

INSTITUTIONAL QUALITY AND FINANCIAL INSTABILITY

Daniela BALUTEL

Alexandru Ioan Cuza University of Iasi, Romania and University of Orleans, France

Iasi, Romania

balutel.daniela@student.uaic.ro

Abstract: *This paper assess the impact of the institutional quality on banking stability using an intensive and extensive margin analysis. The empirical study highlights that the exposure to systemic risk of financial institutions and the probability of banking crisis in a given country is positively associated with a high level of corruption, political instability and low regulatory quality. Additional, we found that the effect of the rule of law on the probability of crisis occurrences depends on the level of country development, while for the systemic risk the effect is positive in both developed and developing economies.*

Keywords: *banking crisis, systemic risk, institutional quality, rule of law, corruption, regulatory quality, political stability, logit technique*

JEL Classification: *G01, G21, G28, D02,*

Acknowledgement

This work was co-financed from the European Social Fund through Operational Programme Human Capital 2014-2020; project number POCU/380/6/13/125015 “Development of entrepreneurial skills for doctoral students and postdoctoral researchers in the field of economic sciences”.

INTRODUCTION

The recent financial crisis, driven by a combination of the assets price increase and credit bubble that led to excessive leverage has gripped the global economy, highlighting the weaknesses of macroeconomic policies and banks’ regulatory and supervisory frameworks. The agencies responsible for regulation, supervision and risk management did not always have specific directives and tools following these mandates, which led to international inconsistencies and policies’ incoherence. Given the standard features related to financial crises found in the literature, there also may be additional country-specific dimensions that may drive financial instability. This paper looks at two measures of risks with the purpose of understanding the determinants of banking crises, and signal the role of institutions that are helping at reducing the risks of the banking crisis, or alternatively, to increase this risk. Additionally, understanding how systemic risk responds to the quality of institutions is important for assessing the overall financial stability of a country. Although rating the relative contributions of the different determinants for the financial stability is not without dispute, adding together the relevant institution’s characteristics will help explain the magnitude and complexity of the banking crises, and the potential failure of different policy measures. Until now, the extent to which institutional quality is effective in strengthening financial stability and reducing the incidence of financial crises is limited.

Therefore, we are interested to see if countries with strong institutional quality have a lower probability of suffering a banking crisis and if they are less exposed to systemic risk.

Institutions' analyses and their assessments have been at the forefront of economic questions as they can explain the differences in legal rules and their successful implementation from one country to another and, further their role in enhancing banking stability, the development of the financial system, and hence the growth of the economy as a whole (Bermpei et al., 2018, Boudriga and Ghardallou, 2012, Belkhir et al. 2020). Demirguc-Kunt and Detragiache (1998, 2005) show that the occurrence of banking crises can be explained by the spread of corruption, poor law enforcement efficiency or legal system vulnerabilities. In general, poor quality of regulation and supervision frameworks leads to moral hazard problems, higher risk-taking and possible banking crises. La Porta et al. (2008) emphasise that countries with a strong legal environment are better in managing risk and achieving performance. Guillaumont and Kpodar (2006) also show that bank instability is higher in societies characterised by high inflation with the lower rule of law. After the financial crisis episode, both the developing and developed economies have stepped up the use of macroprudential policies in order to contain the risk of possible future crises and strengthen the resilience of financial stability (Akinci and Olmstead-Rumsey, 2018). Although it is commonly accepted that tighter banking regulation and supervision (Podpiera, 2004; Demirgüç-Kunt et al. 2008) would improve financial sector resilience, there is conflicting empirical evidence on the impact of regulation and supervision on financial stability (Agoraki et al., 2011; Anginer et al., 2014; Barth et al., 2004). The reason for such inconclusiveness is that this relationship could be indirectly affected by different factors. In the literature, we found that the effects of bank regulation and supervision on financial stability depend on the institutional quality (Bermpei et al., 2018, Klompe and Haan, 2014), macroeconomic environment (Klomp and Haan, 2015) and corporate governance (Laeven and Levine, 2009).

