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ABSTRACT

Do stock markets act as a "spare tire" during banking crises, providing an alternative corporate financing channel and mitigating the economic severity of banking crises? Using firm-level data in 36 countries from 1990 through 2011, we find that the adverse consequences of banking crises on firm profitability, employment, equity issuances, and investment efficiency are smaller in countries with stronger shareholder protection laws. These findings are not explained by the development of stock markets or financial institutions prior to the crises, the severity of the crisis, or overall economic, legal, and institutional development. The evidence is consistent with the view that stronger shareholder protection laws provide the legal infrastructure for stock markets to act as alternative sources of finance when banking systems go flat, easing the impact of the crisis on the economy.

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1. Introduction

Researchers show that shareholder protection laws shape the functioning of stock markets and the efficiency of corporate investments. By reducing the ability of corporate insiders to expropriate resources from minority shareholders, stronger shareholder protection laws boost stock market development (La Porta et al., 1997, 1998), the dispersion of ownership (La Porta et al., 1999), market valuations (La Porta et al., 2002), stock market liquidity (Beck et al., 2003; Brockman and Chung, 2003), the information content of stock prices (Morck et al., 2000), and the efficiency of corporate investments (Demirguc-Kunt and Maksimovic, 1998; McLean et al., 2012), with potentially large ramifications on economic growth (Levine and Zervos, 1998).

Researchers have not, however, assessed whether shareholder protection laws influence how firms respond to banking crises. When banking systems fail, this disrupts the flow of bank credit to firms with harmful effects on investment, employment, and economic growth (e.g., Kroszner et al., 2007, and Reinhart and Rogoff, 2009). In 1999, Alan Greenspan, then Chairman of the Federal Reserve System, argued that stock markets could mitigate these negative effects. Using the analogy of a "spare tire," he conjectured that banking crises in Japan and East Asia would have been less severe if those countries had built the necessary legal infrastructure, so that their stock markets could have provided financing to corporations when their banking systems could not. If firms can substitute equity issuances for bank loans during banking crises, then banking crises will have less harmful effects on firms and the economy. Although official entities and others discuss the spare tire argument (e.g., U.S. Financial Crisis Inquiry Commission, 2011; Wessel, 2009), we are unaware of systematic assessments of this view.

In this paper, we evaluate several interrelated implications of the spare tire view. First the spare tire view stresses that if firms can issue equity at low cost when banking crises limit the flow of bank loans to firms, this will ameliorate the impact of the banking crisis on firm performance. Put differently, if a banking crisis shuts off bank lending and firms do not have an alternative source of financing, firms will suffer more than they would in the presence of a stock market that provides an alternative source of external finance. Second, the benefits of stock

markets when banks reduce lending accrue primarily to firms that depend heavily on external finance. For those firms that do not rely on external finance, there are likely to be fewer benefits from having substitute forms of external finance. Third, the spare tire view stresses the *ability* of the stock market to provide financing *during* a banking crisis, not the size and liquidity of the market before the crisis. Although bank loans might be the preferred source of external financing during normal time, the spare tire view holds that when this preferred source goes "flat," equity issuances can, at least partially, substitute for bank loans. Critically, for the stock market to play this role, the legal infrastructure must be in place before the banking crisis, so that the market can respond when the banking system falters. It is the pre-crisis legal infrastructure—not necessarily the pre-crisis size of the stock market—that allows the market to act as a spare tire in times of crisis.

We assess these predictions by combining several datasets and employing a difference-in-differences methodology. The dependent variable is a measure of firm profitability, employment, or equity issuances. We obtain these, and other, firm-level data from the Worldscope database. The key explanatory variable is the interaction term of (1) a measure of the strength of shareholder protection laws and (2) a systemic banking crisis dummy variable that equals one in the year of the onset of the crisis and remains one for the next three years. To measure the strength of shareholder protection laws, we use the Djankov et al. (2008) "Anti-self-dealing" index, which gauges the degree to which the law protects minority shareholders from being expropriated by managers or controlling shareholders using self-dealing transactions. Based on an extensive body of research, we interpret greater values of the Anti-self-dealing index as indicating that outside investors will feel more confident about buying shares in companies and this will improve the firms' accessibility to equity market financing. To date systemic banking crisis, we use Laeven and Valencia (2012). If the key interaction term enters positively in the performance, employment, and equity issuance regressions, then this would suggest that firm performance and employment deteriorate less following a systemic crisis when the country has stronger shareholder protection laws, and that such comparatively strong firm

performance is associated with an increase in equity issuances. The regressions also include an assortment of time-varying country and firm characteristics, as well as firm and year fixed effects. Our sample includes about 3,600 firms, in 36 countries, over the period from 1990 through 2011.

The findings are consistent with the view that stronger shareholder protection laws (a) facilitate stock market financing of corporations when the banking system fails and (b) reduce the adverse effects of systemic banking crises on firm profitability and employment. During banking crises, corporate equity issuances increase more and corporate profits decline less in economies with stronger Anti-self-dealing laws. The effects are large. Although systemic crises are associated with a drop in firm earnings, the drop is much less pronounced in economies with stronger shareholder protection laws. The estimated economic effects are large. Consider two countries, one that has the sample average value of the Anti-self-dealing index and the other has a one standard deviation larger Anti-self-dealing index. If both countries have average values of the other country characteristics, our estimates indicate that in response to a banking crisis, the stronger Anti-self-dealing country will experience a 36% smaller drop in profitability than the country with comparatively weak shareholder protection laws.

But, do these results isolate the independent role of shareholder protection laws in mitigating the effects of banking crises on firm performance? Perhaps, stronger shareholder protection laws proxy for some other factor that helps firms recover from a banking crisis. Perhaps, stronger shareholder protections do not actually help firms raise more external finance and perform more robustly during a banking crisis. We partially address such concerns by showing that firms actually raise more external finance through equity issuances during banking crises in economies with stronger shareholder protection laws than in countries with weaker such laws. But, we further address these concerns by testing other implications of the spare tire view.

We test whether— and confirm that—the particular firms that the spare tire view predicts will benefit most from stronger shareholder protections actually do benefit most. The spare tire view stresses that firms that rely heavily on external finance will benefit more from the spare tire

financing mechanisms fostered by stronger shareholder protection laws than other firms. Put differently, if some firms do not use bank financing, then having a replacement source of external finance will not matter much for their performance. We therefore test whether externally dependent firms, as defined by Rajan and Zingales (1998), benefit more from stronger shareholder protection laws during a banking crisis than less financially dependent firms. Our findings confirm this hypothesis. When there is a systemic banking crisis, the positive association between Anti-self-dealing laws and firm performance is more pronounced in industries with greater external financing needs.

We also show that these findings reflect cross-country differences in shareholder protection laws in particular, not differences in stock market development prior to the crisis, the size of the banking crisis, the level of financial institution development, or other country characteristics. For example, when we include the interaction between stock market development prior to the crisis and the crisis dummy variable, we find that the interaction term between the Anti-self-dealing index and the crisis dummy variable enters positively and significantly. Similarly, when we include other interaction terms between the crisis dummy and (a) financial institution development, (b) the rule of law, (c) an overall index of the degree to which legal and other institutions effectively promote the protection of property rights (Fraser Institute, 2013), the rights of creditors (Djankov et al., 2007), the rule of law, political stability, the ability of the public to choose public officials and hold those official accountable, government effectiveness, regulatory quality, and control of official corruption (Kaufmann et al., 2013), and (d) the level of Gross Domestic Product (GDP) per capita, we continue to find that the interaction term between the Anti-self-dealing index and the systemic crisis dummy variable enters the firm performance and firm equity issuance regressions positively and significantly. These results are consistent with the view that the pre-crisis strength of shareholder protection laws per se boosts the financing and performance of firms following banking crises. Furthermore, we interact the crisis dummy with the size of the credit contraction associated with the crisis. Including this interaction term controls for the possibility that the size of the systemic banking crisis is correlated with the

shareholder protection laws. Including this term, however, does not change the results. In sum, these findings support the spare tire view: economies do not necessarily use the spare tire during normal times, but when banking crises hit, having the right legal infrastructure in place allows the stock market to mitigate the effects of the crisis on firm performance and unemployment.

We consider two extensions. First, the spare tire view suggests that strong Anti-self-dealing rights can mitigate the effects of systemic banking crises on the efficiency of corporate investment. When crises shutdown the bank lending channel, this can tighten financing constraints and force firms to forgo efficient investments. If an alternative financing channel is available, however, firms will substitute out of bank finance and into this alternative, reducing the adverse effects of crises on firm investment efficiency. We test whether economies with stronger shareholder protection laws experience a smaller deterioration in corporate investment efficiency following banking crises than economies with weaker such laws.

We find that in economies with stronger Anti-self-dealing laws, firm investment efficiency falls less in response to a banking crisis than in other economies. To measure investment efficiency, we use the sensitivity of real investment to investment opportunities, as measured by Tobin's Q. During systemic banking crises, we find that real investment sensitivity to Q falls by less in economies with stronger shareholder protection laws than in economies with weaker such laws.

Second, we extend the work on firm employment by considering the role of labor regulations. We assess whether the relationship between firm employment and shareholder protection laws varies with the degree of labor market rigidity, as measured by the regulatory-induced cost of firing workers measure constructed by Botero et al. (2004). If the costs of firing workers are a large impediment to firms changing their labor forces, then other factors—including the availability of external finance—will have less of an impact on firm employment in a banking crisis. From this perspective, it is only when the costs of firing workers are not too high that shareholder protections laws can materially mitigate the employment effects of a crisis. Our results confirm this view: When the costs of firing workers are not especially high, firm

employment falls much less during systemic banking crises when the economy has stronger Anti-self-dealing laws. However, strong Anti-self-dealing laws do not have the same mitigating effects on the drop in employment when labor regulations make it very expensive to fire workers.

