Boards Characteristics Around the World[☆]

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Abstract

Using a novel board dataset covering 54 countries, 35,000 publicly listed firms, and more than 500,000 executive and non-executive directors over the 1998-2010 period, this paper provides large-scale international evidence on board composition. We document large differences in board size, director busyness, CEO pay slice, and female board representation across our sample countries. We further show that board busyness, CEO pay slice and the fraction of female board members have increased over time. Previous studies have also been likely to overestimate female board membership. Finally, based on a hand-collected dataset with 791 forced and 1,983 voluntary CEO turnover events, we report that a CEO's termination probability differs from country to country.

Keywords: Corporate governance, boards, busyness, firm value, investor protection
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1. Introduction

Currently, international evidence on board structures and board dynamics is relatively scarce.[1] One possible reason for this is data availability. Most board databases focus on the U.S. and the U.K (e.g., ExecuComp, BoardEx). Outside these countries, they often only include the largest firms and therefore, researchers have to collect board data manually, reducing technically feasible sample sizes considerably.

In this paper, we overcome this problem by using a novel dataset which covers 54 countries, 35,000 publicly listed firms, and more than 500,000 executive and non-executive directors over the 1998-2010 period.[2]. Thus, the firms included in this dataset can be considered as representative for listed firms of the specific countries. Data on firms' board members is retrieved from Thomson Reuters. Based on this dataset, we are – to the best of our knowledge – one of the first to provide large-scale international evidence on board structures.

We find that there are vast differences in board size across the countries in our sample. In the U.S., average board size amounts to 12. This value is comparable to previous studies such as Yermack (1996) and Coles et al. (2008), strengthening confidence in the reliability of our dataset. In contrast, board size is lowest in countries such as the United Kingdom, Indonesia, and Australia and highest in Mexico and Spain. We further show that board busyness, which refers to the observation that many directors hold multiple board positions at the same time, is relatively low in our sample, which is likely due to the fact that board busyness decreases with firm size (e.g., Cashman et al., 2012). Nevertheless, board busyness has increased considerably over time. There is also evidence that the importance of the CEO, as approximated by the CEO pay slice (CPS), defined as 'the fraction of the aggregate compensation of the firm's top-five executive team captured by the chief executive officer" (Bebchuk et al., 2011, p. 199), varies across countries. In the U.S., for instance, mean CPS is at about 0.35, while it is 0.45 in France or 0.59 in Switzerland.

[1] Notable exceptions are Defond and Hung (2004), de Andres et al. (2005), Dahya et al. (2008), Lel and Miller (2008), and Adams and Kirchmaier (2012).

[2] Throughout this paper, we use the terms "board member" and "director" interchangeably.

Based on 250,000 firm-years, we also observe that female board representation may in fact be lower than suggested by previous research because prior studies (e.g., Desvaux et al., 2007) are tilted toward large firms. In this regard, we show that the fraction of female board members is positively associated with firm size. Overall, we find that women account for about 10% of all board members (median: 6%). We also document an increase in female board membership from 8% in 1998 to 11% in 2011. Finally, we show that board size and board busyness are negative related to firm performance, while the opposite holds true for female board representation. This finding, however, may be subject to endogeneity and has to be treated with caution.

Besides looking at board structures, we also obtain data on CEO turnover from official press releases and news articles to examine board dynamics. We collect one of the largest datasets on both voluntary and forced CEO turnover with about 3,000 turnover events in 23 countries over the 1998-2010 period. We document large differences in the fraction of forced turnovers across countries and find that firm size is positively associated with CEO turnover, while the relation between turnover and profitability and firm growth is negative.

The remainder of this paper is organized as follows. In Section 2, we explain how we select and prepare our dataset. In Section 3, we provide descriptive statistics for our board sample. In Section 4, we examine possible drivers of board structure. Finally, in Section 5, we present evidence on voluntary and involuntary CEO turnover.

2. Sample Construction

For our empirical analysis, we retrieve a novel international board dataset from Thomson Reuters, which provides extensive information about corporate board members such as past and current firm affiliations, education, biographies, and compensation. Our sample comprises all non-financial firms (SIC code between 6000 and 6999) with common stock. Using Thomson Reuters' Entity Key[3] we match our board data with the Worldscope database and exclude observations

[3]The Entity Key (e.g., C000001989 for General Electric) is an identifier within Thomson Reuters that uniquely identifies a firm.

with negative sales, common stock, or cash dividends. We further drop observations where losses exceed total assets and cash dividends exceed sales.

We carefully screen the raw data and eliminate data errors related to M&A transactions. In some cases, Thomson Reuters replaces a target firm's board data with board data of the acquiring firm. Therefore, directors may be affiliated with an acquired firm, although they held no board seat in this firm prior to the acquisition. These observations can easily be identified because both the target and the acquiring firm exhibit the same affiliations consisting of a unique director identification number, the start and the end date related to the board position, and a short description of that position (e.g., "Chief Executive Officer"). Having found these duplicate affiliations, we determine target firms with wrong affiliation data by using the company status footnote (WC00000) from Worldscope, merger data from SDC Platinum, and director biography information and remove these firms from the sample.

After this procedure, our final sample covers 54 countries, 35,000 publicly listed firms, 250,000 firm-years, and 500,000 executive and non-executive directors over the 1998-2010 period, resulting in the largest board sample that is currently available. Summary statistics for firm financial variables and their definitions are given in Panel A in Table 1. Even after the exclusion of financial firms, our board sample covers about 70% of the worldwide market capitalization of listed firms, which totals $54 trillion in 2010 according to the World Bank.[4]

3. Descriptive Analysis

In this section, we provide large-scale international evidence on board structures. In particular, we look at four board variables that have controversially been debated in previous literature: board size (e.g., Yermack, 1996; Boone et al., 2007; Coles et al., 2008), board busyness (e.g., Ferris et al., 2003; Fich and Shivdasani, 2006; Field et al., 2013), CEO pay slice (e.g., Bebchuk et al., 2011),

[4]When we include financial firms, our board sample covers about 89% of the worldwide market capitalization of listed firms in 2010.

and the percentage of female directors (e.g., Adams and Ferreira, 2009; Adams and Funk, 2012; Ahern and Dittmar, 2012).

3.1. Board Size

First, we examine board size around the world. Beginning with Yermack (1996), many researchers examined the determinants and implications of board size. Yermack (1996) argues that firms with smaller boards have a higher market valuation, better financial ratios, and exhibit a stronger CEO turnover-performance sensitivity. Boone et al. (2007) find that board size increases as firms grow and diversify over time. Nevertheless, they conclude that "much of the variation in board structures remains unexplained" (Boone et al., 2007, p.67). Our international data set allows us to examine the impact of country effects such as investor protection on board size, possibly helping to explain how firms decide on the design of their boards. Finally, Coles et al. (2008) show that more complex firms with greater advising requirements than simple firms have larger boards with more outside directors.

We define board size as the number of both executive and non-executive directors that are in charge at a firm's fiscal year end date. We consider both executive and non-executive directors to improve the comparability across countries with dual and sole board systems.[5]

Alternatively, one could also examine either executive or non-executive directors only. This approach, however, is difficult to implement in the context of an international board study because the roles of directors vary considerably across countries, as illustrated by the following example.

In the U.S., for instance, there is only one board that consists of both inside and outside ("independent") directors. Inside directors typically are directors with a meaningful connection to the organization such as executives or shareholders, while outside directors are non-executive directors with no "material relationship" with the firm that would interfere with "independent judgment" (e.g., Duchin et al., 2010).

[5] See Adams and Ferreira (2007) for a short overview of board systems across various countries.

In contrast, the German Stock Companies Act ("Aktiengesetz") legislates a dual board system comprising an executive and a supervisory board. Supervisory board members are non-executive directors who – similar to outside directors in the U.S. – primarily monitor and advise the firm's executives. The German Stock Companies Act, however, does not prevent supervisory board members from being stockholders of the firm. Furthermore, in German stock companies with more than 2,000 employees, 50% of the supervisory board members have to be employees of the firm, which is also in sharp contrast to the classical definition of independent directors according to the Sarbanes-Oxley Act of 2002 or the demands of the NYSE and Nasdaq.

Therefore, if one wishes to investigate the role of outside directors as a part of the whole corporate board in the U.S. and Germany at the same time, one must not simply treat members of the supervisory board as outside directors as defined in the U.S. Instead, one has to manually identify members of German supervisory boards that are not affiliated with the firm either as shareholders (or employees). This approach, as suggested by Dahya et al. (2008), however, would drastically reduce our sample size because data on ownership structures is not readily available and hard to compile. Furthermore, Thomson Reuters does not always distinguish outside directors from other non-executive ("gray") or executive directors and it only reports, for instance, that a board member is affiliated as a "director" with the firm. From this information, however, one cannot reliably infer whether a person is an executive or non-executive board member and because of the sample size, large-scale manual adjustments are not feasible.

