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Institutional quality and bank instability: cross-countries evidence in emerging countries

Zina ESSID¹, Younes BOUJELBENE², Dominique PLIHON³

Summary:

This paper highlights the relevant role of the quality of institutions in maintaining banking stability. Poor institutions constitute the key determinants in explaining the emergence of banking crises. An empirical study of 52 emerging and / or developing countries from 1996 to 2009 finds that banking instability is widely associated with a variety of macroeconomic, financial and ,particularly, institutional factors. Our main conclusion stipulates that the strengthening of institutional quality is an essential condition to ensure banking stability. Political stability, voice and accountability, and respect for the rule and law are relevant institutional characteristics in particular.

Keywords: quality of institutions, supervision and prudential regulation schemes, bank instability, Logit technique, emerging and / or developing countries.

Introduction

In recent decades, banking instability has reached special attention particularly after the onset of the current United States subprimes financial crisis. Banking crises reveal the most important events in modern financial instability. This renewed interest is mainly due to the increasing occurrence of banking instability in both developed and emerging countries and its considerable cost. Banking crises cause a significant increase in public spending. In average, public debt increases 86 percent in the three years following a banking crisis. The indirect consequences on public finances are more important than the cost of rescue established to help troubled banks. [L. Laeven , F. Valencia (2012) , C. Reinhart and S. Rogoff (2009) , A. Garcia- Herrero , P. P. del Río (2004) , G. Hoggarth , V. Sapporta (2002) , Mr. Bordo et al . (2001) and C.J. Lindgren, G. Garcia, M. Saal (1996)]

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The study is motivated by the necessity to understand the determinants of banking crises in order to prevent them and to limit their occurrence. Our main attention to the institutional quality relates to an old concern in economics about the effects that financial systems may have on the performance of the agents within an economy. This concern has encouraged the development of theories and empirical research to assess the relative merits of different financial systems. Therefore, this paper is devoted to analyze the impact of institutional quality on bank instability, which constitutes the originality of our work.

The remainder of this paper is organized as follows: the first section is devoted to a review of the literature on the main empirical work in this context. Next, we define the empirical specification and the choice of variables in the second section. The main empirical results are discussed in the third section.

Section 1: Institutional quality and bank instability: A Conceptual framework

Referring to previous empirical studies, banking crises determinants are classified into three categories such as macroeconomic, financial and institutional factors which correspond to the principal risks facing the financial intermediaries. [Claessens S. M.A. and Kose (2013) and A. Demirgüç -Kunt, E. Detragiache (1998)]

General and specific shocks touching economic conditions affect the creditworthiness of borrowers. Thus, banks are vulnerable to the volatility of their assets and their liabilities value. This volatility is derived from a multitude of macroeconomic shocks which can be either external or domestic. High real interest rates, slowing economic growth and high inflation are a source of internal imbalances which can promote the occurrence of banking crises.

An external source can be represented by the large fluctuations in the terms of trade. Therefore, banking crises were preceded by deterioration in the terms of trade with an annual decline of about 10% during a banking crisis compared to quiet periods. The terms of trade deterioration affects adversely the purchasing power, which could intensify the fragility of imports for a month before a crisis.

In addition to the fragility of the macroeconomic environment, the attacks can be caused by weakness of the structural characteristics of banking systems. Liquidity risk is the risk of typical commercial banks and “bank runs” is the typical model of banking crises. If bank deposits are not insured, a deterioration of the quality of the bank assets portfolio can trigger a 'run' through which depositors will withdraw their funds before the bank declares bankruptcy.

Consequently, the bank becomes typically illiquid. Bank runs accelerate the onset of bank insolvency. They can be devoid of any real reason. Indeed, these runs are triggered by self-fulfilling expectations.

The credit expansion is a major financial cause of bank instability. The financial liberalization program can promote a credit expansion and a rise of asset prices. This continuous price increase promotes the formation of speculative bubbles. Thus, these bubbles burst can lead to banking and currency crises. The credit expansion following financial liberalization feeds the asset prices burst.