In this paper, we quantify the extensive margin of the financial instability measured in our case by the probability of banking crisis and the intensive margin of the financial instability of a country, measured by its systemic risk. Using a sample comprising of 48 countries over the 2003-2013 period, the institutional indicators provided by World Bank, the banking crisis database of Laeven and Valencia (2018) and a measure of systemic risk, we found that the institutional quality reduces the probability of banking crises and the exposure to systemic risk of financial institution. In particular, for the extensive margin analysis, we found that low level of corruption, political stability and regulatory quality are key factors in reducing the systemic risk and probability of a banking crisis, these effects being more important for developed countries. As for the rule of law, we found that it is increasing the occurrence of banking crisis for developed economies while it has a hampering effect for the emerging countries.

The intensive margin analysis projects somehow a similar story as the extensive margin analysis with few exceptions. We see that for systemic risk, controlling for corruption is more important for emerging countries than for developed ones, while for the rule of law, the effect remains positive and significant for both groups of countries, with the effect being stronger for the developed countries. Political stability, however, remains negative across the two groups of countries but is losing its significance.

This work contributes to the existing literature on identifying new factors that may lead future banking crises by examining the relationship between institutional quality and

As pointed out, the extensive margin gives only one face of the financial instability of a given country. To see what is essential for the systemic banking risk of a given country in term of institutional quality, we do an intensive margin analysis. To measure the exposure of banks to systemic risk of a given country, we have used the Marginal Expected Shortfall (MES) suggested by Acharya et al. (2017).

The benchmark model in this case is:

$$M_{it} = \alpha_i + \beta_1 I_{it} + \beta_2 M_{it} + \beta_3 C_{it} + \beta_4 I_{it,t-1} + \beta_5 M_{it,t-1} + \beta_6 C_{it,t-1} + u_{it}$$

where I_{it} , M_{it} , C_{it} and α_i are the same as in the extensive margin analysis, while u_{it} are random i.i.d. errors. As in the extensive margin analysis, we are also testing if the effects of the institutions' characteristics on the systemic risk of a country are different across emerging and developed economies.

RESULTS

Extensive margin analysis results

We start the presentation of results by looking at the effects of institutional quality on the probability of banking crises (Table 1). We also compare these effects on the risk of banking crises across emerging and developed countries. The results suggest that controlling corruption in the country is very important at containing banking distress for all the specifications. In particular, findings show that the effect is more substantial for developed economies. The results are in line with studies that found that strong regulation of corruption is improving regulatory enforcement and decrease bank risk (Oliva, 2015, Essid et al., 2014, Bernpei et al., 2018). Political stability presents similar effects as controlling for corruption, meaning that reducing conflict and political instability will lead to a decreased occurrence of the banking crisis (Compaore et al. 2020, Damania et al., 2004). Again, it is more important for developed countries. An interesting result is associated with the rule of law. In particular, the rule of law increases the probability of a banking crisis for developed economies while has a hampering effect for the emerging economies. The effect of regulatory quality is reducing the risk of banking crises and affects mostly developed countries. Consequently, strengthening the quality of the institutional environment reduces the probability of banking crises and keep the degree of financial stability (Demirguç -Kunt & Detragiache, 2005).

Financial freedom has a positive effect on the risk of banking crisis, and it has a stronger impact for developed countries meaning that financial freedom is an important determinant for banking sector fragility (Detragiache & Tressel (2008), Triki & Maktouf (2012)). The macroprudential index shows that the effects of macroprudential policies have a negative effect on the bank crisis dummy across all specifications, in this case, the effect is stronger, especially for emerging countries. The probability of the occurrence of banking crises depends on the quality of regulation and supervision framework (Belkir et al. 2020).

