

Summary

Emerging market economies have become more financially integrated with the rest of the world, allowing greater access to capital but also exposing them to financial shocks. With this increased integration, have institutional and legal frameworks improved accordingly, helping these economies to be more resilient in the face of a more volatile external environment?

This chapter focuses on the interrelatedness of corporate governance, investor protection, and financial stability across emerging market economies. Corporate governance and investor protection encompass rules and practices at both the country and firm level and deal with ways in which suppliers of financing to corporations ensure that they get a return on their investment. Past financial crises across major emerging market economies underscored how corporate governance deficiencies can contribute to financial instability.

The chapter finds that corporate governance and investor protection have generally improved in emerging market economies over the past two decades. The progress is apparent in both firm- and country-level indicators. Even so, there are important differences across emerging market economies, and there is room for further improvement.

The analysis supports the notion that stronger corporate governance and investor protection frameworks enhance the resilience of emerging market economies to global financial shocks. The chapter develops new firm-level indices of governance in emerging market economies and employs novel empirical approaches. The results show that corporate governance improvements foster deeper and more liquid capital markets, allowing them to absorb shocks better. Corporate governance improvements also enhance stock market efficiency, thereby making equity prices less sensitive to external shocks and less prone to crashes. For example, moving from the lower to the upper end of the country- and firm-level governance indices reduces the impact of global shocks by up to 50 percent for emerging market firms, on average. Emerging market economies with better corporate governance and investor protections generally have stronger corporate balance sheets. In particular, better-governed firms typically display lower short-term debt ratios and default probabilities and are able to borrow at longer maturities. This reduces their vulnerability to dry-ups in funding, enhancing financial stability.

The financial stability benefits associated with improved corporate governance strengthen the case for further reform. Although there is no single model, good corporate governance frameworks have some common characteristics. Accordingly, this chapter makes the following policy recommendations:

- All emerging market economies should continue to reform their legal, regulatory, and institutional frameworks to foster the effectiveness and enforceability of corporate governance regimes.
- Most emerging market economies should continue to bolster the rights of outside investors, in particular minority shareholders.
- Bringing disclosure requirements fully in line with international best practice is needed in many emerging market economies. Promoting greater board independence is also likely to yield benefits.

Introduction

With greater financial integration and the development of local markets, the financial landscape across emerging market economies has changed dramatically over the past two decades. Has institutional progress—including corporate governance and investor protection—kept pace, thereby potentially bolstering their resilience to external shocks? Or do the recent strains in some emerging markets and the accompanying volatility in net capital flows hint at more widespread challenges? The importance of this question is highlighted by a series of financial crises across major emerging markets during the late 1990s, when weak corporate governance was seen as contributing to global financial instability. The Asian financial crisis is a notable example. More recently, during the global financial crisis and the 2013 taper tantrum, emerging market economies with lower corporate governance scores experienced more extreme capital outflows. This year, in emerging market economies with lower corporate governance standards, equity price falls were relatively larger in the wake of Brexit, the June 2016 U.K. referendum result in favor of leaving the European Union (Figure 3.1). These episodes of financial stress in emerging market economies point to the role weak corporate governance may play in exacerbating vulnerabilities.

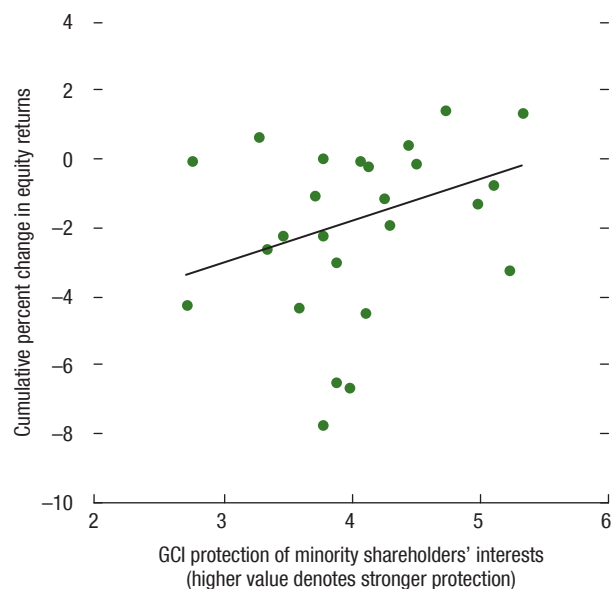
Theory suggests that weak corporate governance and investor protection can undermine financial stability by heightening vulnerability to external shocks. Corporate governance and investor protection deal with ways in which suppliers of financing to corporations ensure that they get a return on their investment (Shleifer and Vishny 1997). Both concepts encompass firm- and country-level dimensions, including rules protecting minority shareholders, disclosure provisions and practices, the role and structure of the board, and compensation structures.

- Governance deficiencies can allow corporate insiders (managers, controlling shareholders) to expropriate the assets of outside investors (creditors, minority shareholders) by diverting resources for their personal use or by committing funds to unprofitable projects that provide private benefits (Djankov and others 2008b). These problems may quickly gain economy-wide

Prepared by Selim Elekdag (team leader), Adrian Alter, Luis Brandão-Marques, Alan Xiaochen Feng, Xinhao Han, Dulani Senviratne, and Rasool Zandvakil, under the general guidance of Gaston Gelos and Dong He. René Stulz was a consultant for this chapter. Carol Franco and Adriana Rota provided editorial assistance.

Figure 3.1. Corporate Governance and Equity Returns
(Cumulative changes in dollar returns during Brexit)

Countries with lower corporate governance scores experienced sharper equity return declines after the Brexit vote.



Sources: Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators (GCI) database; and IMF staff calculations. Note: Cumulative change in equity returns during Brexit corresponds to the equity price movements from June 23 to 29, 2016. Dollar returns are calculated using MSCI price indices and are adjusted by controlling for the public debt-to-GDP ratio and the current account deficit to GDP. Brexit = June 2016 U.K. referendum result in favor of leaving the European Union.

importance in the presence of an adverse aggregate shock. For example, Johnson and others (2000) argue that weaker corporate governance frameworks in some emerging markets were associated with significantly more expropriation of cash and tangible assets by managers during the Asian crisis, which in turn exacerbated capital outflows and the attendant currency depreciations and stock price collapses.

- Lack of corporate transparency may increase financial volatility (Figure 3.2). When global financial conditions are benign, investors are more likely to channel funds into companies and markets that feature higher returns but are less easy to understand (Brandão-Marques, Gelos, and Melgar 2013). During more turbulent times, these investors are likely to retrench first by reducing their exposure to these relatively opaque assets. As a result, less transparent markets may be more prone to boom-bust cycles. Likewise, when opacity interacts with weak corporate governance, controlling shareholders

may manipulate reported earnings concealing good and bad news, and individual stock prices may not properly reflect the firm's fundamentals. This can cause stock markets to move together more than warranted by fundamentals and potentially increase the risk of a financial market crash (Morck, Yeung, and Yu 2000; Jin and Myers 2006).

- In contrast, it has been argued that by safeguarding investor rights, better corporate governance helps promote deeper and more liquid capital markets, thereby bolstering financial systems' resilience to external shocks (see Chapter 2 of the April 2014 and October 2015 issues of the *Global Financial Stability Report* [GFSR]).

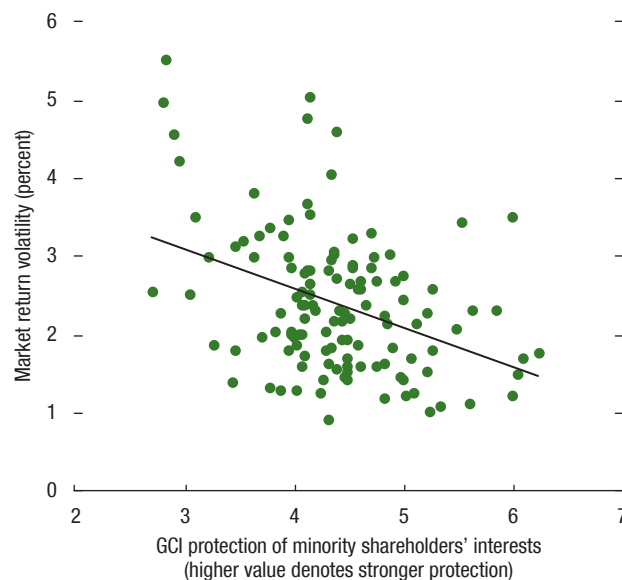
This interplay of corporate governance with exposure to global financial conditions is of particular relevance for emerging market economies. In general, corporate governance issues are also of great importance for advanced economies. For example, citing the role of banks at the outset of the global financial crisis, Chapter 3 of the October 2014 GFSR examined the relationship between the corporate governance of banks and their risk-taking behavior, mainly in advanced economies. In contrast, this chapter assesses governance aspects of particular importance to emerging market economies and their relationship to these countries' exposure to external financial shocks. In particular, given emerging market economies' relatively weaker institutions, their lower degree of financial market development, and their greater sensitivity to global financial conditions, the link between corporate governance and financial stability is of special relevance for them. Overall, however, empirical evidence on the relationship between corporate governance, investor protection, and financial stability is scarce.

Deficiencies in corporate governance and investor protection may play a role in elevating corporate fragility, but few studies have examined these connections. The quality of corporate governance influences not only the access to and the composition of financing, but also firms' cost of capital, solvency, profitability, and valuations.¹ Outside investors may be willing to provide financing to weakly governed companies only at short maturities or high rates. High short-term debt associated with weaker governance frameworks could compromise

¹See, for example, Gompers, Ishii, and Metrick 2003; Aggarwal and others 2009; and Chen, Chen, and Wei 2009.

Figure 3.2. Corporate Governance and Volatility of Stock Market Returns in Emerging Market Economies
(Market return volatility against minority shareholder protection)

Countries with weaker corporate governance frameworks tend to have more volatile stock returns.



Sources: Bloomberg L.P.; Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators (GCI) database; and IMF staff calculations. Note: Other corporate governance indices yield a similar picture. Market return volatility is the standard deviation of weekly returns. Sample includes annual observations for 18 emerging market economies between 2010 and 2014 (country-year observations).

financial stability, especially if it is pervasive throughout the corporate sector. Overall, corporate governance and investor protection may affect corporate vulnerabilities in more complex and potentially ambiguous ways. Surprisingly, there is scarce empirical research on the links between corporate governance and financial stability—either at the country² or at the firm level³—that

²At the country level, most of the literature emphasizes the importance of a robust legal framework for strong capital market development and ultimately economic growth (La Porta and others 1997, 1998; Djankov and others 2008b). Gelos and Wei (2005) show that during turbulent times, mutual funds tend to flee to a greater degree from less transparent countries (including those with more opaque corporate sectors).

³At the firm level, most of the evidence pertains to advanced economies and explores the link between corporate governance and valuation. Firm-level evidence for emerging markets is fragmented, in part because most studies have focused on individual countries, reflecting the scarcity of comparable cross-country micro panel data on corporate governance. Many studies consider a few countries at most (for a survey, see Claessens and Yurtoglu 2013) or cover only a particular year (see, for example, Klapper and Love 2004).

is comprehensive and includes a broad set of emerging market economies. Likewise, studies on the link between firm-level governance and corporate capital structure, solvency, and crash risk are rare.⁴

This chapter attempts to fill these gaps by addressing the following questions:

- How has corporate governance evolved in emerging market economies, sectors, and nonfinancial firms over the past two decades?
- Are emerging market economies with better corporate governance frameworks less exposed to global financial shocks?
- What is the role of corporate governance and investor protection in reducing corporate fragility? For example, is poor governance associated with higher short-term debt ratios? Is there evidence that better legal frameworks and institutions mitigate the adverse consequences of weaker corporate governance?

To address these questions, the chapter explores the links between corporate governance and key firm- and country-level dimensions of financial stability. First, it develops new firm-level indices of governance in emerging market economies. It then uses these firm-level indices as well as country-level information on governance, combined with other data, to pursue novel empirical approaches. The analysis focuses on dimensions of corporate governance that are of particular relevance for the nonfinancial corporate sector across emerging market economies. The new firm-level index is mainly designed to enable comparisons across firms, and the chapter does not present its country-level averages. For the country-level measures of governance, the analysis relies on data from other institutions. The results are broadly robust to the use of alternative country-level indices of corporate governance, and the overall conclusions do not rely heavily on any single country-level corporate governance index.

The main results of the chapter are as follows:

- Corporate governance in emerging market economies has broadly improved over the past two decades, but large differences across these economies remain, and there is considerable scope for progress.

⁴The closest study is by Faccio, Lang, and Young (2010), who focus more on the link between corporate control and leverage for a handful of advanced and emerging market economies in east Asia and western Europe. Chen, Chen, and Wei (2009) look into the cost of capital, using data from 2001.

- Emerging market economies with stronger corporate governance and investor protection frameworks tend to be more resilient to global financial shocks. Improving corporate governance and investor protection help develop deeper and more liquid financial markets, thereby fostering financial stability.
- Moreover, equity prices in firms with governance deficiencies tend to move in tandem, are more sensitive to external financial shocks, and are more susceptible to crash risk. For example, moving from the lower to the upper end of the country- and firm-level governance indices reduces the impact of global shocks by about 20 percent for emerging market economies and 50 percent for emerging market firms on average. Overall, the economic importance of these effects is considerable in terms of increasing the resilience of emerging markets to shocks.
- Better corporate governance and investor protections are associated with stronger corporate balance sheets. These features are linked to lower short-term debt ratios, lower default probabilities, and the ability to borrow at longer maturities.
- In line with these results, firms and countries characterized by weaker corporate governance have been hit harder during recent periods of financial market turbulence.
- The results are generally robust to a variety of methods designed to isolate the effect of corporate governance vis-à-vis other factors and to help establish causality.

In sum, improvements in corporate governance and investor protection across emerging market economies have helped bolster the resilience of their financial systems. Such improvements are analogous to macroprudential policies in the sense that they help enhance the resilience of financial systems. They help reduce the amplitude of asset price swings and the probability of market crashes. This implies that reform efforts should continue on both fronts. Some common elements of good corporate governance are described in the Principles of Corporate Governance issued by the Group of Twenty (G20) and the Organisation for Economic Co-operation and Development (OECD). Guided by the empirical results and these broad principles, this chapter makes the following policy recommendations:

- Countries should continue to strengthen legal, regulatory, and institutional frameworks to promote the

effectiveness and enforceability of corporate governance regimes.

- Most emerging market economies should continue to bolster the rights of outside investors, in particular minority shareholders.
- Many emerging market economies should bring disclosure requirements fully in line with best international practice.
- Greater board independence could also bring benefits.

Nexus between Corporate Governance, Investor Protection, and Financial Stability

After defining corporate governance and investor protection, this conceptual section discusses the potential links with financial stability and reviews the drivers of corporate governance reform.

Corporate governance and investor protection have some elements in common. Country-level definitions of corporate governance typically center on regulations, such as listing requirements, that govern equity investments in publicly listed firms. Firm-level or internal governance mechanisms are those that operate within the firm and deal with the role of the board and its structure, managers' compensation, and the firm's disclosure policy, as well as the specific rights of shareholders. Investor protection is a more general notion and pertains to how outside investors—minority shareholders and creditors—are protected against expropriation of their assets by insiders (controlling shareholders, management), how well all investors are protected against expropriation from the state, and how their rights are enforced in practice.⁵ Corporate governance and investor protection deal with ways in which suppliers of finance to corporations (shareholders, creditors) assure themselves of getting a return on their investment (Shleifer and Vishny 1997). Corporate governance and investor protection are part of, and their effectiveness is partly determined by, the larger institutional setting in which firms operate, including the quality of public policy and the strength of the judicial system.

⁵Government leaders can use the power of the state to expropriate investors by actions ranging from outright confiscation to regulations that favor their constituencies and include redistributive taxes (Stulz 2005).