As a result of the limited comparability of board roles across countries and this database-related restriction within Thomson Reuters, we look at both executive and non-executive directors at the same time.

Table 2 provides aggregate summary statistics for board size, while Tables 3 and 4 show the distribution of board size across countries and over time, respectively. Figure 1 also plots average board size across the 54 countries in our sample.

The U.S. and Japan account for only about one third of our sample observations, which is

quite low compared to other large-scale international corporate governance studies.[6] We therefore believe that the distribution of our sample across countries is relatively balanced and not tilted toward U.S. firms.

Average board size amounts to 11.86, while the median is 10. For the U.S., average and median board size equal 12.28 and 12, respectively. These values are comparable to other studies such as Yermack (1996) and Coles et al. (2008). In the United Kingdom, average board size is 8.39. In related studies, Dahya et al. (2002) and Guest (2008) report an average board size of 7.29 and 7.18 in the United Kingdom over the 1993-1996 and 1981-2002 periods, respectively, which is only slightly lower than the observed board size in our sample. These numbers suggest that the overall data quality within Thomson Reuters is comparable to previous board studies focusing on single countries.

There is also considerable variation in board size across the countries in our sample. The standard deviation of board size, provided in Table 2 is 7.05. Average board size in Mexico, for instance, amounts to 23.31, the highest value in our sample. Other countries with large boards are Chile, Spain, and Turkey with average board size exceeding 18. The smallest boards, on average, can be found in Australia, Germany, and the United Kingdom.

Table 4 and Figure 6 provide an overview of the evolution of average board size over time. Over the full sample period, average board size is relatively constant at about 12, while the median is 10. Also note that the annual number of observations almost has doubled from 12,000 in 1998 to 22,500 in 2010. This is largely driven by the increasing inclusion of firms from developing countries such as China and India in the Thomson Reuters database.

3.2. Busyness

In this section, we provide international evidence on board busyness, which refers to the observation that many directors hold multiple board positions at the same time. Beginning with Ferris

[6] Brockman and Unlu (2009), for instance, report that the U.S. and Japan represent about 50% of their sample observations.

et al. (2003), many studies have controversially debated on the costs and benefits related to board busyness. According to Fama and Jensen (1983) multiple directorships reflect director quality because better directors are expected to be offered additional board seats more frequently. In line with this "certification view", busy directors should therefore positively affect firm value. Kaplan and Reishus (1990), for instance, show that executives of companies reducing their dividends are less likely to receive additional directorships. Brickley et al. (1999) report that retiring CEOs in firms with better performance prior to their retirement hold more outside board positions. More recently, Field et al. (2013) find that IPO firms benefit from the expertise of busy directors on their boards, helping them to navigate public markets.

In contrast, holding many directorships simultaneously reduces the amount of time a director can spend on a given firm. Over-commitment of busy directors in combination with limited information processing ability may then result in poor managerial decision-making or insufficient monitoring through non-executive directors (Carpenter and Westphal, 2001) and thereby cause bad firm outcomes. Core et al. (1999), for example, find that CEOs at firms with greater agency problems, approximated by board busyness, are paid excessively. In addition, Fich and Shivdasani (2006) show that firms in which the majority of directors hold multiple directorships exhibit lower market-to-book ratios, weaker profitability, and lower sensitivity of CEO turnover to firm performance. Jiraporn et al. (2009) report that the number of outside board seats is positively related to the probability to be absent from board meetings. Thereby, they provide evidence on a possible channel through which board busyness results in lower firm performance. Sharma (2011) argues that busyness decreases the ability of independent directors to monitor dividend policy. In line with their hypothesis, they find a negative relation between busyness and dividend payouts. Finally, Cashman et al. (2012) try to disentangle contradictory findings on board busyness by comparing different empirical designs and datasets. On balance, they find a negative relation between firm performance and director busyness.

Overall, it appears that there are mixed findings on the costs and benefits of busy directors,

although more recent evidence suggests that these results stem from differences in sample selection as well as empirical methodologies and that busyness is indeed negatively associated with firm performance (Cashman et al., 2012).

Columns 5 and 6 of Table 3 indicate that a member of the average board in the sample holds 1.35 directorships, while the median amounts to 1.19.[7] For the U.S., these values are of comparable magnitude (1.34 and 1.25, respectively), but they are still lower than in other U.S. studies, which is possibly driven by two reasons. First, our sample firms are on average smaller compared to other studies on board busyness and previous evidence (e.g., Cashman et al., 2012) shows that busyness increases with firm size. Average (median) total assets for U.S. firms equal $1,842 and $190 million, respectively, while Cashman et al. (2012) reports an average number of directorships of 1.99 for S&P 500 firms (median total assets: $7,039 million) and 1.47 for non-S&P 500 firms (median total assets: $792 million). Second, while most U.S. studies focus on outside or independent directors, we look at both executive and non-executive directors and the literature suggests that outside directors are busier than executive directors. Ferris et al. (2003), for example, show that outside directors (1.89) hold more directorships than the average board member (1.60). Therefore, compared to other U.S. studies, overall busyness in our sample is comparably low.

To deal with this issue, we define board busyness as the fraction of both executive and non-executive directors on a firm's board with more than one outside position at a firm's fiscal year end date.[8] Furthermore, both positive and negative effects associated with board busyness arise with the director's second directorship. On the one hand, the first additional directorship may already reflect a director's quality since he may not have been awarded another position if he were unsuccessful. On the other hand, according to Yermack (2002), a conscientious outside director spends about 250 hours a year on company business, reducing the disposable time the director can

[7] When calculating the number of outside directorships per board member, we also take firms into account that do not meet our sample selection criteria (e.g., financial firms).

[8] The results are robust to various alternative specifications of board busyness such as the inclusion of outside directorships that ended during a firm's fiscal year.

spend on his or her affiliations considerably, possibly resulting in negative effects of busyness.[9]

Column 7 of Table 3 indicates that 18% of all directors are busy. The median is only 13%. Nevertheless, there is considerable variation across the countries in our sample with the standard deviation being 0.20 (Table 2). Mean busyness is highest in Luxembourg (0.44), where directors hold on average 2.55 directorships at the same time. Other countries with high levels of board busyness are Canada, the Philippines, and the Russian Federation where about 30% of the directors hold at least two board seats. In contrast, board busyness is lowest in Japan, Qatar, Slovakia, and Slovenia where less than 10% of the board members are considered as busy. A graphical illustration of the countries in our sample and the distribution of busyness across countries can also be found in Figure 2.

9% of the boards in our sample consist of 50% or more busy directors (Column 9).[10] Because of our adopted definition of director busyness, this value is comparable to the evidence in recent studies by Cashman et al. (2012) and Masulis and Mobbs (2012) who report that 9% and 12% of all boards are busy, respectively.[11]

Again, Table 4 and Figure 6 provide an overview of the evolution of busyness over time. It appears that busyness increased considerably over time. In 1998, directors held about 1.25 positions at the same time. This value has increased almost linearly to 1.39 in 2010. Similarly, while in 1998 only 14% of all directors held at least two positions at the same time, more than 20% of all board members have been busy in 2010. Thereby, the percentage of busy boards has almost doubled from 5.74% in 1998 to 10.43% in 2010.

[9] Nevertheless, our main results are robust to classifying a director only as busy when he holds at least three directorships at the same time. The results are available upon request.

[10] As a result of the low busyness levels in the sample, the median values for the Busy Board variable are zero in each country.

[11] If one only considered directors as busy if they held three or more board positions at the same time, only about 2% of all boards could be classified as busy.

3.3. CEO Pay Slice

Next, we look at the CEO Pay Slice (CPS). CPS is "the fraction of the aggregate compensation of the firm's top-five executive team captured by the chief executive officer" (Bebchuk et al., 2011, p. 199). It measures the relative power of the CEO and his or her ability to extract rents from the firm. Bebchuk et al. (2011) find that CPS is correlated with lower levels of Tobin's Q, lower stock returns accompanying acquisitions announced by the firm, and a lower CEO turnover-performance sensitivity. Thereby, Bebchuk et al. (2011) conclude that CPS likely serves as a measure of agency problems.