An advanced analysis was to consider the role of the institutional framework mainly in banking stability because of the development of institutionalism theoretical approaches. Researchers were encouraged to turn to the institutional dimension as a decisive factor in explaining banking instability. Indeed, institutional reforms, including reforms of good governance, are now seen as priority development strategies. The analysis and the evaluation of institutions have been at the forefront of concerns in economics during the last thirty years. Institutions can explain the differences in terms of legal rules and their effective enforcement from one country to another, and their role in maintaining banking stability, financial system development, and therefore the growth of the entire economy. [A. Boudriga and W. Ghardallou (2012), D. Plihon (2008), W.A. Douglas (2007), D. Rodrik et al . (2004) , J.P. Jutting (2003), J. Aron (2000) , and D. Kaufmann et al . (1999)]

The analysis of institutional determinants of banking instability was performed mainly by A. Demirguc -Kunt and E. Detragiache (1998, 2005). The emergence of banking crises can be explained by the spread of corruption, the poor quality of law enforcement or the weaknesses of the legal system. These elements are negatively correlated with the effectiveness of the prudential supervision of the banking system. Thus, the poor quality of prudential supervision promotes greater opportunities for moral hazard and consequently more risks for banking crises. Institutional factors play an important role in explaining banking crises.

Another factor highlighted in turn leads to increased bank instability is the presence of an explicit deposit insurance scheme. The study of the origin of banking instability shows the decisive role played by the institutional environment through the presence of deposit insurance. Although deposit insurance should reduce bank fragility by eliminating the possibility of self-fulfilling panics, it creates an excessive risk taking. Thus, a greater confidence in banking system ability to use external support has an important theoretical factor in the onset of banking crises.

Since banks play a key role in economic policy, a well-regulated banking sector can be seen as a fundamental element to the functioning of the economy. Regulatory systems are encouraged to develop and implement effective standards to control the behavior of banks. The deposit insurance is an important and potentially constructive element of maintaining financial security in a country.

A study of 61 countries during the period from 1980 to 1997 shows that the presence of the explicit deposit insurance is closely associated with a high probability of banking crises. This effect is more pronounced when bank interest rates are deregulated and the institutional environment is fragile. This result is due to the fact that moral hazard is a major problem in liberalized financial systems where opportunities for excessive risk-taking are numerous, especially in countries with weak institutions. Thus, the adverse effect of the system of deposit insurance on bank stability is stronger where the coverage provided to depositors is more important (in terms of coverage ratio) and the coverage is offered by the government rather than by the private sector (in terms of funding source) . [A. Demirguc -Kunt and E. Detragiache 2002]

Anginer D., A. Demirguc -Kunt and Zhu M. (2012 a) attempt to examine the impact of the structure of deposit insurance on banking sector vulnerability during the global financial instability. Although deposit insurance may increase moral hazard and the vulnerability of financial systems during the banking stability, it can also improve confidence among depositors and reduce the risk of contagion of bank runs during periods of banking instability such as the recent global financial crisis. The effect of deposit insurance on bank risk depends on whether the benefits of deposit insurance may outweigh their costs. A study of 4109 listed banks in 96 countries in the crisis period (during the crisis from 2007 to 2009 and before the crisis) suggests that the effect of deposit insurance on bank risk is different during periods of stability or instability of banks. They show that the existence of explicit deposit insurance promotes the probability of systemic banking crises in the pre-crisis period (from 2004 to 2006). However, the relationship between deposit insurance and the probability of a crisis is reversed in the period from 2007 to 2009. Thus, deposit insurance has a stabilizing effect during the crisis. Nevertheless, the overall effect of deposit insurance is negative since the destabilizing effect in normal times is more extensive compared to the stabilizing effect during the period of global financial turbulence.

The regulatory environment has an important impact on banking stability in particular and the performance of financial systems in general. Financial systems differ widely in terms of size,

structure as well as regulatory and supervision framework. The expected sign between regulatory quality and bank stability is positive since a regulator receiving more powers has the ability to detect a crisis and act to limit the adverse effects. [J . R. Barth , G. Caprio and R. Levine (2002, 2004, 2008)]

The analysis of the recent financial crisis reveals the crucial involvement of major financial innovations. These innovations may be classified to three types such as the deregulation of domestic financial systems, financial globalization through capital account opening and the emergence of new financial instruments. Therefore, the process of financial liberalization as an institutional financial innovation is the most prominent and this mechanism has a greater chance for the emergence of severe banking crises. [M. Triki et S. Maktouf (2012), A. Demirguc-Kunt et E. Detragiache (1999)]

Financial liberalization is as a determining factor in the occurrence of banking crises. A study of 61 countries during the period from 1975 to 1997 suggests that financial liberalization combined with ineffective prudential supervision in banking system will encourage excessive risk-taking by financial intermediaries, and consequently cause a probable crisis. [I. Noy (2004)]

