

Finance and Economics Discussion Series
Divisions of Research & Statistics and Monetary Affairs
Federal Reserve Board, Washington, D.C.

Is Corporate Governance Ineffective in Emerging Markets?

Michael S. Gibson

1999-63

NOTE: Staff working papers in the Finance and Economics Discussion Series (FEDS) are preliminary materials circulated to stimulate discussion and critical comment. The analysis and conclusions set forth are those of the authors and do not indicate concurrence by other members of the research staff or the Board of Governors. References in publications to the Finance and Economics Discussion Series (other than acknowledgment) should be cleared with the author(s) to protect the tentative character of these papers.

Is corporate governance ineffective in emerging markets?

Michael S. Gibson*

Federal Reserve Board

First draft: September 1999

This draft: November 2002

* Mail Stop 91, Washington, DC 20551. Email: michael.s.gibson@frb.gov. Phone: 1-202-452-2495. Fax: 1-202-452-5296. I thank Paul Kim for diligent research assistance and an anonymous referee and participants in the WFA 2000 meetings, the Tuck School conference on International Corporate Governance, and a seminar at the World Bank for helpful comments. The author is a staff economist in the Division of Research and Statistics. The views in this paper are solely the responsibility of the author and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or of any other person associated with the Federal Reserve System.

Is Corporate Governance Ineffective in Emerging Markets?

Abstract

I test whether corporate governance is ineffective in emerging markets by estimating the link between CEO turnover and firm performance for over 1,200 firms in eight emerging markets. I find two main results. First, CEOs of emerging market firms are more likely to lose their jobs when their firm's performance is poor, suggesting that corporate governance is not ineffective in emerging markets. Second, for the subset of firms with a large domestic shareholder, there is no link between CEO turnover and firm performance. For this subset of emerging market firms, corporate governance appears to be ineffective.

In recent years, investors have been loudly calling for corporate governance reforms in emerging markets. These calls intensified with the Asian financial crisis of 1997-98, which many blamed on poor corporate governance (Johnson et al. 2000). Some institutional investors have identified corporate governance as a key factor affecting their willingness to invest in an emerging market.¹ These calls for corporate governance reform are based on the premise that corporate governance in emerging markets is in need of improvement.

There are good reasons to think that the effectiveness of corporate governance might be quite different in developed and emerging markets. Most investors would agree that emerging market companies are frequently closely held, often by the founding family, do a relatively poor job of enforcing shareholders' legal rights, and need to improve their accounting and transparency.² These characteristics are often thought to be associated with poor corporate governance. The presence of these characteristics in emerging market companies naturally leads to the question asked in this paper, whether corporate governance is ineffective in emerging markets.

I will test whether corporate governance is ineffective by estimating the link between CEO turnover and corporate performance. Such a link is a necessary, though not a sufficient, condition for effective corporate governance. To preview the results, I find that poor corporate performance increases the probability of CEO turnover among my sample of emerging market

¹Examples include pension fund CalPERS (Engardio 2002) and mutual fund group Franklin-Templeton (Mobius 2001).

²A survey of emerging market investors by the consulting firm McKinsey came to these conclusions. See Coombes and Watson (2001).

firms. The magnitude of the effect is similar to what Kaplan (1994a) found for the United States. Poorly performing managers in emerging market firms appear to be replaced at about the same rate as poorly performing managers in U.S. firms. This suggests that corporate governance in emerging markets is not ineffective. But, for firms with a large domestic shareholder, the probability of CEO turnover does not appear to rise at poorly performing firms. For this subset of emerging market firms, corporate governance appears to be ineffective.

1. Literature review

Corporate governance in emerging markets has not been studied as intensively as in developed markets. As Shleifer and Vishny (1997) point out in their survey, there has been only a little research done on corporate governance outside the United States, apart from a few developed countries such as Japan and Germany. (I discuss some of this research below.) But there is almost no empirical evidence directly comparing the quality of corporate governance in emerging markets and developed markets.³

A few studies have examined corporate governance in emerging markets, although none has estimated the link between CEO turnover and corporate performance that is the focus of this paper. Researchers have studied the implications of the concentrated corporate ownership that is common in many emerging and developed markets. La Porta, Lopez-de-Silanes, and Shleifer (1999) study 27 countries and conclude that “the principal agency problem in large corporations around the world is that of restricting expropriation of minority shareholders by the controlling shareholders.” Claessens, Djankov, Fan and Lang (1999) identify the ownership

³See Chung and Kim (1999) on Korea for one example.

structure of firms in nine East Asian countries, including four of the emerging markets studied in this paper. They conclude that the main corporate governance problem in these countries is the expropriation of minority shareholders by controlling shareholders. Lins (2000) relates ownership structure to firm value across 22 emerging markets. The authors of all three papers carefully trace through pyramidal shareholding structures to identify a firm's ultimate owners.

Three recent papers study corporate governance in India. Khanna and Palepu (1999) and Sarkar and Sarkar (1998) examine how the identity of the immediate owners of Indian firms is correlated with the firms' valuation, as measured by a market-to-book ratio. Chhibber and Majumdar (1999) examine how ownership characteristics of Indian firms affect profitability. Because these authors look at immediate ownership, not ultimate ownership, it is hard to compare their results with the three papers mentioned above. A common result across the three Indian papers is that high foreign ownership has beneficial effects (either on market valuation or profitability).

Claessens and Djankov (1999a, 1999b) study corporate governance in transition economies. Using data on recently privatized firms in the Czech Republic, they find that firms with concentrated ownership, foreign ownership, and ownership by non-bank investment funds are more profitable and have higher labor productivity. They also find that CEO turnover is followed by improvement in profitability and labor productivity. These effects are stronger when the new CEO is appointed by a private owner, rather than the government.

2. Testing for corporate governance outcomes

Most of these papers focus on concentrated ownership, which can be described as a corporate governance *mechanism*. Corporate governance mechanisms are ways to deal with the

agency problems between managers and shareholders and between controlling shareholders and minority shareholders. Corporate governance mechanisms aim to ensure that minority shareholders' rights are not usurped, managers' actions are monitored, and poorly performing managers are replaced. Studies of corporate governance mechanisms for U.S. firms are common and look at a wider range of mechanisms than the nascent literature on emerging markets has yet taken on. Boards of directors, institutional investor activism, hostile takeovers, and executive compensation schemes are common topics.⁴

However, inferring the effect of corporate governance mechanisms on the performance of a corporate governance "system" is problematic. The various mechanisms can substitute for one another. For example, La Porta, Lopes-de-Silanes, Shleifer and Vishny (1998) show that in countries where the legal system does not do a good job of protecting shareholders' rights, concentrated ownership is more prevalent.

Because I am interested in evaluating the performance of corporate governance in emerging markets, I focus on corporate governance *outcomes* rather than corporate governance *mechanisms*. Specifically, I look at the relationship between CEO turnover and corporate performance. A necessary condition for an effective corporate governance system is that poorly performing managers are replaced, as Macey (1997) suggests. I assess whether this condition holds in emerging markets.