To calculate CPS, we have to identify the chief executive officers of the firms in our sample. We therefore rely on position titles provided in Thomson Reuters. Overall, our database covers more than 220,000 unique position titles such as "Chief Executive Officer" or "Director". This number is surprisingly large because many position titles are aggregates of several titles such as "Chief Executive Officer, Chief Operating Officer, Director" or contain names of subsidiaries or regional responsibilities (e.g., "Advisor to the President and CEO, Director of Business Development, Responsible for Asia Pacific").

Based on this procedure, we are now able to calculate CPS based on director compensation data in Thomson Reuters, which comprises salaries, bonus, and all other compensation. However, as Thomson Reuters does not always distinguish executive from non-executive directors as stated above, we simply calculate CPS as the fraction of the aggregate compensation of the firm's top-five earners captured by the CEO, without discriminating between executive and non-executive directors. When calculating the CPS, we follow Bebchuk et al. (2011) and only consider firm-years in which a single CEO was in office for the entire fiscal year. We also drop firm-years in which we do not have compensation data for at least five directors.

Summary statistics for CPS can be found in Tables 2 to 4, while Figures 3 and 6 provide graphical illustrations. Despite a lower overall availability of compensation data, our CPS sample comprises still more than 29,000 observations. Thus, it is more than three times greater than the

sample by Bebchuk et al. (2011), which covers about 9,000 observations. Mean CPS is 0.37, while the median is 0.35. Its standard deviation equals 0.14.

For the U.S., we were able to collect 18,000 observations for the CPS. The average CPS amounts to 0.35, while the standard deviation is 0.11. These values are very close to the ones reported in Bebchuk et al. (2011) (0.36 and 0.11, respectively), suggesting that compensation data is of high quality in the Thomson Reuters database. CPS is highest Luxembourg and Sweden where it equals about 70%. We observe the lowest values for CPS in Argentina, Indonesia, and Taiwan, with CPS being at about 20%. Overall, it appears that the coverage of compensation data is quite low in Asia. Our CPS sample, for instance, consists of only three observations for Japan. In contrast, Japan accounts for about 15% of our 254,000 observations related to director affiliations.

Table 4 also indicates that the availability of compensation data has steadily increased over time. In 1998, our CPS sample consists of 1,000 observations. This number increased to more than 3,000 in 2010. It also appears that the average CPS increased from 0.32 in 1998 to 0.40 in 2010, suggesting that CEOs were able to extract a higher portion of the compensation paid to the top-five earners. In line with the reasoning by Bebchuk et al. (2011), this may indicate that CEO power has increased over time and that agency problems related to rent extraction by CEOs have severed.

3.4. Female directors

In this section, we provide descriptive statistics on female board representation. As women currently constitute only a small fraction of corporate board members, the introduction of mandatory quotas and their impact on firm performance are debated controversially. Recent evidence by Ahern and Dittmar (2012), for instance, suggests that the introduction of a 40% quota in Norway was followed by a large decline in Tobin's Q in firms that had to increase female board representation. According to the authors, this is because firms had to appoint female directors relatively quickly and thereby the quota led to younger and less experienced boards.

In the following, we provide large-scale evidence on the presence of women on corporate boards across 54 countries and over time. In doing so, we shed additional light on the extent of female (under)representation and on how female board representation differs across countries. Up to now, there is only scarce international evidence on female board representation and this evidence is based on rather small samples which generally consist of only the largest firms. This casts doubt on the extent to which these results can be generalized to smaller firms because female board representation in smaller firms could, for example, be lower as result of lower media awareness, suggesting that actual female underrepresentation could even be lower. Adams and Kirchmaier (2012), the largest study we are currently aware of, employ a sample of firms resided in 22 countries obtained from BoardEx. BoardEx coverage for non-U.S. and non-UK firms, however, is relatively low. As of summer 2011, for example, BoardEx covered only 244 German firms and 371 Chinese firms. In contrast, our sample comprises data on female board representation in 791 German and 2,118 Chinese firms, reducing concerns about the representativeness of our sample.

We measure female board representation as the fraction of female directors on a firm's board at the end of the fiscal year. Before doing so, however, we have to determine the gender of the directors in our dataset because Thomson Reuters does not provide us with this information. We therefore follow a four-step procedure to identify each board member's gender.[12] First, we extract gender-indicating titles from the directors' biographies such as "Mr.", "Mrs." or "Ms.". We also search for equivalent Hindu honorific titles such as "Shr." ("Mr.") or "Smt." ("Mrs.") in biographies of Asian board members. In a second step, we search directors' biographies for pronouns such as "he", "she", "him", or "her". Third, we match directors' forenames with gender-specific lists of forenames, carefully paying attention to forenames that are not necessarily gender-specific (e.g., Kim) or whose gender differs across countries (Andrea, for instance, is a female

[12] A similar approach has been employed by Ahern and Dittmar (2012).

forename in Germany and a male forename in Italy).[13] In case of several forenames, we match each forename separately and decide on a director's gender based on the majority of male or female forenames. Finally, we aggregate the results from the previous three steps and manually check differing classifications from the previous three steps. We also manually search the gender for directors we could not classify up to now. Overall, this procedure results in more than 16,000 manual adjustments.

Based on the above approach, we are able to classify 440,000 directors (about 90% of all directors in our sample) either as male or female. Summary statistics for the fraction of female of board members are provided in Tables 2 to 4, while Figures 4 and 6 provide graphical illustrations. Overall, we find that women constitute on average 10% of all board members (median value: 0.06). These values are based on more than 250,000 firm-years.

In most countries, women account for about 10% of all board members or less. Notable exceptions are Korea, the Philippines, and Slovenia with a female board representation exceeding 20%. In Norway, only about 19% are women although Norway required all public-limited firms to have at least 40% female directors effective January 1, 2006. This figure is surprisingly low relative to the mandatory quota of 40% because our sample period already starts in 1998. Furthermore, this effect is also driven by the design of the Norwegian quota, which only affects supervisory board members, while we take both supervisory board members and officers simultaneously into account (cf. Section 3.1). Even in 2010, however, Norwegian female board representation was only at about 25% in our sample, indicating that there are less female officers than supervisory board members in Norway because otherwise we would expect 40% or more female board members. Nevertheless, our data shows that the quota led to an increase in female board representation from 11% in 1998 to 25% in 2010.

Figure 6 and Table 4 also suggest that the fraction of female board members has increased over the full sample period. In 1998, for instance mean and median female board representation

[13] A full list of gender-indicating titles and sources for male and female forenames are available upon request.

amounted to 0.08 and 0.00, respectively, while in 2010 these figures increased to 0.11 and 0.08, respectively. In the U.S., for instance, the fraction of female directors increased from 0.07 in 1998 to 0.10 in 2010. In contrast, in Germany, female board representation is relatively constant at about 0.05 during our sample period.

In line with the above reasoning, we also provide evidence that female board representation is lower compared to previous studies because these studies are tilted toward large firms. In Sweden, for instance, we find that, based on 329 observations, average female board membership amounted to 16.26%. In contrast, Adams and Kirchmaier (2012) report based on 95 observations obtained from BoardEx that women on Swedish boards accounted for 23.3% of all board members in 2010. Similar observations hold true for Canada, Denmark, and Norway. Based on data by the European Commission, Desvaux et al. (2007) show that governing bodies of the top 50 listed companies in 13 European countries were made of 11% women in 2006. Using data on 5,480 firms in 11 European countries in 2006, we find that women represented only 9.08% of all board members.[14]

4. Determinants of Board Structure

In the following, we provide first insights on the determinants of board structure. We therefore regress our four board variables on various firm characteristics and country-level variables such as inflation rates or gross domestic product per capita. Summary statistics for these variables can be found in Panel B of Table 1. We also include a set of country, industry, and year dummies in our regression models.[15] The results are given in Table 5. T-values based on White (1980) standard errors clustered at the firm-level are given in parentheses. All ratios based on financial data have been winsorized at the 1% level.

[14] In contrast to the study by Desvaux et al. (2007), we do not cover Latvian and Bulgarian firms. If one calculated the average female board representation based on single-country averages reported in Desvaux et al. (2007), average female board representation amounted to 12% in the other 11 countries.

[15] We assign each firm to one of the 49 industry portfolios by Kenneth R. French based on the firm's 4-digit SIC code. See http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/.

The first specification in Table 5 is based on a OLS specification with board size as the dependent variable. Not surprisingly, we find a positive relation between firm size, approximated as the natural logarithm of total assets in millions of $US, and board size. Leverage, defined as total debt deflated by total assets, is negatively correlated with board size. Interestingly, profitability, given by the ratio of earnings before interest and taxes, and board size are negatively related with each other with a *t*-value of -8.23, suggesting that smaller boards are associated with better operating performance. This finding is in line with Yermack (1996) and de Andres et al. (2005) who argue that increases in board size are followed by inefficient decision-making and weaker monitoring through outside directors, resulting in lower performance. Furthermore, firms with lower growth rates also have larger boards, which is in accordance with Boone et al. (2007) who show for a sample of U.S. firms that board size increase as firms grow and diversify over time.