A study of 49 countries suggests that countries with a strong legal environment in terms of rules of law and their enforcement tend to manage risks and to achieve better performance. Thus, the rule of law and the quality of their enforcement are important determinants of banking stability. [R. La porta , F. Lopez de Silanes , A. Shleifer and R. Vishny (1997, 1998, 2008)]

A study of 121 developing countries for the period from 1966 to 2000 proposes that the positive effect of financial development on economic growth is weakened by the financial instability. It also argues that financial development must be stimulated with caution. The financial liberalization policies should be implemented in a strong macroeconomic environment and in very specific institutional conditions. The bank instability is more pronounced in an environment characterized by high inflation and poor rule of law. [S. Guillaumont and K. Kpodar (2006)]

Anginer D. , A. Demirguc -Kunt and Zhu M. (2012 b) have attempted to study the impact of bank competition on bank stability. They found a positive relationship between competition and systemic banking stability which supports the idea that competition encourages banks to take more diversified risk and makes, consequently, banking system more fragile. They also

examined the impact of the institutional and regulatory environment and bank competition on bank stability relationship. An excessive risk is more pronounced in countries characterized by weak banking supervision, high public ownership of banks and a restriction of competition by the public authority. They also found that the lack of competition has a more pronounced effect on the stability of the banking system in countries with a weak institutional and regulatory environment.

Several studies were developed to identify the determinants of banking instability in order to explain their origins and to help their prevention. The current financial crisis triggered in 2007 challenged the shortcomings of the prudential framework. It was necessary to introduce new mechanisms for crisis resolution to limit moral hazard. Several reforms have been implemented in the financial regulation area. These reforms may include changes in the legislation, the creation of a new structure control and the implementation of new international standards. [D. Perrut (2012)]

Section 2. Empirical specification and variables choice:

Specifically, the following four questions are examined—and briefly answered—in this paper:

1. What are the most robust determinants of bank instability and what is their prediction power?
2. Do countries with more developed financial systems have a higher probability of suffering a banking crisis?
3. Do countries with strong institutional quality have a lower probability of suffering a banking crisis?
4. What is the combined impact of financial development and institutional quality impact on banking stability?

2.1. Presentation of the research panel:

Our panel study is composed of 52 emerging countries and during the period from 1996 to 2009. The choice of this period is due to two main reasons. It is characterized by large financial systems mutations and simultaneously by strong banking crises waves. The list of countries is reported in table 1 in the annexes.

2.2. Variables definition:

The list of variable is reported in Table 2 in the annexes.

Section 3. Results and Interpretation :

This papers aims to identify the principal determinants of banking instability by using logit regression. The estimated equation is represented as follows:

$$\text{Prob}(BC_{it} = 1) = \beta_0 + \beta_1 FD_{it} + \beta_2 IQ_{it} + \beta_3 IQ_{it} * FD_{it} + \beta_4 X_{it} + \varepsilon_{it}$$

Where

BC_{it} denotes the dependant variable. This dummy variable assigns the value of 1 if there is a banking crisis in the country i and during the year t , and 0 else.

FD_{it} denotes financial development represented by PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP and DEPOSIT MONEY BANK ASSETS / GDP ratio.

IQ_{it} denotes institutional quality

X_{it} denotes the control variable vector

And ε_{it} denotes the error term

3.1. Institutional quality and bank instability

This section empirically examines the interrelationships among institutional quality and bank instability. The proxy of institutional quality is represented by governance indicators and deposit insurance scheme.

3.1.1. Governance indicators:

Table 3. Evidence on the relationship among institutional quality and bank instability (Private Credit)

Bank instability	(1)	(2)	(3)	(4)	(5)
PRIVATE CREDIT	1.10*** (.40)	.004*** (.01)	1.05*** (.40)	.64* (.44)	.73** (.43)
GROWTH	-.17*** (.03)	-.19 (.03)	-.18*** (.03)	-.19*** (.03)	-.19*** (.03)
INITIAL GDP	-.58*** (.17)	-.71 (.16)	-.76*** (.18)	-.81*** (.18)	-.88*** (.21)
GOV	.002 (.03)	-.02*** (.03)	-.016 (.033)	-.016 (.03)	-.011 (.03)
INF	.05*** (.010)	.046*** (.009)	.049*** (.01)	.049*** (.01)	.052*** (.01)
CTE	2.48** (1.09)	4.2*** (1.16)	4.05*** (1.28)	4.77*** (1.38)	5.23*** (1.63)
PS		-.66*** (.19)			

VA			-.61** (.24)		
RL				-.78*** (.28)	
COMPOSIT INDEX					-.56** (.23)
Pseudo R²	0.18	0.19	0.19	0.2	0.19
Observations number	615	665	612	615	612
Rate of correct classification	86%	87%	86%	87%	86%

This table reports coefficients from LOGIT regressions with standard errors in parentheses. ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent levels respectively.