Such an approach was taken by Kaplan (1994a, 1994b, 1997), studying corporate governance in the U.S., Germany, and Japan. Some researchers had argued that one or the other corporate governance system was superior. Kaplan showed that firms in the three countries

⁴See Shleifer and Vishny's (1997) survey.

exhibit broadly similar relationships between CEO turnover and corporate performance. Poor performance made a manager more likely to be replaced in all three. Along one important dimension, the corporate governance outcomes in different countries were similar, although the corporate governance mechanisms in each country were and are quite different.⁵

While a relationship between CEO turnover and corporate performance may be a necessary feature of a corporate governance system that “works,” it is not sufficient. Other factors need to be in place for a corporate governance system to work well. For example, a market for corporate control is needed to deal with times when everyday monitoring is not adequate. Looking for a relationship between CEO turnover and corporate performance tests whether corporate governance is *ineffective*. Such a relationship, on its own, cannot prove the contrary, that corporate governance is effective. Even if a negative relationship between CEO turnover and corporate performance exists, it may not be strong enough to provide optimal incentives to CEOs.⁶

I estimate the relationship between CEO turnover and corporate performance for emerging market firms:

$$\text{Prob}\{\text{CEO turnover}\} = f(\text{firm performance, other control variables})$$

I test whether there is a negative relationship between the probability of CEO turnover and firm performance. Since CEO turnover is a binary variable, I choose to estimate the following logit regression:

⁵A number of papers study the relationship between CEO turnover and corporate performance in a single country. For the U.S., recent examples are Denis, Denis and Sarin (1997) and Parrino (1997). For Japan, see Kang and Shivdasani (1995) and Abe (1997).

⁶See Warner, Watts and Wruck (1988).

$$\text{Prob}\{\text{CEO turnover}\} = f(\beta \text{ firm performance} + \gamma'Z)$$

where β captures the relationship I am interested in, γ is a $k \times 1$ vector of coefficients, Z is a $k \times 1$ vector of other control variables (indicator variables for year, country, industry, and firm size), and $f(\cdot)$ is the logistic function $f(a) = e^a / (1 + e^a)$.

3. Data issues

When undertaking a research project on emerging market corporate governance, availability and quality of data is always an issue. I use data from Worldscope. Worldscope provides firm-level financial information on publicly-traded firms in developed and emerging markets. I use data on non-financial firms in eight emerging markets: Brazil, Chile, India, Korea, Malaysia, Mexico, Taiwan, and Thailand. It was impractical to include all emerging market firms whose data is reported by Worldscope because of the need for hand-coding data on CEO turnover and ownership. These eight emerging markets were chosen because they had the largest number of firms whose data is reported by Worldscope.⁷ These eight markets make up 66 percent of the market capitalization of the MSCI Emerging Markets Index.⁸ Because of the limited history available, I pool firms from all eight countries into a single dataset. The dataset contains all the firm-years covered by Worldscope for firms in these countries where data is available on CEO turnover and at least one of the measures of firm performance I use below. On

⁷Because some hand-collected data is country-specific, I chose to work with all firms in a limited number of markets rather than a limited number of firms drawn from all markets.

⁸Market capitalization data are from Morgan Stanley Capital International (1998, p. 27) and were measured on September 30, 1997.

average, firms in the regression sample make up about 40 percent of the market capitalization of their respective markets.

The regression sample covers 1993 to 1997. Worldscope began covering emerging markets in 1994, backfilling data from 1992 and 1993 when possible. This determines the beginning of the sample. Because Worldscope has expanded their coverage of emerging markets over time, most of the observations come from 1995, 1996 and 1997. Ending the data sample in 1997 avoids a potential misspecification due to the Asian financial crisis. The misspecification would arise from constraining the link between CEO turnover and firm performance to be the same in normal times (1993-97) and in a severe financial crisis (1998 and thereafter).

Throughout the paper I refer to the firm's top corporate officer as the "CEO," but the title used by a firm's top manager can differ both across countries and within a country. This makes it hard to identify the top corporate officer. While Worldscope lists several officers for each firm, it does not list them in order of importance. Even worse, firms within a country do not consistently use the same title to identify their top manager.

To identify a firm's top manager, I consulted printed sources and country analysts and made a list for each country of titles ranked by importance. For each firm, if there was a manager with title #1 on that country's list, I identified that manager as "CEO". If no manager had title #1, I looked for a manager with title #2 and identified that manager as "CEO", and so on down the list.⁹ The lists appear in Table 1. Undoubtedly some of the CEOs are misidentified in the dataset. This will introduce error into the CEO turnover variable, but unless the misidentification is correlated with firm performance, it should not bias the estimated coefficients.

⁹If two managers had the same title, indicating shared responsibility, I dropped that firm-year from the sample to avoid dealing with split turnover.

The firm's top corporate officers are identified in Worldscope, but only for the most recent fiscal year. No historical data on officers is present in the database. To obtain historical data on officers, I asked Worldscope to provide me with old CD-ROMs, which they kindly did. Using the Worldscope CD-ROMs for October of each year from 1994 to 1998, each firm's CEO at the end of each fiscal year was identified as described above and a 0/1 indicator variable for CEO turnover was coded by hand.

I do not know anything else about the CEO apart from his or her name. I do not have data on characteristics that will affect the probability of CEO turnover such as the CEO's age and tenure at the firm and whether the CEO is a member of the firm's founding family.¹⁰ If these variables are uncorrelated with firm performance, their absence will worsen the fit of the regression models and will bias the intercept term but will not bias the slope coefficient on firm performance. I do not know of any empirical evidence suggesting a systematic correlation of any of these three variables with firm performance, although because I have no data on these variables I cannot verify that this holds true in my dataset.¹¹

I also do not know if the CEO's departure was voluntary or forced. Obviously, the link between forced CEO turnover and firm performance is what is relevant to the effectiveness of a corporate governance system, the topic addressed by this paper. Some papers that have estimated the relationship between CEO turnover and corporate performance have been able to gather

¹⁰None of this data is reported by Worldscope.

¹¹Morck, Shleifer and Vishny (1988) found that firm value (Tobin's Q) was slightly lower at firms where a top manager was a member of the founding family and the firm was more than thirty years old and slightly higher at firms where a top manager was a member of the founding family and the firm was younger than thirty years old. Neither effect was very statistically significant (t-statistics of 1.58 and 1.24, respectively).

additional information on the CEO's turnover at a low cost from country-specific sources such as financial newspapers. On the other hand, some papers have not distinguished between voluntary and forced turnover. Because my data span eight emerging market countries where financial market news services are less well developed, the cost of gathering this type of information for me would be prohibitively high. Again, not being able to distinguish between voluntary and forced turnover should make it harder to find an effect of firm performance on CEO turnover.¹²

Summary statistics on CEO turnover in emerging markets are presented in Table 2. The mean rate of CEO turnover in my dataset is 12.2 percent. This corresponds to an expected CEO tenure of 8.2 years. Across the eight countries in my dataset, the mean rate of CEO turnover during the time period for which I have data ranges from 5.5 percent (Taiwan) to 17.4 percent (Malaysia). These correspond to expected CEO tenure of 18 years and 5.7 years, respectively. For the five years in my dataset (1993-97), the mean rate of CEO turnover was lower in the first two years, where I have relatively few observations.