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 our results do not reflect the impact of shareholder protection laws on crises. First, we show that 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, even when controlling for many other features that might account for differences in the size, severity, and enduring effects of banking crises, such as the size of banks and stock markets before the crisis, and the overall level of legal and institutional development, we find that shareholder protections are strongly associated with firm performance, employment, and investment efficiency after systemic banking crises. Finally, we show that following the onset of a crisis, stronger shareholder protections are associated with a sharp increase in the amount of funds raised through equity issuances. Thus, regardless of the size of the crisis, firms tend to increase equity issuances when stronger shareholder protection laws provide a spare tire financing mechanism. Taken together, our research findings are consistent with the "spare tire" view: when strong shareholder protection laws provide the basis for stock markets to act as alternative sources of external financing during systemic banking crises, this tends to reduce the economic severity of and expedite the economic recovery from banking crises.

Our findings relate to recent research on finance and employment. Pagano and Volpin (2008) and Beck et al. (2010) stress that well-developed financial systems can encourage employment growth, and Chodorow-Reich (2014) shows that deterioration in the functioning of a bank has adverse effects on employment in its client firms. However, deeper financial systems might increase employment risk and volatility by forcing inefficient firms to shut down or restructure (Atanassov and Kim, 2009). We focus on a narrower question: Does the ability to

access stock markets in times of banking distress mitigate the adverse impact of banking crises on employment? Our analyses provide an affirmative answer. When the costs of firing workers are not very high, economies with stronger shareholder protection laws experience a much smaller reduction in employment following banking crises.

The rest of the paper proceeds as follows. Section II describes the data, variables and empirical methodology. Section III presents our empirical findings. Section IV concludes.

2. Data, Variables, and Empirical Methodology

2.1 Sample

We include a country and its firms in our analyses if the following criteria are satisfied. First, the country must be one of the 72 countries for which Djankov et al. (2008) provide information on shareholder protection laws. Second, the country must experience at least one systemic banking crisis over the 1990-2011 period, as defined in Laeven and Valencia's (2012) database on systemic banking crises. Third, we require that the Worldscope database by Thomson Reuters provides complete financial data on at least three of a country's firms during the seven-year window centered on the onset of the crisis year, [t-3, t+3], where t is the start year of the banking crisis according to Laeven and Valencia (2012). Finally, we exclude the United States from our sample because we use the U.S. as the benchmark country for defining industries by their degree of external dependence, though the conclusions are robust to including U.S. firms. Thus, assuming a balanced sample during the seven-year window around a crisis, we have 7×the number of firms in the crisis country firm-year observations for each crisis.

Based on these criteria, we compile data on over 3,600 firms across 36 countries during the period from 1990 through 2011. We use data on publicly listed manufacturing companies with the U.S. standard industrial classification (SIC) code between 2000-3999. We start in 1990 because of data availability in Worldscope. Except as indicated below, all of the firm-level data are from Worldscope. In total, we have over 23,000 firm-year observations.

2.2 Shareholder protections measure

We use the Djankov et al. (2008) Anti-self-dealing measure of the degree to which minority shareholders are protected from large shareholders engaging in self-dealing transactions that benefit the large shareholders at the expense of the small ones. The Anti-self-dealing index is constructed to measure the hurdles impeding a controlling shareholder from engaging in self-dealing transactions.

Djankov et al. (2008) construct the Anti-self-dealing index by surveying attorneys from Lex Mundi, which is an association of international law firms. The survey includes questions about a hypothetical self-dealing transaction between two companies called "Buyer" and "Seller." In the stylized transaction, Mr. James owns 90% of Seller and 60% of Buyer. Mr. James proposes that Buyer purchase trucks from Seller. Mr. James can benefit personally by having Buyer overpay Seller given his unequal ownership. The Anti-self-dealing index represents the hurdles that James must overcome to complete such a transaction. The index is composed of ex ante and ex post hurdles. The ex ante hurdles include the degree to which the transactions requires (1) approval by disinterested shareholders, (2) disclosure of the details of the transaction, (3) disclosure of the precise nature of Mr. James's relationships with the companies, and (4) an independent evaluation (e.g., by a financial expert or an independent auditor). The ex post impediments to self-dealing include: (1) whether disclosure in periodic filings (such as annual reports) is required, (2) whether a 10% shareholder can sue Mr. James or other corporate decision makers if the transaction loses money, (3) the ease of holding Mr. James or other authorities legally liable for civil damages, and (4) the ease with which potential plaintiffs can acquire evidence from the firms. The index ranges from zero to one, with higher value indicating stronger legal protections of minority shareholders. Appendix Table A1 shows that Ukraine and Mexico have weak shareholder protection laws, while Malaysia and the United Kingdom have strong ones. In our sample of countries, the index has an average value of 0.44, with a standard deviation of 0.21.

2.3 Banking-crisis event window

Laeven and Valencia (2012) provide information on the start year of each systemic banking crisis during the period from 1970 through 2011. The start year of a 'systemic' banking crisis is defined as the first year when there are significant signs of financial distress in the banking sector, such as 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 (2012) focus on systemic crises—disruptions to the entire banking system, not just to isolated institutions.

Appendix Table A1 lists the start year of each crisis for the 36 countries in our sample. It shows that 21 crises coincide with the 2008 global financial crisis, and that six crises overlap with the 1997 Asian financial crisis. Over this period, 35 countries had one systemic banking crisis with the requisite firm-level data in Worldscope. Argentina had two banking crises, one in 1995 and the other in 2001. Since the t+3 date for the first Argentine crisis of our sample is 1998 and the t-3 date of the second crisis is also 1998, we define the pre-crisis period for *both* crises as 1992-1994. Then, for the first crisis, the post crisis period for the first Argentine crisis is 1995-1998, and the post crisis period for the second one is 2001-2004. We obtain the same results if we omit Argentina or if we treat the two crises as completely independent, so that end year of the first crisis is part of the pre-crisis period of the second Argentine crisis.

2.4 Firm-level variables

We use three indicators of firm profitability. ***Net income to assets*** equals net earnings minus dividends during a specific year t as a share of total assets at the close of year t-1, where net earnings are defined as earnings after interest and taxes. To abstract from short-run fluctuations in interest and tax expenditures, we also examine ***EBIT to assets***, which equals net earnings before interest and taxes during year t divided by total assets at the close of year t-1. To reduce the effects of potential earnings management on our measurement of firm performance, we also use ***Cash flow to assets***, which equals net earnings after dividends in year t plus depreciation and amortization divided by total assets at the close of year t-1.

In addition, we examine whether the impact of a banking crisis on both firm employment and investment efficiency is smaller when shareholder protection laws are stronger. ***Firm employment*** equals the natural logarithm of the total number of employees and is measured in thousands of employees, so that a firm with 1000 workers will have a *Firm employment* value of 0. If we scale the total number of employees by firm assets, the analyses below yield the same conclusions. To measure ***Investment efficiency***, we run a regression of investment on Tobin's Q, which we refer to as "Q," and an assortment of firm and country controls, and use the coefficient on Q as the proxy for the sensitivity of investment to Q. Following Baker et al. (2003), we use two measures of investment. The first measure of investment, ***Investment 1***, equals capital expenditures plus research and development expenses (R&D) as a share of total assets. The second measure, ***Investment 2***, equals capital expenditure plus R&D plus all selling, general, and administrative (SG&A) expenses as a share of total assets.

Moreover, we consider several measures of external equity finance. ***Equity issuance*** equals the change in the book value of common equity plus the change of deferred taxes minus the change of retained earnings during a specific year t, all scaled by total assets at the close of year t-1. We also construct a direct measure of the proceeds from new equity issuances during year t as a share of total assets at the close of year t-1. This measure, ***IPO/SEO***, equals the proceeds from public offerings (i.e. IPO and SEO) during a specific year t as a share of total

assets at the close of year t-1. We use data from the Global New Issues in the SDC database provided by Thomson Reuters. We use the common firm identifiers (SEDOL, ISIN, and Firm Name) in both the SDC and Worldscope databases to match the issuing data with our other firm-level data. Though conceptually cleaner than the *Equity issuance* indicate of equity financing in a year, the SDC database is less complete in international firm coverage than the Worldscope database, so that we have much fewer observations on *IPO/SEO*.

Tables 1 and 2 provide detailed variable definitions and summary statistics. The statistics indicate greater heterogeneity. With regard to operating performance, *EBIT to assets* ranges from -0.53 to 0.49 with a standard deviation of 0.12. The *Net income to assets* and *Cash flow to assets* exhibit similar diversity. The employment measure ranges from 0 to 13, with a sample mean of 7 and a standard deviation of 1. The investment measures imply that there are firms making zero real investment in some years, while firms in the 75th percentile of the investment distribution are investing about ten percent of assets. Furthermore, our analyses control for an assortment of firm characteristics, such as firm size, leverage, and Tobin's Q. Tables 1 and 2 provide information on these variables too. Finally, to reduce the potential impact of outliers, we winsorize firm-level variables at 1% and 99% levels.

Figures 1 – 3 suggest that following systemic banking crises firm performance is stronger in countries with larger values of the Anti-self-dealing index. We provide simple graphs of firm performance following a crisis while differentiating between high and low shareholder protection countries. For each firm, we compute the change in firm performance from the average over the pre-crisis period (years t-3 through t-1) to the average during the crisis period (years t to t+3), where t in this case refers to the start year of the banking crisis according to Laeven and Valencia (2012). Then, for firms in the High Anti-self-dealing index countries, we compute the average value of these changes, and we do the same for Low Anti-self-dealing index countries. Figure 1 examines *EBIT to assets* and shows that profits drop on average by 1.9% of assets during a crisis in countries with above median shareholder protection laws and drop by 3.7% in countries below median values of the Anti-self-dealing index. Similarly, figures 2 and 3 indicate that firm

employment and firm equity issuance fall less in high shareholder protection countries during a banking crisis.

2.5 Industrial external finance dependence

To evaluate the spare tire view, we go beyond examining whether banking crises have less pernicious effects in countries with stronger shareholder protection laws; we examine whether the particular firms identified by the spare tire view as most likely to benefit from stronger shareholder protection actually do benefit more when a banking crisis hits. In particular, firms that depend heavily on raising money from banks and capital markets will benefit more from stronger shareholder protection laws when a banking crisis hits than firms that don't need any external financing in the first place. That is, the spare tire view suggests that having a spare tire is most useful when the tires on a car are more easily punctured.