Table 1. Extensive margin analysis: The effects of institutional quality on the probability of banking crisis

	(1)	(2)	(3)
--	-----	-----	-----

VARIABLES	Crisis dummy (all sample)	Crisis dummy (emerging and developing counties)	Crisis dummy (developed countries)
Control of corruption	-3.249*** (0.262)	-2.461** (0.966)	-4.088*** (0.298)
Political stability	-0.497*** (0.129)	0.505 (0.364)	-0.592*** (0.163)
Rule of law	4.883*** (0.381)	-1.026* (0.535)	7.276*** (0.520)
Regulatory quality	-0.708** (0.344)	1.262 (1.087)	-1.650*** (0.393)
Financial freedom	0.309*** (0.0511)	0.156 (0.247)	0.302*** (0.0549)
Macroprudential Index	-0.0833* (0.0440)	-0.429*** (0.102)	0.0495 (0.0563)
L.inflation	3.436*** (0.948)	5.124*** (1.546)	2.792* (1.461)
L.GDP per capita growth	-9.876*** (2.235)	-2.698 (4.294)	-11.68*** (2.813)
L.lerner indicator	-2.159*** (0.478)	-3.493*** (1.069)	-1.675*** (0.516)
Constant	-4.336*** (0.362)	-3.131** (1.239)	-5.576*** (0.395)
Observations	524	314	210

Note: Results obtained using Robust standard errors; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The control variables have the expected sign. Particularly, the GDP per capita growth is negative and statistically significant with the banking crises binary variable. Thus, low real economic growth is strongly correlated with a high probability of banking distress, which reinforces the belief that a fall in real GDP growth rate is a major cause of banking crisis creation. Inflation has a positive and statistically significant coefficient, meaning that a weak macroeconomic environment characterised by high inflation increases the likelihood of banking crises.

Intensive margin analysis results

In this subsection, we are testing the importance of institutions on systemic risk (MES). We employ a panel fixed effects estimator. This estimator is particularly relevant for this analysis as we want to eliminate the sources of potential endogeneity that relates the institutions of a country with the systemic risk associated with that country. As the change in institution quality is slow in countries, may exist the possibility to have correlation between these institutions and the country-specific unobserved heterogeneity. Using fixed effects, we allow for this correlation between the country-specific institutions

and the unobserved heterogeneity. Additionally, by using lags of the controls, we eliminate any other source of endogeneity that may relate the controls to the unobservables.

The results (Table 2) are similar to the ones obtained when the effect of institutional characteristics on the risk of the banking crisis was measured. Controlling for corruption has the strongest negative impact on the systemic risk of a country, while the rule of law has a significant positive impact on the MES. Additionally, political stability reduces systemic risk. Looking at the effects of these institutions across the emerging and developed countries, we see that controlling for corruption is more important for emerging countries than for developed ones. The result is reversed to the one obtained when the risk of banking crises was measured.

Table 2. Intensive margin analysis: The effects of institutional quality on MES

VARIABLES	(1) MES (all sample)	(2) MES (emerging and developing countries)	(3) MES (developed countries)
Control of corruption	-1.583*** (0.491)	-2.012** (0.884)	-1.225** (0.564)
Political stability	-0.619* (0.350)	-0.427 (0.325)	-1.124 (0.737)
Rule of law	3.120*** (0.822)	2.854** (1.024)	3.170** (1.313)
Regulatory quality	-0.173 (0.590)	-0.342 (0.956)	-0.442 (0.874)
Financial freedom	0.0950 (0.106)	0.0499 (0.0766)	0.0893 (0.192)
Macroprudential Index	0.316*** (0.0524)	0.354*** (0.0784)	0.306*** (0.0774)
L.inflation	-3.036 (1.835)	-4.794*** (1.596)	14.52** (6.729)
L.GDP per capita growth	-3.817*** (1.377)	-0.878 (1.993)	-7.078** (2.808)
L.lerner indicator	-0.0807 (0.415)	0.433 (0.708)	-0.314 (0.525)
Constant	0.392 (0.896)	0.416 (0.424)	0.331 (2.040)
Observations	524	314	210
R-squared	0.152	0.343	0.139

*Note: Results obtained using Robust standard errors; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

As for the rule of law, the effect remains positive and significant for both group of countries, with the effect being stronger for the developed countries (in the extensive margin analysis the rule of law affected the emerging and developed countries differently, with the developed being the most affected). Political stability remains negative, but it is

losing its significance across the two groups of countries. Regulatory quality does not play any significant effect neither for the full sample nor for the two subsamples.