First, we find that the real rate of growth as well as the ratio of the initial GDP per capita GDP is negative and statistically significant with the “banking crisis” dummy variable. Thus, low real economic growth is clearly associated with a high probability of banking crises, which confirms the idea that a decrease in the growth rate of real GDP is a major source in the development of banking crises during the 1980 and 1990 years.

Inflation has a positive and statistically significant coefficient. Indeed, a weak macroeconomic environment characterized by high inflation increases the likelihood of severe banking crises.

Second, the growth of domestic credit coefficient is positive and statistically significant. As a result, all financial development indicators are positive and statistically significant. This result supports the hypothesis that a boom credit promotes the onset of banking crises. These results confirm those found by A. Demirgüç -Kunt , E. Detragiache E. (2005) , B. Eichengreen , B. Arteta (2002) , R. Glick, Hutchison (2001) and G. Mehrez , D. Kaufman (1999).

Third, we found a significant negative relationship between indicators of good governance and the probability of banking crises. (Tables 3 and 5, columns 2, 3, 4 and 5)

Thus, a strong institutional environment characterized by a high degree of voice and accountability, political stability and absence of violence, rule of law helps reduce the likelihood of banking crises. [A. Demirgüç -Kunt and E. Detragiache E. (2005) A. Boudriga and W. Ghardallou (2012)]

3.1.2 . The deposit insurance scheme:

Table 4: Evidence on the relationship among deposit insurance scheme and bank instability (Private Credit)

Dependant variable: bank instability	(1)	(2)	(3)	(4)
PRIVATE CREDIT	1.25*** (.4)	1.03** (.43)	2.83*** (.90)	1.22** (.53)
GROWTH	-.17*** (.03)	-.17*** (.03)	-.14** (.06)	-.14*** (.04)
INITIAL GDP	-.61*** (.18)	-.62*** (.17)	-1.19*** (.38)	-.51** (.23)
GOV	.009 (.03)	.014 (.033)	.13** (.06)	.07* (.04)
INF	.05*** (.01)	.05*** (.01)	.09*** (.02)	.046*** (.01)
CTE	1.61* (1.18)	2.59** (1.17)	4.52** (2.25)	.63 (1.58)
DEPOSIT INS	1.12*** (.33)			
CO INS		1.9* (1.62)		
COV			.09* (.07)	
FUNDING SOURCE				.31** (.4)
Pseudo R²	0.21	0.18	0.21	0.15
Observations number	615	573	162	362
Rate of correct classification	86%	86%	78%	83%

This table reports coefficients from LOGIT regressions with standard errors in parentheses. ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent levels respectively.

Many economists argue that the probability of occurrence of banking crises depends on the nature of the structural quality of supervision and regulation. They argue that deposit insurance increases the risk of outbreak of banking crises due to the reduction in market discipline and incentives for excessive risk taking. [A. Demirguc -Kunt and E. Detragiache (2002, 2005)] . Others insist that the deposit insurance plays a stabilizing role in eliminating the problem of depositors panic that dominates any negative effect on market discipline. [R. Gropp and J.M. Vesala (2004)].

Recent studies suggest that the impact of deposit insurance on banking stability differs according to the sample of countries selected (developing or developed countries) and the period selected (crisis period or stability period)

To deal with these ambiguous findings in previous studies, we try to test this aspect empirically.

We find that the deposits insurance dummy is positive and statistically significant. (columns 1 Tables 4 and 6). Moreover, the presence of explicit deposit insurance appears to be a probable risk factor since the positive effect in terms of banking stability in reducing trigger self-fulfilling panics is offset by the negative effect through the emergence of the phenomenon of moral hazard. [Demirguç - Kunt, A. , E. Detragiache (2002 , 2005) and JR Barth , G. Caprio and R. Levine (2002, 2004, 2008)]

To better understand the relationship between “deposit insurance” and banking instability, we will draw a distinction between the nature of the different insurance systems on deposits such as the degree of coverage and funding sources. Results are reported in tables 4 et 6.