Following Rajan and Zingales (1998), we use data on U.S. companies to calculate the degree to which each industry depends on external finance, which we call ***Financial dependence*** and which equals the difference between capital expenditures and cash flow from operations divided by capital expenditures. The index is calculated at the three-digit U.S. SIC level. Rajan and Zingales (1998) and others use U.S. firms as a benchmark under the assumption that U.S. financial markets are comparatively developed, so that the U.S. Financial dependence measures proxy for the technological level of financial dependence, not the level shaped by frictions in financial markets. Thus, an extensive body of research (1) treats the *Financial dependence* indicator as reflecting the technology-determined demand for external finance in the United States and (2) assumes that this measure provides information on the technology-determined demand for external finance in other economies as well. Based on this literature, we assess the question: Are the attenuating effects of stronger shareholder protection laws on firm performance in response to a crisis greater for firms that depend heavily on external finance? Or, more formally, we assess the coefficient estimate on the triple interaction term of banking crises, the Anti-self-dealing index, and *financial dependence* by splitting the sample into High and Low

Financial dependence industries and examining the Anti-self-dealing*Crisis terms in subsamples. To accommodate our relatively longer sample period, we modify the fixed-decade window in the original Rajan and Zingales (1998) and use instead a rolling ten-year window, [t-10, t-1], where t denotes the start year of each crisis. For instance, we take the U.S. firms' data over 1997-2006 to calculate the *Financial dependence* index for industries in the United Kingdom, which had a banking crisis that started in 2007.

2.6 Other country characteristics

To help isolate the relationship between firm performance and the interaction between the existence of a systemic crises and stronger shareholder protection laws, we control for the potential effect of other national characteristics, ***Macro controls***. We do this by including the interaction between the existence of systemic crises and the following national traits.

GDP per capita equals the natural logarithm of real gross domestic product (GDP) per person measured three years before the crisis. When interacted with the crisis dummy variable and included in the firm performance regressions, this term assesses whether firms perform better in response to a crisis in comparatively well-developed economies.

Stock market development equals the ratio of stock market capitalization to GDP measured three years before the crisis. When interacted with the crisis dummy variable and included in the firm performance regressions, this term assesses whether firms perform better in response to a crisis in economies with more highly developed stock markets.

Private credit contraction equals the slowdown in credit growth, measured as the average growth rate in bank credit to private firms between t-3 and t-1, where t is the start of the crisis, minus the minimum annual growth rate of credit during the period between t and t+3. In this way, we control for the size of the crisis, not just the existence of a systemic crisis.

Financial institutions development equals credit by deposit money banks and other financial institutions as a share of GDP, measured at three years before the start of the crisis, i.e., t-3.

Legal protection and institutional quality In robustness tests, we also control for a broader index of legal system effectiveness and institutional quality to determine whether shareholder protection laws in particular account for our findings, or whether broader institutions explain our findings. Specifically, the variable is constructed as the first principal component of eight institutional measures, namely Creditor rights index (Djankov et al., 2007), Protection of property rights (Fraser Institute), and six individual components of World Governance Index (i.e. rule of law, voice and accountability, political stability, government effectiveness, regulatory quality and control of corruption) constructed by Kaufmann et al. (2013).

As emphasized above, we examine the interaction between shareholder protection laws and labor regulations in shaping firm employment during a banking crisis. When we conduct analyses on firm employment, we differentiate countries by those with above and below the median values of the ***Cost of firing workers*** index constructed by Botero et al. (2004). They quantify the cost to a firm of firing 20 percent of the workforce and it incorporates information on the notice period, severance pay, penalties, etc. In this way, we examine whether the relationship between firm employment and shareholder protection laws during a systemic banking crisis vary by the regulatory costs of firing workers.

2.7 Empirical methodology

The baseline specification is as follows.

$$Firm\ Outcome_{i,c,t} = \alpha_0 + \alpha_i + \alpha_t + \boldsymbol{\beta} * Anti\_self\_dealing_c * Crisis_{c,t} + \theta * Crisis_{c,t} + \boldsymbol{\delta}' Macro\_controls_c * Crisis_{c,t} + \boldsymbol{\gamma}' Firm\_controls_{i,t-1} + \varepsilon_{i,c,t}\ , (1)$$

where *Firm Outcome*$_{i,c,t}$ refers to firm profitability, employment, or equity issuance by firm *i*, in country *c*, during year *t*; α_0 is the constant term, α_i is a firm fixed effect; α_t is a year fixed effect; and $Anti\_self\_dealing_c * Crisis_{c,t}$ is the interaction of the Anti-self-dealing index for country *c* and the systemic crisis dummy variable, $Crisis_{c,t}$, that equals one at the start year of the crisis, *t*, in country *c* and for the subsequent three years, and zero otherwise. Note, all time invariant

country characteristics, including the independent term $Anti\_self\_dealing_c$ are subsumed in the firm fixed effects. In the specification, $Macro\_controls_c$ denotes a set of country-level controls including *GDP per capita*, *Financial institutions development*, *Stock market development*, and *Private credit contraction*. Including the interaction between $Crisis_{c,t}$ and $Macro\_controls_c$ allows for firm performance following a crisis to vary by the level of economic development, the level of development of financial intermediaries, the degree of stock market development, and the size of the banking crisis.

Including these controls also helps isolate the independent association between firm performance following a crisis and the strength of shareholder protection laws when controlling for these other possible influences. Finally, $Firm\_controls_{i,t-1}$ includes time-varying firm characteristics (e.g., *Firm size*, *Leverage*, and *Tobin's Q*), and $\varepsilon_{i,c,t}$ denotes the error term. When the dependent variable is *Firm employment*, we split the sample between countries that have above and below the median values of the *Cost of firing workers* index. Throughout our analyses, we use ordinary least squares (OLS), with heteroskedasticity robust standard errors clustered at the country level to account for the potential correlations among firms within a country.

3. Empirical Results

3.1 Firm performance and employment

Table 3 shows that during a systemic banking crisis, firms in countries with strong shareholder protection laws perform better than those in countries with weaker shareholder protection laws. As reported in columns (1)-(3), during a crisis, *EBIT to assets*, *Net income to assets*, and *Cash flow to assets* are all significantly higher in countries with larger Anti-self-dealing values than they are in countries with weaker shareholder protection laws. This does not suggest that firm performance *improves* during a crisis. The crisis dummy enters negatively and statistically significantly; banking crises are associated with a drop in firm performance, but this drop is less pronounced in countries with stronger Anti-self-dealing laws.

The economic sizes of the coefficients are large. Consider the *EBIT to assets* regression. And, consider an "average" country—a hypothetical country with average values of the Anti-self-dealing index (0.437), *GDP per capita* (9.24), *Financial institutions development* (0.80), *Stock market development* (0.59), and *Private credit contraction* (0.30). For such a country, the coefficient estimates in column (1) suggest that a systemic crisis reduces profits by about 3.35% of a firm's total assets.[1] Now, consider a "strong" shareholder protection rights country, which we define as a country that has all of the same traits as the average country except that it has a value of the Anti-self-dealing index that is one standard deviation (0.214) greater than that in our hypothetical average country, so that the value for the strong country is 0.651. For these average and strong shareholder protection countries, hold all other country traits constant at the sample means. Given that the coefficient estimate on Anti-self-dealing*Crisis enters with a value of about 0.0557, we estimate that the drop in *EBIT to assets* for the strong shareholder protection country will only be 2.16% of total firms assets.[2] Thus, compared to the average country, the strong shareholder rights country experiences a 36% smaller drop in *EBIT to assets*[3]. To illustrate this difference using countries, the difference in the Anti-self-dealing indexes between Norway (0.42) and Hungary (0.18) is about one standard deviation. Thus, our estimates suggest that the better spare tire in Norway buffers the adverse impact of a systemic banking crisis on firm profits more effectively than in Hungary.

Table 3 also indicates that the drop in *Firm employment* during a banking crisis is smaller in countries with stronger shareholder protection laws when the regulatory-induced costs of firing workers is not too high. If labor regulations make it prohibitively expensive to fire workers, then an effective spare tire channel for raising external finance is likely to have a negligible

[1] We obtain these estimates by plugging in the values with the corresponding coefficient estimates from column (1): a systemic banking crisis will reduce *EBIT to assets* in the average country by 3.35% (=0.0557*0.437-0.107+0.00684*9.242-0.00409*0.801-0.00604*0.588-0.0241*0.300).

[2] Similarly, according to the corresponding coefficient estimates from column (1): *EBIT to assets* in stronger shareholder protection law country will fall by 2.16% (=0.0557*0.651-0.107+0.00684*9.242-0.00409*0.801-0.00604*0.588-0.0241*0.300).

[3] Since the Macroeconomic interaction controls enter insignificantly, we redid the analyses omitting these controls and obtain estimates on the Anti-self-dealing*Crisis that are also statistically significant and obtain a slightly larger estimated difference between our "average" and "stronger" shareholder protection countries.

effect on firm employment decisions during a crisis. We test this by splitting the sample between countries with above the median values of the *Cost of firing workers* index developed by Botero et al. (2004) and countries with below the median values. As listed in Appendix Table A1, there is considerable cross-country variation in the degree to which labor regulations increase the costs of firing workers. At one end of the spectrum, Indonesia, India, Kazakhstan, Korea, Netherlands, Portugal, Russia, and Thailand all have values of the *Cost of firing workers* index greater than 0.6, while Japan and Nigeria have values less than 0.1.

As reported in columns (4) and (5) of Table 3, the interaction term, Anti-self-dealing*Crisis, enters positively and significantly in the sample of countries with below the median values of the *Cost of firing workers* index, while it enters insignificantly in the sample of countries with above the median values of the index. This result suggests that when regulations create prohibitively high costs to firms of adjusting their labor forces, then having an alternative external financing source during a crisis is associated with a smaller reduction in firm employment. However, when the regulatory-induced costs of firing workers dominate firm employment decisions, then the spare tire mechanism plays no role. More formally, the estimated coefficient on Anti-self-dealing*Crisis among countries with below median firing costs is 0.122, which is statistically significant at the one percent level, but the estimated coefficient among countries with high firing cost is statistically insignificant.