We further find that the adjusted R^2 increases from 0.31 to 0.39 when we add country dummies, even after the inclusion of inflation, GDP per capita, and market capitalization to GDP, suggesting that unobserved country effects help to explain a substantial amount of variance in board size. It therefore would be interesting to examine the impact of country-level determinants of investor protection on board size.[16]

Next, we examine possible drivers of board busyness. The results for a pooled tobit specification are given in Model II of Table 5. We find a positive and highly significant relation between firm size and board busyness (*t*-value of 54.64), suggesting that larger firms have busier boards. This finding is in line with evidence by Cashman et al. (2012) for a sample of U.S. firms. Furthermore, the relation between profitability and the fraction of busy directors is negative (*t*-value of -6.67), suggesting that higher levels of board busyness are associated with lower operating performance, possibly because over-commitment of busy directors. This finding is in accordance with Fich and Shivdasani (2006) and Cashman et al. (2012). Besides profitability, leverage, retained

[16]Possible measures for investor protection are law origin, disclosure requirements, protection against anti-self-dealing, or anti-director rights indices (e.g., La Porta et al., 1998, 2006; Djankov et al., 2008; McLean et al., 2012).

earnings, and tangibility are also negatively related to board busyness.

In Model III we look at determinants of CPS. In line with Bebchuk et al. (2011), we find that CPS is positively associated with profitability (t-value of 6.92). Firm size and leverage are also positively correlated with CPS, while the opposite holds true for high-growth firms.

Finally, in the last column of Table 5, we perform tobit regressions of the fraction of female board members on our firm-level variables. We find that female board representation is positively related to firm size, suggesting that in smaller firms less women are corporate board members. This is in accordance with the reasoning in Section 3.4. Prior studies focusing on only the largest firms thus are likely to overestimate female board representation.

Furthermore, women on corporate boards are also positively associated with operating performance. This effect is of high statistical significance (t-value of 4.11). Nevertheless, this finding has be interpreted with caution because the evidence in Table 5 may be subject to endogeneity due to reverse causality and omitted variable bias.

In Table 6, we repeat the regressions from Table 5, but we now split our sample into U.S. and non-U.S. firms. Overall, the evidence reported in Table 5 also holds in both subsamples with one notable exception. The positive and significant relation between profitability and female board representation cannot be found in the U.S. Interestingly, the negative association between either board size or busyness and profitability that has been documented in many studies on U.S. firms is also prevalent outside the U.S.

5. CEO Turnover

In the last section of this paper, we provide international evidence on board dynamics by investigating involuntary CEO turnover. Previous research shows that better governed boards are more likely to terminate poorly performing CEOs. By threatening to replace underperforming CEOs, investors and boards can signal the presence of efficient internal control mechanisms and thereby discipline the CEO and, ultimately, increase firm performance again in case of low profitabil-

ity (e.g., Weisbach, 1988; Hazarika et al., 2012; Jenter and Kanaan, 2013; Eisfeldt and Kuhnen, 2013). Weisbach (1988), for instance, finds a stronger relation between prior performance and the likelihood of resignation for firms with outsider-dominated boards than for firms with insider-dominated boards. Dahya et al. (2002) show that, after the Cadbury Committee introduced the *Code of Best Practice*, which was, among other things, meant to increase the fraction of outside board members, the turnover-performance sensitivity in U.K. firms rose significantly. Fich and Shivdasani (2006) report that independent but busy boards exhibit CEO turnover-performance sensitivities that are not different from those of boards dominated by insiders.

There are also two large-scale international studies on CEO turnover. Using a sample of 21,483 firm-year observations in 33 countries over the 1997 to 2001 period, Defond and Hung (2004) show that strong law enforcement institutions improve the turnover-performance sensitivity. Furthermore, Lel and Miller (2008) test the benefits of U.S. investor protections with respect to the corporate governance of cross-listed firms. They report that firms resided in countries with weak investor protection that are cross-listed on a major U.S. Exchange are more likely to fire poorly performing CEOs than non-cross-listed firms.

These studies, however, do not distinguish voluntary from involuntary CEO turnover. We therefore hand-collect data on forced and voluntary CEO turnovers in 23 countries in our sample. Since it is not feasible to obtain information on CEO turnover for the full sample described above, we follow the approach in Dahya et al. (2008) and select the 70 firms with the largest market capitalization per country and year and track them over the entire 1998-2010 period. This procedure results in a turnover sample of 3,178 firms.

Based on job descriptions, biographies, and officer titles provided in annual reports and other press releases, and other information provided in databases such as Thomson Reuters, LexisNexis, and BoardEx, we are able to identify 5,398 CEOs. For each departing CEOs, we determine whether he left the firm voluntarily or not. To distinguish between forced and voluntary turnover, we stick to the classification rules described in Huson et al. (2001) and Hazarika et al. (2012).

A turnover is classified as forced when the CEO was explicitly fired, forced out, or departed due to policy differences. For the remaining cases, turnover events are supposed to be forced if the departing CEO is under the age of 60 and (i) death, poor health, or the acceptance of another position, elsewhere or within the firm, cannot be identified as reason for the departure, or (ii) the "retirement" of the CEO has not been announced at least six months before the succession and the departing CEO does not take another position elsewhere or does not leave for personal or business reasons that are unrelated to the firm's activities. We also exclude turnover events that are related to M&A transactions and CEO turnovers where the departing CEO was in the firm for less than one year.

Table 7 reports summary statistics for our turnover dataset. Overall, we identify 2,896 turnover events, whereof 791 or 27.31% can be classified as forced. Our turnover dataset is therefore one of the largest samples on CEO successions that distinguishes voluntary from forced CEO turnovers.[17] For the U.S., we find that about 26% of total turnovers can be classified as forced, which is comparable to the values reported in Hazarika et al. (2012) and Jenter and Kanaan (2013). Table 7 and Figure 5 also suggest that the fraction of forced turnover differs considerably across countries. Forced CEO turnover is lowest in Mexico (about 9%) and Japan (about 14%) and highest in Germany and Austria (about 40%). Panel B of Table 7 shows that the number of turnover events per year increases over time, which is primarily driven by an increasing sample and better information availability. The fraction of forced turnovers, however, is relatively constant between 25 and 30%.

Figure 7 depicts firm performance, approximated as earnings before interest and taxes to total assets, around voluntary and forced turnover events, which take place in year t. The graph suggests that, in the two years before a CEO is fired, firm performance decreases by more than 50%, while, in the two years following the turnover, it almost arrives at the old level again. As expected,

[17] The samples by Hazarika et al. (2012) and Jenter and Kanaan (2013), for instance, comprise a total of 1,637 and 1,627 turnovers, respectively.

firm performance does not change materially around voluntary successions because these turnover events should be unrelated to the CEO's efforts. We therefore conclude that our algorithm allows us to reliably distinguish voluntary from forced successions.

The changes in performance around the departures of fired CEOs in Figure 7 indicate that terminating CEOs may be a proper strategy to deal with bad firm performance. In Table 8, we therefore test whether firms fire CEOs for bad performance. In Model I, we perform pooled logit regressions of CEO turnover on firm characteristics and a set of industry, country, and year dummies. The dependent variable is a dummy variable that takes a value of one if a CEO leaves and zero otherwise; i.e., we treat voluntary and involuntary turnovers the same in this part of the table.

As suggested by previous literature and Figure 7, we find a lower probability of CEO turnover when profitability is high. The coefficient for profitability is negative and highly significant (z-value of -11.43). There is also a negative and significant relation between turnover and sales growth (z-value of -6.32), suggesting that in firms with better growth opportunities CEOs leave less frequently. Finally, there is a positive and significant association between turnover and firm size (z-value of 6.29). Thus, larger firms, are more likely to terminate CEOs.

In Model II, we exploit the discrimination between forced and voluntary turnovers and look at forced successions only. The dependent variable now takes a value of one if a CEO is forced to leave the firm and zero otherwise. Overall, the results in Model II are very similar to the ones presented in Model I. Most notably, however, the coefficient for the profitability variable increases in magnitude by almost 50%. This does not come as a surprise because voluntary CEO turnover should be unrelated to firm performance.