CONCLUSION

The increase in the number of banking crises raises the debate on bank stability which has become a primary concern for financial authorities. Several empirical studies have been conducted to understand banking crises with the purpose of reducing their occurrences. These studies led to a variety of variables explaining banking sector instability, underlying the importance of institutional environment characteristics. Questions about the impact of institutional quality on banking instability, becoming the core of theoretical debates. However, this issue has rarely developed in empirical literature. In this context, we propose to emphasise the role of the institutional environment in understanding the financial stability of a country. To do this, we conducted an empirical study on a sample of 48 emerging and developed countries during the period between 2003 to 2013. The analysis highlights the following findings: the exposure to systemic risk of financial institutions and the probability of banking crisis in a given country is positively associated with a high level of corruption, political instability and low regulatory quality. Additionally, we found that the effect of the rule of law on the probability of crisis depends on the level of country's development, while for the systemic risk, its impact is positive in both developed and developing economies.

References

1. Acharya, V., Pedersen, L., Philippon, T., Richardson, M. (2017). *Measuring systemic risk*. Review of Financial Studies 30(1), 2-47.
2. Agoraki, M., Delis, M., Pasiouras, F., (2011). *Regulations, competition and bank risk-taking in transition countries*. Journal of Financial Stability 7, 38-48.
3. Akinci, O. and J. Olmstead-Rumsey. 2018. *How effective are macroprudential policies? An empirical investigation*. Journal of Financial Intermediation 33, January 33-57.
4. Anginer, D., Demirguc-Kunt, A., and Zhu, M. (2014). 'How does deposit insurance affect bank risk? Evidence from the recent crisis', Journal of Banking & Finance, Vol. 48, pp. 312-321.
5. Barth, J.R., Caprio, G., Levine, R., 2004a. *Bank regulation and supervision: what works best?* Journal of Financial intermediation 13, 205-248.
6. Belkir, M., Naceur, S., Candelon, B. and Wijnandts, J.C. 2020. *Macroprudential Policies, Economic Growth, and Banking Crises*. IMF Working paper.
7. Bermpei, T., Kalyvas, A. and Nguyen T. C. (2018). *Does institutional quality condition the effect of bank regulations and supervision on bank stability? Evidence from emerging and developing economies*. International Review of Financial Analysis, vol. 59, pp. 255-275.
8. Boudriga, A., Ghardallou W., 2012. *The Determinants of Banking Crises: The Case of the 2008 Worldwide Financial Crisis*, 29th International Conference of the French Finance Association (AFFI) 2012.
9. Demirgüç-Kunt, A. Detragiache, E., Tressel, T., 2008. *Banking on the principles: Compliance with Basel Core Principles and bank soundness*. Journal of Financial Intermediation 17, 511-542.
10. Kaufmann, D., Kraay, A., Mastruzzi, M., 2009. *Governance matters III: The world governance indicators for 1996–2009*. www.govindicators.org.
11. Klomp, J., and Haan, J. (2014). 'Bank regulation, the quality of institutions, and banking risk in emerging and developing countries: an empirical analysis', Emerging Markets Finance and Trade, Vol 50(6), pp. 19-40.

12. Klomp, J., and Haan, J. D. (2015), 'Bank regulation and financial fragility in developing countries: Does bank structure matter? Review of Development Finance, Vol. 5(2), pp. 82-90.
13. La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2008, *The Economic Consequences of Legal Origins*, Journal of Economic Literature, American Economic Association, volume 46(2), pages 285-332.
14. Laeven, L., and Levine, R. (2009). *Bank governance, regulation and risk taking*, Journal of Financial Economics, Vol. 93(2), pp. 259-275.
15. Laeven, L., Valencia, F., (2013). *Resolution of Banking Crises: The Good, the Bad, and the Ugly*. In Stijn Claessens, M. Ayhan Kose, Luc Laeven and Fabian Valencia (eds.), *Financial Crises: Causes, Consequences, and Policy Responses*, IMF.
16. Podpiera, R., 2004. *Does compliance with Basel Core Principles bring any measurable benefits?* IMF Working Paper 04/204.
17. Detragiache E., Tressel T., 2008. *Do Financial Sector Reforms Lead to Financial Development? Evidence from a New Dataset*. International Monetary Fund Working Papers,08/265, 1-41.
18. Triki M. B., Maktouf S., 2012. *Financial Liberalisation and Banking Crisis: A Spatial Panel Model*. Journal of Applied Finance & Banking, vol.2, no.3, 2012, 81-122.
19. Essid, Z., Boujelbene, Y., Plihon, D. (2014). *Institutional quality and bank instability: cross-countries evidence in emerging countries*. CEPN