The point estimates suggest that the relationship is economically meaningful. Again, consider an "average" country—a country with average Anti-self-dealing laws, *GDP per capita*, *Financial institutions development*, *Stock market development*, and *Private credit contraction*, and compare it to a country with "strong" shareholder protection laws—a country with a one standard deviation above the mean value of the Anti-self-dealing index (0.651), holding all the other characteristics constant at their average levels. The estimated coefficients in column (4) suggest that a systemic banking crisis will reduce *firm-level workforce* in the average country by

17.4%, but *workforce* in the strong shareholder protection law country will fall by 14.8%.[4] Thus, the estimated drop in firm employment is almost 15% less in the country with strong shareholder protection laws.

Critically, to isolate the independent relationships between Anti-self-dealing laws and firm performance and employment during crises, analyses in Table 3 control for many other potential explanatory factors. In particular, we were concerned Anti-self-dealing laws might be highly correlated with the overall economic development, the size of the banking system, the level of stock market development, or the size of the credit contraction during the crisis. If shareholder protections are highly correlated with these other likely determinants of the severity of banking crises, then we need to control for them to capture the independent relationship between firm performance and employment and the Anti-self-dealing index. We control for the interactions of banking crises and *GDP per capita*, *Financial institutions development*, *Stock market development*, and *Private credit contraction* across the different specifications in Table 3. Furthermore, we also control for firm and year fixed effects, and time-varying firm traits (*Firm size*, *Leverage*, and *Tobin's Q*).

The results hold when controlling for these potentially confounding factors. Thus, the findings suggest that the relationships between shareholder protection laws and firm performance and employment do not simply reflect the level of stock market development before the crisis. Similarly, the findings indicate the associations between the Anti-self-dealing index and firm outcomes during the crisis do not only reflect overall economic development or the overall development of financial institutions. Finally, the results indicate that the relationships between firm outcomes and shareholder protection laws hold even when controlling for the size of the

[4] We obtain these estimates by plugging in the values with the corresponding coefficient estimates from column (4): a systemic banking crisis will reduce firm employment in the average country by 17.4% (=0.122*0.437-0.333+0.0219*9.242-0.00121*0.801+0.00935*0.588-0.339*0.300), but firm employment in the strong shareholder protection law country will fall by 14.8% (=0.122*0.651-0.333+0.0219 *9.242-0.00121*0.801+0.00935*0.588-0.339*0.300). We can interpret the impact on firm employment as percentage change because it is defined as the natural logarithm of total number of workers in a firm.

banking crisis; thus, it is not that countries with stronger Anti-self-dealing laws have smaller systemic crises.

In Table 4, we extend these analyses and also control for the interaction between the systemic crisis dummy and (a) an index of the ***Rule of law*** that measures the degree to which the law, rather than more arbitrary and potentially corrupt factors, influence private and official contracts and (b) an overall index of the ***Legal protection and institutional quality*** provided to private agents, which incorporates information on the legal rights of debt holders, the protection of private property, the accountability of political officials, political stability, government effectiveness, regulatory quality, the *Rule of law*, and control on official corruption. The effects of the Anti-self-dealing index on firm performance and employment remain statistically significant and economically meaningful after taking into account these additional factors.

3.2 Firm performance and employment: Differentiating by Financial dependence

We now evaluate an additional implication of the spare tire view: During a crisis, the positive relationships between firm outcomes and the Anti-self-dealing index should be larger among firms that rely heavily on external finance. If firms do not depend on external finance for their profitability and employment decisions, then having an alternative external financing mechanism during a banking crisis should be relatively unimportant. To test this prediction, we split firms into those that depend heavily on external finance, High *Financial dependence*, and those firms in industries with below the median level external financial dependence, Low *Financial dependence*.

Table 5 provides these subsample analyses for firm performance and employment. Panel A provides the results on *EBIT to assets*, *Net income to assets*, and *Cash flow to assets*, while Panel B provides the findings on *Firm employment*, while further splitting the sample by countries with below and above the median values of the *Cost of firing workers* index. The regressors are the same as those in Table 3. The term, ***Macro interaction controls,*** indicates that the regressions control for the four interaction terms between Crisis and *GDP per capita*,

Financial institutions development, *Stock market development*, and *Private credit contraction*. The term, ***Firm-level controls***, indicates that the regressions control for *Firm size*, *Leverage*, and *Tobin's Q* (and additional *Cash flow to assets* in Table 7).

The results reported in Table 5 are consistent with the spare tire prediction. The estimated coefficient on the Anti-self-dealing*Crisis interaction term is larger for firms in industries with High *Financial dependence* than for firms in Low *Financial dependence* industries. That is, during a banking crisis, shareholder protection laws are more important for firms that rely more heavily on external finance. For instance, consider the *EBIT to assets* analyses as reported in columns (1) and (2). The estimated coefficient on the Anti-self-dealing*Crisis interaction term is 0.0911 among firms in High *Financial dependence* industries, but only 0.0327 among firms in Low *Financial dependence* industries. Although both estimates are significantly different from zero, the two coefficient estimates are significantly different from each other at the 1% significant level, as reported in the table). In a systemic crisis, the beneficial effects of shareholder protection laws on firm performance and firm employment are greater among firms that depend heavily on external financing for their success. According to Panel B, during systemic crises, the dampening effect of stronger shareholder protection laws on firm employment—especially among firms in High *Financial dependence* industries—only exists in the sample of countries in which the *Cost of firing workers* is smaller than the median.

3.3 Shareholder protections and real investment efficiency

The spare tire view also yields predictions about the impact of systemic banking crises on real investment efficiency. When banking crises reduce the flow of credit to firms that rely on external financing to fund their investments, this impedes the ability of those firms to exploit value-enhancing projects, with adverse repercussions on investment efficiency. If, however, stronger Anti-self-dealing laws ease corporate financial constraints during banking crisis, then such laws will dampen the adverse effects of the crisis on investment efficiency for firms that rely on external funding to make those investments.

To evaluate whether investment efficiency falls less in response to a banking crisis in economies with stronger Anti-self-dealing laws, we employ a commonly used measure of investment efficiency: the sensitivity of real investment to Tobin's Q. A key assumption underlying this proxy is that the common empirical measures of Tobin's Q—the market value of corporate liabilities relative to the book value of those liabilities—provide a sound estimate of the market value of installed capital relative to its replacement value. If this holds, then high Tobin's Q values (conditional on Tobin's Q > 1) signal that the market's expected increase in firm value from the firm investing more capital is greater than the cost of that capital. This would tend to encourage firm investment. Therefore, if real investment is *insensitive* to Tobin's Q, this suggests, albeit imperfectly, that something is impeding the efficiency of firm investment. As defined above, we use two measures of real investment to gauge the sensitivity of investment to Q: *Investment 1* only includes capital and R&D expenditures, while *Investment 2* also includes other investment expenditures on selling and general and administrative investments.

Methodologically, we employ a standard real investment model, where the dependent variable is one of our measures of investment. Besides including the lagged value of Tobin's Q and the contemporary measure of cash flow, the real investment model includes the interaction terms, Tobin's Q*Crisis and Anti-self-dealing*Crisis, and the triple interaction term, Anti-self-dealing*Tobin's Q*Crisis. The coefficient estimate on the triple interaction term captures the extent to which shareholder protection laws mitigate the adverse effects of a systemic banking

crisis on investment efficiency, while the coefficient estimate on the Tobin's Q*crisis interaction term captures the impact of a systemic crisis on investment efficiency in a country with an Anti-self-dealing index of zero. Since the link between systemic banking crisis and firm investment efficiency might be particularly pronounced for firms that depend on external finance to make investments, we also conduct the analyses when splitting the sample between firms in industries with High or Low *Financial dependence*. These regressions also control for firm and year fixed effects, as well as the full array of *Macro interaction controls* used in earlier tables.

The Table 6 results suggest that stronger shareholder protection laws mitigate the adverse effects of systemic crises on investment efficiency. The interaction term, Tobin's Q*Crisis enters negatively and significantly in the full sample regressions and in the sample limited to firms in High *Financial dependence* industries. This indicates that systemic crises exert a direct, negative effect on investment efficiency. The estimated coefficient on the triple interaction term, Anti-self-dealing*Tobin's Q*Crisis, in the full sample and High *Financial dependence* firms indicates that during banking crises, stronger shareholder protection laws boost investment efficiency. We are not the first to find that the law shapes investment efficiency. For instance, Mclean et al. (2012) find that stronger investor protection laws boost the efficiency of corporate investment. We are, however, the first to show that when economies experience systemic banking crises, stronger shareholder protections facilitate equity issuances and dampen the adverse effects of banking crises on investment efficiency.

To assess the economic size of the effect, we consider the full sample results using *Investment 1* in column (1). We again compare a country with an average value of the Anti-self-dealing index (0.437) and a country with a high Anti-self-dealing index of one standard deviation greater than average (0.651), holding the other macro controls at their average levels. Furthermore, for simplicity, we consider firms with Tobin's Q equal to one. Thus, the estimated coefficients indicate that investment efficiency drops by 0.005 (=-0.019 + 0.031*0.437) for this representative firm in the "average" firm country, but would essentially remain unchanged 0.001 (= -0.019 + 0.031*0.651) in the same representative firm in the high Anti-self-dealing country.

Columns (2) and (3) for *Investment 1* and columns (5) and (6) for *Investment 2* provide the same analyses on subsamples of firms with High and Low *Financial dependence* respectively. The coefficient of interest is statistically significant at the one percent level in the sample of firms in high financial dependent industries, but not for firms in the sample of low financial dependent industries. For the *Investment 2* analyses, we also discover that the coefficient estimates on the triple interaction term in the High and Low *Financial dependence* regressions are significantly different from each other, though this does not hold for the *Investment 1* results. The Table 6 findings are consistent with the view that stronger shareholder protections dampen the negative impact of banking crises on investment efficiency, and there is some evidence that these effects are particularly large for firms that depend on external financing to undertake capital investments.