In advanced economies, the traditional focus of corporate governance has been on potential conflicts of interest between shareholders and managers. Difficulty in monitoring management's actions heightens the risk of managers not always acting in the best interest of shareholders (Jensen and Meckling 1976; Shleifer and Vishny 1989). The two typical concerns in the literature are that, from the shareholder's perspective, managers may take on too little risk (forgoing profitable investment opportunities), or they may overinvest in less profitable business lines (engaging in empire building to increase managers' power).

Aligning the interests of managers and majority shareholders does not, however, necessarily protect the interests of creditors, outsider shareholders, or even society at large. Shareholders have limited liability, which means that they are shielded from losses suffered by creditors on debt-financed investment projects; however, they receive all the gains from increased company value when such projects are successful. Thus, shareholders and managers have an incentive to engage in shifting risk toward the firm's creditors by using creditors' money to gamble on risky projects. This problem is worsened in the presence of explicit or implicit government guarantees on the debt (for example, too-big-to-fail issues), particularly if debt markets do not work well and fail to exert a disciplining role. Similarly, if governance mechanisms are weak, controlling shareholders can expropriate minority shareholders in a variety of ways, such as by transferring profits to other companies controlled by majority shareholders (Claessens and others 1999).

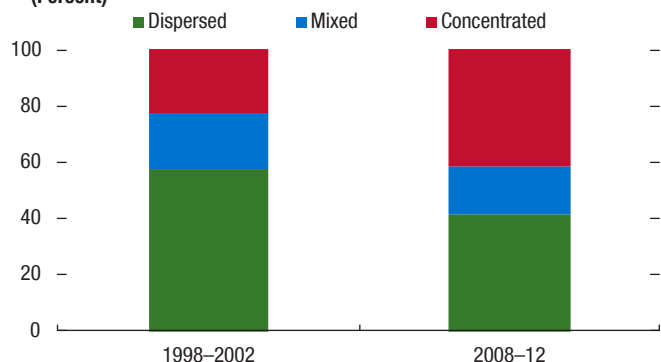
Moreover, the relative importance of corporate governance challenges in emerging market economies differs from that in advanced economies.

- The rules, regulations, and laws governing creditor and shareholder rights are only as good as their enforcement. Hence, the tendency for judicial systems to be weaker in emerging markets is the focus of much concern in this context (La Porta and others 1997, 1998).
- The predominance of controlling shareholders is another distinctive aspect of emerging market economies, where large corporations very often have controlling owners, typically wealthy families (Morck, Wolfenzon, and Yeung 2005). Between 2002 and 2012, the average share of global market capitalization nearly doubled, from 22 percent to 41

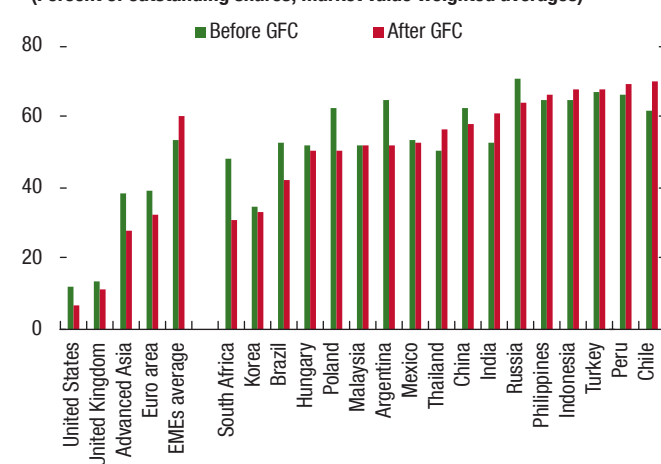
Figure 3.3. Ownership Structure and Closely Held Shares

The share of countries with concentrated ownership and firms with closely held shares has risen.

1. Ownership Structure of Listed Firms (Percent)



2. Closely Held Shares (Percent of outstanding shares; market value weighted averages)



Sources: Organisation for Economic Co-operation and Development, Corporate Governance Factbook (2015; panel 1); Thomson Reuters Datastream (panel 2); and IMF staff calculations.

Note: Shares of market capitalization of country groups with different ownership structures are shown in panel 1. Economies included in the dispersed ownership category are Australia, the United Kingdom, and the United States. Economies included in the mixed ownership category are Canada, Germany, Japan, the Netherlands, and Switzerland. Other economies included in the concentrated ownership category are selected major emerging market economies. Closely held shares = shares held by insiders (for example, officers, directors and their immediate families, individuals with more than 5 percent of the outstanding shares) or held by other companies, except those held in a fiduciary capacity; EMEs = emerging market economies; GFC = global financial crisis.

percent, for countries where controlling shareholders are the norm (Figure 3.3, panel 1).

- Moreover, in emerging market economies, where business groups often dominate the corporate sector, control is reinforced through mechanisms such as cross-shareholdings, multiple classes of shares with different voting rights, and pyramidal ownership structures (Oman, Fries, and Buitert 2003).⁶ The proportion of closely held shares (which encompass cross-shareholdings) is substantially higher in emerging market economies (Figure 3.3, panel 2).⁷ This suggests that the protection of minority shareholder rights matters even more in these countries.⁸

Corporate governance codes can help mitigate these problems. Indeed, the purpose of corporate governance

⁶A pyramid exists when one firm at the top holds a dominant equity share in and thereby controls one or more other firms, each of which in turn has a dominant equity share in additional firms (and so on). Corporate insiders who control the firm at the top of the pyramid (often a holding company) can thus control entire groups of firms (and massive corporate assets) with very little direct equity ownership in the firms lower down the pyramid.

⁷State-owned enterprises (SOEs) are common in emerging market economies and face distinct governance challenges (Box 3.2). The OECD (2015) sets out internationally agreed standards aimed at making SOEs operate with similar levels of efficiency, transparency, and accountability as private enterprises adhering to good practices, as well as ensuring that their competition with private companies takes place on a level playing field. Although a thorough investigation of SOEs is beyond the scope of this chapter (in part because of data limitations), many empirical exercises take them into account either by including an SOE indicator variable (reported when relevant) or via firm fixed effects terms (which capture time-invariant firm-specific factors).

⁸Put differently, the corporate landscape and prevailing ownership structures affect the nature of the agency problems between managers and outside shareholders, and among shareholders. When ownership is diffuse, as is typical in the United States and in the United Kingdom, key agency problems largely stem from the conflicts of interest between outside shareholders and managers. In these settings, providing management with proper incentives to act in the interest of outside shareholders is typically key. In contrast, when ownership is concentrated, it is much easier for the controlling owner to closely monitor management. Instead, the main conflicts of interest there arise between controlling shareholders and minority shareholders (and other outside investors), highlighting the importance of safeguarding minority investor rights. The protection of minority shareholders' interests covers various aspects to minimize expropriation by corporate insiders such as (1) access to internal corporate documents or immediate and periodic disclosure of related-party transactions, (2) shareholders' ability to sue and hold interested directors liable (for prejudicial related-party transactions) and available legal remedies (such as fines and imprisonment), and (3) governance safeguards protecting shareholders from undue board control and entrenchment as well as shareholders' rights and role in major corporate decisions. See Djankov and others 2008b for further details.

includes the maximization of firms' efficiency and profitability by motivating corporate insiders to act in the interest of all investors and limiting abuse of their power over corporate resources. Traditionally, governance mechanisms attempt to align managerial incentives with the interests of the shareholders through the use of bonuses and stock options. A board of directors responsible for monitoring managerial behavior can also exert control on behalf of shareholders.⁹ For emerging market economies, key measures include limits on the use of devices such as shares with different voting rights, cross-shareholdings, and pyramidal corporate ownership structures, as well as high disclosure requirements and accounting standards, and their enforcement.

How Can Corporate Governance and Investor Protection Affect Financial Stability?

Improvements in corporate governance and investor protection can promote the development of larger and more liquid capital markets and thereby strengthen the resilience of the financial system. For example, by lowering expropriation risk and increasing transparency, better corporate governance can reassure investors and contribute to the development of stock markets (Djankov and others 2008b), and improvements in debt enforcement can help develop bond markets (Djankov and others 2008a). Similarly, better corporate governance and investor protection, by reducing information asymmetries, should encourage trading activity and lower search costs and thereby improve market liquidity. Larger and more liquid markets, in turn, have been shown to improve emerging markets' resilience to global financial shocks (see Chapter 2 of the April 2014 GFSR).

Corporate transparency can affect financial volatility:

- At the firm level, bad corporate governance practices, including opaque disclosure regimes, make it costlier for outside investors to acquire information about individual stocks. For instance, in an attempt to conceal expropriation, insiders can manipulate earnings statements, thereby discouraging informed trading, hindering price discovery, and reducing market efficiency. Under these circumstances, because stock prices do not fully reflect firm fundamentals, they are likely to become more synchronized with

market-wide fluctuations. Moreover, firm-specific shocks may have systemic implications because they can result in contagion to the rest of the market.¹⁰

- When global financial conditions are favorable, investors may be more prone to take on unknown risks and therefore more likely to channel funds into asset classes whose characteristics are more opaque (Brandão-Marques, Gelos, and Melgar 2013). During periods of elevated financial stress, however, these investors face more scrutiny and tend to reduce exposures to those assets. As a result, opaque markets may be more prone to boom-bust cycles.¹¹

Corporate governance and investor protection deficiencies may also play a role in encouraging excessive leverage and tilting financing toward shorter-term debt, with implications for overall financial stability.

- The link between corporate governance and capital structure (for example, leverage) is ambiguous, owing to various confounding effects, as pointed out in the literature (for instance, Berger, Ofek, and Yermack 1997; John and Senbet 1998; John and Litov 2008). The presence of controlling shareholders in emerging market economies, for example, introduces a bias toward debt. These shareholders do not want to dilute their control through equity issuance, but since demand for the company's debt is also likely to be low (for fear of risk shifting), the ultimate outcome is unclear. Similarly, related lending across firms within the same company group may increase the share of debt financing (La Porta, Lopez-de-Silanes, and Zamarripa 2003).¹²
- Theoretical predictions regarding the composition of debt are more clear cut. Specifically, inefficient judicial systems or shortcomings in insolvency regimes may hinder the timely recovery of assets, including collateral, after liquidation. Therefore, creditors may prefer short-term debt that gives them a choice between rolling it over and getting out if necessary

¹⁰Albuquerque and Wang (2008) develop a theoretical model predicting that countries with weaker investor protection display higher stock return volatility. Morck, Yeung, and Yu (2000) and Jin and Myers (2006) find that stock returns move closely with the market in countries with weak investor protection and opaque corporate disclosure regimes. Shleifer and Vishny (1997) show that reduced informed trading can aggravate the effect of negative shocks on prices.

¹¹On the other hand, increasing disclosure and corporate transparency lowers implicit market barriers, potentially inducing higher comovement of emerging and advanced markets.

¹²Related lending is an example of a related-party transaction.

⁹Investor activism, takeovers, and leveraged buyouts are other mechanisms that also keep a tight rein on management, but are more relevant in the context of some advanced economies. See Tirole 2006 for further details.

(Tirole 2006), which makes recipient countries more vulnerable.¹³ Likewise, short-term debt may be preferred because predatory actions by the state can lead to bankruptcy, making such actions costlier for political leaders (Stulz 2005).

Drivers of Corporate Governance Reform

An important force working in favor of governance reform is the growing role of institutional investors as suppliers of external funding amidst greater financial globalization. Both international and domestic institutional investors (for example, local pension funds) are moving the process of reform forward. Regarding the former, Aggarwal and others (2011) find that foreign institutional investors based in countries with better minority shareholder rights promote firm-level governance improvements in countries outside the United States. Likewise, with a focus on advanced economies, Albuquerque and others (2013) report that cross-border mergers and acquisitions are associated with improvements in governance and valuation of the target firms.

Similarly, the growing demand for external financing by emerging market firms is also promoting better corporate governance. Firms can issue bonds or list abroad (cross-listing), which subjects them to higher corporate governance and disclosure standards. However, companies with access to international capital markets are more likely to obtain financing at more favorable terms, so they are more motivated to adopt better governance practices. Firms that adopted International Accounting Standards—which are well known and reliable—have been able not only to attract a large pool of investors, but also to lower their costs of capital (Chan, Covrig, and Ng 2009). Likewise, firms can adapt to weaker institutional environments by adopting voluntary corporate governance measures, such as hiring more reputable auditors.

Despite the overall benefits, countries and firms do not always reform their corporate governance frameworks. This is partly because reforms are multifaceted and require a combination of legal, regulatory, and market measures, which are challenging to implement. A more important reason, however, lies in the value of rents political and other insiders extract under the status quo. For example, Claessens, Feijen, and Laeven (2008)

show that stocks of emerging market firms that contributed to (subsequently elected) political candidates had higher returns after elections and that these firms were later able to access bank financing more readily. Likewise, the reluctance of entrenched insiders to reform is due largely to the rents they would forfeit. For instance, controlling shareholders who reap more private benefits from control are more reluctant to cross-list their firms on a U.S. exchange (Doidge, Karolyi, and Stulz 2004). This suggests that wealth structures may need to change to bring about significant corporate governance reform, especially in emerging market economies where wealth is particularly concentrated. Lastly, corporate governance has aspects of a public good to the extent that externalities are involved; for example, individual firms will not internalize any benefits enhanced governance may have for economy-wide financial stability.

In response to such challenges to reform, the OECD has developed the Principles of Corporate Governance. These Principles serve as globally recognized benchmarks for assessing and improving corporate governance. The Principles have been adopted as one of the Financial Stability Board's key standards for sound financial systems.

The Evolving Nature of Corporate Governance and Investor Protection

This section documents a general improvement in corporate governance and investor protection frameworks over the past two decades in many emerging market economies, as confirmed by both country- and firm-level indicators.

Over the past two decades, many emerging market economies have reformed parts of their corporate governance systems (Box 3.1).¹⁴ In some cases, major changes occurred in the aftermath of crises, including an overhaul of capital market laws (Black and others 2001). Specific initiatives include the formation of audit committees, requiring a minimum number of independent directors (thereby strengthening the role of the board), and certification of financial statements and internal controls by the chief executive officer/chief financial officer, as well as the introduction of mandatory cumulative voting in director elections, which further empowers shareholders (Claessens and Yurtoglu 2013).¹⁵

¹³Likewise, because short-term debt comes up for frequent renewal, it can be a powerful instrument to monitor and discipline management (an idea related to Jensen 1986). In fact, Anginer and others (2015) find that corporate governance reforms that strengthen shareholder rights are associated with lower short-term debt ratios.

¹⁴These trends are in line with those found by De Nicolo, Laeven, and Ueda (2008).

¹⁵Cumulative voting is a type of voting system that helps strengthen the ability of minority shareholders to elect a director. This method

Reflecting these reform efforts, corporate governance improvements have been broad based across emerging market economies. Despite these achievements, however, on average, emerging market economies still have scope to improve (Figures 3.4 and 3.5). These trends are based on various measures of minority shareholder protection and corporate transparency. A few additional points are noteworthy. First, there is quite a bit of heterogeneity across emerging market economies. Several have corporate governance scores higher than those in advanced economies. Second, corporate governance is difficult to quantify, and despite efforts to reflect the views of survey respondents and experts, the various measures are accompanied by margins of error. Nonetheless, these series still permit meaningful comparisons across countries and over time.¹⁶

When it comes to measures of legal frameworks and enforcement, the developments are more mixed (Figure 3.5). Again, the heterogeneity in rankings across emerging market economies is noteworthy. Although some emerging market economies score well with regard to corporate governance, they rank lower in terms of property rights and the efficiency of their legal frameworks.