I do not know the causes of these differences in expected CEO tenure across countries and over time. Some possible explanations are the short time span of my dataset combined with asymmetric macroeconomic shocks across countries, structural economic differences across countries, or other factors. What will be important for the regressions that follow is not the mean CEO tenure but the sensitivity of CEO turnover to firm performance. In the regressions, I will

¹²In an earlier draft, I developed and implemented a modified logit regression that attempted to separate out effects of forced and unforced turnover. The identifying assumption of the modified logit model was that firm performance affected the probability of forced turnover, while year and country dummies affected the probability of unforced turnover. The results from the modified logit model were substantially similar to the results from the standard logit model that are reported in this draft.

control for the differences in mean CEO tenure across countries and years that are apparent in Table 2 with dummy variables for country and year.

In my dataset, the rate of CEO turnover also increases with firm size. A kernel regression of CEO turnover on the natural log of assets showed a non-linear relationship. To accommodate the nonlinearity, I control for firm size by dividing the sample into three groups based on book value of assets and including dummy variables for the small and large firm groups in each regression.¹³ The book value of asset cutoffs for the small and large firm groups are set at USD 25 million and USD 2 billion, roughly the 10th and 90th percentiles of this variable in my dataset.¹⁴

I use four measures of firm performance common in the literature: earnings scaled by assets, the change in earnings scaled by lagged assets, stock market return, and growth in sales. The measure of earnings is EBIT, earnings before interest and taxes. Stock market return is total return on the firm's equity in excess of the return on a market index for the firm's country. All four performance measures are measured over the firm's fiscal year, as is CEO turnover.¹⁵ Table 3 contains summary statistics on the four performance measures.

¹³When the natural log of assets is included in the regressions instead of the dummy variables for the small and large firm groups, the coefficients and t-statistics reported in Table 4 do not change substantially but the goodness-of-fit test statistics are substantially worse.

¹⁴Firm size is not robustly correlated with firm performance. Looking at the four pairwise correlations between the natural log of assets and the individual performance measures, The correlation coefficients are negative for earnings/assets ($\rho = -.10$), positive for sales growth ($\rho = .11$), and not statistically different from zero for the change in earnings/assets and stock market return. (The performance measures are all positively correlated with one another.)

¹⁵In an earlier draft, I had tried adding lagged performance to the regressions. It was always statistically insignificant.

All but the stock market return rely on accounting data to some extent, and accounting data in emerging markets have flaws. While Worldscope claims to standardize and clean the firm-level financial data when adding it to their database, problems of non-comparable accounting standards across countries will always be present. I hope I have minimized their effect by choosing relatively simple measures of firm performance that do not demand too much from the accounting data. If corporate performance has random mismeasurement added in due to poor accounting standards, it should bias the coefficient on performance toward zero, making it harder to find an effect of performance on CEO turnover.

To get a sense of the quality of accounting standards in the eight emerging market countries in the sample, I consulted the rating of accounting standards constructed by the Center for International Financial Analysis and Research which was used by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998). A country's accounting standards are rated by examining the extent of disclosures made in the financial statements of a few listed firms. The mean rating across the eight emerging market countries is 61, identical to the mean for all 41 countries reported in La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998).¹⁶ Eight of the 41 countries whose ratings were reported by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) have lower ratings than the lowest-rated country in my sample, Chile. For comparison, the rating for the United States is 71 and for Japan is 65.

¹⁶The ratings, taken from Table 5 of La Porta, Lopes-de-Silanes, Shleifer and Vishny (1998), are Brazil 54, Chile 52, India 57, Korea 62, Malaysia 76, Mexico 60, Taiwan 65, Thailand 64.

4. Regression results

I estimate the logit regression described above for each of the four firm performance measures individually. Results are summarized in Table 4. For all four performance measures, the logit coefficient is negative, indicating that poor performance is associated with higher CEO turnover. For the two earnings-based measures and for sales growth, the link is statistically significantly different from zero (using a 5 percent one-tailed test). The link between stock market return and CEO turnover is on the border of statistical significance (the p-value of the one-tailed test is .059). All four pass the logit regression goodness-of-fit test of Hosmer and Lemeshow (1989).

Figure 1 translates the regression results into graphs of the relationship between firm performance and the predicted probability of CEO turnover. All predicted probabilities are calculated at the sample mean of the remaining regression variables (the year, country, industry, and size dummies). Along the bottom of each graph, the univariate distribution of the performance variable is summarized with a box-and-whiskers plot. Pointwise 95 percent confidence intervals for the predicted probability are shown with dotted lines.

The change in the predicted probability of CEO turnover for any change in performance can be read off the appropriate graph. For example, using the top left graph, for a firm that falls from the median of earnings/assets to the 5th percentile, the probability of CEO turnover would rise from 11.2 percent to 13.2 percent, an 18% increase.

There is likely an economically rational reason why the stock market return is less significantly correlated with CEO turnover: the relative inefficiency and illiquidity of emerging market equity markets. Harvey (1995) shows that the first-order autocorrelation of monthly equity index returns is positive and significant in many emerging markets, in contrast to

developed markets, suggesting that emerging equity markets are less efficient. Demirgüç-Kunt and Levine (1995) present evidence that emerging equity markets are less liquid than developed-country equity markets. Domowitz, Glen, and Madhavan (2001) show that transaction costs in emerging equity markets are roughly double those in developed markets. These factors make the stock market return a noisier signal of firm performance in emerging markets. It would be logical for outsiders to rely on it less when judging a CEO's performance.

The regressions passed four robustness checks: to outliers, nonlinearities, the choice of which emerging markets to include in the data sample, and measuring performance on a relative, rather than an absolute, basis. To look for influential outliers, I computed the "influence statistics" of Pregibon (1981). Any observation whose deletion from the sample would change the regression coefficient on a performance variable by more than one-half of the coefficient's standard error was flagged for investigation. Four observations were flagged by this test; upon investigation two were revealed to be data errors and were dropped from the sample. The other two were not data errors and were left in. One had a large jump in earnings and a change in CEO. The other had very low earnings and no change in CEO. Omitting them would strengthen the estimated effect of performance on CEO turnover.¹⁷

To check for nonlinearities in the relationship between performance and CEO turnover, I re-estimated the logit regression allowing the effect of performance on CEO turnover to be piecewise linear. Over several different specifications of the piecewise linearity with several different choices for the "knots," the nonlinearity was never statistically significant.

¹⁷I chose not to omit these two outliers because the extreme performance that led them to be outliers was not a data error.