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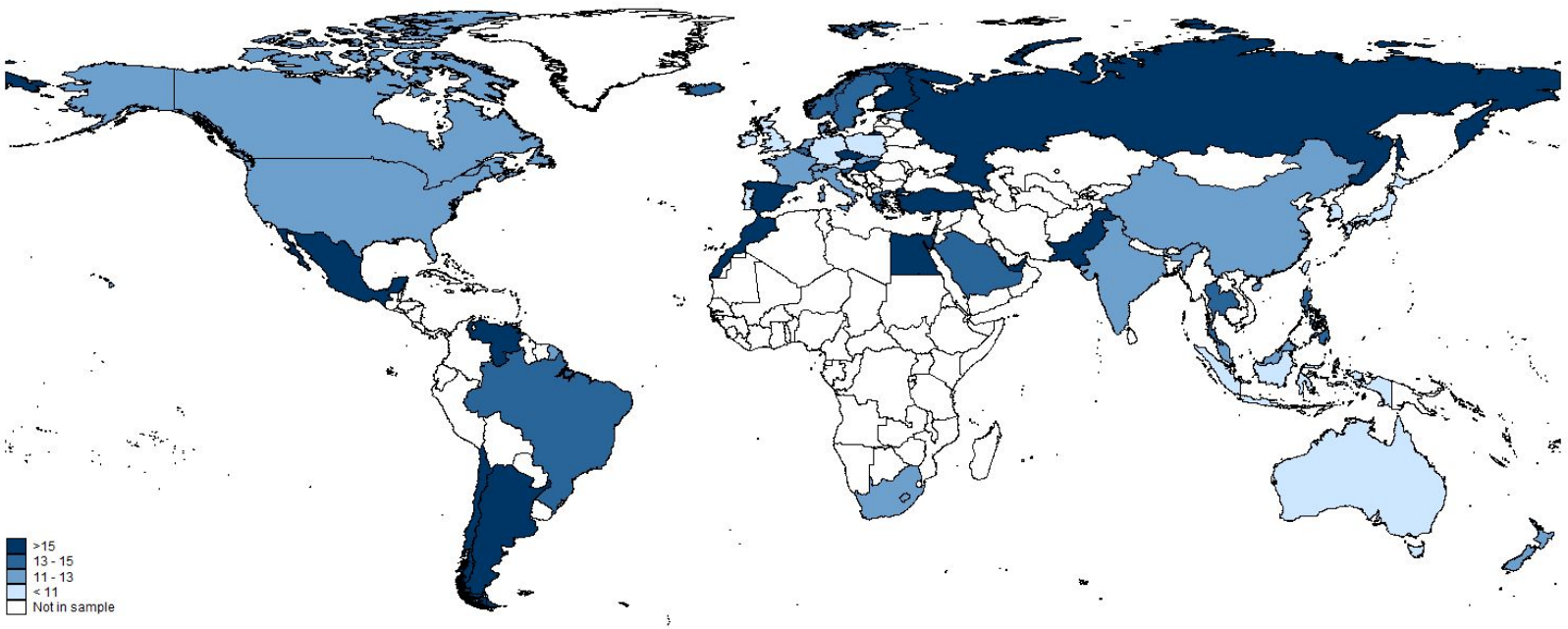

Figure 1: The figure shows the countries included in the sample and average board size over the 1998-2010 period across all firms within that country. Board Size is the number of both executive and non-executive directors at a firm's fiscal year end date.

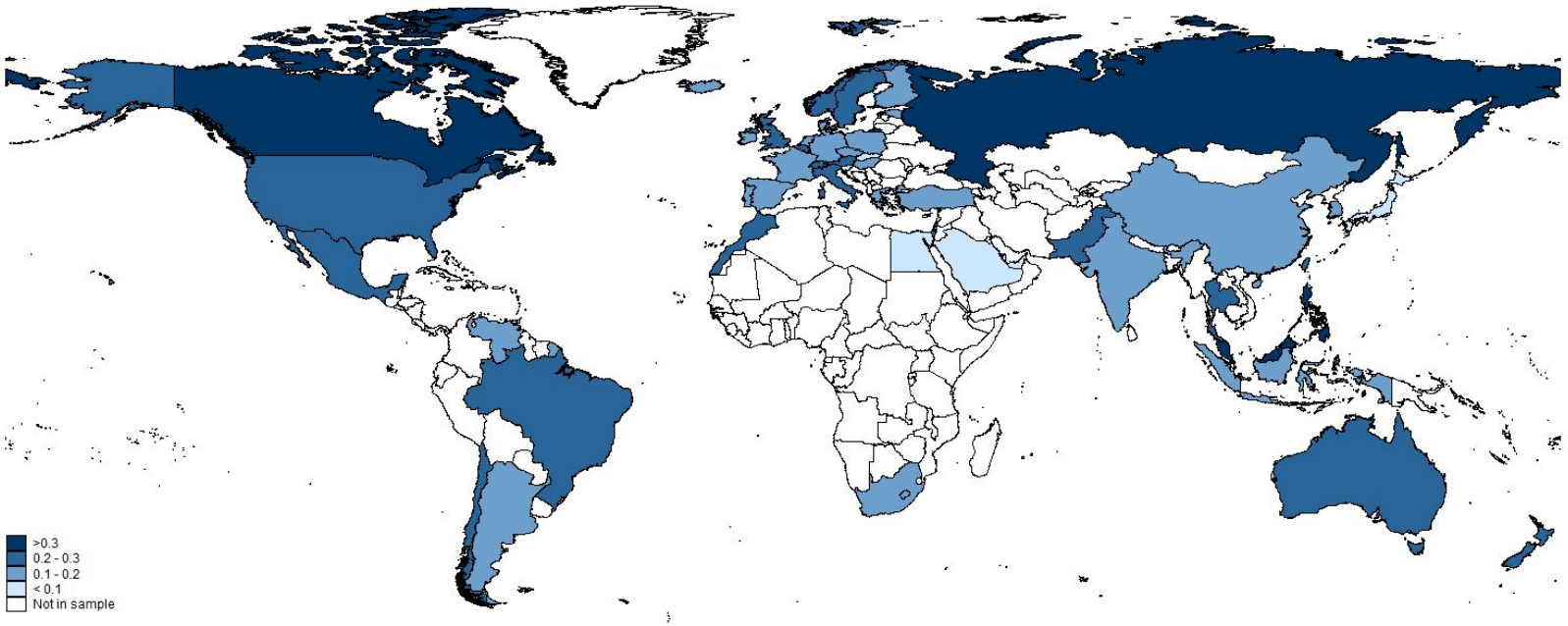

Figure 2: The figure shows the countries included in the sample and average busyness over the 1998-2010 period across all firms within that country. Busyness refers to the fraction of directors with more than one directorship at a firm's fiscal year end date.