A New Firm-Level Corporate Governance Index for Emerging Market Economies

This chapter develops new firm-level indices of governance for a panel of emerging market economies. An index is constructed using firm-specific governance attributes sourced from the ASSET4 database.¹⁷ These 71 attributes cover various aspects, including board structure and composition, compensation and disclosure policies, and shareholder rights, and are chosen to reflect the main governance

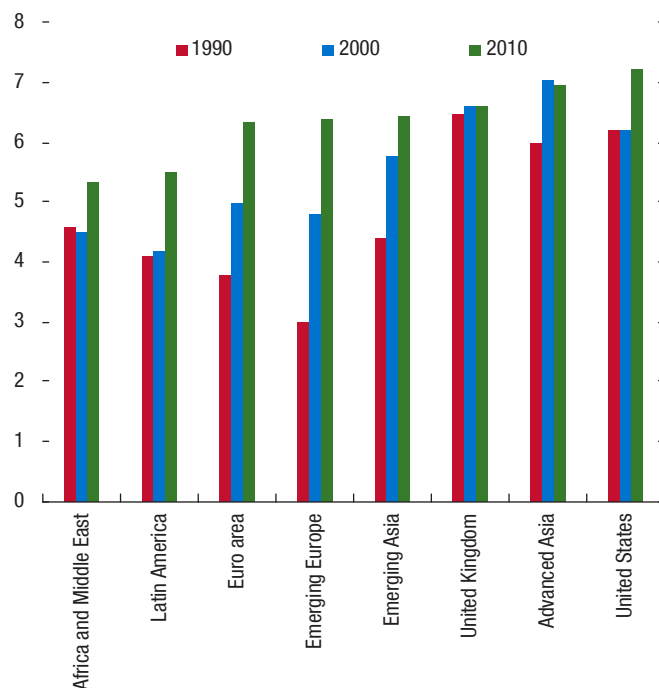
allows shareholders to cast all of their votes for a single nominee for the board of directors when the company has multiple openings on its board.

¹⁶The measures of country-level corporate governance and transparency used in this chapter capture specific aspects of institutional quality that are distinct from mere proxies of economic development. The average correlation between per capita GDP and the credit-to-GDP ratio (measures of economic and financial development) with various country-level measures of minority shareholder protection, corporate transparency, strength of legal institutions, and the rule of law, for example, are 2 percent and 8 percent, respectively, across emerging market economies. The highest correlation is between per capita GDP and the rule of law (54 percent) and is an outlier. Correlations with credit-to-GDP are substantially lower. Likewise, the overall conclusions of the chapter do not rely heavily on any single country-level measure of corporate governance.

¹⁷Available in the Thomson Reuters Datastream database.

Figure 3.4. Minority Shareholder Protection
(Index, higher value denotes stronger protection)

Corporate governance has improved appreciably in emerging market economies in the past two decades.



Sources: Guillén and Capron 2016; and IMF staff calculations.

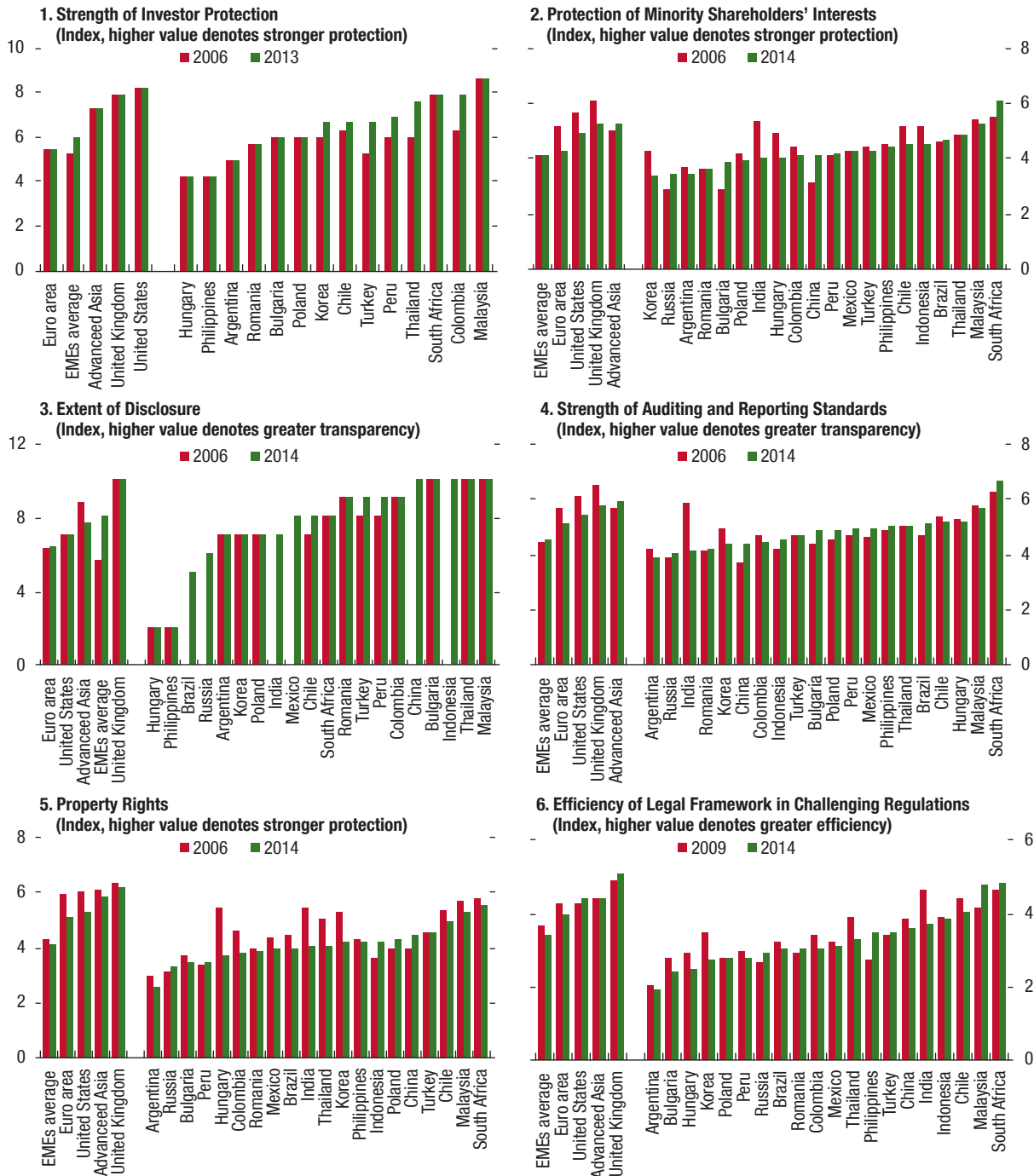
Note: Africa and Middle East sample includes Egypt, Jordan, Lebanon, Nigeria, Oman, South Africa, and the United Arab Emirates. Latin America includes Argentina, Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Mexico, Peru, and Venezuela. Emerging Asia includes China, India, Indonesia, Korea, Malaysia, Philippines, Thailand, and Vietnam. Euro area sample includes founding members except Ireland owing to data limitations. Emerging Europe includes Bulgaria, Czech Republic, Latvia, Lithuania, Poland, Slovenia, and Turkey. Advanced Asia includes Australia, Hong Kong SAR, Japan, New Zealand, and Singapore.

challenges confronting emerging market firms.¹⁸ The attributes are split into three subcategories to construct subindices focusing on the role of the board,

¹⁸Examples of specific attributes used include the percentage of independent board members as reported by a company (board subindex); whether the company has a performance-oriented compensation policy (compensation subindex); or whether the company has a policy to apply the one-share, one-vote principle in the context of the shareholder rights index. The index assigns a value of 1 to governance attributes if the firm satisfies a criterion, and 0 otherwise. For comparability with past studies (for example, Gompers, Ishii, and Metrick 2003; Aggarwal and others 2009; Albuquerque and others 2013), the index is additive and is expressed in percent: if a firm hypothetically satisfied all criteria, it would have a score of 100 percent for a particular year. In contrast to other indices (which focus on the United States or other advanced economies), the index developed in this chapter does not emphasize attributes pertaining to antitakeover measures because such issues are less relevant in emerging market economies, given, among other factors, the prevalence of controlling shareholders (Bebchuk and Hamdani 2009).

Figure 3.5. Country-Level Corporate Governance and Investor Protection

In emerging market economies, corporate governance and investor protection have generally improved.

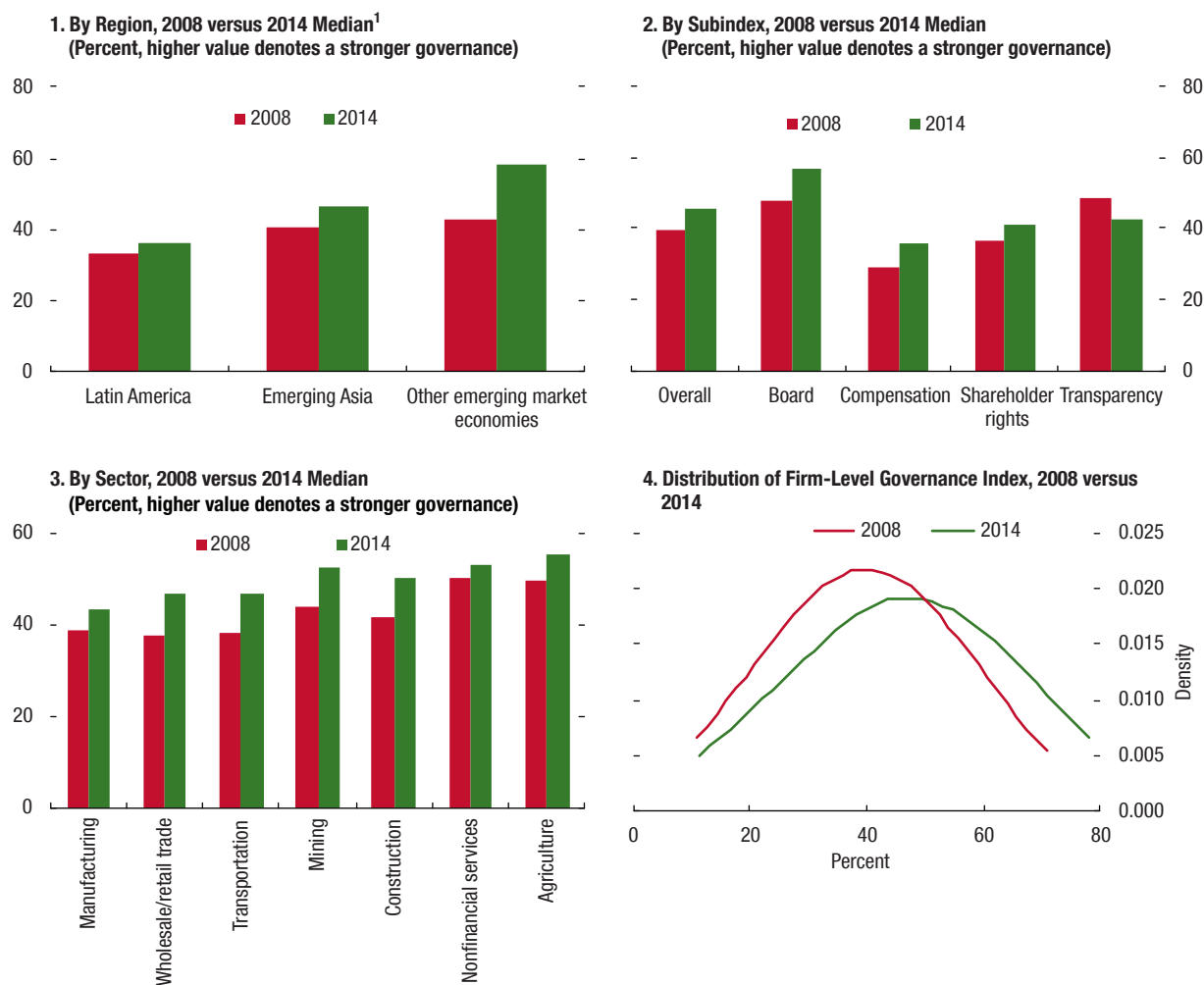


Sources: World Bank, Doing Business database (panels 1 and 3); World Economic Forum, Global Competitiveness Indicators database (panels 2, 4, 5, and 6); and IMF staff calculations.

Note: The observations for the United States in panels 1 and 3 are based on indices for New York City, due to data limitations. EMES = emerging market economies.

Figure 3.6. Emerging Market Firm-Level Governance Index

Corporate governance has generally improved across emerging market economies, sectors, and firms, based on a new firm-level governance index for emerging market economies.



Sources: Thomson Reuters Datastream; and IMF staff calculations.

Note: A higher value of the firm-level governance index denotes better governance. Panels 1, 2, and 3 are based on the median firm-level governance index in countries with more than 15 firms.

¹Latin America includes Brazil, Chile, and Mexico. Emerging Asia includes China, India, Indonesia, Korea, Malaysia, and Thailand. Other emerging market economies include Poland, Russia, South Africa, and Turkey.

compensation practices, and the rights of shareholders. A transparency subindex is also developed, using various attributes across these subcategories. The overall firm-specific index combines these elements and reveals detailed insights into corporate governance patterns for a sample of well over 600 listed non-financial firms across 25 emerging market economies (comprising an unbalanced panel of well over 3,000 observations from 2008 to 2014).

In line with country-level trends, governance across emerging market firms has generally improved in recent years (Figure 3.6). This improvement is seen across all major sectors and for the subindexes, with the exception of the transparency subindex, which shows a decline. Again, some qualification is in order. First, although the distribution of governance scores improves on average (as indicated by the rightward shift), there is notable variation in governance across

Table 3.1. Firm-Level Governance and Firm Characteristics

| | ADR ¹ | Other | SOE ² | Other |
|--------------------------|----------------------------------|--------|---------------------------------------|--|
| Governance Overall Index | 49.8 | 45.1 * | 45.3 | 46.8 |
| Board | 61.3 | 56.4 * | 58.7 | 58.7 |
| Compensation | 41.9 | 34.1 * | 32.6 | 35.8 |
| Shareholder Rights | 43.3 | 40.6 * | 39.8 | 41.8 * |
| Transparency | 45.0 | 42.6 | 42.1 | 43.4 |
| | Closely Held Shares ³ | Other | Low Financial Dependence ⁴ | High Financial Dependence ⁴ |
| Governance Overall Index | 42.2 | 48.4 * | 42.5 | 47.2 * |
| Board | 52.2 | 60.5 * | 53.1 | 58.1 * |
| Compensation | 30.8 | 38.6 * | 32.6 | 40.3 * |
| Shareholder Rights | 39.2 | 42.4 * | 37.8 | 40.5 * |
| Transparency | 37.3 | 46.4 * | 43.0 | 51.5 * |

Sources: Bloomberg L.P.; Thomson Reuters Datastream; and IMF staff calculations.

Note: Asterisk denotes a statistically significant difference of at least 10 percent.

¹ ADR = American depository receipts.

² SOE = state-owned enterprises.

³ Firms with above 10 percent closely held shares.

⁴ High (low) financially dependent firms are in the top (bottom) quartile of the index developed by Rajan and Zingales (1998).

firms in general, but also within countries. Second, because of lack of data, the firm-level governance index does not cover all listed firms in a country.¹⁹ Therefore, sample selection may be an issue for some countries—but the index is nevertheless comparable across firms, which is how it is primarily used in this chapter. At the same time, although some emerging market economies have high-quality institutions in general, specific aspects of their corporate governance frameworks may compare less favorably.