To see if the results were unduly influenced by the choice of which emerging markets to include, I dropped all firms for one emerging market at a time and re-estimated the logit regression on the remaining seven emerging markets. Earnings/assets had the most robust association with CEO turnover, as its t-statistics were less than -2 for all eight sets of seven emerging markets. The t-statistics for the change in earnings and for sales growth were always less than -1.5 . The t-statistics for stock market return, which was borderline significant in the regression with all eight emerging markets, ranged from -1.2 to -2.1 . This last result suggests that the link between CEO turnover and stock market return may be stronger in some emerging markets than others. The model I estimated for stock market return in Table 4, which pools data across all eight emerging markets, may be misspecified.¹⁸

Finally, I investigated whether it matters that the performance measures (except for stock market return) are measured in absolute terms, not relative terms. Ideally, I would like to use a performance measure that isolates the contribution of the CEO. A relative performance measure, such as earnings or sales growth relative to the firm's peer group, would be closer to the ideal. One possible peer group would be other firms whose data is reported by Worldscope that are in the same industry and country. Unfortunately, given the size of my dataset, each peer group would only have around 5 members on average.¹⁹ The benefit I would gain by using relative over absolute performance would be outweighed by the noise inherent in such small peer groupings.

¹⁸I do not report the results of running the logit regressions on individual emerging markets. The power of the statistical tests is dramatically lower due to the much smaller sample sizes. Out of 32 logit regressions (four performance measures by eight countries), only three have statistically significant coefficients (all negative) using a 5 percent one-tailed test.

¹⁹Roughly 2,500 firm-years divided by (5 years x 8 countries x 12 industry groups) = 5.2 firm-years per country-industry group per year.

This is just a reflection of the fact that emerging markets have relatively few firms in a given industry. For this reason, the main results I have presented so far use absolute performance measures, not relative (except for stock market return, which is measured relative to the country index).

As a robustness check, I re-ran the logit regressions in Table 4 using relative performance measures constructed with two different, less-than-ideal peer groups: other firms in the same emerging market (but in any industry) and other firms in the same industry (but in any of the eight emerging markets). The results were quite similar to those presented in Table 4. Earnings/assets, growth of earnings/assets, and sales growth still had negative, significant coefficients in both cases.

5. Comparing CEO turnover in emerging markets and in the United States

The probability of CEO turnover in emerging markets rises with poor firm performance. The estimated effects do not seem overwhelmingly large, although statistically they are not zero. How do they compare with what has been found for the United States? Kaplan (1994) used many of the same measures of firm performance. Using the results reported in Table 4 and Kaplan's reported regression coefficients, we can directly compare the magnitude of the effect of firm performance on CEO turnover for emerging markets with the effect in Kaplan's sample of large U.S. firms.

Figure 2 shows how the predicted probability of CEO turnover varies with three of the firm performance measures used in this study and in Kaplan (1994a). (Kaplan (1994a) did not use earnings/assets.) The predicted probabilities for emerging markets come directly from the logit regressions reported in Table 4. The predicted probabilities for the U.S. come from the

regressions reported in Table 2 of Kaplan (1994a). Kaplan used a linear probability model, while I use a logit model. This difference in functional form, rather than any economic difference, explains why the emerging markets lines are curved in Figure 2 while the U.S. line is straight.²⁰

In the comparisons in Figure 2, the performance measures—change in earnings, stock market return, and sales growth—are scaled by their respective standard deviations. Scaling is desirable when comparing developed and emerging markets because there is much more performance variability in emerging markets. Evaluation of a CEO’s performance should be done by comparing it with other CEOs’ performances. In an environment of greater variability in firm performance, such as that found in emerging markets, greater absolute change in firm performance would likely be needed to induce monitoring of the CEO.

The top left graph shows that the effect of falling earnings on the probability of CEO turnover looks quite similar in emerging markets and the United States. (A 95 percent confidence interval on the predicted probability on CEO turnover in emerging markets is marked with a dotted line.) For stock market return, the effect is much weaker in emerging markets than in the U.S., and the difference appears to be statistically significant. (Recall that in Table 4 stock market return had only a borderline statistically significant relationship with CEO turnover in emerging markets, in contrast to what Kaplan (1994a) found for the U.S.) The effect of sales

²⁰Kaplan (1994a) regresses CEO turnover on firm performance variables over two-year periods. His regression coefficients cannot be used directly to predict CEO turnover over one-year period. Let P_i be the probability of CEO turnover over i years and let X_i be firm performance measured over i years, where $i=1,2$. To link the one- and two-year variables, assume that $P_2 = 2P_1 - (P_1)^2$ and $X_2 = 2X_1$. If Kaplan’s regression is written as $P_2 = \alpha + \beta X_2$, then $2P_1 - (P_1)^2 = \alpha + \beta (2X_1)$ or, solving for P_1 , $P_1 = 1 - \sqrt{1 - \alpha - 2\beta X_1}$. This relationship is graphed in Figure 2, using the β coefficients reported in Table 2, column 3 of Kaplan (1994a). I ignore Kaplan’s coefficients on lagged performance since they were statistically insignificant. The constant term α is chosen so the mean probability of CEO turnover in the U.S. is 10.4 percent, as reported in Kaplan (1994a).

growth is slightly stronger in the U.S., but the difference is not statistically significant. The U.S. predicted probabilities for sales growth never fall outside the 95 percent confidence interval on the predicted probability for emerging markets. In sum, with the exception of stock market return, the magnitude of the effect of firm performance on the probability of CEO turnover is similar in emerging markets and the United States.

6. Does the presence of a large shareholder matter?

The role of large shareholders in corporate governance has been extensively documented in the literature.²¹ In theory, the presence of a large shareholder could have a positive or negative effect on the relationship between CEO turnover and firm performance. On the positive side, a large shareholder may have better monitoring incentives and more monitoring influence than a small shareholder. The large shareholder has a larger amount of wealth at stake, creating a better incentive to monitor. A large shareholder also has more ability to influence the firm's decision-making, including the decision to replace the CEO. If having a large shareholder improves monitoring, the relationship between firm performance and CEO turnover should be stronger at firms with a large shareholder. Hoshi, Kashyap and Scharfstein (1990) and Kang and Shivdasani (1995) present evidence suggesting that Japanese banks played such a monitoring role in the 1980s (before financial deregulation reduced their power over borrowing firms). Using data on U.S. firms in the 1980s, Denis, Denis and Sarin (1997) found that having a large non-managerial shareholder increased the sensitivity of CEO turnover to performance; this result was marginally statistically significant (the p-value of the test was .09).

²¹See La Porta, Lopez-de-Silanes and Shleifer (1999) for a recent example with references.

On the negative side, a large shareholder could have other interests besides shareholder value maximization and could insulate managers from outside pressure to let managers pursue those other interests. This might be the case if the large shareholder has another relationship with the firm—as a supplier, customer, or manager—and can extract rents from the firm through the other relationship. Or, managers could facilitate direct transfers from minority shareholders to the large shareholder. For example, Chung and Kim (1999) give several stories of large shareholders in Korean companies who bought company assets at a below-market price and resold them for personal profit. If the CEO (or the CEO's family) happens to be the large shareholder, these negative effects could also be strong.

To investigate the role of large shareholders in emerging market corporate governance, I collected data from Worldscope on the identity of a firm's large shareholder(s).²² A large shareholder is defined as one directly holding at least 20 percent of the firm's equity.²³ I did not trace through indirect ownership chains because of lack of data.