3.3 Shareholder protections and external finance

The spare tire view further holds that during a banking crisis that curtails the flow of bank credit to firms, corporations in economies with strong shareholder protection laws can instead issue equities and reduce the adverse impact of the crisis on firm performance, employment, investment efficiency. Although we have shown that during crises, firms in economies with stronger Anti-self-dealing laws suffer less than firms in economies with weaker such laws, we have not yet examined the financing channel directly. More specifically, we have not examined whether firms in strong shareholder protection law countries actually raise more money through equity issuance during systemic banking crises than similar firms in economies with weaker Anti-self-dealing laws.

This subsection tests whether during a systemic banking crisis firms raise more money through equity issuances in countries with stronger Anti-self-dealing laws. We examine the two measures of equity issuances defined above: *Equity issuance*, which infers equity issuances from the Worldscope database, and *IPO/SEO*, which is a direct measure of the value of equity sales

from the SDC Platinum database. Although the *IPO/SEO* data are more precise, they are available for a smaller sample of mostly the largest firms.

We follow the same specification as above. The dependent variable is a firm outcome variable that measures equity finance: *Equity issuance* or *IPO/SEO*. The variable of interest is the interaction term, Anti-self-dealing*Crisis. We then control for the *Crisis* dummy, the full array of *Firm-level controls* and *Macro interaction controls,* as well as firm and year fixed effects. We again examine the full sample firms and provide estimates in which we split the sample into firms in industries with High *Financial dependence* and firms in industries with Low *Financial dependence*.

The results reported in Table 7 support the view that firms in countries with stronger Anti-self-dealing laws raise more funds through equity issuances during banking crises. Consider the full sample estimates for the *Equity issuance* measure in column (1) of Panel A. Anti-self-dealing*Crisis enters positively and significantly. Economically, a one standard deviation increase in the Anti-self-dealing index enables a firm to issue additional equity equal to about 0.8% of its total assets (=0.0357*0.214) during a systemic banking crisis. This is not small, as it is equivalent to 26% of the sample mean of equity issuances per year, and seven times larger than the sample median. When splitting the sample between High and Low *Financial dependence*, we find that all of the additional equity issuing activity during a crisis associated with countries having stronger Anti-self-dealing laws arises in firms that rely heavily on external finance. This is fully consistent with the spare tire view and it is also fully consistent with the earlier findings on firm performance, employment, and investment efficiency. The Panel B results provide additional support for the spare tire view. We find that during crises, *IPO/SEO* is much larger in countries with stronger shareholder protection laws for firms that are heavily dependent on external finance, but not for firms in Low *Financial dependence* industries.

4. Conclusion

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 evaluate the spare tire view which holds that when banking crises reduce the flow of bank loans to firms, stronger shareholder protection laws provide the basis for an alternative financing channel: equity issuances. If stronger shareholder protection laws lower the costs of issuing equity, this spare tire financing option will dampen the adverse impact of the banking crisis on firms.

We find that in response to systemic banking crises, firms in countries with stronger shareholder protection laws tend to experience (1) a smaller drop in firm profits, employment, and investment efficiency and (2) an increase in the volume of equity issuances. These results hold particularly strongly for firms that depend heavily on external finance, 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, (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 ramifications of banking crises on the economy.

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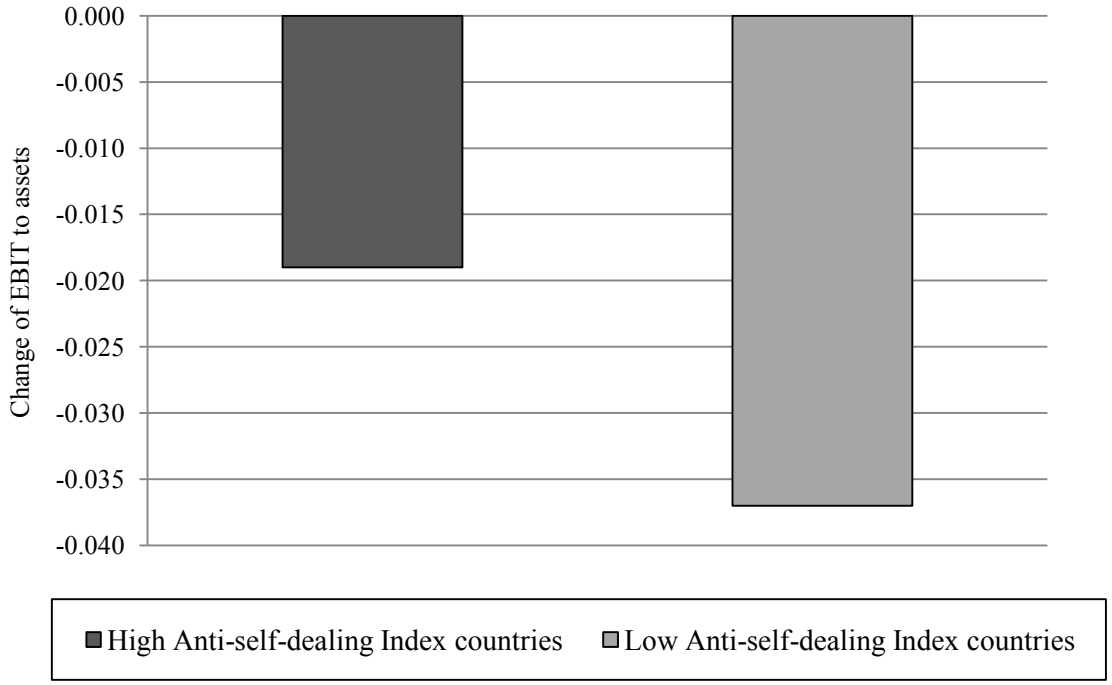

Figure 1. Firm profits during a banking crisis, differentiating between countries with high and low Anti-self-dealing index values

Each bar in the figure represents the average change of the ratio of earnings before income and taxes (EBIT) to total assets for firms in countries with above (High) and below (Low) the median value of the Anti-self-dealing index respectively. Specifically, we first calculate for each firm the difference between the ratio of EBIT to total assets during a crisis, [t, t+3], and that before the crisis, [t-3, t-1]. We then average this difference across all of the firms in High and Low Anti-self-dealing countries respectively.

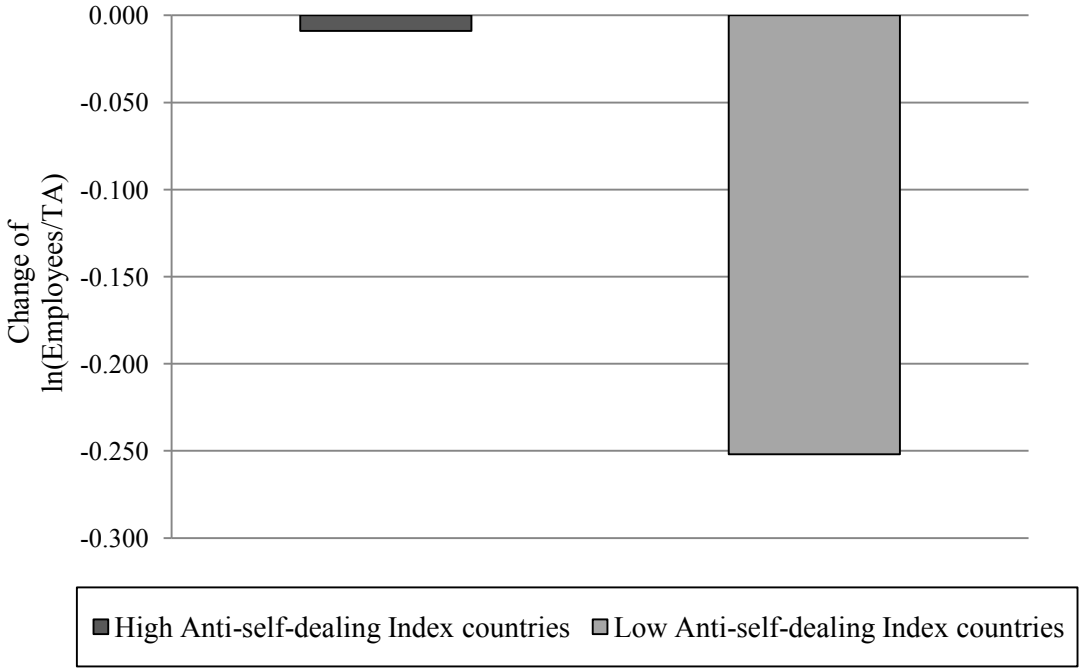

Figure 2. Firm employment during a banking crisis, differentiating between countries with high and low Anti-self-dealing index values

Each bar in the figure represents the average change in the natural logarithm of the ratio of the number of employees to total assets for firms in countries with above (High) and below (Low) the median value of the Anti-self-dealing index respectively. Specifically, we first calculate for each firm the difference between the natural logarithm of the ratio of the number of employees to total assets during a crisis, [t, t+3], and that before the crisis, [t-3, t-1]. We then average this difference across all of the firms in High and Low Anti-self-dealing countries respectively.