Better-governed firms appear to share some characteristics. Emerging market equities that trade on U.S. stock exchanges through American depository receipts (ADRs) tend to have higher firm-level governance scores (Table 3.1).²⁰ This may reflect the fact that listing in the United States reduces the extent to which controlling shareholders can engage in expropriation (Doidge, Karolyi, and Stulz 2004); at the same time, better-governed firms may find it easier to issue ADRs. Likewise, firms that are more dependent on exter-

nal financing also appear better governed.²¹ Taken together, interactions with foreign investors from advanced economies with stronger shareholder protection seem to play a role in promoting governance improvements in emerging market economies (Aggarwal and others 2011; Albuquerque and others 2013). In general, firms with a significant fraction of closely held shares and state-owned enterprises (SOEs) tend to have lower governance scores (Box 3.2).²²

In line with the literature, governance as measured by this new index is positively associated with valuation. Firms with higher governance scores tend to have higher valuations (Figure 3.7). This finding is corroborated when country-level measures of corporate governance are used. Furthermore, formal regression analysis indicates that a higher score in the overall index, or in three of the subindices (board, compensation, transparency), results in higher firm-level valuations (Figure 3.8).²³

²¹Dependence on external finance is measured by the index developed by Rajan and Zingales (1998).

²²Figure 3.3 shows that closely held shares increase in the period following the global financial crisis relative to before the crisis, whereas Figure 3.6 illustrates an improvement in firm-level governance after the global financial crisis.

²³Tobin's Q (market-to-book assets ratio) and sector-adjusted Q are both considered. Results are robust to a variety of specifications (including instrumental variables approaches), fixed effects, and error clustering.

¹⁹Regarding the representativeness of the firm-level governance index, the median stock market capitalization of the listed nonfinancial emerging market firms in the sample is close to 60 percent of their respective country's (nonfinancial) stock market capitalization.

²⁰An American depository receipt (ADR) is a negotiable certificate issued by a U.S. bank representing a specified number of shares in a foreign stock traded on a U.S. exchange.

These results are quite robust and consistent with the literature, underscoring the utility of the index.²⁴

Corporate Governance, Investor Protection, and Financial Stability

This section presents evidence suggesting that emerging market economies with stronger corporate governance and investor protection frameworks tend to have stronger corporate balance sheets and show greater resilience to global financial shocks.

Corporate Governance, Investor Protection, and Financial Resilience

Corporate Governance and Capital Market Development

Evidence suggests that stronger corporate governance and investor protection frameworks foster resilience to external shocks by promoting the development of capital markets. Previous research has shown that differences in legal protection of investors across countries shape investor confidence in markets and consequently financial market development.²⁵ Updated econometric evidence based on a large set of countries reaffirms these findings, underscoring the role sound corporate governance and transparency can play in fostering the development of stock and bond markets (Table 3.2).²⁶ For example, the results show a robust positive statistical relationship between corporate governance and stock market capitalization. Greater market development, in turn, is associated with greater resilience to shocks (see Chapter 2 of the April 2014 GFSR).

Corporate Governance and Market Liquidity

Better corporate governance helps improve market liquidity, and thus its resilience. By reducing the potential for information asymmetries between corporate insiders and outside investors (which insiders may

²⁴The average governance of other firms in the same industry and country is used as an instrument (see Aggarwal and others 2009) in the instrumental variables (IV) regressions (where weak exogeneity tests confirm the usefulness of the instrument). The larger size of the IV may reflect that higher (future) growth prospects (as measured by Q) imply more resources to be expropriated, thus suppressing good governance.

²⁵See, for example, Shleifer and Vishny 1997 and La Porta and others 1998.

²⁶Specifically, the chapter combines approaches as in, for example, Djankov and others 2008b and Beck, Demirgüç-Kunt, and Levine 2010, in which indicators of market depth and development are linked to measures of corporate governance and corporate transparency.

Figure 3.7. Corporate Governance and Firm-Level Valuation (Ratio; average)

Firms with stronger corporate governance frameworks tend to have higher valuations.



Sources: Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators database; and IMF staff calculations.

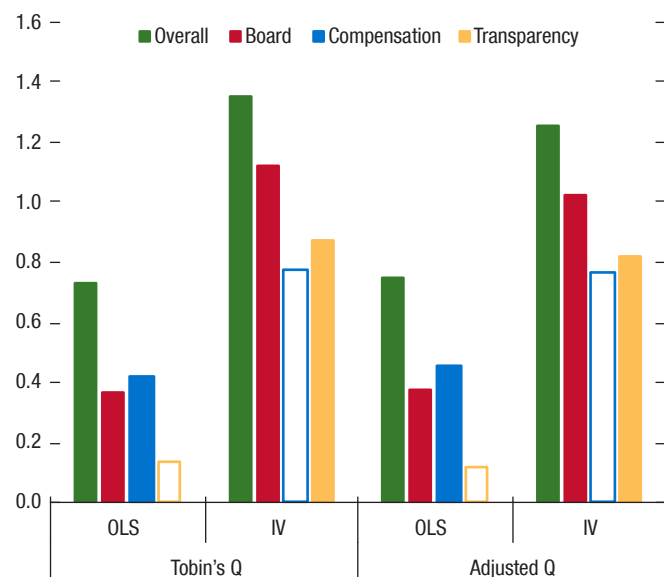
Note: Results are robust to other country-level governance measures such as strength of investor protection. High (low) governance score denotes top (bottom) quartile and tertile of the firm- and country-level governance measures, respectively. Firm-level governance and protection of minority shareholders' interests indices are used. Bars with a solid fill denote a statistically significant difference at least at the 10 percent level. Valuation = Tobin's Q (market-to-book assets ratio); valuation, adjusted = Tobin's Q in excess of firm's sector median.

use to their advantage), better corporate governance and investor protection should encourage trading and thereby improve market liquidity. Regression analysis based on a set of emerging market economies indicates that improving the protection of minority shareholders is indeed associated with higher stock market liquidity (Figure 3.9).²⁷ An emerging market economy can raise

²⁷This section extends Brandão-Marques (forthcoming), which uses a panel of 23 emerging market economies during 2003–14. The (inverse) Amihud 2002 measure of market liquidity (a proxy for the price impact of a trade) is regressed against a measure of minority shareholder protection, as well as against other controls (such as volatility, market depth, macroeconomic and overall institutional environment, and global investor risk appetite).

Figure 3.8. Firm-Level Governance and Valuation
(Percentage points)

Better firm-level governance is associated with higher corporate valuations.



Sources: Thomson Reuters Datastream; and IMF staff calculations.

Note: The figure depicts the sensitivity of Tobin's Q to firm-level governance. The empirical analysis also controls for macroeconomic factors (IV) and country-time fixed effects. Solid bars denote statistical significance at least at 10 percent level. See Annex 3.1 for further details. Tobin's Q = firm's market-to-book assets ratio; adjusted Q = Q in excess of the firm's sector median; OLS = pooled ordinary least squares regression; IV = instrumental variables regression (where the instrument is the average governance of other firms in the same sector and country).

market liquidity by about 15 percent on average by moving from the lower to the upper quartile of the minority shareholder protection index. The results are robust to the inclusion of other aspects of institutional quality and market characteristics.

Equity Price Volatility, Comovement, and Crash Risk—What Role for Corporate Governance?

Weaker country-level corporate governance frameworks are associated with less efficient stock markets and more comovement among stocks. The variation in individual stock returns is decomposed into its firm-specific and market-wide components. If the latter component plays a greater role, it indicates that the firm's equity price moves predominantly in tandem with the market.²⁸ A higher degree of synchronicity of individual stock returns could reflect either that country factors are dominant in investors' minds or that equity prices are driven more by cross-firm contagion and noise trader activity than by changes in firm-level fundamentals.²⁹ For

²⁸The liquidity of stocks may be affected by the degree of price comovement with the market. On the one hand, trading activities based on firm-specific information could raise the liquidity of the stock. On the other hand, greater comovement with the market may be associated with higher liquidity because it reduces the need for market makers to learn about individual stocks (Chan, Hameed, and Kang 2013).

²⁹Country-level risk factors should in principle be diversifiable in integrated global financial markets. See Hsin and Liao 2003.

Table 3.2. Corporate Governance, Investor Protection, and Capital Market Development

| | | Stock Market | | Bond Market | |
|----------------------------|--|----------------|--------------------|------------------------|-----------------------|
| | | Capitalization | Total Value Traded | Private Capitalization | Public Capitalization |
| All Countries ¹ | Minority shareholder rights protection | +++ | +++ | ++ | +++ |
| | Corporate transparency | +++ | +++ | ++ | +++ |
| | Rule of law/property rights | +++ | ++ | ++ | +++ |
| Major EMEs | Minority shareholder rights protection | +++ | + | ++ | +++ |
| | Corporate transparency | +++ | | ++ | +++ |
| | Rule of law/property rights | +++ | + | ++ | +++ |

Sources: Guillén and Capron 2016; World Bank, Doing Business database, World Governance Indicators database, and Financial Development and Structure database; World Economic Forum, Global Competitiveness Indicators database; and IMF staff calculations.

Note: The table summarizes over 450 regressions whereby measures of corporate governance (minority investor protection), transparency, rule of law, and property rights are linked to indicators of capital market development including stock market capitalization and total value traded as well as private and public bond market capitalization in percent of GDP. One, two, and three plus signs are used to indicate a positive and statistical relationship, robustness to other indicators of, for example, minority shareholder protection, and robustness to endogeneity based on instrumental variables regressions (using legal origin as an instrument). EMEs = emerging market economies.

¹ Includes advanced and emerging market economies.

instance, in less transparent markets, insiders can more readily manipulate earnings (possibly to conceal expropriation of outside investors); as a result, price fluctuations say less about firm fundamentals and are thereby more synchronized with the market (Jin and Myers 2006). Indeed, econometric analysis confirms previous findings on the negative relationship between country-level governance scores and stock market comovement (Figure 3.10, panel 1) (Morck, Yeung, and Yu 2000). Likewise, at the firm level, novel econometric evidence reveals that better-governed emerging market firms are less synchronized with the market (Figure 3.10, panel 2).³⁰ This suggests that equity prices for better-governed and more transparent emerging market firms reflect fundamentals more accurately, helping enhance overall stock market efficiency and resilience.³¹

Reassuringly, the synchronicity of firm stock returns in emerging market economies has been declining over the past 15 years, suggesting improved market efficiency (Figure 3.11). In comparison, stock return synchronicity in advanced economies has stagnated at a lower level, so that the gap between advanced and emerging market economies has been narrowing (Morck, Yeung, and Yu 2013). This may reflect, in part, the fact that corporate governance (including disclosure policies) and investor protection have generally improved across emerging market economies, reaffirming some of the earlier findings.³²

The empirical analysis also reveals that better governance is associated with lower crash risk in stock returns. If controlling shareholders or managers can keep a portion of a firm's cash flow and

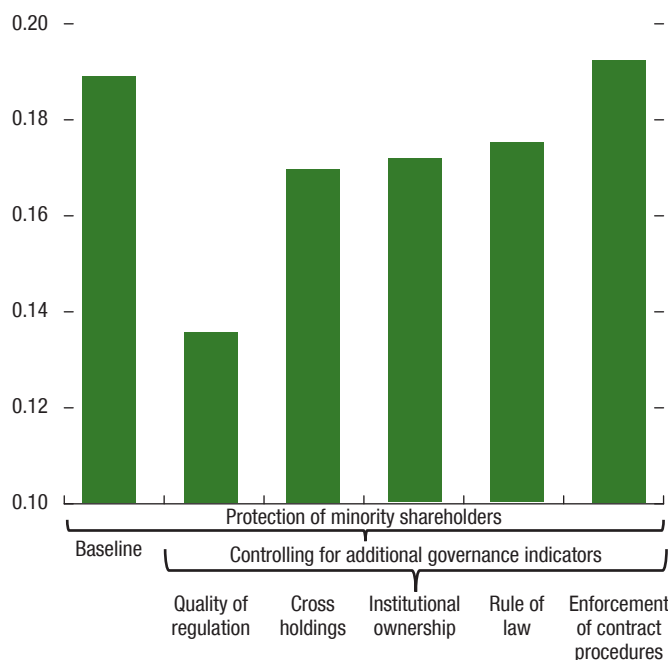
³⁰Hutton, Marcus, and Tehranian (2009) find that transparency of financial statements at the firm level lowers synchronization with the market in a sample of U.S. firms. Morck, Yeung, and Yu (2000) and Jin and Myers (2006) find that lower synchronization is associated with higher investor protection and corporate transparency at the country level.

³¹State-owned enterprises appear to be associated with higher synchronization values even after controlling for size, leverage, profitability, and, for example, firm-level governance, which may reflect weak implementation of governance codes. Furthermore, the comovement regressions are robust to the inclusion of country-level governance measures.

³²While, in principle, other factors may explain the decline in synchronicity, the literature so far has consistently found that corporate governance aspects are its most important determinants; therefore, it is unlikely that the decline is driven by other forces (Hutton, Marcus, and Tehranian 2009; Ferreira and Laux 2007). In particular, the share of each sector in the index has remained relatively constant.

Figure 3.9. Corporate Governance and Market Liquidity (Percent)

Better corporate governance helps improve market liquidity.



Sources: Brandão-Marques (forthcoming); FactSet database; IMF, International Financial Statistics database and World Economic Outlook database; Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators (GCI) database; World Bank, Worldwide Governance Indicators database; and IMF staff calculations.

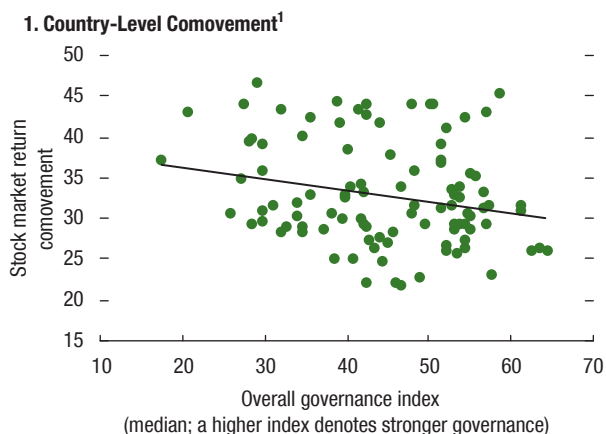
Note: The figure shows the sensitivity of market liquidity to minority shareholder protection (GCI), with and without additional governance controls. The empirical analysis also controls for market capitalization, equity price volatility, GDP growth, inflation, country fixed effects, and country-time trends.

hide firm-specific information, it will lead not only to higher comovement with the market but also potentially to higher crash risk. For example, crashes can occur when insiders, who usually conceal information about firm-level fundamentals, are faced with absorbing too much firm-specific bad news and decide to give up, releasing the news (Jin and Myers 2006). At the market level, if investors cannot distinguish well between idiosyncratic and aggregate shocks, the risk that an idiosyncratic shock will spread to the market rises. Regression analysis confirms that emerging market economies and firms with weaker governance are more prone to extreme stock price drops (Figure 3.12). By helping better align price movements with fundamentals, better governance (such as stronger minority shareholder

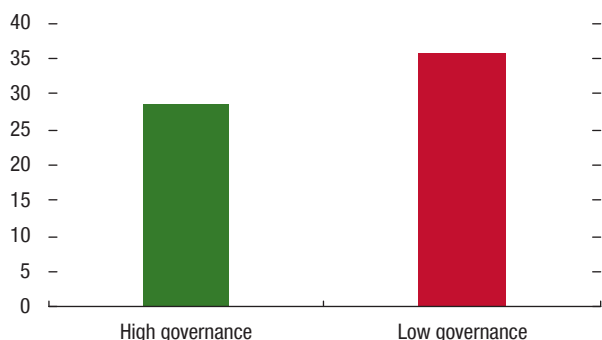
Figure 3.10. Stock Return Comovement

(Percent)

Better-governed and more transparent emerging market economy firms are less synchronized with the stock market, and their equity prices reflect business fundamentals more accurately.



2. Firm-Level Comovement²



Sources: Bloomberg L.P.; Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators database; and IMF staff calculations.

Note: Using other country-level governance indices, such as the Guillen-Capron minority shareholder rights protection index or the strength of minority investor protection strength (World Bank), yields similar pictures. Stock return comovement is measured by the R^2 of the regression of weekly stock returns on market factors.