Table 5. Evidence on the relationship among institutional quality and bank instability (ASSET/GDP)

Dependant variable: bank instability	(1)	(2)	(3)	(4)	(5)
ACTIF/PIB	.82** (.37)	.80*** (.36)	.73* (.38)	.36 (.41)	.49 (.39)
GROWTH	-.18*** (.03)	-.18*** (.03)	-.19*** (.03)	-.2*** (.03)	-.19*** (.03)
INITIAL GDP	-.55*** (.16)	-.74*** (.18)	-.78*** (.18)	-.79*** (.18)	-.88*** (.21)
GOV	-.003 (.03)	-.02 (.03)	-.014 (.03)	-.02 (.03)	-.016 (.03)
INF	.05*** (.01)	.049*** (.01)	.05*** (.01)	.05*** (.01)	.052*** (.01)
CTE	2.33** (1.09)	4** (1.27)	4.48*** (1.27)	4.84*** (1.37)	5.38*** (1.62)
VA		-.64* (.24)			
PS			-.67*** (.19)		
RL				-.85** (.28)	
COMPOSIT INDEX					-.61*

					(.23)
Observations number	616	613	616	616	613
Pseudo R²	0.19	0.19	0.21	0.21	0.19
Rate of correct classification	86.20%	86.30%	86.69%	86.53%	86.30%

This table reports coefficients from LOGIT regressions with standard errors in parentheses. ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent levels respectively.

Table 6. Evidence on the relationship among deposit insurance scheme and bank instability(ASSET/GDP)

Dependant variable: bank instability	(1)	(2)	(3)	(4)
ACTIF/PIB	.89** (.36)	.67* (.39)	1.96** (.74)	.83* (.47)
GROWTH	-.17*** (.03)	-.18*** (.03)	-.12* (.06)	-.14*** (.04)
INITIAL GDP	-.56*** (.17)	-.57*** (.17)	-1.06** (.37)	-.46** (.23)
GOV	.002 (.03)	.008 (.03)	.12** (.05)	.06 (.04)
INF	.05*** (.01)	.05*** (.009)	.09*** (.02)	.05*** (.01)
CTE	1.44 (1.17)	2.38** (1.15)	3.79* (2.18)	.473 (1.58)
DEPOSIT INS	1.08*** (.33)			
CO INS		1.89* (1.61)		
COV			.09* (.06)	
FUNDING SOURCE				.24* (.39)
Observations number	616	574	163	363
Pseudo R²	0.21	0.18	0.19	0.15
Rate of correct classification	86%	86%	78%	84%

This table reports coefficients from LOGIT regressions with standard errors in parentheses. ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent levels respectively.

Empirical evidence shows that the dummy variables coverage has positive and significant coefficients (Columns 3 Tables 4 and 6). While the extent of the coverage seems to be the best guarantee against the runs on deposits, it promotes intense incentives for excessive risk-taking by banks. These results suggest that explicit deposit insurance tends to aggravate the banking fragility as more intense coverage. The strong correlation between the variables of

the degree of coverage and banking instability tends to support the idea that the negative aspects of deposit insurance systems can be limited by reducing the extended coverage.

The “source of funding” dummy is positive and statistically significant with the likelihood of systemic banking crises (Columns 4 Tables 4 and 6) , which confirms the idea that the moral hazard problem is more pronounced if the insurance funds are provided by the government and if insurance funds are provided by banks. These results support the idea that the negative impact of deposit insurance can be reduced by limiting the scope of coverage.

3.2 . Evidence on the relationship among interaction term between financial development and institutional development and banking instability

Theory reviewed in Section I suggests that the adverse effect of financial development on banking fragility is stronger where the institutions needed for the correct functioning of financial systems are not well established. To test whether this effect is supported by the data, we add to baseline regressions in Table 7 various variables in the form of interaction terms between financial development and institutional quality.

Negative and significant coefficients for the interaction variables mean that a better institutional quality tends to weaken the effect of financial development on banking fragility.