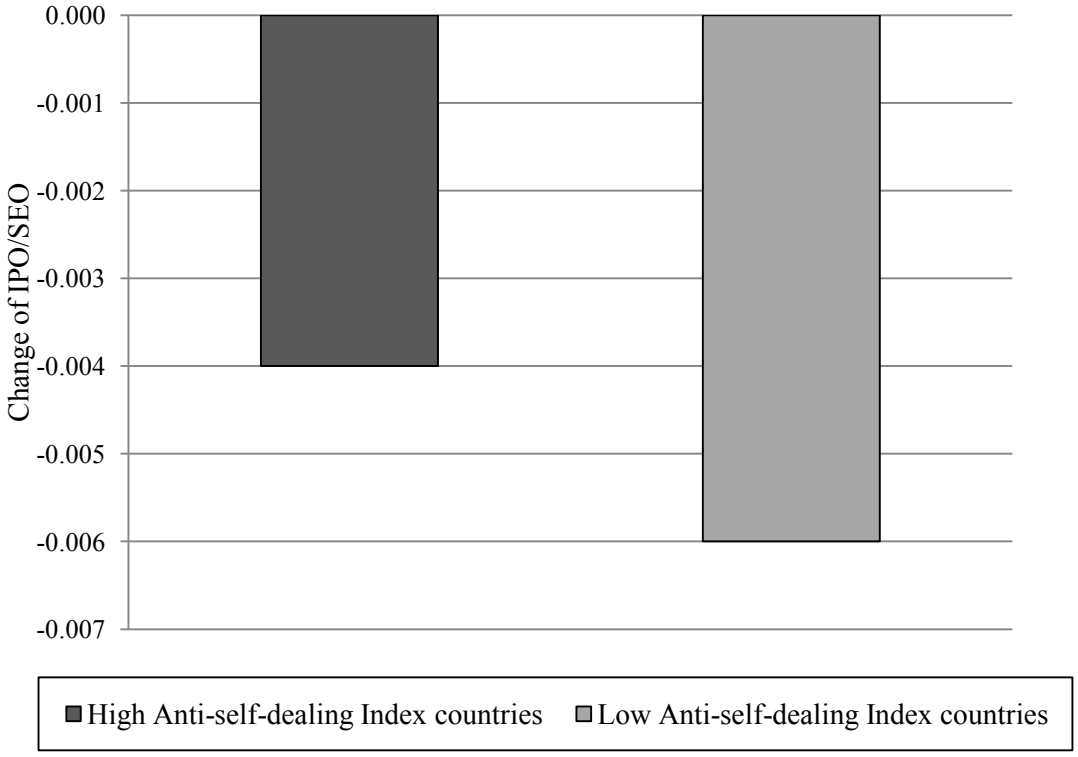

Figure 3. Firm equity issuances during a banking crisis, differentiating between countries with high and low Anti-self-dealing index values

Each bar in the figure represents the average change in the ratio of the total amount of funds raised through IPOs and SEOs to total assets (*IPO/SEO* for firms in countries with above (High) and below (Low) the median value of the Anti-self-dealing index respectively. Specifically, we first calculate for each firm the difference between *IPO/SEO* during a crisis, [t, t+3], and that before the crisis, [t-3, t-1]. We then average this difference across all of the firms in High and Low Anti-self-dealing countries respectively.

Table 1 Variable definitions and data sources

Variable	Definition	Source
	Legal protection measure	
Anti-self-dealing index	Average of approvals of disinterested shareholders, ex-ante disclosure (disclosure by buyer and main owner of the seller, and independent review by a professional third party), and ex-post disclosure (periodic filings and ease of proving wrongdoing).	Djankov et al. (2008)
	Systemic banking crises	
Systemic banking crisis dummy	Equals to one in the start year of a crisis and *three* years after, [t, t+3], and zero otherwise, [t-3, t-1]. The start year of a systemic banking crisis shows significant signs of banking sector distress, and significant policy intervention.	Laeven and Valencia (2012)
	Firm-level data	
EBIT to assets	Earnings before interest and tax (EBIT)/ Total assets lagged one year	Worldscope
Net income to assets	(Net income after dividends) / Total assets lagged one year	Worldscope
Cash flow to assets	(Net Income after dividends + Depreciations & Amortizations) / Total assets lagged one year	Worldscope
Firm employment	Natural logarithm of the total number of employees	Worldscope
Investment 1	(Capital expenditure + R&D) / Total assets lagged one year	Worldscope
Investment 2	(Capital expenditure + R&D + Selling, General and Administrative expenses) / Total assets lagged one year	Worldscope
Equity issuance	(ΔCommon equity + ΔDeferred Tax - ΔRetained earnings) / Total assets lagged one year	Worldscope
IPO/SEO	Total proceeds from new equity issuance (IPO/SEO) / Total assets lagged one year	SDC Global Equity Issuance
Firm Size	Natural logarithm of total assets	Worldscope
Leverage	Total debt / Total assets	Worldscope
Tobin's Q	Natural logarithm of (Market value of equity + book value of assets - book value of equity) / Book value of assets	Worldscope
	Industry Characteristics	
Financial dependence	Equals to (Capital expenditures - Cash flow from operations) / Capital expenditures, where both capital expenditures and cash flow are summed over a ten-year window for each U.S. firm. We then take the median value of the ratio among firms with the same three-digit U.S. SIC code as the financial dependence index for that particular industry for the crisis country.	Calculated by the authors; Compustat, CRSP, Rajan and Zingales (1998)
	Other Country Characteristics	
GDP per capita	Natural logarithm of real GDP per capita, measured at the three year before the	World Development Indicators, the

	start year of a banking crisis.	World Bank
Stock market development	Stock market capitalization to GDP, measured at the three year before the start year of a banking crisis.	Čihák et al. (2013)
Financial institutions development	Private credit by deposit money banks and other financial institutions to GDP, measured at the three year before the start year of a banking crisis.	
Private credit contraction	It captures the trough of bank credit during crisis periods, and is calculated for each crisis country, as the difference between the pre-crisis growth rate of bank credits to the private sector averaged over [t-3, t-1], and its lowest growth over the crisis window, [t, t+3]. Greater value indicates more severe credit contraction.	Calculated by the authors; World development indicators (WDI), World Bank
Rule of law	"The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence".	World Governance Indicators (WGI); Kaufmann et al. (2013)
Legal protection and institutional quality	It is constructed as the first principal component of the eight variables, namely Creditor rights index (Djankov et al., 2007), Protection of property rights (Fraser Institute), and six individual components of WGI (i.e. rule of law, voice and accountability, political stability, government effectiveness, regulatory quality and control of corruption) constructed by Kaufmann et al. (2013).	Calculated by the authors based on Economic Freedom Worlds (EFW) datasets, Djankov et al., (2007); Fraser Institute, Kaufmann et al. (2013)
Cost of firing workers	It measures the cost of firing 20 percent of the firm's workers, and equals to the ratio of the new wage bill to the old one. The new wage bill is calculated as the normal wage of the remaining workers plus the cost of firing workers. Specifically, the cost of firing a worker is defined as the sum of the notice period, severance pay, and any mandatory penalties established by law or mandatory collective agreements for a worker with three years of tenure with the firm. If dismissal is illegal, the cost of firing is set as the annual wage.	Botero et al. (2004)

Table 2 Summary statistics

Variables	N	mean	sd	min	p25	p50	p75	max
				Country-level Measures				
Anti-self-dealing index	36	0.437	0.214	0.081	0.283	0.425	0.522	0.950
GDP per capita	36	9.242	1.466	5.999	8.265	9.570	10.506	11.301
Financial institutions development	36	0.801	0.508	0.121	0.314	0.737	1.130	1.997
Stock market development	36	0.588	0.594	0.049	0.189	0.416	0.776	2.792
Private credit contraction	36	0.300	0.230	0.018	0.105	0.241	0.471	0.780
Rule of law	36	0.687	0.992	-1.081	-0.088	0.764	1.640	1.945
Legal protection and institutional quality	35	0.095	2.484	-4.434	-2.343	0.252	2.727	3.479
Cost of firing workers	35	0.465	0.177	0.036	0.358	0.527	0.605	0.688
				Firm-level Variables				
EBIT to assets	23095	0.057	0.121	-0.527	0.018	0.051	0.103	0.494
Net income to assets	23415	0.021	0.103	-0.540	0.001	0.021	0.060	0.352
Cash flow to assets	22064	0.063	0.109	-0.486	0.025	0.061	0.109	0.429
Employment	20891	7.081	1.842	0.000	5.971	6.959	8.171	13.126
Investment1	18318	0.076	0.079	0.000	0.028	0.055	0.097	0.541
Investment2	14352	0.297	0.207	0.018	0.162	0.245	0.370	1.318
Equity Issuance	18494	0.029	0.149	-0.275	-0.007	0.001	0.018	1.195
Proceeds of IPO/SEO	9393	0.024	0.126	0.000	0.000	0.000	0.000	1.277
Firm size	23426	12.739	1.930	7.773	11.478	12.646	13.903	17.929
Leverage	23426	0.250	0.175	0.000	0.105	0.238	0.373	0.700
Tobin's Q	23426	0.255	0.443	-0.665	-0.016	0.185	0.442	1.893

Table 3: Anti-self-dealing and firm performance over crises, [t-3, t+3]: Overall sample

This table displays the effects of the Anti-self-dealing index on firm performance over the crisis episodes [t-3, t+3], where t is the start year of a systemic banking crisis defined in Laeven and Valencia (2012). The dependent variables are *EBIT to assets*, *Net income to assets*, *Cash flow to assets* and *Firm employment*. "All" represents the full sample of firms and countries. In columns (4) and (5), we split the sample of countries in those with above the median values of the Botero et al. (2004) index of the regulatory *Costs of firing workers* and those countries with below the median values of this index. *Firm-level controls* include *Firm size*, *Leverage* and *Tobin's Q*, which are all lagged one year relative to the firm performance measures. *Macro interaction controls* include interactions between Crisis and (1) *GDP per capita*, (2) *Financial institutions development*, (3) *Stock market development*, and (4) *Private credit contraction*. P-values are reported in parenthesis and calculated using heteroskedasticity robust standard errors clustered at the country level. *, **, and *** represent significant level at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
				Firm employment	
	EBIT to assets	Net income to assets	Cash flow to assets	Below median firing cost	Above median firing cost
	All	All	All	All	All
Anti-self-dealing*Crisis	**0.0557*** **	**0.0512*** **	**0.0492*** **	**0.122*** **	**-0.123**
	(0.000)	**(0.000)**	**(0.000)**	**(0.004)**	**(0.627)**
Crisis	-0.107***	-0.0790**	-0.0793**	-0.333	-0.202
	(0.005)	(0.022)	(0.031)	(0.712)	(0.650)
GDP per capita*Crisis	0.00684	0.00548	0.00523	0.0219	-0.00887
	(0.167)	(0.175)	(0.217)	(0.805)	(0.825)
Financial institutions development*Crisis	-0.00409	-0.00220	-0.000314	-0.00121	0.226*
	(0.654)	(0.762)	(0.964)	(0.988)	(0.099)
Stock market development*Crisis	-0.00604	-0.00616	-0.00652	0.00935	0.284*
	(0.263)	(0.186)	(0.157)	(0.647)	(0.073)
Private credit contraction*Crisis	-0.0241	-0.0355*	-0.0412*	-0.339	0.166
	(0.386)	(0.073)	(0.061)	(0.354)	(0.438)
Firm size	-0.0311***	-0.0206*	-0.0304***	0.553***	0.471***
	(0.006)	(0.070)	(0.005)	(0.000)	(0.000)
Leverage	-0.0284	-0.0523**	-0.0414**	-0.119	-0.118
	(0.101)	(0.012)	(0.024)	(0.188)	(0.339)
Tobin's Q	0.0560***	0.0478***	0.0494***	0.0785***	-0.0554
	(0.000)	(0.000)	(0.000)	(0.000)	(0.244)
Constant	0.395***	0.245*	0.385***	0.0161	1.254
	(0.003)	(0.082)	(0.003)	(0.976)	(0.159)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Country cluster	36	36	36	18	16
Observations	23,095	23,415	22,064	17,155	3,736
R2	0.705	0.658	0.682	0.979	0.981
Adjusted R2	0.650	0.595	0.621	0.975	0.976