²²Like the data on CEO turnover, the ownership data had to be coded by hand from the old Worldscope CD-ROMs because the Worldscope database does not retain historical data on ownership. Worldscope records the identity of shareholders holding at least 5 percent of the firm's equity. The Worldscope data on ownership may be of a lower quality than the data on CEO turnover and firm performance since the latter are more likely to be subject to mandatory reporting requirements for exchange-listed firms.

²³La Porta, Lopez-de-Silanes and Shleifer (1999) use 20 percent as the cutoff for their definition of a controlling shareholder. They argue that 20 percent of the votes gives effective control over management's decision-making. Claessens, Djankov and Lang (1999) compute various cutoffs for their definition of a large shareholder, but their discussion focuses on the results with 20 percent as the cutoff to be comparable with previous literature. Both papers consider indirect as well as direct shareholdings, while I only use direct shareholding data.

I split the sample into two groups: firms with no large shareholder and firms whose large shareholder is a private domestic entity (e.g., another firm, a family, or an individual).²⁴ All other firms, including firms whose large shareholder is the government, firms whose large shareholder is foreign, and firms with more than one large shareholder were dropped because there were too few firms in these categories to identify any effect of the shareholder's identity. Of the 2,683 firm-years in the initial dataset, 389 firm-years must be dropped due to missing ownership data, 62 because the large shareholder is foreign, 34 because the large shareholder is the government, and 61 because the firm had more than one large shareholder.²⁵ This leaves 1,518 firm-years with no large shareholder and 674 firm-years with a large private domestic shareholder. The rate of CEO turnover is 12.4 percent in the former subsample and 16.3 percent in the latter.

The first four rows of Table 5 show regression results when performance is interacted with a dummy variable indicating the presence of a domestic private large shareholder. At firms with a large shareholder, the next-to-last column of the table shows that there is *no* link between performance and CEO turnover. The second column measures the differential effect of having a large shareholder. The link between earnings/assets or the change in earnings/assets and CEO turnover is statistically significantly weaker at firms with a large shareholder. When stock

²⁴I combine firms whose large shareholder is another domestic firm with firms whose large shareholder is a domestic individual or family. Claessens, Djankov and Lang (1999) show that the typical family ownership is achieved through intermediate ownership by corporate entities or foundations controlled by the family. Because my ownership data only reflect direct shareholdings, I cannot distinguish domestic family-controlled firms from other firms with a domestic large shareholder.

²⁵In a previous version, I included firms with foreign and government large shareholders in the regression and looked for a differential effect of firm performance on CEO turnover for those groups as well. The small number of firm-years in these two groups caused both of the differential effects to be statistically insignificant.

market return or sales growth is used as the performance measure, the difference across groups is not statistically significant.²⁶

The discipline felt by corporate managers in response to low earnings appears to be weaker in emerging markets when a firm has a domestic private large shareholder. This is consistent with other research that large shareholders have, on net, a negative effect on corporate governance in emerging markets. Claessens, Djankov, Fan and Lang (1999) conclude that stock market valuations in nine East Asian countries in 1996 are lower when large shareholders have control rights out of proportion to their cash flow rights, due to pyramiding and cross-shareholdings. The effect is strongest for firms whose ultimate owner is a family.

7. Does legal origin matter?

La Porta, Lopes-de-Silanes, Shleifer and Vishny (1999) claim that the different degree of legal protection given shareholders and creditors is the single most important factor explaining differences in corporate governance across countries. In other papers, these authors show that concentrated ownership is less common and capital markets are more developed in countries with stronger legal protection of shareholders and creditors.²⁷ They also show that the extent of

²⁶Another firm-specific characteristic that I investigated, besides the identity of the firm's large shareholder, was whether or not the firm was listed on a developed-country stock exchange. Firms listed on a developed-country exchange have chosen to submit to a stricter regulatory and disclosure regime. They may be better monitored than other firms, which might imply a stronger link between firm performance and CEO turnover. Just over 8 percent of the firms in the sample were listed on a developed-country exchange. However, when I allowed the coefficient on firm performance in the logit regression to differ for these firms, the difference was not statistically significant.

²⁷See La Porta, Lopes-de-Silanes, Shleifer and Vishny (1997, 1998).

legal protection of shareholders and creditors is largely determined by whether the country's legal system is based on a common law tradition or a civil law tradition.

Although corporate governance mechanisms clearly differ according to legal origin, it is not obvious that corporate governance outcomes must necessarily differ in the same way. On the one hand, strong legal protection of shareholders and concentrated ownership may simply be two different ways to achieve effective corporate governance of firms with publicly-traded equity. According to this argument, the link between CEO turnover and firm performance for publicly-traded firms should not differ across legal origin. On the other hand, the striking differences across countries in the legal protection of shareholders may carry over to corporate governance outcomes. In that case, the link between CEO turnover and firm performance could differ according to legal origin. Investors might be compensated with a higher expected return for investing in countries with poorer corporate governance outcomes.²⁸

To investigate this issue in my dataset, I divided the eight emerging markets in my sample into two groups according to legal origin. Three emerging markets (India, Malaysia, Thailand) are in the common law tradition, and the remaining five (Brazil, Chile, Korea, Mexico, Taiwan) are in the civil law tradition. The three common law countries account for 1,639 firm-years while the five civil law countries account for 1,044 firm-years. The difference reflects the larger public equity markets in common law countries. The proportion of firm-years with CEO turnover is 13.2 percent in common law countries and 10.6 percent in civil law countries.

²⁸If the link between CEO turnover and firm performance is similar across common and civil law countries, it would only show that corporate governance is not ineffective for firms with public equity. To evaluate the overall performance of the financial system in civil law countries, other factors would be relevant. For example, their relatively weak legal protections for shareholders and creditors lead to smaller debt and equity markets.

As discussed above, legal origin is likely correlated with concentrated ownership. The first four regressions in Table 5 showed that concentrated ownership weakens the link between firm performance and CEO turnover. As a consequence, I will control for the presence of a large shareholder when looking for an effect of legal origin.

The second set of regressions in Table 5 shows results allowing the effect of firm performance on CEO turnover to differ according to both the origin of the legal system in the firm's home country and whether the firm has a large shareholder. Each performance variable in turn is interacted with a dummy variable for the presence of a large shareholder, a dummy variable for civil law origin, and the product of these two dummy variables.

The first column shows that the effect of performance on CEO turnover is strong for firms with no large shareholder in markets of common law origin. The second column shows the logit coefficient of firm performance interacted with the large shareholder dummy variable. It confirms the earlier result: having a large shareholder weakens the link between performance and CEO turnover. Here, the effect is statistically significant for three of four performance measures. The third column tests whether civil law origin also weakens the link between performance and CEO turnover. The effect is a weak one – it is only marginally statistically significant for two of four performance measures and insignificant for the other two. The fourth column shows that there is not any additional effect from the joint presence of a large shareholder and civil law origin. None of these coefficients is statistically significant.

To assess the robustness of these conclusions, I repeated a robustness check performed earlier: dropping one country at a time from the dataset and re-estimating the regressions to see if the conclusions depend on the particular emerging markets I chose to include in my sample. Based on this robustness check (which is not shown in any table), the result in the third column –

that civil law origin is associated with a marginally weaker link between performance and CEO turnover – appears to not be robust. This result was weak to begin with, showing up for only two of four performance measures, with t-statistics of 1.8 and 2.0. One or both of these t-statistics falls below 1.5 for three of the eight robustness checks, suggesting that the result on civil law origin is not a robust one.