These results suggest that improving the institutional quality, especially reducing the amount of corruption and strengthening the rule of law, can curb the tendency of financial development to harbor banking crises. This confirms the idea that a successful financial development policy must be implemented in a sound institutional environment characterized by a high degree of political stability and voice and citizenship. Strengthening the institutional quality tends to reduce the probability of a bank crisis. Thus, the negative impact of financial development on banking stability is more pronounced if institutions, which are necessary for the smooth functioning of financial systems, are not well established. These results confirm those found by S. Guillaumont , K. Kpodar (2006) and E. Detragiache , T. Tressel (2008).

Table 7. Evidence on the relationship among institutional quality, financial development and bank instability

Dependant variable: bank instability	(1)	(2)
GROWTH	-.16*** (.03)	-.17*** (.03)
INITIAL GDP	-.78*** (.2)	-.77*** (.2)
GOV	-.02 (.03)	-.03 (.03)
INF	.77*** (.15)	.77*** (.15)
CTE	2.87* (1.47)	2.95** (1.48)
IQ* PRIVATE CREDIT	-1.27*** (.36)	
IQ* ASSET/GDP		-1.08*** (.30)
Pseudo R²	0.2	0.2
Observations number	536	536
Rate of correct classification	87%	86%

This table reports coefficients from LOGIT regressions with standard errors in parentheses. ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent levels respectively.

Since adverse effect of financial development on banking fragility widely depends on macroeconomic stability, we add to baseline regressions in Table 8 various variables in the form of interaction terms between financial development and inflation.

Table 8: Evidence on the relationship among deposit insurance scheme, macroeconomic environment and bank instability

Dependant variable: bank instability	(1)	(2)	(3)	(4)
GROWTH	-.18*** (.03)	-.2*** (.03)	-.18*** (.03)	-.20*** (.028)
INITIAL GDP	-.52*** (.13)	-.56*** (.13)	-.57*** (.14)	-.602*** (.14)
GOV	-.01 (.03)	-.013 (.03)	.005 (.03)	-.011 (.03)
CTE	2.63* (.95)	3.3*** (.93)	2.72*** (.97)	3.45*** (.94)
PRIVATE CREDIT *INF	.001*** (.0003)			
PRIVATE CREDIT *DEPOSIT INS		.01** (.002)		
ASSET/GDP *INF			.15*** (.03)	
ASSET/GDP *DEPOSIT INS				.96*** (.28)
Observations number	706	706	706	706
Pseudo R²	0.17	0.14	0.19	0.15
Rate of correct classification	86%	86%	86%	86%

This table reports coefficients from LOGIT regressions with standard errors in parentheses. ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent levels respectively.

When the multiplicative specification is tested (columns 1 and 3 Table 8), the impact of financial development on banking instability appears as an increasing function of the inflation rate. An unstable macroeconomic environment or inappropriate economic policy favor the likelihood that the financial system is dotted with financial crises.

Another very important issue is raised as to whether the deposit insurance affects the impact of financial development on banking stability. To test this hypothesis, we use an interaction term between financial development and deposit insurance dummy (columns 2 and 4, Table 8). This interaction term is strongly and positively correlated with the likelihood of banking instability. The effect of financial development on banking instability grows along with the presence of explicit deposit insurance. As a result, the deposit insurance tends to increase banking instability in a more developed financial system. [A. Demirguc -Kunt, B.

Karacaovali, Laeven L. (2005), A. Demirguc -Kunt , H. Huizinga (2004), A. Demirguc - Kunt , E. Detragiache E. (2002) and A. Demirguc -Kunt , E. Kane (2002).

Finally, we examine the impact of financial liberalization on banking instability. The results are presented in Table 9.

We find a significant and a positive relationship between financial liberalization and banking instability. The financial liberalization dummy is positive and statistically significant with the risk of emergence of banking crises. Financial liberalization is an important factor for banking sector fragility. [A. Demirgüç -Kunt , E. Detragiache (1999) , B. Eichengreen , B. Arteta (2002), I. Noy (2004) and E. Detragiache , T. Tressel (2008) M. Triki et S. Maktouf (2012)].(Table 9, column 1)

To better understand the impact of financial liberalization on banking instability, we add to baseline regressions in Table 9 various variables in the form of interaction terms between financial liberalization and institutional quality. Empirical evidence shows that the interaction term is significantly and negatively correlated with the probability of banking crises (column 3 Table 9). This confirms the idea that a successful financial liberalization policy must be implemented in a sound institutional environment characterized by a high degree of political stability, a low level of corruption and high quality law enforcement. Strengthening the quality of the institutional environment by reducing the level of corruption, for example, tends to reduce the probability of bank instability and keep the degree of bank stability. Thus, the negative impact of financial liberalization on banking stability is more pronounced if necessary for the smooth functioning of financial markets institutions are not well established. Moreover, the adverse impact of financial liberalization on banking stability can be moderated by strengthening the structures of supervision and prudential regulation. [E. Detragiache , T. Tressel (2008) and B. Eichengreen , C. Arteta (2002)].

