



Institutional development and bank stability: Evidence from transition countries



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ABSTRACT

This paper takes advantage of the dynamic nature of institutional reforms in transition economies and explores the causal effects of those reforms on bank risk. Using a difference-in-difference approach, we show that banks' financial stability increases substantially after these countries reform their legal institutions, liberalize banking, and restructure corporate governance. We also find that the effects of legal and governance reforms on bank risk may critically depend on the progress of banking reforms. A further examination of alternative risk measures reveals that the increases in financial stability among banks mainly come from the reduction of asset risk. Banks tend to have lower ROA volatility and fewer nonperforming loans after reforming the institutional environment. Finally, we split our sample into foreign and domestic banks and find that the enhancement of financial stability is more pronounced for domestic banks.

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1. Introduction

A large body of literature pioneered by La Porta et al. (1997, 1998) suggests that efficient legal systems and strong investor protections facilitate financial market development through better contracting and enforcement mechanisms. Accordingly, the literature also suggests that the presence of these institutions is associated with more private credit availability, lower bank financing cost for firms, and more favorable financial contracts (Djankov et al., 2007; Qian and Strahan, 2007; Bae and Goyal, 2009; Haselmann et al., 2010).

More recently, a number of studies apply these important insights to the examination of risk taking behavior of firms. For example, John et al. (2008) find that stronger shareholder protections reduce managerial entrenchment and incentivize managers to undertake riskier but possibly more value-enhancing investments. Stronger creditor protections, on the other hand, tend to discourage that behavior and lead to more value-decreasing diver-

sifications (Acharya et al., 2011). Focusing on banking institutions, Laeven and Levine (2009) demonstrate that banks with powerful shareholders take more risks, and how national regulations affect that bank risk may also depend on the ownership structure of banks. Houston et al. (2010) extend the analysis to creditor rights and information sharing. Their findings suggest that strengthened creditor protections are associated with greater bank risk and that better information sharing reduces bank risk.

This literature, however, has not been successful in establishing a causal relation between institutional developments and banking stability. Reverse causality can be a potential concern where regulations and investor protections can endogenously change in response to the changes in banking stability. Moreover, the differences in institutional developments across countries are likely to be correlated with other country characteristics that may influence both institutional development and banking stability simultaneously. If this is the case, the observed relation between institutional development and bank risk might be spurious because it could be shaped by omitted country variables. In order to establish a causal link, one would ideally need to obtain exogenous changes of institutional environment and test what impacts they have on bank risk taking. However, it is noted that the quality of institutional

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development in many countries has hardly changed over time, hence posing a large challenge in exploring the causal relations in the law and finance literature (Glaeser et al., 2004; Djankov et al., 2007; Haselmann et al., 2010).

In this paper, we take advantage of Eastern European countries as a natural experiment to explore the causal effects of institutional developments on banking stability. After the collapse of the Soviet Union, former member countries underwent a series of banking reforms, legal reforms, and corporate governance restructure. These institutional reforms have created exogenous variations in the timing and depth of the institutional development, which provides an ideal setting to overcome the endogenous nature of institutional development (Haselmann et al., 2010). We therefore can test in a clean and direct manner how substantial changes in institutional environments are transmitted to the banking sector and affect individual banks' risk-taking behavior. Our main research question is to investigate how institutional reforms affect bank risk with regards to banking liberalization, creditor rights, and corporate governance restructuring. We also investigate whether different reforms substitute for or complement one other in influencing bank risk. Furthermore, given that the presence of foreign banks is a key characteristic of the banking markets in transition countries, we examine whether institutional reforms affect foreign banks and domestic banks differently.

To analyze the impacts of institutional reforms on banking stability, we exploit the reform indicators in EBRD (European Bank for Reconstruction and Development) data set, and employ a differences-in-differences (DID hereafter) approach to examine how bank risk changes subsequent to the changes of reform progress. Specifically, we obtain yearly progress in creditor rights reforms, banking liberalization, and corporate governance restructuring of 15 transition countries from 1997 to 2008. For each year, countries that experienced reforms belong to the treatment group, and countries with no changes belong to the control group. Given that the reforms in transition countries took place at different time periods in different countries, we apply the DID approach in a multiple groups and multiple time periods framework (Bertrand and Mullainathan, 2003; Hansen, 2007; Haselmann et al., 2010). This empirical strategy allows us to address many threats concerning validity. For example, comparing bank risk level between the treatment and control groups in the post-reform periods removes biases due to common economic trend of the two groups. Moreover, it also allows the comparison between the pre-reform and post-reform periods within the treatment group, which removes biases that could be due to other omitted time invariant factors, rather than reform events (Imbens and Wooldridge, 2009).