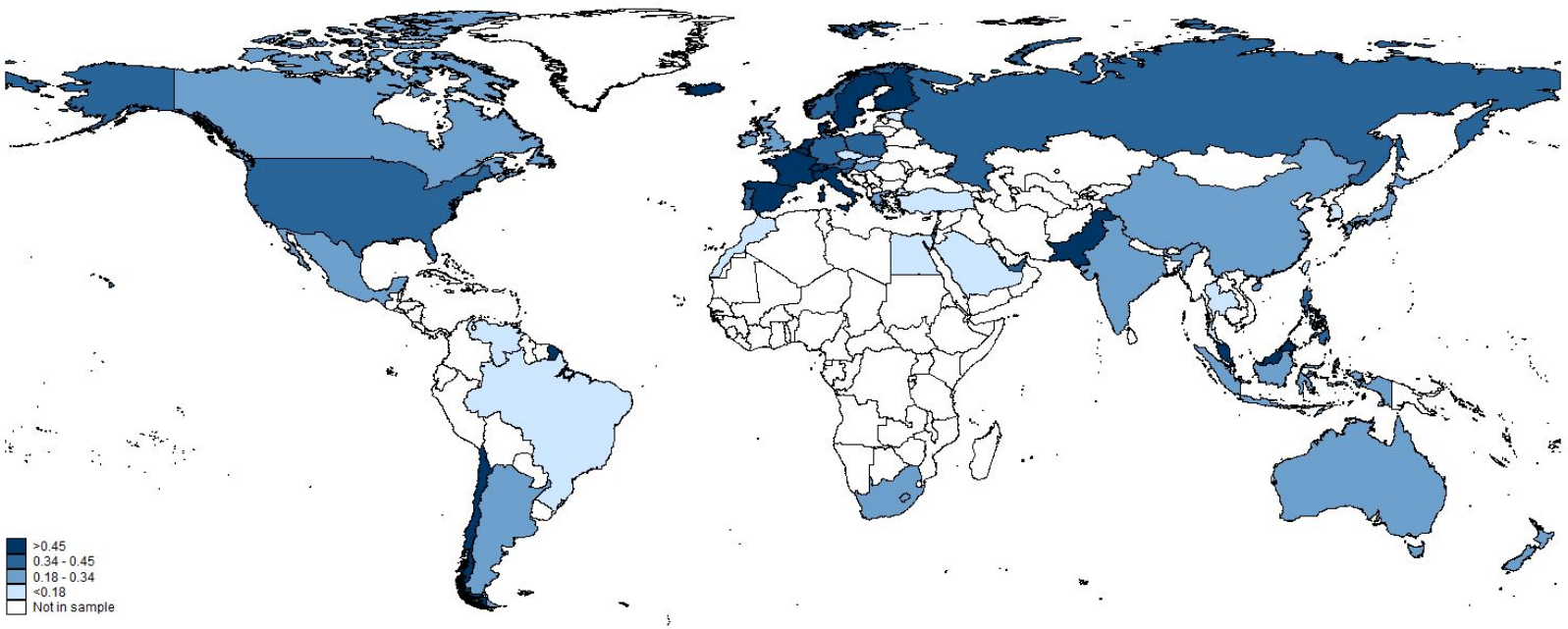

Figure 3: The figure shows the countries included in the sample and average CPS over the 1998-2010 period across all firms within that country. CPS is the CEO play slice, defined as the ratio of CEO total compensation to the sum of all top directors' total compensation.

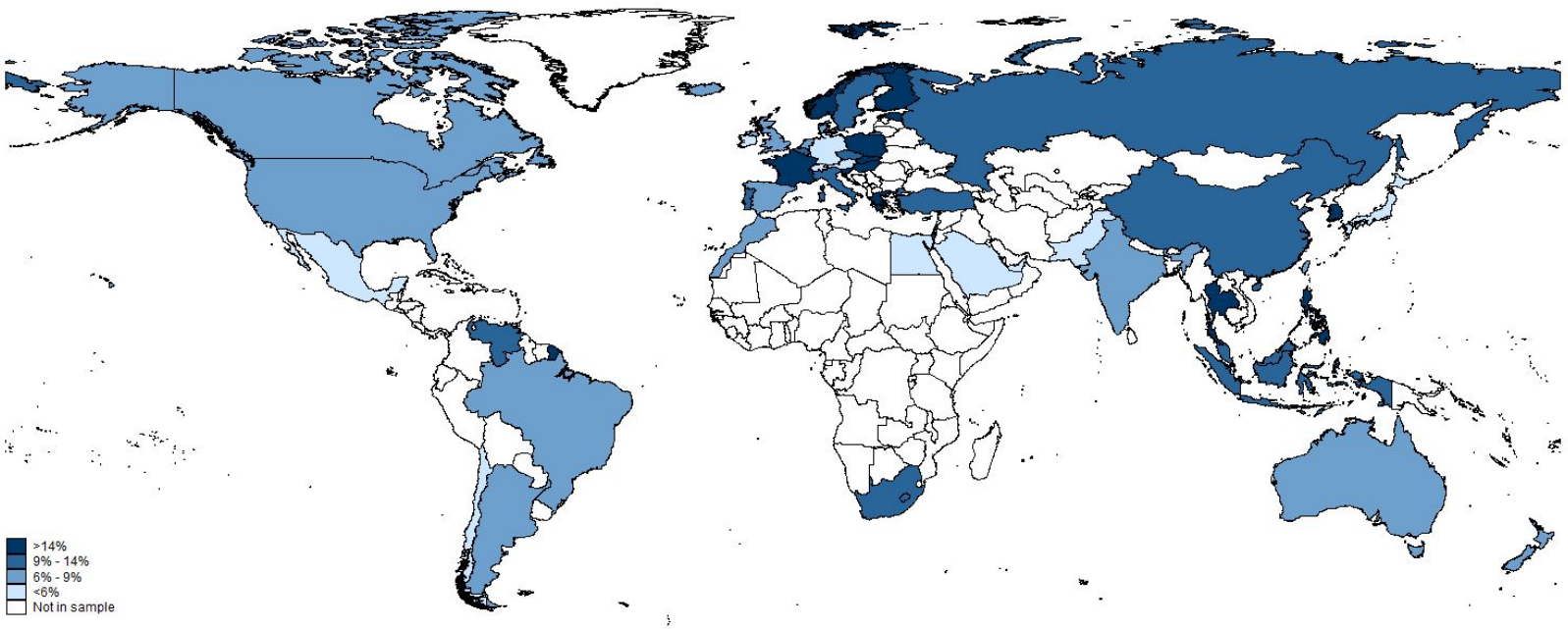

Figure 4: The figure shows the countries included in the sample and the average fraction of women on corporate boards over the 1998-2010 period across all firms within that country

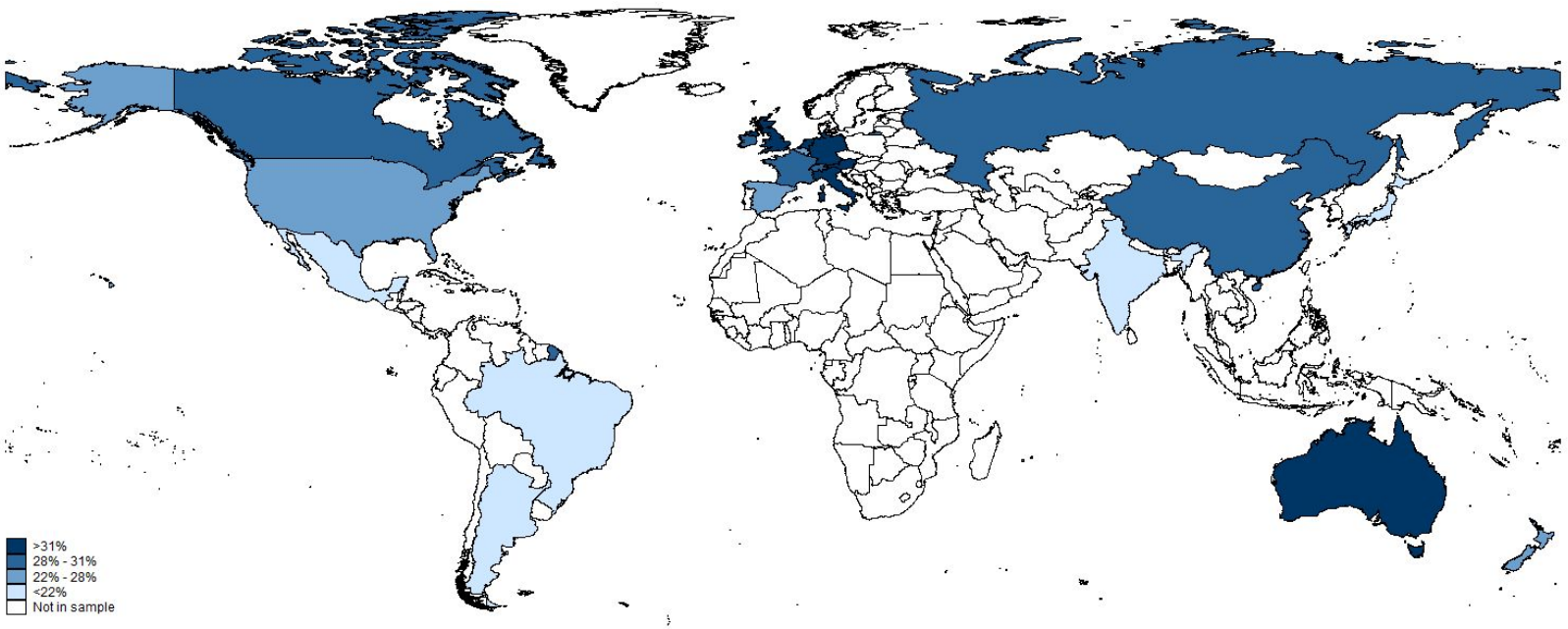

Figure 5: The figure shows the countries included in the turnover sample and the average fraction of forced CEO turnovers over the 1998-2010 period across all firms within that country.