In sum, the results on adding legal origin to the regression are ambiguous. The link between CEO turnover and firm performance appears to be strongest for common law countries and weaker for civil law countries. However, I do not find that the differences between the civil and common law subsamples to be robustly statistically significant. The lack of statistical significance for civil law countries may simply reflect low power due to the smaller sample size (only 39 percent of the dataset are firm-years in civil law countries). In the only other evidence I know of comparing the CEO turnover-firm performance link across legal origin, Kaplan (1994a, 1994b, 1997) found that the link between CEO turnover and firm performance was similar in the United States, a common law country, and Germany and Japan, two civil law countries.

8. Conclusions

In a sample of over 1,200 firms across eight emerging markets, CEOs of poorly performing firms are more likely to lose their jobs than CEOs of well-performing firms. Along this dimension, corporate governance in emerging markets is not ineffective. Measures of performance based on earnings have the strongest association with CEO turnover, while measures based on stock market returns have a weaker association with CEO turnover. The relative unimportance of stock market returns may be unsurprising, given the rudimentary state of development of domestic equity markets in many emerging markets.

However, at emerging market firms with a large domestic shareholder, CEOs of poorly performing firms are *not* more likely to lose their jobs. The presence of a large shareholder appears to negate the link between poor performance and CEO turnover. This evidence is consistent with other research suggesting that minority investors in emerging market firms controlled by a large shareholder should be aware that managers may favor the large shareholder at the expense of minority shareholders. A similar but less statistically reliable effect was found for firms located in countries whose legal system is based on the civil law tradition.

Given the prevalence of large shareholders in emerging markets, this paper's overall verdict on corporate governance in emerging markets is a mixed one. It should be noted that these findings say more about the characteristics of emerging market financial systems – for example, widespread family ownership and weak enforcement of shareholder rights – than about emerging markets per se.

This paper has studied corporate governance in emerging markets by examining non-financial firms in eight of the largest emerging markets. Two caveats related to the choice of firms are in order. First, by choosing the emerging markets to work with based on data availability, a bias may have been introduced into the results. These eight markets may have the most data available because they liberalized earliest, simultaneously raising their profile with global investors, improving their corporate governance, and increasing the number of listed firms.²⁹ It would be dangerous to extrapolate these results to so-called “frontier” markets that are still in the early stages of liberalization.

²⁹This would be consistent with Stulz (1999), who argues that corporate governance should improve after a liberalization as domestic firms get more scrutiny from foreign investors.

Second, by focusing on the governance of non-financial firms, I give up the possibility of saying anything about bank governance. Bank governance in emerging markets has also been criticized in the wake of the Asian financial crisis of 1997-98. Of course, bank governance is heavily influenced by government regulation, which is why it is usually studied separately from governance of non-financial firms.

It is important to keep in mind that these findings do not imply that corporate governance in emerging markets is perfect. Indeed, the results I present may contain some seeds of concern for the future of emerging market corporate governance. The importance of earnings-based measures of performance for emerging markets, compared to stock-market-based measures, is similar to what Kaplan (1994a) found for Japan. Events in the 1990s suggest that, while the link between CEO turnover and corporate performance in Japan was broadly similar to that in the U.S. in the 1980s, the Japanese corporate governance system may not be similar to the U.S. system along other dimensions, such as preventing firms in declining industries from overinvesting. Gibson (2000) suggests that, while Japan's corporate governance system worked well in Japan's high growth period of the 1960s and 1970s, its flaws contributed to the poor performance of the Japanese economy in the 1990s. As emerging markets continue to grow and become more integrated into the global economy, more research will be needed to see if their corporate governance systems also mature.

References

- Abe, Yukiko (1997), "Chief executive turnover and firm performance in Japan," *Journal of the Japanese and International Economies* 11:1 (March), 2-26.
- Chhibber, Pradeep K. and Sumit K. Majumdar (1999), "Foreign ownership and profitability: Property rights, control, and the performance of firms in Indian industry," *Journal of Law and Economics* 42:1 (April), 209-238.
- Chung, Kee H. and Jeong-Kuk Kim (1999), "Corporate ownership and the value of a vote in an emerging market," *Journal of Corporate Finance* 5:1 (March), 35-54.
- Claessens, Stijn and Simeon Djankov (1999a), "Enterprise performance and management turnover in the Czech Republic," *European Economic Review* 43:4-6 (April), 1115-24.
- Claessens, Stijn and Simeon Djankov (1999b), "Ownership concentration and corporate performance in the Czech Republic," *Journal of Comparative Economics* 27:3 (September), 498-513.
- Claessens, Stijn, Simeon Djankov, and Larry H.P. Lang (1999), "Who controls East Asian corporations?" World Bank Policy Research Paper 2054 (February).
- Claessens, Stijn, Simeon Djankov, Joseph P.H. Fan and Larry H.P. Lang (1999), "Expropriation of minority shareholders: Evidence from East Asia," World Bank Policy Research Paper 2088 (March).
- Coombes, Paul and Mark Watson (2001), "Giving new life to the corporate governance reform agenda for emerging markets," *Directorship* 27:7 (September), 4-8.
- Denis, David J. and Diane K. Denis (1995), "Performance changes following top management dismissals," *Journal of Finance* 50:4 (September), 1029-1057.
- Denis, David J., Diane K. Denis, and Atulya Sarin (1997), "Ownership structure and top executive turnover," *Journal of Financial Economics* 45:2 (August), 193-221.
- Demirgüç-Kunt, Asli and Ross Levine (1995), "Stock Market Development and Financial Intermediaries: Stylized Facts," *World Bank Economic Review* 10:2 (May), 291-321.
- Domowitz, Ian, Jack Glen and Ananth Madhavan (2001), "Liquidity, volatility and equity trading costs across countries and over time," *International Finance* 4:2, 221-255.
- Engardio, Pete (2002), "The era of blind investment is over," *Business Week* (March 11, 2002), 50.