Another very important issue is observed whether financial liberalization affects the impact of deposit insurance on bank stability. To test this hypothesis, we use an interaction term between the variable of financial liberalization and deposit insurance. This interaction term has positive and statistically significant coefficients (column 2 Table 9). As a result, the deposit insurance tends to increase banking instability in liberalized financial systems. According to the theoretical literature, bank interest control under financial repression limits the ability of banks to benefit from high-risk projects with higher returns and moderates the effect of moral hazard induced by the deposit insurance systems. The problem of moral hazard encouraged by the presence of deposit insurance may be more pronounced when

banking systems are liberalized. These results confirm those found by A. Demirguc -Kunt , B. Karacaovali , Laeven L. (2005) , A. Demirguc -Kunt , H. Huizinga (2004) , A. Demirguc -Kunt , E. Detragiache E. (2002) and A. Demirguc -Kunt , E. Kane (2001) and B. Eichengreen, C. Arteta (2002).

Finally, to test the relationship between deposit insurance and banking stability, we introduce institutional quality effect. Deposit insurance effect can be moderated by effective prudential regulation and supervision. The interaction term between the quality of institutions and deposits insurance is negative and statically significant which supports that moral hazard and the erosion of market discipline should be more pronounced when institutions are poorly established. [Eichengreen , Arteta (2002) and A. Demirguc -Kunt and E. Detragiache (2002) hypothesis. (Table 9, column 4)]

Table 9 : Evidence on the relationship among deposit insurance scheme, financial liberalization, institutional quality and bank instability

Dependant variable: bank instability	(1)	(2)	(3)	(4)
PRIVATE CREDIT	.01*** (.004)	.01*** (.004)	.008*** (.004)	.008* (.004)
GROWTH	-.2*** (.03)	-.16*** (.03)	-.17*** (.03)	-.18*** (.03)
INITIAL GDP	-.1 (.18)	-.46** (.16)	-.66*** (.19)	-.72*** (.18)
GOV	-.02 (.03)	-.03 (.03)	-.04 (.03)	-.08** (.03)
INF	.71*** (.16)	.77*** (.15)	.82*** (.16)	.86*** (.16)
CTE	.45 (1.24)	-.08 (1.26)	1.92 (1.52)	2.82* (1.49)
FL	.19*** (.04)			
FL*DEPOSIT INS		.01* (.018)		
FL*IQ			-.03** (.013)	
DEPOSIT INS*IQ				-.99*** (.25)
Observations number	536	536	536	536
Pseudo R²	0.23	0.2	0.2	0.22
Rate of correct classification	86%	85%	85	85

This table reports coefficients from LOGIT regressions with standard errors in parentheses. ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent levels respectively.

Conclusion

The banking crisis multiplication raises debate on bank stability which has become a primary concern for financial authorities. Several empirical studies have been conducted to prevent banking crises and to limit their occurrence. These studies lead to a variety of variables explaining banking sector instability by underlying institutional environment characteristics. The question of the impact of institutional quality on banking instability is at the heart of theoretical debates. However, this issue has rarely developed in the empirical literature. In this context, we propose paying more attention to the characteristic of institutional environment. To do this, we conducted an empirical study of 52 emerging and / or developing during the period between 1996 and 2009 and through using a battery of macroeconomic, financial and institutional variables. The main results relative to the sample of countries studied and the selected period can be summarized as follows:

First, institutional factors are the main factors that have weakened the banking system and triggered the crisis. The favorable impact of the strengthening of institutional quality on bank stability is necessary. In addition, the presence of explicit deposit insurance appears to be a relevant determinant of banking instability in emerging and/ or developing countries, since probably positive (in terms of bank stability) in reducing trigger self-fulfilling panics is offset by negative effect induced by the effect of moral hazard.

Second, banking instability is more sensitive to credit growth. Thus, credit expansion plays a key role in the emergence of financial fragility. The sharp increase in the volume of bank credit would strengthen the financial instability.

