VIEWPOINTS

# Spare Tire? Stock Markets and Systemic Banking Crises

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Do stock markets act as a "spare tire" during banking crises by providing an alternative form of corporate financing when the banking system goes flat?

In 1999, Alan Greenspan, then chairman of the Federal Reserve, argued that stock markets could mitigate the negative effects of banking crises, including the weakening of businesses and increased unemployment. Using the analogy of a spare tire, he suggested that banking crises in Japan and East Asia would have been less severe if those countries had built the legal infrastructure needed to enable stock markets to provide financing to corporations when banks could not. The more general hypothesis is that enabling companies to substitute equity issuances for loans makes banking crises less harmful. But, until recently, researchers had not evaluated Greenspan's spare tire view. Although official entities and others have discussed the argument (e.g., U.S. Financial Crisis Inquiry Commission, 2011; Wessel, 2009), we are unaware of previous systematic assessments of Greenspan's view of how financial markets can ease the effects of systemic banking failures.

In a new paper written with Chen Lin of Hong Kong University and Wensi Xie of the Chinese University of Hong Kong, forthcoming in the *Journal of Financial Economics* ("Spare Tire? Stock Markets, Banking Crises, and Economic Recoveries"), we provide the first assessment of the spare tire view.

The view makes three core predictions:

First, companies will achieve better performance if they can issue equity at low cost when banking crises limit the availability of bank loans. Without an alternative source of financing, firms suffer more during banking crises.

Second, when a systemic banking crisis reduces lending, the benefits of a sound stock market will accrue primarily to firms that depend heavily on bank loans. The crisis is less likely to harm firms that do not rely on bank financing.

Third, the spare tire view stresses the *ability* of the stock market to provide financing *during* a banking crisis. For the stock market to respond adequately, the legal infrastructure must be in place before the crisis begins. It is the pre-crisis legal infrastructure—not necessarily the pre-crisis size of the stock market—that enables the spare tire effect. To push the analogy still further, it is not the use of the spare tire before the regular tire goes flat that mitigates the adverse effects of getting a flat tire; it is having a sound spare in the trunk.

## Methodology

We assess the three key predictions of the spare tire view by using data on 3,600 firms, across 36 countries, over the period 1990 through 2011. In particular, we examine how differences in the pre-crisis legal infrastructure influence the impact of systemic banking crises on equity issuances, profitability, and (3) employment levels of firms.

To measure the pre-crisis legal infrastructure shaping the functioning of stock markets, we use the Djankov et al. (2008) Anti-Self-Dealing Index, which measures the degree to which the law protects minority shareholders from self-dealing by large shareholders. More specifically, the index is constructed to measure the ability of the law to prevent a controlling shareholder from engaging in self-dealing.

To identify and date systemic banking crises, Laeven and Valencia (2012) provide information on the start year of each systemic banking crisis during the period 1970 through 2011. The start year of a “systemic” banking crisis is defined as the first year in which there are significant signs of financial distress in the banking sector, including bank runs, a general realization that systemically important financial institutions are in trouble, bank liquidations, or significant policy interventions to assist or intervene in the banking system. Laeven and Valencia focus on systemic crises that disrupt the entire banking system, not just isolated institutions.

With this information, we test whether firms in a country with a legal system that strongly protects minority shareholders perform better during systemic banking crises than firms in countries with weaker anti-self-dealing laws. In conducting these analyses, we control for many other factors, such as the size of the stock market before the crisis; the size of the banking crisis; the overall quality of legal, regulatory and political systems; and many features about each firm.

We also test whether companies predicted to benefit most from stronger shareholder protections actually do. The spare tire view stresses that firms that rely heavily on bank loans will benefit more from the spare tire financing mechanisms fostered by stronger shareholder protection laws than will other firms. We define these more-reliant firms as those that have higher-than-median ratios of bank loans to total assets. Less-bank-reliant firms are defined as those with lower-than-median ratios of bank loans to total assets.