Table 4: Anti-self-dealing and firm performance over [t-3, t+3]: horserace tests with legal protection and institutional quality

This table shows the effects of the anti-self-dealing index on firm performance while controlling for measures of legal and institutional development. The dependent variables in Panel A are *EBIT to assets*, *Net income to assets, Cash flow to assets* and those in Panel B are *Firm employment*. "All" represents the full sample of firms and countries. In Panel B, we split the sample of countries in those with above the median values of the Botero et al. (2004) index of the regulatory *Costs of firing workers* and those countries with below the median values of this index. Columns with odd number add Rule of law*Crisis as additional controls, whereas those with even number add *Legal protection and institutional quality**Crisis. *Firm-level controls* include *Firm size*, *Leverage* and *Tobin's Q*, which are all lagged one year relative to the firm performance measures. *Macro interaction controls* include interactions between Crisis and (1) *GDP per capita*, (2) *Financial institutions development*, (3) *Stock market development*, and (4) *Private credit contraction*. P-values are reported in parenthesis and calculated using heteroskedasticity robust standard errors clustered at the country level. *, **, and *** represent significant level at 10%, 5%, and 1%, respectively.

Panel A: Firm operating performance

	(1)	(2)	(3)	(4)	(5)	(6)
	EBIT to assets		Net income to assets		Cash flow to assets	
	All	All	All	All	All	All
Anti-self-dealing*Crisis	**0.0557*** **	**0.0538*** **	**0.0513*** **	**0.0506*** **	**0.0493*** **	**0.0488*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Crisis	-0.0705*	-0.0484	-0.0618*	-0.0549	-0.0713*	-0.0647
	(0.081)	(0.273)	(0.074)	(0.156)	(0.063)	(0.141)
Rule of law*Crisis	0.0178***		0.00869		0.00415	
	(0.008)		(0.109)		(0.495)	
Legal protection and institutional quality*Crisis		0.00818**		0.00344		0.00216
		(0.011)		(0.178)		(0.462)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country cluster	36	35	36	35	36	35
Observations	23,095	23,037	23,415	23,357	22,064	22,006
R2	0.706	0.705	0.658	0.658	0.682	0.681
Adjusted R2	0.651	0.651	0.595	0.594	0.621	0.621

Panel B: Firm employment

	(1)	(2)	(3)	(4)
	Firm employment			
	Below median firing cost		Above median firing cost	
Anti-self-dealing*Crisis	**0.110*** **	**0.119*** **	**0.00968**	**0.0159**
	(0.002)	**(0.002)**	**(0.964)**	**(0.944)**
Crisis	-0.422	-0.492	0.825	1.042*
	(0.594)	(0.563)	(0.118)	(0.076)
Rule of law*Crisis	-0.0837*		0.294***	
	(0.050)		(0.000)	
Legal protection and institutional quality*Crisis		-0.0282		0.118***
		(0.212)		(0.000)
Firm-level controls	Yes	Yes	Yes	Yes
Macro interaction controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country cluster	18	18	16	16
Observations	17,155	17,155	3,736	3,736
R2	0.979	0.979	0.981	0.981
Adjusted R2	0.975	0.975	0.977	0.977

Table 5: Anti-self-dealing and firm performance over [t-3, t+3]: split sample by industry financial dependence

This table shows the effects of the Anti-self-dealing index on real firm performance after splitting firms into those that are in industries with above the median values (High) of *Financial dependence* and those with below (Low) the median values. The extent to which firms depend on external finance is calculated at U.S SIC 3-digit level following the method in Rajan and Zingales (1998). The dependent variables in Panel A are *EBIT to assets*, *Net income to assets*, *Cash flow to assets* and those in Panel B are *Firm employment*. Columns with odd number represent industries with *Financial dependence* above the median, while those with even number are those below the median. We apply the same specification on the split sample in this table as that in Table 3. *Firm-level controls* include *Firm size*, *Leverage* and *Tobin's Q*, which are all lagged one year relative to the firm performance measures. *Macro interaction controls* include interactions between Crisis and (1) *GDP per capita*, (2) *Financial institutions development*, (3) *Stock market development*, and (4) *Private credit contraction*. P-values are reported in parenthesis and calculated using heteroskedasticity robust standard errors clustered at the country level. *, **, and *** represent significant level at 10%, 5%, and 1%, respectively.

Panel A: Firm operating performance

	(1)	(2)	(3)	(4)	(5)	(6)
	EBIT to assets		Net income to assets		Cash flow to assets	
	High Financial dependence	Low Financial dependence	High Financial dependence	Low Financial dependence	High Financial dependence	Low Financial dependence
Anti-self-dealing*Crisis	**0.0911*** **	**0.0327*** **	**0.0812*** **	**0.0316*** **	**0.0785*** **	**0.0293*** **
	(0.000)	**(0.002)**	**(0.000)**	**(0.001)**	**(0.000)**	**(0.004)**
Crisis	-0.178***	-0.0533	-0.139***	-0.0398	-0.130***	-0.0467
	(0.001)	(0.317)	(0.009)	(0.388)	(0.010)	(0.345)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country cluster	35	36	35	36	35	35
Observations	11,356	11,739	11,496	11,919	11,022	11,042
R2	0.731	0.674	0.691	0.616	0.700	0.655
Adjusted R2	0.681	0.612	0.634	0.543	0.642	0.588
$(\beta_{High} - \beta_{Low} = 0)$						
F statistic	12.66***		9.44***		10.29***	
P-value	(0.0004)		(0.0021)		(0.0013)	

Panel B: Firm employment

	(1)	(2)	(3)	(4)
	Firm employment			
	Below median firing cost		Above median firing cost	
	High Financial dependence	Low Financial dependence	High Financial dependence	Low Financial dependence
Anti-self-dealing*Crisis	**0.169*** **	**0.0868** **	**-0.383**	**0.130**
	(0.003)	**(0.033)**	**(0.283)**	**(0.605)**
Crisis	-1.451	0.159	-0.0451	-0.209
	(0.245)	(0.822)	(0.916)	(0.720)
Firm-level controls	Yes	Yes	Yes	Yes
Macro interaction controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country cluster	18	18	16	15
Observations	8,553	8,602	1,866	1,870
R2	0.977	0.980	0.977	0.985
Adjusted R2	0.972	0.976	0.971	0.982
$(\beta_{High} - \beta_{Low} = 0)$				
F statistic		4.47**		4.71**
P-value		(0.0345)		(0.0299)

Table 6: The effects of Anti-self-dealing on investment to Q sensitivity over [t-3, t+3]

This table reports the effects of the Anti-self-dealing index on investment sensitivity to Q over crisis episodes [t-3, t+3]. Following Baker, Stein, and Wurgler (2003), we construct two variables as our investment measure. One is (Capital expenditure + R&D) to lagged assets in columns (1)-(3), the other is (Capital expenditure + R&D + Selling, General and Administrative expenses) to lagged assets in columns (4)-(6), respectively. "All" represents the full sample of firms and countries, while High (Low) *Financial dependence* represents the subsample of firms that are in industries above the median values of *Financial dependence*, which measures the extent to which firms depend on external finance and which is calculated at U.S SIC 3-digit level following the method in Rajan and Zingales (1998). *Firm-level controls* include lagged *Tobin's Q* and contemporary *Cash flow to assets*. *Macro interaction controls* include interactions between Crisis and (1) *GDP per capita*, (2) *Financial institutions development*, (3) *Stock market development*, and (4) *Private credit contraction*. P-values are reported in parenthesis and calculated using heteroskedasticity robust standard errors clustered at the country level. *, **, and *** represent significant level at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Investment 1			Investment 2		
	All	High Financial dependence	Low Financial dependence	All	High Financial dependence	Low Financial dependence
Anti-self-dealing*Tobin's Q*Crisis	**0.0310****	**0.0452*****	**0.0219**	**0.0816*****	**0.121*****	**0.0369**
	(0.013)	**(0.001)**	**(0.210)**	**(0.001)**	**(0.000)**	**(0.214)**
Tobin's Q*Crisis	-0.0190**	-0.0323***	-0.00804	-0.0708***	-0.0979***	-0.0422**
	(0.020)	(0.001)	(0.388)	(0.000)	(0.000)	(0.027)
Anti-self-dealing*Tobin's Q	0.000529	-0.0230	0.0185	0.0635*	0.0524	0.0695***
	(0.970)	(0.150)	(0.516)	(0.088)	(0.346)	(0.003)
Anti-self-dealing*Crisis	-0.00772	-0.0143	-0.00489	-0.0272**	-0.0195	-0.0351**
	(0.419)	(0.156)	(0.728)	(0.042)	(0.340)	(0.043)
Crisis	-0.0123	-0.0132	-0.0124	0.107*	0.0836	0.123*
	(0.760)	(0.732)	(0.754)	(0.059)	(0.170)	(0.067)
Tobin's Q	0.0382***	0.0611***	0.0162	0.0716***	0.0967***	0.0450**
	(0.001)	(0.000)	(0.263)	(0.005)	(0.008)	(0.029)
Cash flow to assets	0.0630*	0.0491	0.0774**	0.147**	0.0761	0.233***
	(0.080)	(0.194)	(0.032)	(0.033)	(0.418)	(0.000)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country cluster	36	36	35	34	31	33
Observations	18,318	9,098	9,220	14,352	7,131	7,221
R2	0.621	0.650	0.575	0.831	0.822	0.843
Adjusted R2	0.545	0.578	0.490	0.796	0.784	0.810
$(\beta_{High} - \beta_{Low} = 0)$						
F statistic		1.86			6.98***	
P-value		(0.1726)			(0.0082)	