Third, the impact of financial development on banking instability appears to be an increasing function of the inflation rate. Macroeconomic instability promotes more credit expansion and consequently, financial fragility.

Similarly, the impact of financial development on banking instability could increase when the institutional environment is weak especially characterized by political instability, high corruption amount and low level of the rule of laws.

In addition, the deposit insurance tends to increase banking instability in a more developed financial system.

Besides institutional factors, macroeconomic factors combined with credit expansion can precipitate a banking crisis and they are the most cycle characteristic such as growth, real interest rate and inflation rates.

Our results suggest that it would be desirable to implement institutional reforms by strengthening supervision and prudential regulation structures and promote more banking stability. Indeed, countries with a weak institutional environment are most threatened by the risk of occurrence of banking instability.

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Annexes:

Table 1: Emerging and/ or developing countries list:

<i>Asia</i>	<i>Latin America</i>	<i>Emerging Europe</i>	<i>Middle East & Africa</i>
Bangladesh*	Argentina*	Bulgaria	Algeria
China*	Bolivia	Croatia	Egypt*
Czech rep	Brasil*	Cyprus	Émirats arabes unis*
Hong Kong	Chile*	Hongria*	Israël
India*	Colombia	Latvia	Kuwait
Indonesia*	Ecuador	Lituani a	Lebanon
Laos	Mexico*	Polond*	Maroco
South Korea*	Nicaragua	Roumania	South Africa*
Malasia*	Panama	Russia*	Qatar
Philippines*	Paraguay	Slovenia	Tunisia
Singapor	Peru	Slovac	Turkey*
Sri Lanka	Uruguay	Ukraine*	Yemen
Thaïland*	Venezuela		
Taiwan, china			
Vietnam*			

* Denotes an emerging country by the International Monetary Fund in 2012

Table 2: variable list:

<i>Variables</i>	<i>Indicateurs retenus</i>	<i>Sources</i>
Macroéconomique Variables	<ul style="list-style-type: none"> Initial GDP: GDP per capita (constant 2005 US\$) 	<i>World Development Indicators</i>
	<ul style="list-style-type: none"> Economic growth : (Growth), GDP per capita growth (annual %) 	
	<ul style="list-style-type: none"> Inflation: inf : Inflation, consumer prices (annual %) 	
	<ul style="list-style-type: none"> GOV: General government final consumption expenditure (% of GDP) 	
financial Variables :	<ul style="list-style-type: none"> PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP (PRIVATE CREDIT) DEPOSIT MONEY BANK ASSETS / GDP(ASSET/GDP) 	<i>Global Financial Development database</i>
institutionnal Variables : IQ	<p><i>Indicateurs de gouvernance :</i></p> <ul style="list-style-type: none"> Voice and Accountability (VA): Political Stability and Absence of Violence/Terrorism (PS): Government Effectiveness (GE) Regulatory Quality (RQ) Rule of Law (RL) Control of Corruption (Corr) 	<i>The Worldwide Governance Indicators</i>
	<p><i>Deposit insurance :</i></p> <ul style="list-style-type: none"> <i>Dummy variable for the presence of an explicit deposit insurance scheme (DEPOSIT INS)</i> 	

	<ul style="list-style-type: none"> ▪ <i>The “coinsurance” dummy assigns the value of 0 if Deposit insurance is implicit, the value of 1 if Deposit insurance is explicit and there no coinsurance and the value of 21 if Deposit insurance is explicit and there coinsurance (CO INS)</i> ▪ <i>The dummy variable assigns the value of 0 if Deposit insurance is implicit, the value of 1 if Deposit insurance is explicit and there is no foreign currency deposits coinsurance and the value of 2 if Deposit insurance is explicit and there is foreign currency deposits (COV)</i> ▪ <i>The dummy variable source of funding source is whether the resources are provided by the banks themselves, by the government, or by both (Funding source)</i> 	<p style="text-align: center;"><i>Bank Regulation and Supervision Database update 2012</i></p>
	<p><i>Financial liberalization : FL</i></p> <ul style="list-style-type: none"> ▪ <i>The “FL” dummy assigns the value of 0 if financial system is totally repressed, the value of 1 if it is partially liberalized and the value of 2 if it is fully liberalized.</i> 	<p>A. Abiad, E. Detragiache & T. Tressel (2010)</p>