

# Bank Failures and Bank Fundamentals: A Comparative Analysis for Latin America and East Asia during the 1990s

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**D**uring the 1990s, countries in East Asia and Latin America experienced acute systemic banking crises that compromised a substantial share of their banking sectors, requiring government intervention at considerable cost.<sup>1</sup> These episodes have renewed interest in academic and policy circles about the contribution of individual bank weaknesses to bank failures during systemic banking crises. This issue is particularly relevant for industrialized countries like Canada, given the exposure of their banking sectors to foreign assets in emerging markets (EMs). Specifically, the overall EM portfolio of banks in industrialized countries could be affected if problems in the banking sector of one country spread to others because of contagion.

To date, the empirical literature on bank failures in EMs has focused mainly on the characteristics of failed banks relative to non-failed banks. However, no systematic cross-country empirical evidence is available to assess whether it was mainly the weakest banks (defined in terms of their fundamentals related to solvency and liquidity) that failed during the crises. In this context, the purpose of this study is to examine the episodes of systemic banking crisis during the 1990s in Latin America (Argentina, 1995; Mexico, 1994; and Venezuela, 1994) and East Asia (Indonesia, Korea, Malaysia, the Philippines, and Thailand in 1997), using bank-level data to answer the following questions: (i) To what extent did the financial conditions of individual banks explain bank failures? (ii) Did only the weakest banks, in terms of their fundamentals, fail in the crisis countries?

## Methodology

First, the individual probabilities of bank failure are estimated as a function of bank-level fundamentals related to solvency, liquidity, profitability, and asset quality. This is done by using cross-sectional multivariate logit models to evaluate whether bank-level heterogeneity is important in explaining cross-country bank failures (i.e., if crisis countries had weaker banks *ex ante* than non-crisis countries, rather than just having worse shocks *ex post*). Second, based on the estimated individual probabilities of bank failure (propensity scores), the distribution for failed and non-failed banks in the crisis countries is analyzed by evaluating the degree of overlap between the distribution of both groups to assess whether it was mainly the weakest banks that failed in the crisis countries. In addition, the average of the propensity scores for failed and non-failed banks is computed to determine the relative contribution of only bank-level fundamentals to the likelihood of failure.

## Results

The results for East Asia and Latin America show that bank-level fundamentals not only significantly affect the likelihood of a bank failure, but also account for a significant proportion of failed banks (between 50 and 60 per cent). The results thus support the view that failed banks in the systemic banking crises in EMs during the 1990s suffered from fundamental weaknesses in their asset quality, liquidity, and capital structures before the onset of the crisis. However, bank-level fundamentals are not enough to explain cross-country differences in crisis outcomes.

Regional differences appear when the distribution of the estimated probabilities of failure is analyzed. The results for East Asia show little

1. Examples include recapitalization and restructuring costs (Caprio and Klingebiel 2003).

overlap in the distribution of propensity scores between failed and non-failed institutions in the crisis countries. This suggests that systemic shocks—macroeconomic and liquidity shocks—destabilized banks whose fundamentals were the weakest before the shock. However, the results for Latin America show a considerable overlap in the distribution of propensity scores between failed and non-failed banks in the crisis countries. This would suggest that a fraction of banks that were relatively non-weak before the onset of the crisis may have been forced to fail in the context of unexpected aggregate shocks to the system. An analysis of the banks' survival time that takes into account the effect of banking-system and macroeconomic variables over the crisis period shows that the failure threshold of this group of ex ante relatively non-weak banks was shifting during the crisis period. This explains the quality difference between failed and non-failed banks in Latin America.

These results suggest areas for further research on the issue of regional asymmetries in the degree of the banking sector's resilience to systemic shocks that are associated with either macroeconomic or liquidity shocks or both. Such research should assess whether the banking sector in Latin America is less able to withstand or absorb unexpected systemic shocks than the banking sector in East Asia. Using banking-system and macroeconomic variables, Kaminsky and Reinhart (1998) find that East Asia and Latin America have different regional patterns for systemic banking crises, with those in Latin America being more volatile and severe than those in East Asia.

## Policy Implications

These results suggest that the supervision of financial systems in EMs could be strengthened by putting emphasis on the traditional financial ratios associated with the CAMEL rating system,<sup>2</sup> at least as near-term indicators of bank vulnerabilities. The latter does not preclude the use of market-based indicators (e.g., deposit interest rates and interest rate spreads) to identify bank vulnerabilities, as part of an early warning system.

Banking regulation and supervision should also take into account the influence of macroeconomic developments on individual banks (i.e., assess the financial institution's exposure to systemic shocks) in order to make the banking (financial) system more robust to such shocks. For this purpose, it will not only be necessary to continue conducting macro-prudential analysis related to banking supervision and to the Financial System Assessment Programs (FSAPs), but also to reform the regulatory framework, ensuring that bank exposures to macroeconomic sources of risk are properly accounted for. This would include, for example, the exposure of banks to foreign currencies and their loan concentration to a particular economic sector (e.g., real estate).

## References

- Caprio, G. Jr. and D. Klingebiel. 2003. "Bank Insolvencies: Cross-Country Experience." World Bank. Photocopy.
- Kaminsky, G.L. and C.M. Reinhart. 1998. "Financial Crises in Asia and Latin America: Then and Now." *American Economic Review* 88, Papers and Proceedings of the Hundred and Tenth Annual Meeting of the American Economic Association: 444–48.

2. CAMEL stands for Capital, Asset quality, Management, Earnings, and Liquidity.