Table 7 Anti-self-dealing and external finance

This table displays the effects of the Anti-self-dealing index on the external finance of firms over crisis episodes [t-3, t+3]. The dependent variables are *Equity issuance* in Panel A and *IPO/SEO* in Panel B,. "All" represents the full sample of firms and countries, while High (Low) *Financial dependence* represents the subsample with *Financial dependence* above (below) the median value. *Firm-level controls* include *Firm size*, *Leverage*, *Tobin's Q*, which are all measured at the beginning of a year, as well as contemporary *Cash flow to assets*. *Macro interaction controls* include interactions between Crisis and (1) *GDP per capita*, (2) *Financial institutions development*, (3) *Stock market development*, and (4) *Private credit contraction*. P-values are reported in parenthesis and calculated using heteroskedasticity robust standard errors clustered at the country level. *, **, and *** represent significant level at 10%, 5%, and 1%, respectively.

Panel A: Equity issuance

	(1)	(2)	(3)
	Equity Issuance		
	All	High Financial dependence	Low Financial dependence
Anti-self-dealing*Crisis	**0.0357****	**0.0579****	**0.0226**
	(0.016)	**(0.018)**	**(0.126)**
Crisis	0.0897	0.100	0.0885
	(0.150)	(0.237)	(0.494)
Firm-level controls	Yes	Yes	Yes
Macro interaction controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Country cluster	34	33	33
Observations	18,494	9,136	9,358
R2	0.420	0.438	0.401
Adjusted R2	0.306	0.327	0.280
$(\beta_{High} - \beta_{Low} = 0)$			
F statistic		3.46*	
P-value		(0.0627)	

Panel B: Proceeds from equity issuance events, IPO/SEO

	(1)	(2)	(3)
	Proceeds of IPO/SEO		
	All	High Financial dependence	Low Financial dependence
Anti-self-dealing*Crisis	**0.0184**	**0.0508****	**-0.00475**
	(0.147)	**(0.015)**	**(0.703)**
Crisis	-0.0171	-0.0327	-0.0276
	(0.708)	(0.621)	(0.546)
Firm-level controls	Yes	Yes	Yes
Macro interaction controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Country cluster	34	31	33
Observations	9,393	4,676	4,717
R2	0.316	0.342	0.288
Adjusted R2	0.184	0.211	0.148
$(\beta_{High} - \beta_{Low} = 0)$			
F statistic		8.62***	
P-value		(0.0033)	

Appendix

Table A1: List of the macro country characteristics

	Country name	Country code	Start year of crises	Anti-self-dealing index	GDP per capita	Financial institutions development	Stock market development	Private credit contraction	Rule of law	Legal protection and institutional quality	Cost of firing workers
1	Argentina	ARG	1995, 2001	0.342	8.295	0.129	0.082	0.501	0.037	-1.291	0.273
2	Austria	AUT	2008	0.213	10.520	1.082	0.346	0.077	1.863	2.928	0.217
3	Belgium	BEL	2008	0.544	10.492	0.715	0.751	0.126	1.240	2.035	0.160
4	Switzerland	CHE	2008	0.267	10.854	1.543	2.290	0.090	1.899	3.150	0.165
5	China, Mainland	CHN	1998	0.763	6.657	0.741	0.061	0.139	-0.431	-2.890	0.599
6	Colombia	COL	1998	0.573	8.058	0.306	0.169	0.372	-0.892	-3.287	0.549
7	Germany	DEU	2008	0.282	10.421	1.118	0.437	0.019	1.656	2.727	0.485
8	Denmark	DNK	2008	0.463	10.769	1.616	0.642	0.157	1.945	3.479	0.505
9	Spain	ESP	2008	0.374	10.162	1.299	0.840	0.262	1.097	1.449	0.358
10	Finland	FIN	1991	0.457	10.198	0.702	0.260	0.282	1.876	2.901	0.531
11	France	FRA	2008	0.379	10.429	0.902	0.779	0.099	1.400	1.996	0.433
12	United Kingdom	GBR	2007	0.950	10.532	1.424	1.267	0.135	1.623	2.636	0.487
13	Greece	GRC	2008	0.217	9.981	0.732	0.563	0.214	0.776	0.499	0.566
14	Hungary	HUN	2008	0.181	9.300	0.476	0.283	0.220	0.826	0.992	0.352
15	Indonesia	IDN	1997	0.653	6.964	0.473	0.224	0.780	-0.366	-3.030	0.685
16	India	IND	1993	0.579	5.999	0.241	0.097	0.018	0.259	-2.343	0.623
17	Ireland	IRL	2008	0.789	10.793	1.413	0.564	0.346	1.580	2.804	0.546
18	Italy	ITA	2008	0.421	10.325	0.855	0.446	0.084	0.468	0.252	0.452
19	Japan	JPN	1997	0.499	10.387	1.997	0.721	0.038	1.318	1.081	0.080
20	Kazakhstan	KAZ	2008	0.483	8.235	0.276	0.126	0.694	-0.824	-3.152	0.605
21	Korea	KOR	1997	0.469	9.327	0.550	0.395	0.101	0.752	-0.503	0.617
22	Luxembourg	LUX	2008	0.283	11.301	1.127	1.351	0.368	1.825	.	.
23	Latvia	LVA	2008	0.319	8.877	0.553	0.128	0.595	0.590	0.223	0.527
24	Mexico	MEX	1994	0.172	8.808	0.172	0.198	0.581	-0.759	-2.288	0.426
25	Malaysia	MYS	1997	0.950	8.309	1.010	2.792	0.262	0.607	-0.285	0.195
26	Nigeria	NGA	2009	0.433	6.742	0.121	0.184	0.773	-1.081	-4.434	0.036
27	Netherlands	NLD	2008	0.203	10.574	1.592	0.894	0.160	1.747	3.106	0.688
28	Norway	NOR	1991	0.421	10.686	0.782	0.193	0.113	1.889	3.050	0.527

29	Philippines	PHL	1997	0.215	6.878	0.323	0.774	0.468	-0.005	-1.994	0.575
30	Portugal	PRT	2008	0.444	9.813	1.358	0.357	0.110	1.198	1.607	0.615
31	Russia	RUS	2008	0.440	8.582	0.233	0.539	0.425	-0.905	-3.605	0.609
32	Slovak Rep	SVK	1998	0.290	8.938	0.358	0.049	0.474	0.153	-0.650	0.651
33	Sweden	SWE	2008	0.333	10.622	1.026	1.044	0.087	1.776	3.020	0.529
34	Thailand	THA	1997	0.813	7.652	1.132	0.921	0.398	0.541	-1.308	0.632
35	Turkey	TUR	2000	0.429	8.710	0.191	0.180	0.514	-0.171	-2.426	0.414
36	Ukraine	UKR	2008	0.081	7.511	0.259	0.215	0.734	-0.790	-3.132	0.570
	Average		2002.946	0.437	9.242	0.801	0.588	0.300	0.687	0.095	0.465

Table A2 Correlation matrix of the macro country characteristics

	Anti-self-dealing index	GDP per capita	Financial institutions development	Stock market development	Private credit contraction	Rule of law	Legal protection and institutional quality	Cost of firing workers
Anti-self-dealing index	**1.0000**							
GDP per capita	**-0.1836**	1.0000						
	(0.2838)							
Financial institutions development	**0.2042**	0.6790*	1.0000					
	(0.2323)	(0.0000)						
Stock market development	**0.2708**	0.3274	0.5292*	1.0000				
	(0.1101)	(0.0513)	(0.0009)					
Private credit contraction	**-0.1007**	-0.5533*	-0.6149*	-0.2993	1.0000			
	(0.5591)	(0.0005)	(0.0001)	(0.0762)				
Rule of law	**-0.0203**	0.8243*	0.7789*	0.4126	-0.7131*	1.0000		
	(0.9065)	(0.0000)	(0.0000)	(0.0124)	(0.0000)			
Legal protection and institutional quality	**-0.0718**	0.8895*	0.7579*	0.3640	-0.6957*	0.9782*	1.0000	
	(0.6819)	(0.0000)	(0.0000)	(0.0316)	(0.0000)	(0.0000)		
Cost of firing workers	**0.0314**	-0.2022	-0.1690	-0.3570	0.1105	-0.1358	-0.1454	1.0000
	(0.8580)	(0.2440)	(0.3318)	(0.0353)	(0.5276)	(0.4365)	(0.4045)	

Table A3: The impact of shareholder protection laws on the size of crises shocks

	(1)	(2)	(3)	(4)
	Private credit contraction			
Anti-self-dealing	**-0.108**	**-0.124**	**-0.158**	**-0.0873**
	(0.497)	**(0.312)**	**(0.219)**	**(0.555)**
Rule of law		-0.166***		
		(0.000)		
Legal protection and institutional quality			-0.0662***	
			(0.000)	
GDP per capita				-0.0468
				(0.268)
Financial institutions development				-0.189**
				(0.011)
Stock market development				0.0160
				(0.701)
Constant	0.348***	0.468***	0.374***	0.913**
	(0.000)	(0.000)	(0.000)	(0.022)
Observations	36	36	35	36
R2	0.010	0.522	0.505	0.418
Adjusted R2	-0.0190	0.493	0.474	0.342