- Gibson, Michael S. (2000), “‘Big Bang’ deregulation and Japanese corporate governance: A survey of the issues”, in Takeo Hoshi and Hugh Patrick, eds., *Crisis and Change in the Japanese Financial System*, Kluwer Academic Publishers.
- Harvey, Campbell R. (1995), “Predictable risk and returns in emerging markets,” *Review of Financial Studies* 8:3 (Fall), 773-816.
- Hoshi, Takeo, Anil Kashyap and David Scharfstein (1990), “The role of banks in reducing the costs of financial distress in Japan,” *Journal of Financial Economics* 27:1 (September), 67-88.
- Hosmer, David W., and Stanley Lemeshow (1989), *Applied Logistic Regression*, New York: John Wiley & Sons.
- Johnson, Simon, Peter Boone, Alasdair Breach, and Eric Friedman (2000), “Corporate governance in the Asian financial crisis,” *Journal of Financial Economics* 58:1-2, 141-186.
- Kang, Jun-Koo and Anil Shivdasani (1995), “Firm performance, corporate governance, and top executive turnover in Japan,” *Journal of Financial Economics* 38:1 (May), 29-58.
- Kaplan, Steven N. (1994a), “Top executive rewards and firm performance: A comparison of Japan and the United States,” *Journal of Political Economy* 102:3 (June), 510-546.
- Kaplan, Steven N. (1994b), “Top executives, turnover and firm performance in Germany,” *Journal of Law, Economics and Organization* 10:1 (April), 142-59.
- Kaplan, Steven N. (1997), “Corporate governance and corporate performance: A comparison of Germany, Japan, and the U.S.,” in Donald H. Chew, ed., *Studies in International Corporate Finance and Governance Systems*, New York: Oxford University Press.
- Khanna, Tarun and Krishna Palepu (1999), “Emerging market business groups, foreign investors, and corporate governance,” NBER Working Paper 6955 (February).
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer (1999), “Corporate ownership around the world,” *Journal of Finance* 54:2 (April), 471-517.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (1997), “Legal determinants of external finance,” *Journal of Finance* 52:3 (July), 1131-1150.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (1998), “Law and finance,” *Journal of Political Economy* 106:6 (December), 1113-55.

- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (1999), "Investor protection: Origins, consequences, reform," Financial Sector Discussion Paper No. 1, The World Bank (September).
- Lins, Karl V. (2000), "Equity ownership and firm value in emerging markets," working paper, Kenan-Flagler Business School, University of North Carolina at Chapel Hill (January).
- Macey, Jonathan R. (1997), "Institutional investors and corporate monitoring: A demand-side perspective," *Managerial and Decision Economics* 18, 601-610.
- Mikkelson, Wayne H. and M. Megan Partch (1997), "The decline of takeovers and disciplinary managerial turnover," *Journal of Financial Economics* 44:2 (May), 205-228.
- Mobius, Mark (2001), "Good governance is a global challenge," *Corporate Board* 22:131 (November), 1-4.
- Morck, Randall, Andrei Shleifer, and Robert W. Vishny (1988), "Management ownership and market valuation: An empirical analysis," *Journal of Financial Economics* 20:1/2 (January/March), 292-315.
- Morgan Stanley Capital International (1998), *Methodology and Index Policy* (March).
- Parrino, Robert (1997), "CEO turnover and outside succession: A cross-sectional analysis," *Journal of Financial Economics* 46:2 (November), 165-97.
- Pregibon, Daryl (1981), "Logistic regression diagnostics," *The Annals of Statistics* 9:4, 705-724.
- Sarkar, Jayati and Subrata Sarkar (1998), "Large shareholder activism in corporate governance in developing countries: Evidence from India," working paper, Indira Gandhi Institute of Development Research (July).
- Shleifer, Andrei and Robert W. Vishny (1997), "A survey of corporate governance," *Journal of Finance* 52:2 (June), 737-83.
- Stulz, René M. (1999), "Globalization of equity markets and the cost of capital," working paper, Ohio State University (February).
- Warner, Jerold B., Ross L. Watts, and Karen H. Wruck (1988), "Stock prices and top management changes," *Journal of Financial Economics* 20:1/2 (January/March), 461-492.
- Weisbach, Michael S. (1988), "Outside directors and CEO turnover," *Journal of Financial Economics* 20:1/2 (January/March), 431-460.

Table 1. Titles used to identify the top manager

Brazil

CEO
President
Managing Director/Superintendent
Chairman

Chile

Chief Executive
General Manager - CEO
Managing Director - CEO
President - Chairman, Executive Board
Chairman - Board

India

CEO
Managing Director
Chairman
President
General Manager

Korea

CEO
President
Chairman
Representative Director
Senior Managing Director

Malaysia

CEO
President
Chief Executive
Managing Director
Chairman

Mexico

CEO
President
Managing Director
General Director
Chairman
General Manager

Taiwan

Chief Executive
President
General Manager
Chairman
Director

Thailand

CEO
Chairman of Executive Board
Chairman
President
Managing Director
Chairman, Board of Directors

Table 2. Summary statistics on CEO turnover for firms in emerging markets

Data cover all non-financial firms present in the Worldscope database from Brazil, Chile, India, Korea, Malaysia, Mexico, Taiwan, and Thailand as of October 1998. CEO turnover refers to a change in the identity of the firm's CEO (or equivalent top manager, as discussed in the text) from the previous fiscal year. The firm's CEO is identified in the Worldscope database. Firms with missing data on CEO turnover were dropped from the analysis.

	Number of firms	Number of firm-years	Fraction of firm-years with CEO turnover
A. Entire Sample	1,204	2,683	0.122
B. By country			
Brazil	116	288	0.076
Chile	56	143	0.175
India	260	644	0.104
Korea	143	281	0.135
Malaysia	267	570	0.174
Mexico	71	168	0.101
Taiwan	99	164	0.055
Thailand	192	425	0.120
C. By year			
1993		99	0.030
1994		317	0.073
1995		703	0.128
1996		930	0.125
1997		634	0.151
D. By firm size (book value of assets, in US dollars)			
Less than 25 million		293	0.061
Between 25 million and 2 billion		2,109	0.127
Greater than 2 billion		281	0.153

Table 3. Summary statistics on performance measures

Data cover all non-financial firms present in the Worldscope database from Brazil, Chile, India, Korea, Malaysia, Mexico, Taiwan, and Thailand as of October 1998. All variables are measured in local currency. Earnings/Assets is EBIT (earnings before interest and taxes) for the fiscal year divided by end-of-fiscal year assets. Δ Earnings/Assets is EBIT less last year's EBIT, divided by end-of-last-fiscal-year's assets. Stock market return is total return, from Worldscope, less the continuously compounded return on the MSCI country index for the firm's country. Both returns are measured over the firm's fiscal year. Sales growth is the log difference in sales.

	Median	Mean	Standard Deviation	Number of firm-years
Earnings/Assets	.081	.086	.094	2,633
Δ Earnings/Assets	.011	.022	.17	2,470
Stock market return	-.044	.037	.61	2,356
Sales growth	.14	.19	.43	2,540

Table 4. Logit regressions of CEO turnover on a single firm performance measure

Results from four logit regressions of CEO turnover on four different firm performance measures for the pooled sample from all eight emerging market countries. In addition to a single performance measure, all regressions included a constant term, dummy variables for firms with assets less than USD 25 million and assets greater than USD 2 billion, and year, country, and industry dummies, whose coefficients are not reported. The pseudo R^2 is defined as $1 - L/L_0$, where L is the logit regression's log-likelihood and L_0 is the log-likelihood of a logit regression whose only explanatory variable is a constant. The logit regression goodness-of-fit test is that of Hosmer and Lemeshow (1989), with the data divided into ten groups. It is distributed as χ^2_8 . The number of firm-years varies across the five regressions because of missing data. The critical value for a 5% one-tailed t-test is 1.65.