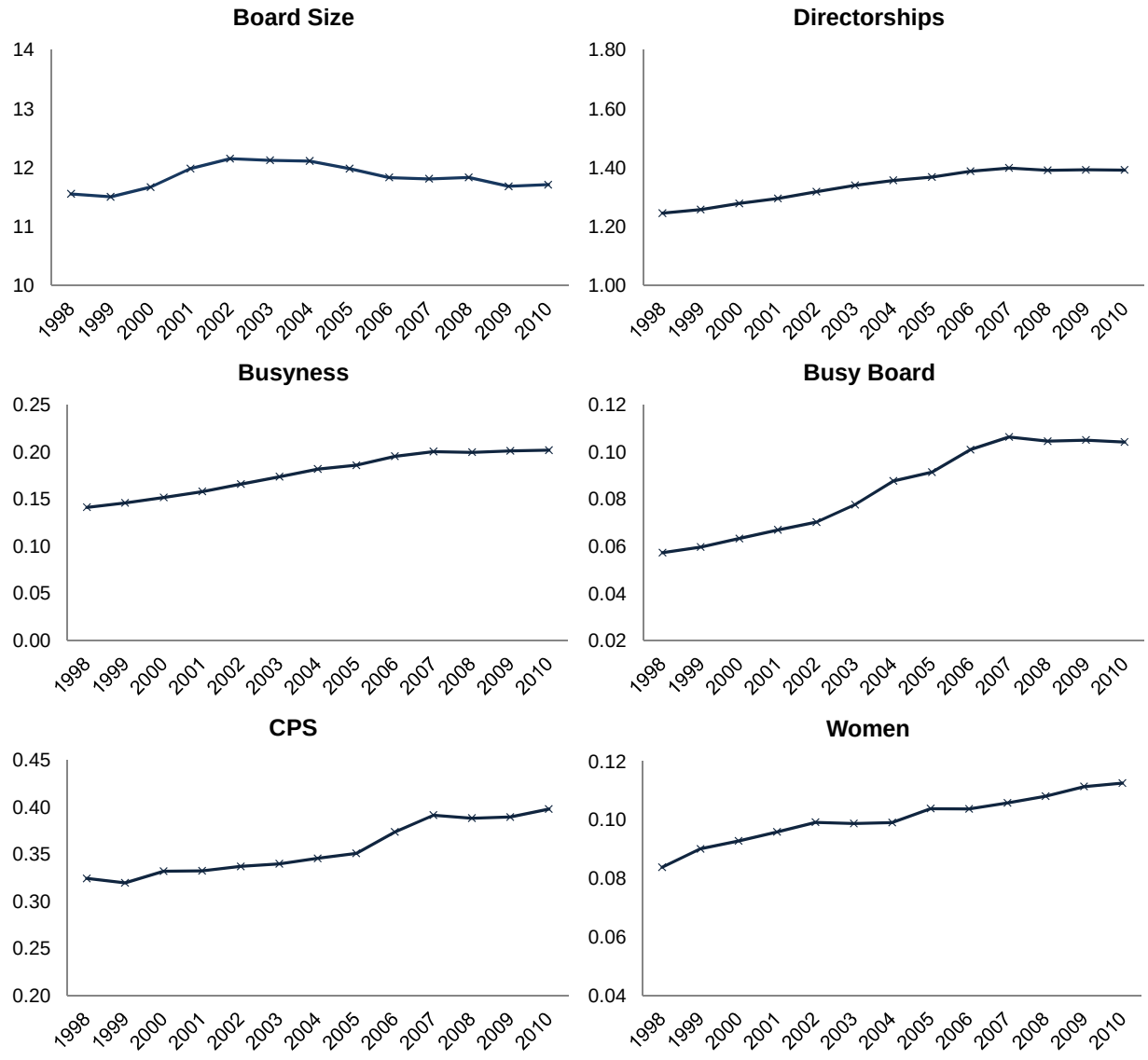

Figure 6: This figure shows changes for a selection of board variables over the 1998-2010 period. Board Size is the number of both executive and non-executive directors at a firm's fiscal year end date. Directorships is the average number of directorships per board member. Busyness refers to the fraction of directors with more than one directorship at a firm's fiscal year end date. Busy Board is an indicator variable which is set to one if the majority of board members is busy and zero otherwise. CPS is the CEO play slice, defined as the ratio of CEO total compensation to the sum of all top directors' total compensation. Women is the fraction of women on a firm's board.

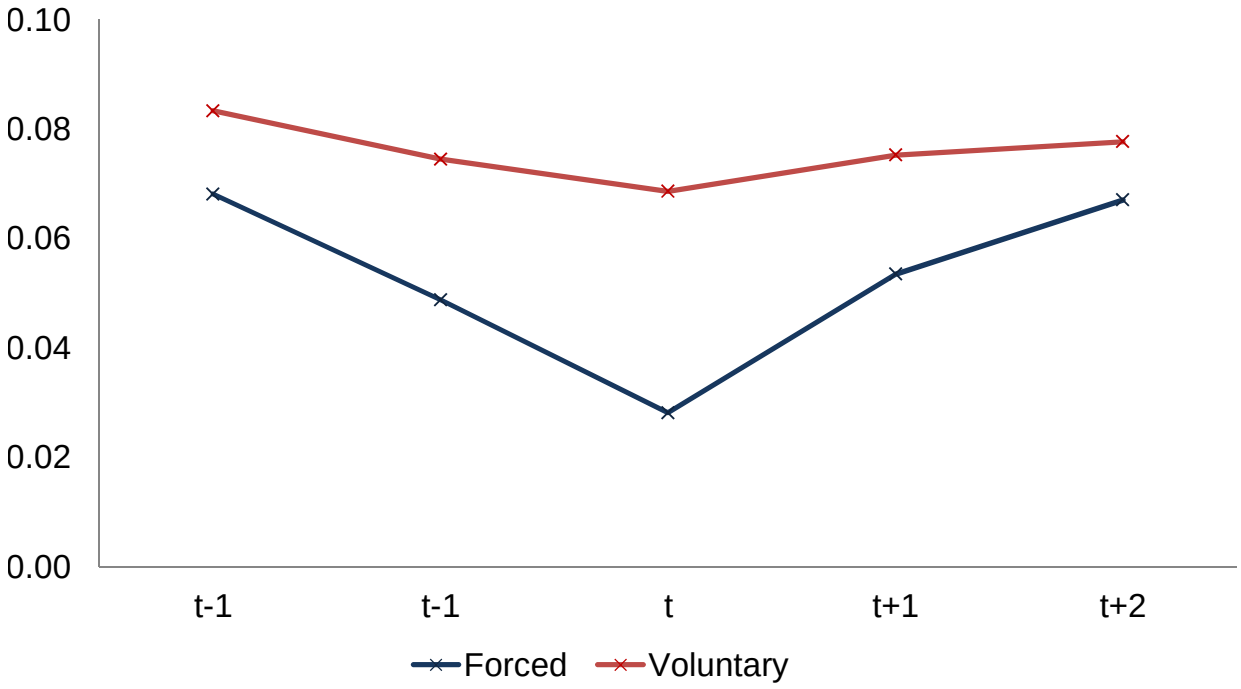

Figure 7: The figure shows profitability, approximated as earnings before interest and taxes to total assets, around voluntary and forced CEO turnovers. *t* denotes the year of the turnover event.

Table 1: Sample descriptive statistics.

This table provides summary statistics over the 1998-2010 period. Panel A refers to firm-level data and Panel B to country-level data. Size is total assets (WC02999) in millions of $US. Leverage is book leverage defined as total debt (WC03255) deflated by total assets. Profitability is earnings before interest and taxes (WC18191) to total assets. Retained earnings is retained earnings (WC03495) deflated by total assets. Tangibility is defined as net property, plant, and equipment (WC02501) deflated by total assets. Growth is the one-year logarithmic sales (WC01001) growth. Inflation, GDP per Capita, and Market Capitalization to GDP are obtained from the World Bank. Ratios are winsorized at the 1% level.

Variable	*N*	**Mean**	1^{st} **Quartile**	**Median**	3^{rd} **Quartile**	**SD**
			Panel A: Firm-level data			
Size	300,326	1,138.22	35.60	128.24	499.24	3,749.04
Leverage	299,712	0.2107	0.0299	0.1807	0.3416	0.1881
Profitability	292,281	0.0301	0.0026	0.0552	0.1071	0.1647
Retained Earnings	267,790	-0.1636	-0.0746	0.0823	0.2489	1.1054
Tangibility	299,108	0.3136	0.1102	0.2714	0.4710	0.2390
Growth	268,530	0.1219	-0.0413	0.0965	0.2458	0.3869
			Panel B: Country-level data			
Inflation	300,083	0.0269	0.0092	0.0221	0.0339	0.0408
GDP per Capita	302,125	22,867	6,333	25,191	36,539	14,028
Market Cap/GDP	302,089	1.0723	0.6178	1.0029	1.3507	0.7402

Table 2: Summary statistics for the board variables.

This table shows descriptive statistics for the board variables for the 54 countries in the sample. The sample period is from 1998 to 2010. Board Size is the number of both executive and non-executive directors at a firm's fiscal year end date. Directorships is the average number of directorships per board member. Busyness refers to the fraction of directors with more than one directorship at a firm's fiscal year end date. Busy Board is an indicator variable which is set to one if the majority of board members is busy and zero otherwise. CPS is the CEO play slice, defined as the ratio of CEO total compensation to the sum of all top directors' total compensation. Women is the fraction of women on a firm's board.

