = 170 Obs	
Explanatory variables	**Fixed effects model**
Constante	-0.045687 (-0.292783)*
LF	-9.83E-12 (-0.112849)*
GDP	-2.93E-05 (-1.123482)**
OPEN	0.013609 (4.548477)***
M2	-0.002371 (-1.046724)
REGUL	-0.058874 (-3.192766)***
R^2	0.539157
R adjusted	0.496360
Prob (F-statistic)	0.000001 (5.588118)

Note: ***, ** and * indicate the significance levels 1%, 5% and 10%.

Source: Personnel elaboration

The regression model analyzes the impact of external financial liberalization on the reliability of banks, while using a number of variables called control variables for a sample of five countries in the MENA region: Algeria, Morocco, Tunisia, Egypt and Turkey.

Regarding the impact of external financial liberalization, the results indicate a negative relationship with banking crises. Our estimates show that more financial liberalization is, the more a banking crisis can occur which means that the reform of the financial system of the countries in our sample, is a crucial element that leads to good management of the economy. This finding contradicts that of Kaminsky and Reinhart (1996) and Demirguç Detragiache-Kunt (1998) who argue that banking crises are more likely to occur in a liberalized financial system. The situation is, however, compatible with the argument of Levine (1996), for which external financial liberalization can develop the banking system by increasing competition and allow the transfer of know-how. For a liberalization to be effective, must be allowed to create a financial system that promotes savings, investment and growth. This is not the case for the majority of countries in our sample who have financial systems that are not effective and that seem to ensure a certain delay. This is explained by the fact that companies are reluctant to open their capital, creating a weak liquidity and imbalance in the banking system. The liberalization of financial markets and the development of monetary instruments, countries in our sample offer banks the opportunity to diversify their risks and thus minimize losses.

The results also show a negative relationship between economic growth and the probability of a banking crisis. The latter is significantly correlated with low levels of economic growth. Low economic growth has a negative effect on liberalization of capital flows, making them making them sensitive to the banks since shocks are struggling to payment of their debts. The contraction in economic activity complicates banks' risk assessment. Our results confirm those of Ben Gamra and Clévenot (2006).

Regarding the impact of trade openness and liquidity of banks on the bank failure, the results indicate a positive effect of the OPEN variable and a negative effect of the M2 variable. Trade openness increases of banking crises. This is explained by the fact that the trade balance of most countries in our sample covers more operations of import, since in these countries, exports are based on a single sector (e.g. hydrocarbons in Algeria). The drop in exports led to a trade deficit which makes countries unable to generate a liquidity surplus, that risk reaches the banks for the decline of M2 indicator, and makes them vulnerable as exporting companies become unable to meet their debts.

For cons, the results show that the regulation indicator is negatively related to the dummy variable banking crisis. The increase of this indicator indicates more regulatory requirement on bank activities. More restrictive controls may increase bank stability and reduce the probability of failure. This is consistent with the findings of Goldstein and Turner (1996), Barth et al (2002), Dress and Pazarbasioglu (1998), Kaminsky and Reinhart (1999) and Abaoud et al (2008) who argue that banking crises are more likely during periods of low regulations.

IV. Conclusion

Our article focused on the study of the impact of external financial liberalization, under certain conditions, on the probability of occurrence of a banking crisis, for five countries in the MENA region, namely Algeria, Morocco, Tunisia, Egypt and Turkey during the period 1980 to 2013.

The results of the analysis show that there is a negative and significant relationship between financial liberalization and banking crises while emphasizing the role of strong economic growth and a strong banking regulation in the adequacy of banks. Financial liberalization undertaken in a reliable macroeconomic and institutional environment promotes good management of banks. For that financial liberalization does not put into question the stability of the economic system, it should be accompanied by increased macroeconomic indices, increased transparency of financial operations and good banking regulation. Regulated liberalization in countries in our sample, can be an instrument of structural reform leading to improved incentives of banks, shareholders, managers and creditors to develop competitive behaviour.

The introduction of financial liberalization allows the state to increase its income to finance its trade deficit. Similarly, bank regulation should always be strengthened before any liberalize the financial sector to ensure the soundness of the banking system. And finally, to offer banks the opportunity to adjust to new market data, financial liberalization should always be gradual.

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