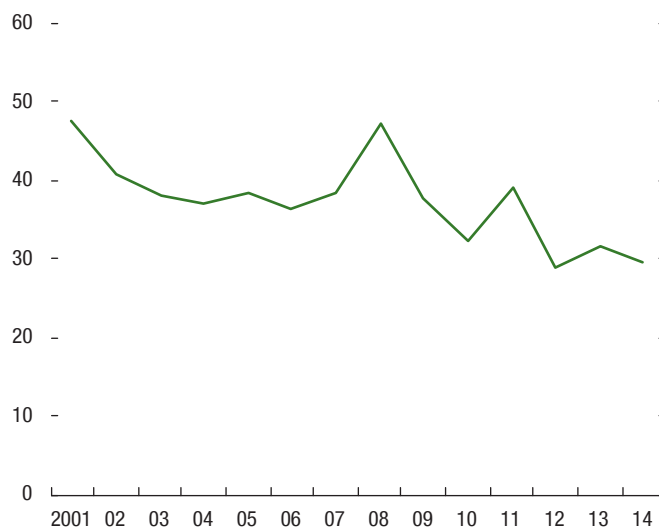
¹Overall governance index is the median of all firms in a given country. Market return volatility is measured by the standard deviation of weekly returns. The sample includes annual observations for 18 emerging market economies between 2010 and 2014 (country-year observations).

²High governance = firm governance above 75th percentile; low governance = firm governance below 25th percentile. The empirical analysis also controls for size, leverage, return on equity, state-owned enterprises, and American depository receipts. Results are robust to controlling for country and time fixed effects, and to the use of the firm-level transparency subindex. See Annex 3.2 for further details.

Figure 3.11. Stock Return Comovement (R^2) over Time

(Percent)

The synchronicity of equity prices in emerging market economies has declined.



Sources: Bloomberg L.P.; Thomson Reuters Datastream; and IMF staff calculations.

Note: Stock return comovement is measured by R^2 of the regression of weekly stock returns on market factors.

rights and better transparency regimes) can help lessen investor overreaction to negative shocks and thereby foster financial stability.³³

Corporate Governance and Global Financial Shocks

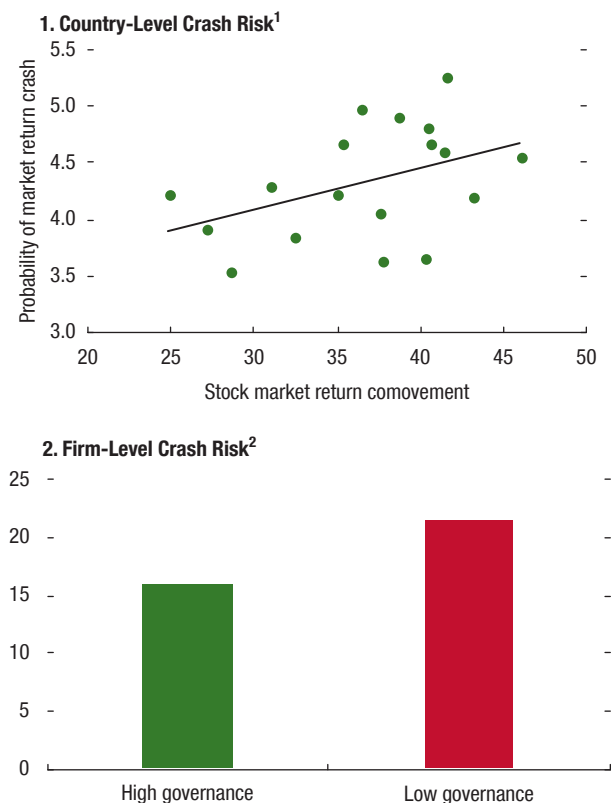
Poorly governed firms experienced sharper equity price declines during episodes of market turmoil. Event studies focus on the global financial crisis, the 2013 taper tantrum, the January 2016 stock market crash, and, most recently, Brexit.³⁴ Two groups of companies are considered: those that at the outset of the events were in the top and bottom third of the distribution of the firm-level governance index. For each of these cases, indices for both groups are constructed using

³³Instrumental variables are not used in the literature on comovement (R^2) and crash risk; firm-level governance may be endogenous to average returns of firms (that is, first moments), but is generally considered exogenous in the case of higher moments (for example, comovement or skewness) of stock prices.

³⁴The dates of these events are September 15, 2008 (global financial crisis); May 22, 2013 (taper tantrum); January 6, 2016 (suspension of trading after the drop in the Chinese stock market, which reverberated globally across major asset markets—see Chapter 2 of the April 2016 GFSR for further details); and June 24, 2016 (Brexit).

Figure 3.12. Crash Risk
(Percent)

Emerging market economies and firms with weaker governance are more prone to stock price crashes. Better governance fosters financial stability by helping to better align price movements with fundamentals and reduce the risk of extreme price drops.



Sources: Bloomberg L.P.; Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators database; and IMF staff calculations.

Note: Using other country-level governance indices, such as the Guillen-Capron minority shareholder rights protection index or the strength of minority investor protection strength (World Bank), yields similar pictures.

¹Stock return comovement is measured by the R^2 of the regression of weekly stock returns on market factors. Crash risk is the probability of the weekly market return falling below the 5th percentile for each country under a normal distribution.

²High governance = firm governance above 75th percentile; low governance = firm governance below 25th percentile. The empirical analysis also controls for the size, leverage, return on equity, state-owned enterprises, and American depository receipts. Results are robust to controlling for country and time fixed effects.

Firm-level crashes are defined as occurrences of firm-specific residual returns falling in the 2.5 percent lower tail of a normal distribution. See Annex 3.2 for further details.

firm equity returns after adjusting for their countries' market returns.³⁵ The difference in the equity dynamics is quite stark across the two groups: on average, equity prices fell sharply for the firms with weaker

³⁵The adjusted returns are residuals from a capital asset pricing model, and thereby account for common country-specific developments; results are robust if unadjusted indices are used.

governance, whereas firms with better governance fared better (Figure 3.13).

More generally, evidence also suggests that better corporate governance and transparency can systematically help shield emerging market economies and firms from global financial shocks. Augmented capital asset pricing models relating equity returns to measures of corporate governance and changes in risk aversion in global financial centers are estimated at the country and firm levels. Changes in the Chicago Board Options Exchange Volatility Index (VIX) are the main proxy for such global shocks.³⁶ The regression results indicate that emerging market economies and firms that safeguard the rights of shareholders to a greater extent tend to be less sensitive to global financial shocks (Figure 3.14). In fact, moving from the lower to the upper end of the country- and firm-level governance indices reduces the impact of the VIX by about 20 percent and 50 percent on average for emerging market economies and firms, respectively.³⁷ The larger firm-level dampening effect may partly reflect the fact that the firm-level index captures several aspects of governance (such as the role of the board, disclosure policies, and the rights of all shareholders), whereas the country-level measure captures mainly one dimension (protection of minority shareholder interests). Further country-level evidence (not shown) indicates that enhanced minority shareholder protections also dampen the impact of global financial shocks on bond spreads, but to a lesser extent (about 10 percent).

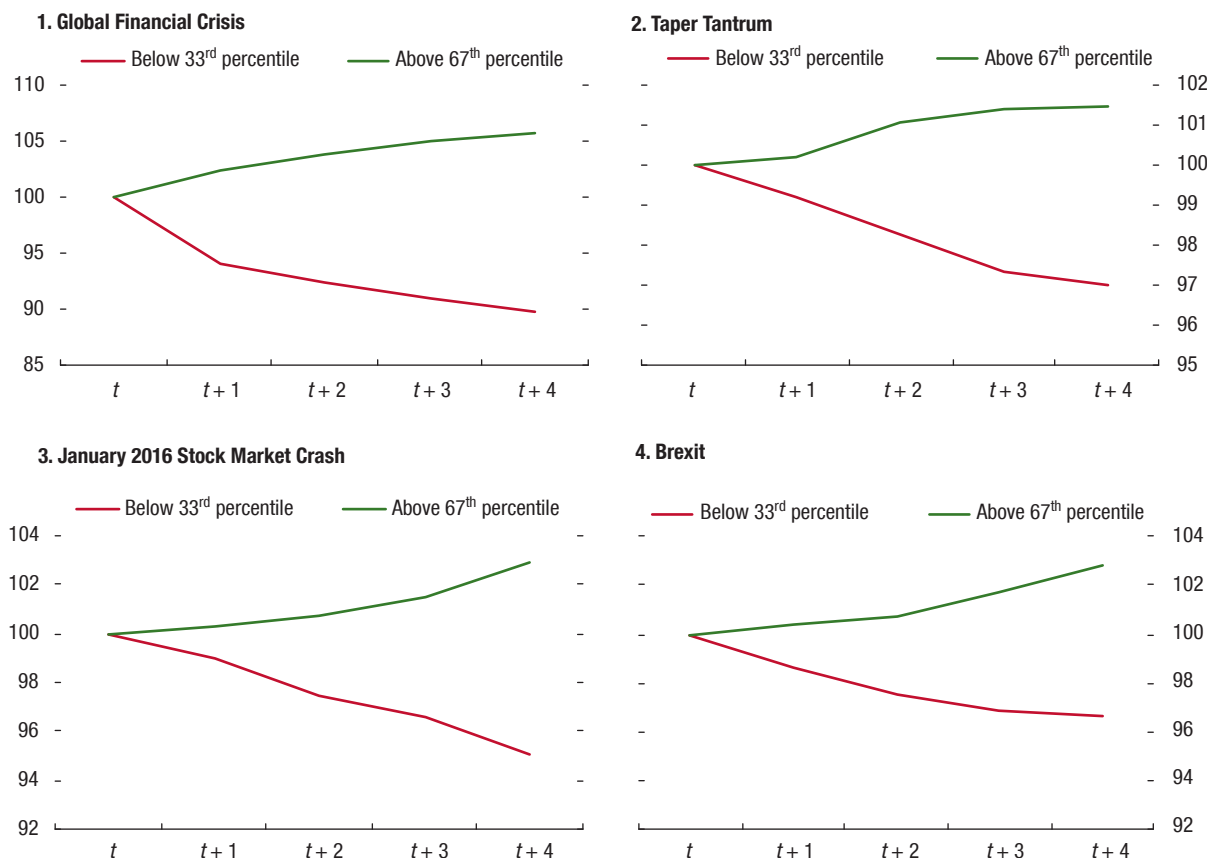
³⁶The hypothesis is that stronger governance frameworks can help dampen the transmission of global financial shocks (Annex 3.3). Opposite effects are also conceivable a priori. For example, firms in which the interests of shareholders and management are better aligned may take on more risk, including higher exposure to global financial conditions. Moreover, better-governed firms may have better access to global financing sources, exposing them more to fluctuations in financial conditions in advanced economies. The country-level analysis follows Brandão-Marques, Gelos, and Melgar (2013) and focuses on corporate governance along with corporate transparency.

³⁷Specifically, in the case of the firm-level regressions, a one standard deviation shock (to the change in the VIX, corresponding to about 15 percentage points) lowers firm returns by about ½ percentage point. However, this impact declines to roughly ¼ percentage point for firms that move from the 25th to the 75th percentile of the governance distribution. Similar results are obtained when the global financial crisis or various banking, currency, and debt crises (based on Laeven and Valencia 2012) are used instead of the change in the VIX.

Figure 3.13. Event Study: Firm-Level Governance and Equity Returns

(Index; $t = 100$)

In response to external shocks, stock prices of firms with weaker governance fared much worse than firms with better governance.



Sources: Bloomberg L.P.; Thomson Reuters Datastream; and IMF staff calculations.

Note: Indices were constructed using firm equity returns adjusted for the market return (adjusted returns are residuals from a capital asset pricing model). The y-axis shows the equity market index, where 100 corresponds to the index one trading day before the event. Below 33rd percentile denotes firms in the bottom tertile of the firm-level governance index (overall index); above 67th percentile denotes firms in the top tertile of the firm-level governance index. t (time) = the day before the event; $t + 1$ = day of the event. The day of the event ($t + 1$) = September 15, 2008, in panel 1; May 22, 2013, in panel 2; January 6, 2016, in panel 3; and June 24, 2016, in panel 4. Brexit = June 2016 U.K. referendum result in favor of leaving the European Union.

Governance and Corporate Fragility

Corporate fragility can be of systemic relevance if it is widespread. This section explores the link between firm-level balance sheet indicators and corporate governance at the firm and country levels.

Stylized Facts

Stronger corporate governance and investor protection regimes are associated with stronger balance sheets. As discussed earlier, the relationship between governance and financial soundness is not a priori obvious (for example, companies that act in their

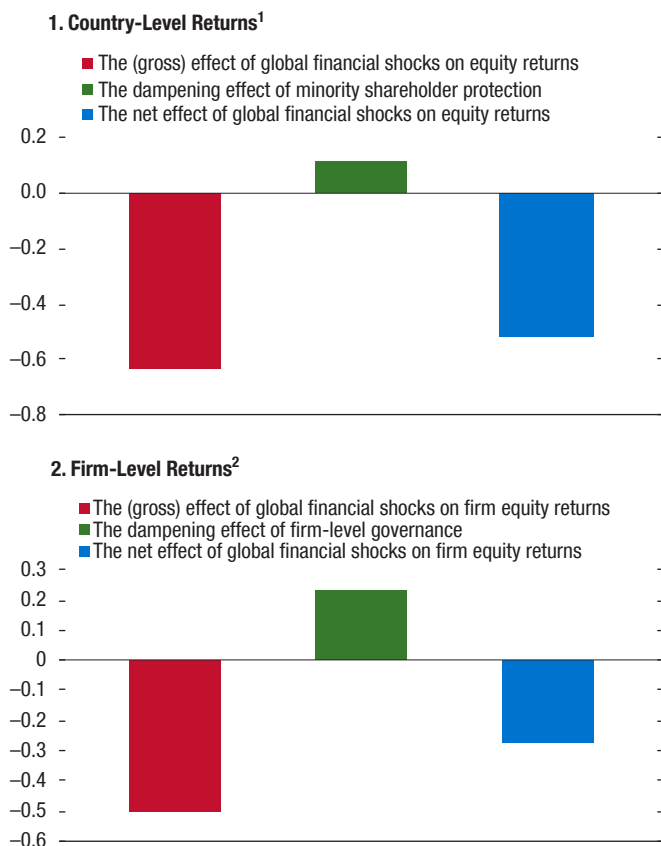
shareholders' interest may be expected to take on more risk). A first look at the data suggests the following:

- Better-governed firms and those in countries with better governance outperform their peers in terms of profitability and liquidity (Figure 3.15).
- Likewise, such firms are characterized by sounder capital structures: their leverage and short-term debt ratios are lower.³⁸

³⁸Conceivably, better financial performance may induce better governance, not vice versa, motivating robustness checks of the econometric estimations using instrumental variables.

Figure 3.14. Impact of Global Financial Shocks on Equity Returns
(Percentage points)

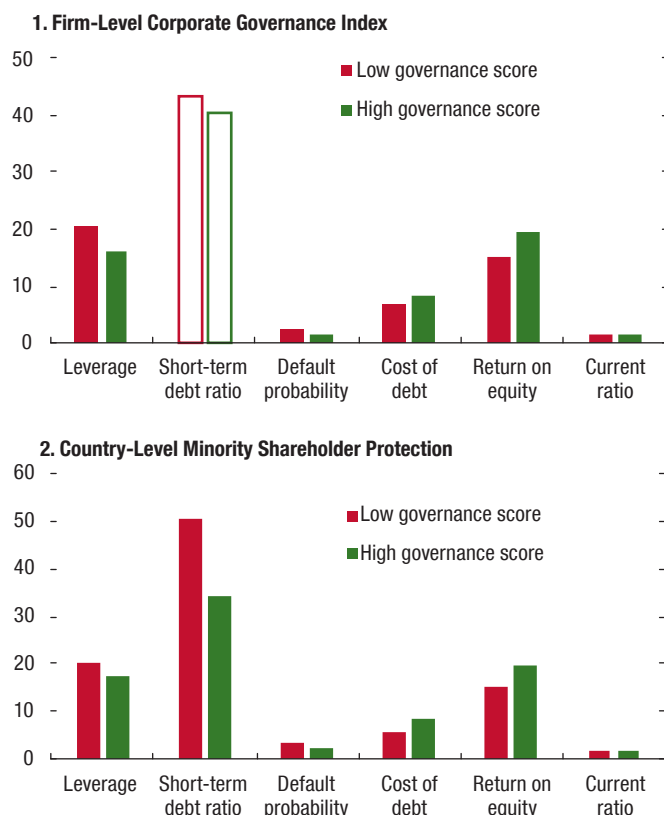
Emerging market economies and firms that safeguard the rights of shareholders to a greater extent tend to be less sensitive to global financial shocks.