Appendix 1. Description of variables

Bank crisis dummy	Dummy variable takes the value of 1 if there is a banking crisis in the country i and during the year t, and 0 otherwise.	Laeven and Valencia (2012)
MES	Defined as the average return on banks market capitalisation on the days, the total market capitalisation of the sample experienced a loss higher than specified threshold C indicative of market distress. ($MES_{tt-1}^i = M_{tt-1}^i / RR_{RR}^{SSSSSSSSSS} < C$). For these analyses, we compute an average value for each country and year.	Own calculation in accordance to Acharya et al. (2017)
Control of corruption	This is a measure of the perceptions of the extent to which public power is exercised for private gain, including both small and large forms of corruption. The index ranges from -2.5 to +2.5, higher values indicating tighter corruption controls.	World Bank
Political instability	Measures perceptions of the probability of political instability and/or politically-motivated violence, including terrorism. The index range from -2.5 to +2.5, higher values indicating a more stable political environment.	World Bank
Rule of law	Mesures perception of the degree to which agents trust and abide by society rules, in particular the quality of the contract enforcement, property rights, courts, and police, as well as the possibility of crime and violence. The index ranges from -2.5 to +2.5, higher value indicating stronger rule of law.	World Bank
Regulatory quality	Measures perceptions of the Government's ability to formulate and enforce sound policies and regulations that encourage and facilitate the development of the private sector.	World Bank

Macroprudential index (MPI)	The index is the sum of the score of 12 macroprudential instruments, namely General Countercyclical Capital Buffer/Requirement (CTC); Leverage Ratio for banks (LEV); Time-Varying/Dynamic Loan-Loss Provisioning(DP); Loan-to-Value Ratio (LTV); Debt-to-Income Ratio (DTI); Limits on Domestic Currency Loans (CG); Limits on Foreign Currency Loans (FC); Reserve Requirement Ratios (RR); and Levy/Tax on Financial Institutions (TAX); Capital Surcharges on SIFIs (SIFI); Limits on Interbank Exposures (INTER); and Concentration Limits (CONC). The index ranges from 0 to 12, higher values indicating an increasing usage of macroprudential policies by financial institutions.	Cerrutti et al. (2017)
Lerner Indicator	It is defined as the ratio of total bank revenue over assets (using total assets as a proxy for bank production). It is a measure of market power.	World Bank
Financial Freedom	It is a measure of banking efficiency and independence from government control and financial-sector intervention.	Heritage Foundation
GDP per Capita Growth (%)	Annual GDP per capita Growth	World Bank
Inflation (%)	Annual inflation rate	World Bank

Appendix 2. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Crisis dummy	524	0.08	0.27	0.00	1.00
Marginal Expected Shortfall	524	1.82	1.53	0.00	15.07
Control of corruption	524	0.63	1.06	-1.38	2.59
Political stability	524	0.19	0.97	-2.81	1.66
Rule of law	524	0.61	0.96	-1.99	2.12
Regulatory quality	524	0.73	0.84	-1.86	2.26
Macroprudential index	524	2.06	1.80	0.00	8.00
Financial freedom	524	6.03	1.80	1.00	9.00
Inflation	524	0.04	0.07	-0.05	1.10
GDP per capita growth	524	0.02	0.04	-0.15	0.16
Lerner indicator	524	0.25	0.17	-1.61	1.08

Source: Author's calculation



This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution - Non Commercial - No Derivatives 4.0 International License.