Performance measure	Logit coefficient (t-value)	Pseudo R^2	Goodness of fit statistic (p-value)	Number of firm-years
Earnings/Assets	-1.9 (-3.1)	0.048	8.4 (0.40)	2,633
Δ Earnings/Assets	-1.5 (-2.1)	0.042	7.3 (0.50)	2,470
Stock market return	-0.24 (-1.6)	0.048	11.7 (0.17)	2,356
Sales growth	-0.53 (-2.6)	0.044	10.2 (0.25)	2,540

Table 5. The effect of firm ownership and legal origin on the link between CEO turnover and firm performance

Results of eight logit regressions of CEO turnover on four different firm performance measures, allowing the coefficient on performance to differ according to the identity of the firm's large shareholder and according to the legal origin of the firm's country. The variable LARGEOWNER equals one if the firm has a large shareholder owning more than 20 percent of the firm's equity, and zero otherwise. Firms with foreign or government large shareholders and firms with more than one large shareholder are not included in these regressions. The variable CIVILLAW equals one if the firm comes from a civil law country, and zero otherwise. Civil law countries are Brazil, Chile, Korea, Mexico, and Taiwan. Common law countries are India, Malaysia, and Thailand. A constant term, intercept terms for LARGEOWNER (in the first four regressions) or LARGEOWNER, CIVILLAW, and LARGEOWNER×CIVILLAW (in the last four regressions), dummy variables for firms with assets less than USD 25 million and assets greater than USD 2 billion, and dummy variables for year, country and industry were included in each regression but their coefficients are not reported.

Performance measure	Logit coefficients (t-values)				Sum of logit coefficients on Performance and Performance × LARGEOWNER	Number of firms
	Performance	Performance × LARGEOWNER	Performance × CIVILLAW	Performance × LARGEOWNER × CIVILLAW		
Earnings/Assets	-2.9 (-3.6)	3.1 (2.0)			0.1 (0.1)	2,151
ΔEarnings/Assets	-2.9 (-3.0)	3.5 (2.4)			0.5 (0.5)	2,085
Stock market return	-0.34 (-1.6)	0.15 (0.5)			-0.19 (-0.8)	1,923
Sales growth	-0.8 (-2.8)	0.6 (1.4)			-0.2 (-0.8)	2,143

Table 5, continued.

Performance measure	Logit coefficients (t-values)				Sum of logit coefficients on Performance and Performance × LARGEOWNER	Number of firms
	Performance	Performance × LARGEOWNER	Performance × CIVILLAW	Performance × LARGEOWNER × CIVILLAW		
Earnings/Assets	-4.1 (-3.8)	3.5 (2.0)	2.9 (1.8)	0.75 (0.2)	-0.60 (-0.4)	2,151
ΔEarnings/Assets	-4.6 (-3.5)	5.6 (3.1)	3.6 (2.0)	-5.8 (-1.7)	0.93 (0.8)	2,085
Stock market return	-0.43 (-1.5)	0.13 (0.3)	0.21 (0.5)	-0.03 (-0.1)	-0.30 (-0.8)	1,923
Sales growth	-1.1 (-3.1)	1.0 (2.1)	0.8 (1.4)	-1.4 (-1.6)	-0.09 (-0.3)	2,143

Figure 1. Predicted probability of CEO turnover as a function of firm performance

The predictions are based on the regressions shown in Table 4. The predictions are made setting the other independent variables in the regression—the dummy variables for year, country, and industry—to their means in the regression sample. The dotted lines show pointwise 95 percent confidence intervals for the predicted probabilities. The box-and-whiskers plot above the horizontal axis shows the empirical distribution of that performance variable in the regression sample. The box is drawn from the 25th percentile to the 75th percentile, with the median shown as a vertical line through the box. The “whiskers” extend out from the box to the 5th and 95th percentiles.

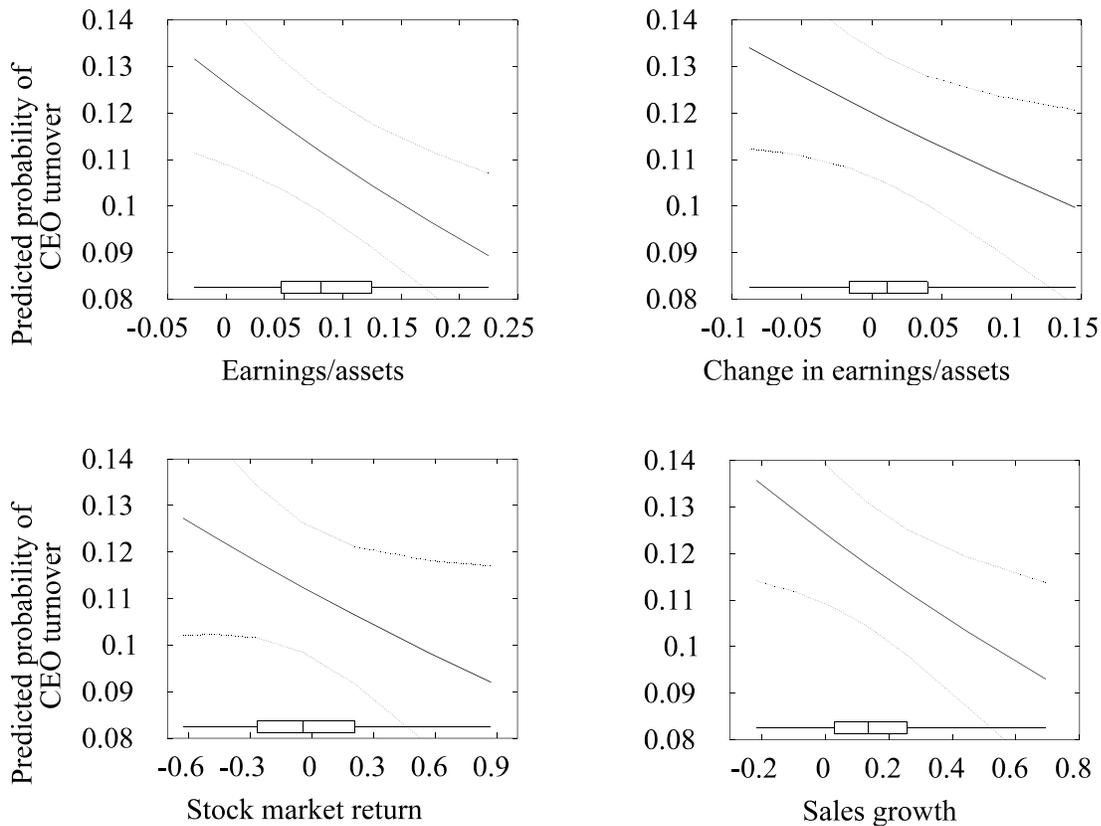


Figure 2. Sensitivity of CEO turnover to firm performance in emerging markets and the United States.

For emerging markets (solid line) and the United States (dashed line), the graphs show the predicted probability of CEO turnover as a function of firm performance. The predictions for emerging markets use the logit regressions reported in Table 4; those for the United States use the linear regressions reported in Table 2, column 3 of Kaplan (1994). Pointwise 95 percent confidence intervals for the emerging markets predicted probabilities are shown as dotted lines.