Sources: Bloomberg L.P.; Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators database; and IMF staff calculations.
 Note: The dampening effects measure the impact of moving from the lower quartile to the upper quartile of the country- and firm-level governance distributions. VIX = Chicago Board Options Exchange Volatility Index.
¹The standardized coefficients are statistically significant at least at the 10 percent level and depict the sensitivity of country-level returns to the change in the VIX (proxy for global financial shocks, standard deviation 13 percent). The empirical analysis controls for country fixed effects, Standard and Poor's sovereign credit rating, macroeconomic factors, trade and financial connectedness, and their interaction with the VIX, and U.S. stock market returns.
²The standardized coefficients are statistically significant at the 10 percent level (in fact, all are significant at the 1 percent level) and depict the sensitivity of firm-level returns to the change in the VIX. The change in the VIX is the proxy for global financial shocks (standard deviation 15 percent), the standard deviation of the firm-level governance index (overall index) is 8 percent. The empirical analysis controls for country-level returns, firm fixed effects, country-time fixed effects, sector-time fixed effects, and time fixed effects. Results are also robust to controlling for indicators of competition and concentration measures as well as country-level indices of corporate governance. See Annex 3.3 for further details.

Figure 3.15. Corporate Governance and Selected Balance Sheet Indicators
(Percent; average)

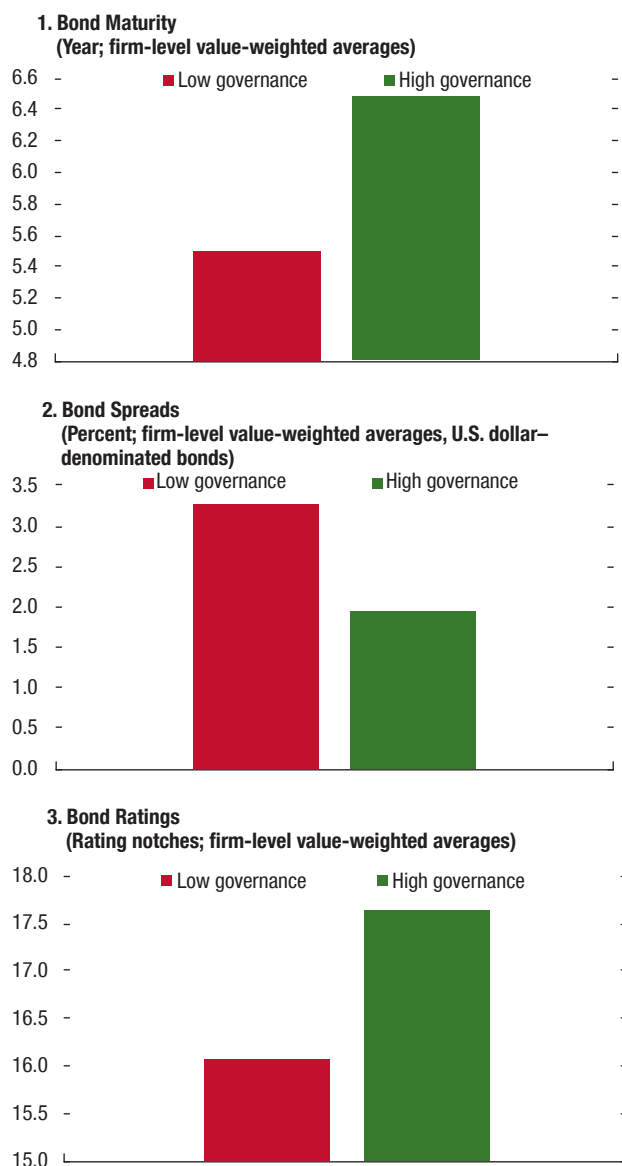
Better-governed firms and those in countries with better governance outperform their peers in terms of profitability and liquidity, and such firms are characterized by sounder capital structures.



Sources: Dealogic; Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators database (GCI); and IMF staff calculations.
 Note: For firm-level comparisons, low and high corporate governance scores refer to the bottom and top quartile, respectively. For country-level comparisons, low and high corporate governance scores refer to bottom and top tertile, respectively. Default probability is based on the Black-Scholes-Merton model. Results are robust to other country-level governance measures such as a measure of strength of investor protection (GCI). Solid bars denote a statistically significant difference at least at the 10 percent level. Leverage = total debt to market asset ratio; short-term debt = portion of debt payable within one year, including current portion of long-term debt; cost of debt = average implied interest rate; return on equity = net income before preferred dividends to common equity; current ratio = current assets to current liabilities.

Figure 3.16. Firm-Level Governance and the Bond Market

Better-governed firms that tapped bond markets were able to borrow at longer maturities and had higher credit ratings and lower spreads.



Sources: Bloomberg L.P.; Dealogic; Thomson Reuters Datastream; and IMF staff calculations.

Note: Bond maturity = maturity at issuance; bond rating = issuer's S&P credit rating; bond spread = spreads vis-à-vis the U.S. Treasury bonds with similar maturity; high governance = firm governance above 75th percentile; low governance = firm governance below 25th percentile.

- Better-governed firms that tapped bond markets were able to borrow at longer maturities and had higher credit ratings and lower spreads (Figure 3.16).

Econometric Analysis

More formal analysis shows that various dimensions of governance quality are positively associated with solvency indicators. In particular, the econometric analysis shows that higher values of the governance subindices are associated with lower short-term debt ratios (Figure 3.17, panel 1). This suggests that even limited governance reforms can enhance corporate solvency (and, while not shown, other indicators as well, including profitability). For example, provisions that increase the effectiveness of the board, such as a greater share of independent directors, are likely to result in lower short-term debt ratios.³⁹ Furthermore, complementary analysis indicates that after leverage, asset tangibility, and valuation, firm-level governance is the most important factor explaining the variation of the corporate short-term debt ratio across firms, followed by other firm- and country-level characteristics, including economic fundamentals, financial development, and, for example, property rights (Figure 3.17, panel 3). Additional analysis shows that firms with greater transparency are associated with lower default probabilities.⁴⁰

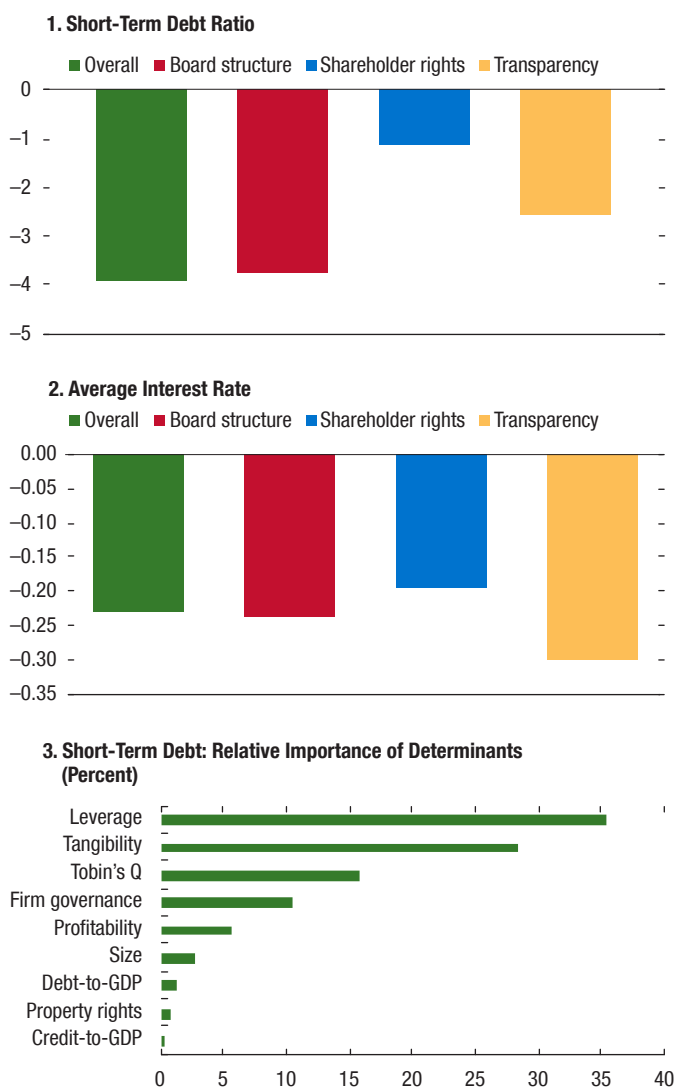
Stronger country-level corporate governance frameworks appear to play an even greater role than firm-level governance in determining short-term debt ratios (Figure 3.18). This finding hints at the importance of good country-level corporate governance regimes, including by encouraging and enforcing firm-level governance initiatives.

³⁹Interestingly, governance and leverage are positively correlated. This may reflect the fact that governance improvements assure creditors that they will get a fair return on their investments, thereby improving firms' access to debt financing.

⁴⁰Specifically, instrumental variables analysis suggests that an increase in firm-level transparency results in a lower probability of corporate default, although the relationship is not statistically significant for all firm-level corporate governance indices.

Figure 3.17. Firm-Level Governance and Solvency
(Percentage points)

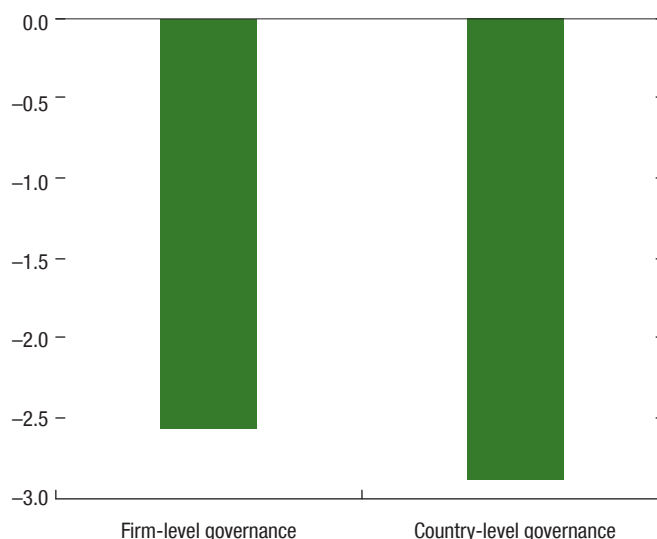
Various dimensions of the quality of governance are positively associated with corporate solvency.



Sources: Thomson Reuters Datastream; and IMF staff calculations.
Note: Short-term debt ratio = short-term debt to total debt; average interest rate = interest expense to total debt. Bars show the effects of a one standard deviation increase in each governance metric on the short-term debt ratio (panel 1) and average interest rate (panel 2). The standard deviation of the overall firm governance index is 13.3 percentage points. Coefficients estimated using pooled ordinary least squares; errors clustered at the country level; all firm characteristics are lagged. The empirical analysis also controls for the size, profitability, tangibility, valuation, leverage, debt-to-GDP, credit-to-GDP, country fixed effects, sector fixed effects, and time fixed effects. Results are robust to the use of different firm-level governance subindices and to the inclusion of other governance and institutional quality measures such as rule of law, protection of minority shareholders' interests, or strength of investor protection index. See Annex 3.1 for further details.

Figure 3.18. Country-Level and Firm-Level Governance and Short-Term Debt
(Percent)

Improved country-level corporate governance frameworks appear to play an even greater role than firm-level governance in determining short-term debt ratios.



Sources: Dealogic; Thomson Reuters Datastream; World Economic Forum, Global Competitiveness Indicators database; and IMF staff calculations.
Note: The figure depicts the sensitivity of short-term debt ratio to firm- and country-level measures of corporate governance. Country-level governance is proxied by the World Economic Forum Global Competitiveness Index (GCI) protection of minority shareholders' interest index; firm-level governance is measured using the overall index developed in this chapter. The empirical analysis also controls for the size, profitability, tangibility, valuation, leverage, macroeconomic factors, and firm fixed effects. Results are robust to the use of other country-level governance indices such as the World Bank index of the protection of minority shareholders. See Annex 3.1 for further details.

Conclusions and Policy Implications

This chapter has presented new evidence on the nexus between corporate governance, investor protection, and financial stability across emerging market economies. It has documented how corporate governance enhancements promote deeper, more liquid, and more efficient capital markets, thereby increasing resilience to global financial shocks and decreasing the likelihood of stock price crashes. Furthermore, it has shown that emerging market economies with better corporate governance and investor protections tend to have stronger corporate balance sheets, as reflected in lower short-term debt ratios, lower default probabilities, and the ability to borrow at longer maturities. These issues matter for overall financial stability.

Many emerging market economies have made notable strides in improving their corporate governance and investor protection frameworks. These improvements are visible both in country-level and firm-level measures. They have occurred across sectors and firms. Nevertheless, there is quite a bit of heterogeneity across emerging market economies. Although on average, emerging market economies still have scope to improve, several of them feature corporate governance scores higher than those in advanced economies.

These broad-based improvements in corporate governance and investor protections across emerging market economies over the past two decades have served to enhance the resilience of their financial systems. Nevertheless, the financial stability benefits of corporate governance highlighted in this chapter strengthen the case for further reforms. In general, countries should strive to adopt the G20/OECD Principles of Corporate Governance. However, even limited governance reforms in specific areas can help.

Emerging market economies should continue with reforms that strengthen the consistency, clarity, and enforceability of the legal and regulatory requirements affecting corporate governance practices. The effectiveness of insolvency frameworks and the enforcement of creditor rights require strengthening, in some cases. Better domestic and international cooperation among regulators and enhanced power, resources, and independence for securities commissions would further strengthen countries' corporate governance structures.

Most emerging market economies should further reinforce shareholder rights, especially for minority shareholders. In general, reforms prioritizing the protection of outside investors, both foreign and domestic, should continue. In particular, the protection of minority shareholders could be advanced by improving redress and ensuring a greater say in board selection,

as well as by strengthening rules on related-party transactions, changes in controlling shareholders, and shareholder meetings. In this regard, amendments to company law and further legal clarification may be needed. Such reforms would address some of most important conflicts of interest at the firm level in emerging market economies.

Many emerging market economies should strive to bring disclosure requirements fully in line with best international practices. Specifically, disclosure with respect to related-party transactions, board member information, (beneficial) ownership, control, and group structures could be improved in many countries.⁴¹ Requiring companies to disclose compliance should also be considered. Increasing the securities regulator's resources and capabilities would do much to ensure compliance. Likewise, countries should continue to move toward full adoption of international accounting standards. Greater transparency would enhance the supervision of financial conglomerates and company groups with a presence across many emerging market economies.

Many emerging market economies could benefit from greater board independence and effectiveness. This could be facilitated by expanding board member powers in company law, revising the corporate governance code, or enhancing listing requirements. Likewise, separation of the role of the chief executive officer and the chair of the board should be considered. Critically, emerging market economies that have not yet done so should seriously consider mandatory independent committees to audit the boards of all listed companies. Indeed, audit committees are now obligatory in most countries around the world.

⁴¹A beneficial owner is a legal person who is entitled to enjoy the economic rights stemming from the ownership, although the ownership has been registered in the name of someone else (the legal owner).