Following recent literature on bank risk, we use Z-score as our primary measure for bank stability. The inverse Z-score can be used to approximate a bank's probability of default (Laeven and Levine, 2009; Houston et al., 2010; Delis et al., 2012; Goetz, 2012; Jiménez et al., 2013). Our main findings suggest that better institutional developments lead to higher banking stability. In particular, a bank's financial stability rises by about 0.53 if creditor rights improve by one standard deviation. It rises by about 0.54 and 0.32 if the level of governance reforms and banking liberalization improve by one standard deviation, respectively. These effects are both statistically significant ($p < 5\%$) and economically meaningful, as the average value of bank stability in our sample is 3.26. We also find that banking reforms complement legal reforms. In particular, the effects of creditor rights and corporate governance reforms on bank risk depend critically on the progress of banking reforms such that it is only after a relatively well-developed banking sector is established that legal reforms and corporate governance reforms become more impactful in enhancing banking stability. However, how banking reforms affect bank risk does not rely on the level of creditor rights or corporate governance reforms.

We also examine alternative risk measures to explore the sources of risk reduction. For example, we find asset risk (proxied by ROA volatility) reduces significantly after all three types of reforms occur. Credit risk (proxied by non-performing loans) also decreases after banking reforms and corporate governance restructuring. The examination on equity-to-asset ratio suggests that the capitalization level is reduced after banking liberalization. This potentially strengthens our results, as it implies that the reduction of asset risk and credit risk is strong enough to overcome the decrease of capitalization. To examine market risk, we use ROE volatility as the major proxy and the main findings remain upheld.¹ Finally, we develop a new measure of "relative stability" utilizing the stochastic-frontier technique (a detailed methodology is provided in Appendix B). It captures the relative performance of how close a bank's financial stability is to the best performing bank given its production inputs and outputs condition. Our results are robust using relative stability measures.

While it is suggested that the dynamic nature of institutional reforms in transition economies represents an ideal setting to overcome major identification problems (Giannetti and Ongena, 2009; Haselmann et al., 2010),² a potential endogeneity issue with our study is that institutional reforms might be coincident with the change in economic climate or bank-specific financial conditions. Specifically, it is not the reforms that make banks more stable, but instead certain time varying variables either at the country or bank levels, as the DID approach controls omitted variables problems that are time-invariant but not heterogeneous trends across countries or banks. We take a number of steps to alleviate the omitted variables problem as illustrated above. First, we control various time-varying bank characteristics that might affect bank risk taking. We also include various macro-variables to control for economic conditions of our sample countries. Second, we employ DID approach in a panel regression framework, in which we control both country- and year-fixed effects across all regressions. As a robustness check, we also perform firm-fixed effect estimations to account for unobserved time-invariant bank characteristics that may influence risk taking. This allows us to account for bank specific omitted variables that affect banks' decision to take risk, such as differences in managerial incentives of risk taking and shareholders' specific utility function with regards to risk taking. Third, we examine the correlations relating past economic and banking market conditions (e.g., economic growth and domestic credit to GDP) to the progress of institutional reforms of the current year. Results indicate that the progress of institutional reforms is not associated with these economic factors, which alleviates the concern of spurious correlation coefficients (results will be provided upon request). Overall, endogeneity does not appear to explain the documented relationship between institutional reforms and bank risk taking.

Regarding the role of foreign banks, we first determine if our conclusions on institutional reforms and bank risk still hold after taking into account the large presence of foreign banks. As indicated by prior literature, foreign banks are more efficient lenders in emerging markets (e.g., Levine, 1996; Claessens et al., 2001; Giannetti and Ongena, 2009, 2012). The disadvantage of foreign

¹ We also use stock return volatility (annualized standard deviation of weekly equity return) and idiosyncratic return volatility to measure market risk. But given that publicly traded banks in transition markets are very few, we only have market risk measures for a few banks in our sample and cannot perform DID estimations. Results based on OLS confirm the positive roles for all three types of reforms. Results can be provided upon request.

² As suggested by Giannetti and Ongena (2009) and Haselmann et al. (2010), transition economies represent an ideal setting to overcome the identification problems because these countries have undergone substantial institutional reforms since the 1990s. These reforms are less likely to be endogenous, as they are motivated by external organizations, such as European Union (EU), European Bank for Reconstruction and Development (EBRD), and USAID.

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