We then test whether firms in countries with strong anti-self-dealing laws—especially firms that depend heavily on bank loans—perform better during systemic banking crises than do firms in countries with weaker protections.

## Findings

The findings are consistent with the three predictions. First, following a systemic banking crisis, firms in countries with stronger shareholder protections raise more money through equity offerings, experience a smaller drop in profitability, and fire fewer workers than firms in countries with weaker laws. The economic consequences of this are large. Compared with the average country, firms in strong anti-self-dealing countries experience a 36 percent smaller drop in profits and a 15 percent smaller drop in employment.

Second, the mitigating effects of strong shareholder protection laws are especially significant among firms that depend heavily on banks. Equity financing, profits, and employment all decline less after the onset of a systemic banking crisis in economies with higher values on the anti-self-dealing index than in economies with lower index values. Again, the economic effect is significant. The beneficial effects of strong shareholder protection laws during a banking crisis are twice as large at firms that depend heavily on bank loans as at those that depend less heavily on such loans. Furthermore, at firms that depend heavily on bank loans, the estimates suggest that these firms will raise 82 percent more money through new equity issuances in the three years following a systemic banking crisis than will bank-dependent firms in countries with average shareholder protection laws.

Third, the results are consistent with the spare tire view that it is the pre-crisis legal infrastructure—not the size or liquidity of the stock market before the crisis—that shapes an economy's response to a banking crisis. The level of stock market development before the crisis does not help account for the response to the crisis. Furthermore, the results on shareholder protection laws hold when controlling for the level of stock market development before the crisis.

A major concern with our investigation is that shareholder protection laws might influence the severity of banking crises, not the ability of firms to recover from crises. Several observations, however, suggest that this is not the case. First, shareholder protection laws do not account for cross-country differences in the severity of banking crises, as measured by the reduction of bank credit. Second, all of the results in the paper hold when controlling for the size of the crisis. Third, as emphasized, shareholder protections are strongly associated with firm performance after systemic banking crises even when controlling for the size of banks and stock markets; the overall level of legal and institutional development; and for many other features that could account for differences in the size, severity, and enduring effects of crises. Finally, we show that following the onset of a crisis, stronger shareholder protections are associated with greater equity financing than are weaker laws. Thus, regardless of the size of the crisis, firms tend to increase equity offerings more when stronger shareholder protection laws provide a spare tire financing mechanism.

These findings are consistent with the spare tire view: When strong shareholder protection laws enable stock markets to act as alternative sources of external financing during systemic banking crises, the economic severity of the crisis is reduced and recovery is expedited.

## Conclusions

Do shareholder protection laws influence how firms respond to systemic banking crises? While considerable research examines the impact of shareholder protection laws on the operation of stock markets, corporate financial decisions, and the efficiency of corporate investment, we provide the first assessment of the role of shareholder protection laws in shaping the response of firms to banking crises. In particular, we provide empirical evidence on the following questions: When economies experience a systemic banking crisis, do pre-crisis shareholder protection laws shape how firms respond in terms of equity financing, profitability, employment, and investment efficiency? Do stronger shareholder protection laws dampen the adverse impact of banking crises on firms and workers?

We find that in response to systemic banking crises, firms in countries with stronger shareholder protection laws tend to experience a smaller drop in equity issuances, profits, and employment. These results are particularly strong for firms that depend heavily on bank loans, further suggesting that shareholder protections ameliorate the adverse effects of banking crises by providing an alternative financing mechanism. Moreover, the findings do not reflect (a) the level of stock market development prior to the crisis, (b) the overall level of economic development, (c) the severity of the credit contraction from the crisis, (d) the size of the banking sector, or (e) the overall level of legal and institutional development. Taken together, the findings are consistent with the spare tire view: When banking crises hit, stronger shareholder protection laws contribute to a legal infrastructure that allows stock markets to act as an alternative source of external financing, easing the effects of banking crises on the economy.

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