Box 3.1. Examples of Corporate Governance Reforms in Selected Emerging Market Economies

Since the global financial crisis, many emerging market economies have continued reforming their corporate governance frameworks. This box presents a few recent examples from selected emerging market economies.¹

Some of the most wide-ranging reforms have involved countries' corporate governance codes. For instance, the 2014 Russian Code of Corporate Governance was a comprehensive update of the 2002 Code and includes initiatives to further strengthen disclosure policies and the rights of shareholders. As with other new and extensive reform initiatives, the priority now is full implementation of the updated Russian Code. Likewise, the Malaysian Code on Corporate Governance was amended in 2012 and includes significant provisions on investor protection. Although adherence to the Code is voluntary, listed firms are required to explain the extent of their compliance to the regulator. Compliance in some areas, such as separation of the board chair and chief executive officer, has clearly improved in recent years. An earlier example is the creation of the Novo Mercado corporate governance tiers on the Brazilian stock exchange in 2000—with their higher standards for corporate governance and minority shareholder protection, which are voluntarily adopted in addition to legal requirements—which has resulted in major changes in the equity market.

The author of this box is Selim Elekdag.

¹For further details, see selected World Bank *Corporate Governance Reports on the Observance of Standards and Codes* and various issues of the World Bank *Doing Business* reports.

Many emerging market economies have also improved their corporate transparency frameworks. By 2014 Korea had increased the level of transparency expected from companies regarding managerial compensation. Earlier reforms in Morocco and Peru allow minority shareholders to request access to corporate documents that are not confidential. India and Kazakhstan now require greater disclosure of board member conflicts of interest. Higher standards of accountability for company directors are now mandatory in Vietnam.

Several countries have introduced reforms that better regulate related-party transactions. Related-party transactions are common in the business marketplace. The inherent special relationship between the parties involved may, however, lead to conflicts of interest between corporate insiders and outside investors, requiring regulation. Accordingly, Albania, Kazakhstan, and the United Arab Emirates, for example, strengthened minority investor protections by introducing legal requirements for immediate disclosure of related-party transactions. In Korea, Peru, and Slovenia, measures regulating the approval of related-party transactions and/or making it easier to sue directors when such transactions are prejudicial were introduced. Similar reforms were implemented in India and Nigeria. More recently, emerging market economies, such as Egypt and Lithuania, reinforced their corporate governance frameworks by barring subsidiaries from acquiring shares issued by their parent company.

Box 3.2. Strengthening Corporate Governance for State-Owned Enterprises in China

Chinese state-owned enterprises (SOEs) face corporate governance challenges that contribute to resource misallocation and financial stability risks. Building on the recently announced SOE reform, decisive implementation is key. Measures should focus on hardening budget constraints, restructuring highly indebted SOEs, and introducing greater competition to state-dominated sectors.

State-owned enterprises face increasing challenges of low efficiency and resource misallocation. In China, SOEs continue to play an important role despite their declining share in the economy. Their total assets account for near 180 percent of GDP, much higher than in other major emerging market economies (Figure 3.2.1, panel 1). But SOEs in China appear less efficient than private enterprises, with rising leverage and weak profitability, raising concern about financial stability and the sustainability of growth (Figure 3.2.1, panel 2). Improving efficiency through measures to strengthen corporate governance is a critical part of SOE reforms.

Empirical evidence supports the notion that Chinese SOEs face corporate governance challenges. While the state as a shareholder can assert positive influence on corporate governance, such as stricter monitoring and auditing (Chen, Firth, and Xu 2009), China’s SOEs face corporate governance challenges including the lack of disciplining factors such as possible takeovers or bankruptcies, likely increasing the cost of equity for firms (Ferreira and Laux 2007).¹ Other challenges include possible undue political influence and the pursuit of social objectives that are beyond minority shareholders’ interests (Shleifer and Vishny 1994). Preliminary evidence indicates that stock prices of nonfinancial SOEs are more synchronized with the market and reflect less firm-specific information, likely raising the cost of equity (Figure 3.2.2, panel 1). Government implicit guarantees and preferential access to debt finance also contribute to moral hazard and SOEs’ overreliance on debt (Figure 3.2.2, panel 2). All of these factors pose potential obstacles for the ongoing ownership reform efforts of SOEs to attract private sector participation.

The authors of this box are Alan Xiaochen Feng and W. Raphael Lam.

¹Ferreira and Laux (2007) show that takeover provisions reduce the information content of idiosyncratic components in the stock price.

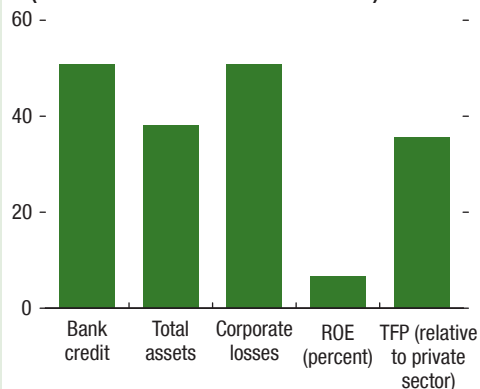
Figure 3.2.1. Selected Emerging Market Economies: State-Owned Enterprises

State-owned enterprises play a more important role in the Chinese economy than in other major emerging market economies. Chinese SOEs have recently had weaker profitability relative to private firms.

**1. Key Indicators of SOEs¹
(Percent of GDP)**

| Country | Sales revenue | Net profit | Asset | Market value | Share in the top 10 firms |
|--------------|---------------|------------|-------|--------------|---------------------------|
| China | 35 | 3 | 176 | 45 | 91 |
| Brazil | 12 | 2 | 51 | 18 | 50 |
| India | 16 | 4 | 75 | 22 | 59 |
| Indonesia | 3 | 0 | 19 | 12 | 69 |
| Russia | 16 | 3 | 64 | 28 | 81 |
| South Africa | 2 | 2 | 3 | 1 | 2 |

**2. SOEs in China Dominate and Operate Less Efficiently²
(Percent of total unless otherwise stated)**



Sources: CEIC Data Company Ltd.; Kowalski and others 2013; Ministry of Finance; National Bureau of Statistics of China; People’s Bank of China; WIND database; and IMF staff calculations.

Note: ROE = return on equity; SOE = state-owned enterprise; TFP = total factor productivity.

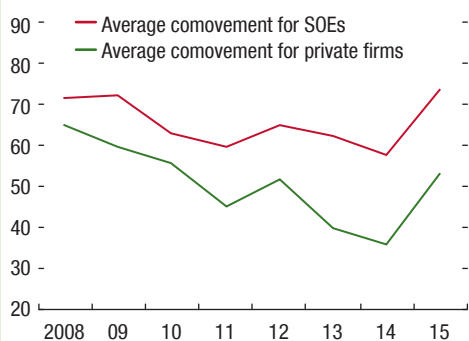
¹As of end-2015 for China and end-2010 for rest of the economies.

²The time frame for bank credit and TFP is average of 2011–15; total assets, corporate losses, and ROE are as of end-2015.

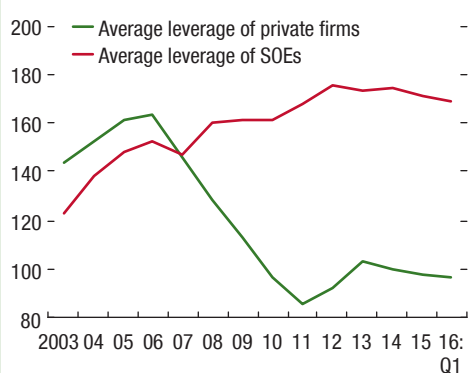
Box 3.2 (continued)

Figure 3.2.2. Leverage and Equity Price Comovement of State-Owned Enterprises in China
(Percent)

1. Stock Price Comovement¹



2. Leverage Ratios of SOEs and Private Firms in China



Sources: Bloomberg L.P.; Thomson Reuters Datastream; WIND database; and IMF staff calculations.

Note: SOEs = state-owned enterprises.

¹Stock price comovement is R^2 of the regression of weekly equity returns on market and industry factors.

SOE reforms should therefore focus on overcoming these corporate governance challenges. Key principles include aligning incentives of managers and controlling and minority shareholders, maintaining an arm's length relation between management and the board of directors, and eliminating noncore objectives (such as social functions) of SOEs. Greater corporate transparency and board independence would allow minority shareholders to fully exercise their rights.

While the authorities have announced reform elements, specifics still need to be defined and decisive implementation will be critical. Current reform plans include classifying SOEs into commercial (strategic or competitive) and social-function SOEs, and repositioning the state as a capital investor rather than the operator (IMF 2016).² While some of the current reform measures are more closely aligned with international good practices, there are still ambiguities, especially about the ultimate role of the state in SOEs' major decisions. It is critical that the SOE reforms focus on hardening SOEs' budget constraints by phasing out implicit guarantees, restructuring highly indebted SOEs by triaging debt, letting nonviable firms exit, and introducing greater competition to state-dominated sectors (Lam and Schipke forthcoming). These reforms would strengthen SOEs' corporate governance, which in turn will improve efficiency and resource allocation.

²For example, implicit government subsidies in borrowing costs combined with the too-big-to-fail problem make SOEs prone to issue debt and have high leverage (DeWenter and Malatesta 2001).

Annex 3.1. Emerging Market Corporate Fundamentals and Governance⁴²

Using more than 600 nonfinancial firms for 25 emerging market economies during 2007–14 (over 3,000 observations), regressions link valuation, short-term debt, average interest rate (cost of debt), and leverage with the firm-level governance measure developed in the chapter. In the case of valuation (Tobin's Q proxied with the market-to-book assets ratio),⁴³ the baseline specification is

$$Q_{isc,t} = \beta FGOV_{isc,t-1} + \gamma_1 FIRM_{isc,t-1} + \gamma_2 MACRO_{c,t} + \varphi OTHER + \epsilon_{isc,t}, \quad (A3.1.1)$$

in which i , s , c , and t denote firm, sector, country, and time, respectively. $FGOV$ is one of the firm-level governance indices (overall index; or board structure, shareholder rights, compensation policy, or transparency subindices). $FIRM$ includes lagged measures of firm size, profitability, leverage, cash, capital expense, and research and development ratios. $MACRO$ refers to country-level controls such as the credit-to-GDP ratio, the debt-to-GDP ratio, real GDP, inflation, rule of law, or the current account deficit as a percentage of GDP. The pooled ordinary least squares and instrumental variables regressions (in which the instrument is the average governance of other firms in the same industry and country)⁴⁴ include country, sector, and time fixed effects terms ($OTHER$); standard errors are clustered at the country level (Annex Table 3.1.1).

When the short-term-to-total-debt ratio (STD) is considered, the regression model is

$$STD_{isc,t} = \beta FGOV_{isc,t-1} + \gamma_1 FIRM_{isc,t-1} + \gamma_2 MACRO_{c,t} + \varphi OTHER + \epsilon_{isc,t}, \quad (A3.1.2)$$

in which $FIRM$ includes firm-level measures of size, profitability, tangibility, and valuation; the other controls are the same as those discussed previously.⁴⁵ Complementary exercises add the interaction between the firm- and country-level measures of corporate gov-

⁴²The author of this annex is Adrian Alter.

⁴³As an alternative measure, the adjusted valuation, in which the firm's sector average valuation is subtracted from its valuation, is considered as the dependent variable.

⁴⁴ F -statistics of the weak exogeneity tests exceed 10 and confirm the usefulness of the instrument.

⁴⁵Similar firm characteristics are used when the dependent variable is leverage, interest rate, or default probability. In addition, when interest rate and default probability are considered as dependent variables, the set of firm regressors is augmented by the leverage ratio.

ernance (strength of minority shareholder protection) and country-level measures of enforcement (such as the rule of law).

Using a variety of specifications, robustness exercises confirm the results from the baseline regressions. For example, coefficients were estimated with panel data models while controlling for firm and sector time fixed effects (and errors clustered at the country level).

Annex 3.2. Analysis of Firm-Level Stock Price Comovement and Crash Risk⁴⁶

The analysis on stock price comovement and crash risk is conducted in two steps. In the first step, firm-level stock returns are decomposed into market-wide and firm-specific components. Following Jin and Myers (2006), for each emerging market firm in the sample, the analysis considers

$$r_{it} = \alpha_i + \beta_{1i} r_{c,t} + \gamma_{1i} (r_{US,t} + X_{c,t}) + \beta_{2i} r_{c,t-1} + \gamma_{2i} (r_{US,t-1} + X_{c,t-1}) + \beta_{3i} r_{c,t+1} + \gamma_{3i} (r_{US,t+1} + X_{c,t+1}) + \epsilon_{it}, \quad (A3.2.1)$$

in which r_{it} is the weekly return of firm i , $r_{c,t}$ is the domestic market return, $r_{US,t}$ is the U.S. market return, and $X_{c,t}$ is the change in exchange rate of domestic currency against the U.S. dollar. This set of regressions is repeated for each year between 2008 and 2014.

The second step investigates the relationship between the computed stock price comovement, as well as crashes and the corporate governance indices, following Hutton, Marcus, and Tehranian (2009). Stock price comovement is measured using the logarithmically transformed R -squared from regressions in the first step and considered in the following analysis:

$$\pi_{it} = \delta_1 GOV_{it} + \delta_2 X_{i,t-1} + \eta_t + \xi_c + \epsilon_{it}, \quad (A3.2.2)$$

in which π_{it} is defined as $\ln[R^2/(1-R^2)]$, in which R^2 is the R -squared from equation (A3.2.1), GOV_{it} is the firm-level governance index, η_t and ξ_c are the year and country fixed effects, and $X_{i,t-1}$ includes firm control variables such as (logged) total assets, leverage, return on equity (ROE), and the indicators for whether the firm uses American depository receipts and is a state-owned enterprise (Annex Table 3.2.1). Similar estimates are found using the alternative Fama-MacBeth method that involves running a set of cross-sectional regressions for each year. For crash risk, the following

⁴⁶The author of this annex is Alan Xiaochen Feng.

Annex Table 3.1.1. Firm Governance and Fundamentals: Selected Regressions

| Dependent Variable | (1) | (2) | (3) | (4) | (5) | (6) |
|--|-------------------------|--------------------------|-----------------------|-----------------------|-------------------------|----------------------|
| | Valuation | | Short-Term Debt | | Interest Rate | |
| Regression Type | OLS | IV | OLS | IV | OLS | IV |
| Firm Governance | | | | | | |
| Overall Index | 0.00728*** (0.00184) | 0.0135** (0.00576) | | | | |
| Shareholder Rights Index | | | -0.104* (0.0587) | -1.136* (0.662) | | |
| Transparency Index | | | | | -0.0137*** (0.00509) | 0.278 (0.439) |
| Firm-Level Controls | | | | | | |
| Total Assets (log) | -0.270*** (0.0193) | -0.152*** (0.0300) | -4.133*** (0.514) | -3.480*** (0.793) | -0.199** (0.0886) | -0.499 (0.708) |
| Profitability | 0.0853*** (0.00433) | 0.0787*** (0.00715) | -0.0795 (0.104) | -0.0552 (0.155) | 0.00165 (0.0182) | 0.0383 (0.0596) |
| Leverage | -0.000379 (0.00122) | 0.00370* (0.00190) | | | -0.0129** (0.00624) | 0.000394 (0.0161) |
| Cash Ratio | 0.0168*** (0.00412) | 0.0115** (0.00544) | | | | |
| Investment Ratio | 0.00788*** (0.00229) | 0.0152*** (0.00331) | | | | |
| R&D Ratio | 0.0567** (0.0279) | 0.0935*** (0.0316) | | | | |
| Tangibility | | | -0.263*** (0.0288) | -0.316*** (0.0621) | -0.0138*** (0.00448) | 0.000730 (0.0183) |
| Tobin's Q | | | 1.557** (0.711) | 0.609 (1.000) | 0.0410 (0.123) | -0.245 (0.371) |
| Country-level Controls | | | | | | |
| Private Credit (percent of GDP) | | -0.00656*** (0.00150) | | 0.239*** (0.0523) | | -0.0174 (0.0869) |
| Government Debt (percent of GDP) | | -0.00301 (0.00341) | | 0.356*** (0.106) | | -0.0333 (0.0634) |
| Current Account Balance (percent of GDP) | | 0.166*** (0.0271) | | 2.666** (1.114) | | -3.222 (2.159) |
| Inflation | | 0.00771 (0.00749) | | -0.365* (0.196) | | -0.0134 (0.120) |
| Real GDP | | -0.0407*** (0.0122) | | 0.922*** (0.347) | | -0.107 (0.273) |
| Rule of Law | | 0.218* (0.116) | | -8.551** (4.174) | | -3.275 (2.795) |
| Constant | 5.043*** (0.427) | 2.187*** (0.459) | 178.0*** (13.58) | 65.60** (27.11) | 25.34*** (1.967) | 23.24** (11.32) |
| Observations | 3,186 | 2,362 | 3,075 | 2,275 | 3,044 | 2,253 |
| R ² | 0.642 | 0.647 | 0.361 | 0.295 | 0.285 | 0.464 |
| Time*Country FE | Yes | No | Yes | No | Yes | No |

Source: IMF staff estimates.

Note: OLS refers to pooled ordinary least squares estimates; IV refers to instrumental variable estimates. All firm-specific regressors are lagged. Sector- and country-fixed effects are included in all regressions. Robust standard errors are reported. R&D = research and development; FE = fixed effects.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Annex Table 3.2.1. Firm-Level Stock Price Comovement and Crash Risk

| | Stock Price Comovement | | | | Crash Risk | | |
|-------------------------------|------------------------|----------------------|----------------------|----------------------|----------------------|---------------------|---------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Firm-Level Overall Governance | -0.134*** (0.021) | -0.097*** (0.027) | -0.073*** (0.020) | | -0.140*** (0.039) | -0.113** (0.054) | -0.0744* (0.041) |
| Firm-Level Transparency | | | | -0.082*** (0.027) | | | |
| Size | 0.028*** (0.007) | 0.026*** (0.008) | 0.027*** (0.007) | 0.024*** (0.006) | -0.01 (0.014) | -0.007 (0.037) | -0.011 (0.015) |
| Leverage | 0.006*** (0.001) | -0.002 (0.001) | 0.007*** (0.001) | -0.001 (0.001) | 0.001 (0.003) | -0.001 (0.003) | 0.002 (0.003) |
| Return on Equity | 0.001 (0.001) | 0.0001 (0.001) | -0.001 (0.001) | -0.002** (0.001) | 0.002 (0.002) | 0.002 (0.002) | 0.001 (0.002) |
| ADR | 0.066 (0.045) | -0.164*** (0.051) | -0.044 (0.043) | -0.267*** (0.047) | 0.230*** (0.085) | 0.342*** (0.102) | 0.085 (0.089) |
| SOE | 0.425*** (0.122) | 0.244*** (0.119) | 0.294*** (0.116) | 0.151 (0.111) | 0.029 (0.203) | 0.026 (0.216) | -0.521** (0.247) |
| Observations | 3,035 | 3,035 | 3,035 | 3,035 | 3,027 | 3,027 | 3,027 |
| Country FE | No | Yes | No | Yes | No | Yes | No |
| Year FE | No | No | Yes | Yes | No | No | Yes |
| R ² | 0.05 | 0.16 | 0.15 | 0.26 | 0.01 | 0.05 | 0.02 |

Source: IMF staff estimates.

Note: ADR = American depository receipts; SOE = state-owned enterprises; FE = fixed effects.

 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

logit regression of stock return crashes on firm-level governance indices was performed:

$$\begin{aligned} \text{Prob}(\text{Crash} = 1 | GOV_{it}, X_{i,t-1}) \\ = \Phi^{-1}(\delta_1 GOV_{it} + \delta_2 X_{i,t-1}), \quad (\text{A3.2.3}) \end{aligned}$$

in which crashes are defined as occurrences of firm-specific residual returns from equation (A3.2.1) that fall in the lower 2.5 percent tail of a normal distribution, and $X_{i,t-1}$ includes the same set of firm control variables as in equation (A3.2.2). Function Φ is the logit function.

Annex 3.3. Estimating the Impact of Global Financial Shocks on Firm Equity Returns⁴⁷

The impact of global financial shocks on firms' equity returns is estimated for a sample of more than 600 firms in 25 emerging market economies during 2008–14 at weekly frequency (see Annex Table 3.4.1 for data sources and country coverage). The specification is an augmented capital asset pricing model, which includes country-level returns, changes in the

Chicago Board Options Exchange Volatility Index (VIX), and firm-level governance and its interaction term with the changes in the VIX index:

$$\begin{aligned} r_{i,s,c,t} = \alpha + \beta r_{c,t} + \gamma_1 \Delta VIX_t + \gamma_2 GOV_{s,t} \\ + \gamma_3 \Delta VIX_t * GOV_{s,t} + \delta_i + \delta_{c,t} + \delta_{s,t} \\ + \tau_t + \epsilon_{i,s,c,t}, \quad (\text{A3.3.1}) \end{aligned}$$

in which

- $r_{i,s,c,t}$ is the weekly equity return of firm i ;
- $r_{c,t}$ is the country-level equity return corresponding to country c ;
- ΔVIX_t is the changes in the VIX, a proxy for global financial shocks (changes in global risk aversion);
- $GOV_{s,t}$ is the overall firm-level governance index (that is, the overall index);
- $\Delta VIX_t * GOV_{s,t}$ is the interaction term that captures how governance influences the transmission of global financial shocks to equity returns; and
- $\delta_i, \delta_{c,t}, \delta_{s,t}, \tau_t$ are firm, country-time, sector-time, and time quarterly fixed effects terms, respectively.

Various additional specifications for robustness are also estimated, controlling for firm-level controls, including the share of foreign sales in total sales, American depository receipts firms, and concentra-

⁴⁷The author of this annex is Dulani Seneviratne.

Annex Table 3.3.1. Global Financial Shocks and Firm Equity Returns

| Dependent Variable: Return _{i,s,c,t} | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|----------------------|
| Return _{c,t} | 0.602*** (0.000) | 0.602*** (0.000) | 0.602*** (0.000) | 0.603*** (0.000) | 0.604*** (0.000) | 0.638*** (0.000) | 0.652*** (0.000) |
| Gov _{s,t} | 0.001 (0.627) | 0.001 (0.991) | 0.001 (0.830) | 0.001 (0.627) | 0.001 (0.611) | 0.001 (0.682) | 0.002 (0.518) |
| ΔVIX_t | -0.035*** (0.000) | -0.035*** (0.000) | -0.037*** (0.000) | -0.037*** (0.000) | -0.045*** (0.000) | | |
| $\Delta VIX * Gov$ | 0.035*** (0.000) | 0.035** (0.017) | 0.032*** (0.001) | 0.032*** (0.001) | 0.025** (0.011) | | |
| $\Delta VIX * \text{Share of Foreign Sales}$ | | | 0.013*** (0.000) | | | | |
| Share of Foreign Sales _{i,s,c,t} | | | -0.003*** (0.007) | | | | |
| $\Delta VIX * \text{Herfindahl-Hirschman Index}$ | | | | 1.955*** (0.000) | | | |
| Herfindahl-Hirschman Index _{i,s,c,t} | | | | -0.53** (0.020) | | | |
| $\Delta VIX * \text{4-Firm Concentration Ratio}$ | | | | | 0.026*** (0.000) | | |
| Four-Firm Concentration Ratio _{i,s,c,t} | | | | | -0.002 (0.581) | | |
| Crisis Dummy | | | | | | -3.088* (0.061) | |
| Crisis Dummy * Gov | | | | | | 0.081** (0.043) | |
| GFC Dummy * Gov | | | | | | | 0.012*** (0.007) |
| GFC Dummy | | | | | | | -0.513*** (0.003) |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Sector-Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Standard Errors | Robust | DK | Robust | Robust | Robust | Robust | Robust |
| Observations | 214,283 | 214,283 | 212,128 | 214,283 | 214,283 | 214,283 | 204,239 |
| R ² | 0.186 | | 0.186 | 0.186 | 0.186 | 0.183 | 0.178 |

Source: IMF staff estimates.

Note: Robust p -values in parentheses. Panel 2 in Figure 3.14 uses standardized values of specification (1). Crisis dummy corresponds to various banking, currency, and debt crises (based on Laeven and Valencia 2012); GFC dummy corresponds to the global financial crisis. DK = Driscoll-Kraay standard errors; VIX = Chicago Board Options Exchange Volatility Index; FE = fixed effects.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

tion (both through the Herfindahl-Hirschman Index and the four-firm concentration ratio) and through changing the fixed effects structure and using Driscoll-Kraay standard errors (Annex Table 3.3.1). The results remained robust in all specifications, with both ΔVIX_t and the interaction term preserving significance at the 5 percent level in most cases.

Annex 3.4. Data Sources and Country Coverage

This annex provides the data sources of the firm-level, country-level, global variables, and the sample coverage of economies used in this chapter (Annex Table 3.4.1). The set of emerging market economies includes past and current emerging market economies as well as some frontier economies.

Annex Table 3.4.1. Data Sources^{1,2,3,4,5,6}

| Variable | Description | Source |
|--|---|---|
| Firm-Level Variables | | |
| Governance Variables | | |
| Overall Index | | IMF; ASSET4 |
| Board Subindex | | IMF; ASSET4 |
| Compensation Subindex | | IMF; ASSET4 |
| Shareholder Rights Subindex | | IMF; ASSET4 |
| Transparency Subindex | | IMF; ASSET4 |
| Other Firm-Level Variables | | |
| Tobin's Q | The sum of market value of equity and book value of debt divided by total assets | Worldscope |
| Return on Equity | Net income divided by shareholders' equity | Worldscope |
| Leverage | Total debt divided by market value of assets | Worldscope |
| Cash Ratio | The sum of cash and cash equivalents divided by total assets | Worldscope |
| Current Ratio | Current assets to current liabilities | Worldscope |
| Capital Investment | Capital expenses to total assets | Worldscope |
| Foreign Sales | The ratio of foreign sales to total sales | Worldscope |
| Size | Total assets in logarithmic terms | Worldscope |
| Short-Term Debt | Portion of debt payable within one year including current portion of long-term debt | Worldscope |
| Equity Returns (local currency) | Log difference of the equity indices | Bloomberg L.P. |
| American Depository Receipts (ADR) | ADR indicates companies that have American depository receipts trading on a U.S. exchange. | Worldscope |
| Bond Rating | Issuer's S&P credit rating | Bloomberg L.P., Dealogic |
| Bond Yield | Yield at issuance | Bloomberg L.P., Dealogic |
| Bond Maturity | Maturity at issuance | Bloomberg L.P., Dealogic |
| External Financing Dependence | Rajan and Zingales (1998) index measures dependence on external finance as a firm's capital expenditures minus cash flow from operations divided by capital expenditures, sector average. | Worldscope |
| State-Owned Enterprises | | Worldscope |
| Country-Level Variables | | |
| Governance Variables | | |
| Protection of Minority Shareholders' Interests | Extent to which the interests of minority shareholders are protected by the legal system. | World Economic Forum, GCI |
| G-C Minority Shareholder's Protection | The degree of minority shareholders' protection | Guillén and Capron 2016 |
| Strength of Investor Protection Index | Protection of minority investors from conflicts of interest and shareholders' rights in corporate governance | World Bank, Doing Business |
| Extent of Shareholder Rights Index | Shareholders' rights and role in major corporate decisions | World Bank, Doing Business |
| Extent of Disclosure Index | Transparency of related-party transactions | World Bank, Doing Business |
| Property Rights | Protection of property rights, including financial assets | World Economic Forum, GCI |
| Efficiency of Legal Framework in Challenging Regulations | Ease of challenging government actions and/or regulations through the legal system | World Economic Forum, GCI |
| Strength of Auditing and Reporting Standards | Strength of financial auditing and reporting standards | World Economic Forum, GCI |
| Government Effectiveness | Reflects perceptions of the quality of public services and policies and the credibility of the government's commitment to such policies | World Bank, World Governance Indicators |
| Regulatory Quality | Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development | World Bank, World Governance Indicators |

(continued)

Annex Table 3.4.1. Data Sources (continued)

| Variable | Description | Source |
|--------------------------------------|--|--|
| Rule of Law | Reflects perceptions on the quality of contract enforcement, property rights, the police, the courts, and the likelihood of crime and violence | World Bank, World Governance Indicators |
| Other Country-Level Variables | | |
| Corporate Spread | JPMorgan CEMBI Broad | Bloomberg L.P. |
| Sovereign Spread | JPMorgan EMBI Global | Bloomberg L.P. |
| Exchange Rate | National currency per U.S. dollar | Bloomberg L.P. |
| Equity Returns (local currency) | Log difference of the equity indices | Bloomberg L.P. |
| S&P Sovereign Risk Rating | Standard and Poor's Rating & Outlook | Bloomberg L.P. |
| Capital Flows | The previous year's average of total flows (purchases plus sales) of foreign securities between U.S. investor and domestic investor (TIC data) | United States Department of the Treasury |
| Trade Flows | The previous year's average of total trade (imports plus exports) originating in each country in the sample with the U.S. | IMF, Directions of Trade database |
| Real GDP | Year-over-year growth of GDP, constant prices | IMF, World Economic Outlook database |
| Inflation | Year-over-year growth of the consumer price index | IMF, World Economic Outlook database |
| Current Account Balance | Current account balance in percent of GDP | IMF, World Economic Outlook database |
| Government Debt | General government gross debt in percent of GDP | IMF, World Economic Outlook database |
| Private Credit | Claims on private sector in percent of GDP | IMF, International Financial Statistics database |
| Global-Level Variables | | |
| VIX | Chicago Board Options Exchange Market Volatility Index | Bloomberg L.P. |

Source: IMF staff.

Note: ASSET 4 is provided by Thomson Reuters. CEMBI = Corporate Emerging Markets Bond Index; EMBI = Emerging Markets Bond Index; G-C = Guillén and Capron; GCI = Global Competitiveness Indicators; S&P = Standard and Poor's; TIC = Treasury International Capital; VIX = Chicago Board Options Exchange Volatility Index.

¹ Emerging market economies covered in the country-level capital market development analysis are Argentina, Bahrain, Brazil, Bulgaria, Chile, China, Colombia, Croatia, Hungary, India, Indonesia, Jordan, Kazakhstan, Kuwait, Lebanon, Lithuania, Malaysia, Mauritius, Mexico, Morocco, Nigeria, Oman, Pakistan, Peru, the Philippines, Poland, Qatar, Romania, Saudi Arabia, Serbia, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, and the United Arab Emirates.

² Firm-level fundamentals analysis is based on the firms in Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Kazakhstan, Korea, Kuwait, Malaysia, Mexico, Morocco, the Philippines, Poland, Qatar, Russia, Saudi Arabia, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, and the United Arab Emirates.

³ Country-level volatility and comovement analyses cover Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, the Philippines, Poland, Russia, South Africa, Sri Lanka, Thailand, Turkey, and the United Arab Emirates, while the firm-level comovement and crash risk analyses include Kuwait, Morocco, and Qatar in addition to the above set of economies.

⁴ Firm-level equity return analysis and the event studies are based on the firms in Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Kazakhstan, Korea, Kuwait, Malaysia, Mexico, Morocco, the Philippines, Poland, Qatar, Russia, Saudi Arabia, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, and the United Arab Emirates.

⁵ Country-level equity return and bond spread analyses cover Argentina, Brazil, Chile, China, Colombia, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, the Philippines, Poland, South Africa, Thailand, and Turkey.

⁶ Country-level market liquidity analysis is based on the same coverage as in Brandão-Marques (forthcoming).

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