Variable	*N*	**Mean**	1^{st} **Quartile**	**50%**	3^{rd} **Quartile**	**SD**
Board Size	254,947	11.8554	7.0000	10.0000	15.0000	7.0466
Directorships	254,947	1.3506	1.0000	1.1875	1.5000	0.4925
Busyness	254,947	0.1814	0.0000	0.1333	0.2857	0.1961
Busy Board	254,947	0.0879	0.0000	0.0000	0.0000	0.2831
CPS	29,033	0.3684	0.2778	0.3452	0.4307	0.1421
Women	254,097	0.1019	0.0000	0.0588	0.1538	0.1432

Table 3: Summary statistics for the board variables across countries.

This table shows descriptive statistics for the board variables across the 54 countries in the sample. The sample period is from 1998 to 2010. Board Size is the number of both executive and non-executive directors at a firm's fiscal year end date. Directorships is the average number of directorships per board member. Busyness refers to the fraction of directors with more than one directorship at a firm's fiscal year end date. Busy Board is an indicator variable which is set to one if the majority of board members is busy and zero otherwise. CPS is the CEO play slice, defined as the ratio of CEO total compensation to the sum of all top directors' total compensation. Women is the fraction of women on a firm's board.

	Variables related to director affiliations								**Other board variables**					
		Board Size		**Directorships**		**Busyness**		**Busy Board**	**CPS**			**Women**		
Country	*N*	Mean	50%	Mean	50%	Mean	50%	Mean	*N*	Mean	50%	*N*	Mean	50%
Argentina	732	15.66	13	1.19	1.11	0.14	0.10	0.07	4	0.25	0.25	732	0.07	0.06
Australia	12,841	9.03	8	1.65	1.42	0.29	0.25	0.22	1,558	0.34	0.33	12,840	0.06	0.00
Austria	824	10.42	9	1.41	1.27	0.24	0.18	0.13	32	0.39	0.36	824	0.04	0.00
Belgium	1,144	14.93	13	1.41	1.31	0.23	0.20	0.09	44	0.64	0.74	1,144	0.09	0.07
Brazil	1,055	14.01	13	1.42	1.27	0.23	0.17	0.13	0			1,055	0.07	0.04
Canada	10,431	11.59	10	1.73	1.54	0.33	0.29	0.25	1,897	0.32	0.31	10,427	0.07	0.03
Chile	1,651	18.15	17	1.58	1.38	0.23	0.18	0.13	4	0.47	0.41	1,651	0.05	0.03
China	18,045	12.91	13	1.25	1.20	0.14	0.13	0.01	237	0.27	0.26	18,001	0.12	0.10
Czech Republic	228	15.67	13	1.12	1.07	0.11	0.07	0.02	0			228	0.12	0.08
Denmark	1,315	12.43	11	1.30	1.21	0.19	0.17	0.05	40	0.50	0.50	1,315	0.08	0.06
Egypt	744	17.94	16	1.06	1.00	0.05	0.00	0.01	0			744	0.05	0.00
Estland	67	10.87	10	1.17	1.07	0.15	0.07	0.10	0			67	0.16	0.12
Finland	1,375	16.29	15	1.29	1.23	0.19	0.17	0.05	254	0.65	0.70	1,375	0.14	0.13
France	7,422	11.84	10	1.27	1.07	0.14	0.06	0.08	694	0.45	0.41	7,422	0.14	0.11
Germany	7,152	9.23	7	1.30	1.20	0.19	0.17	0.09	695	0.41	0.39	7,152	0.05	0.00
Greece	2,994	14.54	13	1.17	1.07	0.11	0.06	0.04	5	0.33	0.41	2,994	0.15	0.13
Hong Kong	8,578	14.21	13	1.51	1.36	0.23	0.18	0.13	725	0.33	0.30	8,563	0.14	0.13
Hungary	324	15.39	13	1.16	1.08	0.12	0.08	0.03	1	0.18	0.18	322	0.17	0.14
Iceland	51	13.92	14	1.17	1.13	0.12	0.11	0.00	14	0.49	0.42	51	0.08	0.08
India	13,856	11.72	10	1.45	1.25	0.19	0.14	0.10	121	0.29	0.28	13,841	0.07	0.00
Indonesia	2,910	9.00	8	1.29	1.17	0.19	0.14	0.11	1	0.21	0.21	2,872	0.12	0.06
Ireland	641	10.82	9	1.33	1.20	0.19	0.14	0.11	64	0.34	0.31	641	0.05	0.00
Isreal	1,622	14.22	13	1.59	1.40	0.26	0.22	0.14	46	0.37	0.35	1,622	0.14	0.13
Italy	2,449	12.93	11	1.40	1.25	0.21	0.15	0.13	581	0.46	0.42	2,449	0.09	0.08
Japan	39,693	10.46	8	1.06	1.00	0.04	0.00	0.01	3	0.29	0.31	39,332	0.03	0.00
Korea	13,088	10.61	9	1.15	1.07	0.11	0.06	0.04	0			12,994	0.39	0.39
Luxembourg	252	14.56	11	2.55	1.68	0.44	0.33	0.34	8	0.77	0.84	252	0.05	0.00
Malaysia	9,025	11.06	9	1.78	1.57	0.30	0.27	0.20	14	0.61	0.59	8,961	0.11	0.10
Marocco	238	15.27	13	1.51	1.41	0.26	0.17	0.21	0			238	0.07	0.00
Mexico	1,191	23.31	23	1.49	1.33	0.22	0.16	0.10	1	0.31	0.31	1,191	0.05	0.04
Netherlands	1,141	11.72	10	1.32	1.20	0.18	0.14	0.08	233	0.45	0.44	1,136	0.08	0.00
New Zealand	1,142	11.32	10	1.35	1.25	0.21	0.17	0.10	12	0.32	0.33	1,142	0.08	0.00
Norway	1,713	14.63	14	1.38	1.30	0.23	0.20	0.07	360	0.36	0.32	1,713	0.19	0.18
Pakistan	1,173	15.56	13	1.43	1.23	0.21	0.15	0.13	5	0.51	0.30	1,173	0.04	0.00

Continued on next page.

Table 3: Summary statistics for the board variables across countries (continued).

	Variables related to director affiliations								Other board variables					
		Board Size		Directorships		Busyness		Busy Board	CPS			Women		
Country	*N*	Mean	50%	Mean	50%	Mean	50%	Mean	*N*	Mean	50%	*N*	Mean	50%
Philippines	1,473	14.77	14	1.74	1.57	0.32	0.29	0.30	1	0.34	0.34	1,469	0.20	0.18
Poland	2,299	9.55	9	1.26	1.14	0.17	0.13	0.07	777	0.40	0.37	2,299	0.15	0.13
Portugal	628	9.69	9	1.22	1.10	0.16	0.09	0.08	26	0.35	0.33	628	0.12	0.10
Qatar	119	13.31	11	1.09	1.03	0.06	0.03	0.00	0			119	0.01	0.00
Russian Federation	1,764	16.85	15	1.72	1.50	0.32	0.30	0.25	10	0.36	0.29	1,763	0.13	0.11
Saudi Arabia	608	14.51	13	1.10	1.07	0.08	0.06	0.00	0			608	0.00	0.00
Singapore	5,528	14.10	13	1.64	1.53	0.23	0.20	0.08	22	0.37	0.36	5,524	0.15	0.13
Slovakia	106	12.88	12	1.05	1.00	0.05	0.00	0.00	0			106	0.17	0.13
Slovenia	164	13.47	13.5	1.10	1.08	0.08	0.07	0.00	27	0.39	0.30	164	0.23	0.21
South Africa	3,102	12.00	10	1.32	1.17	0.17	0.13	0.07	403	0.34	0.31	3,085	0.11	0.08
Spain	1,237	21.52	21	1.17	1.11	0.12	0.09	0.02	5	0.49	0.45	1,237	0.08	0.07
Sweden	3,540	14.24	13	1.39	1.30	0.21	0.20	0.05	574	0.73	0.79	3,540	0.13	0.12
Switzerland	2,071	12.77	12	1.37	1.31	0.23	0.20	0.09	328	0.59	0.62	2,071	0.05	0.00
Taiwan	1,354	9.72	9	1.38	1.22	0.21	0.17	0.11	2	0.15	0.15	1,194	0.07	0.00
Thailand	4,234	14.81	14	1.39	1.27	0.20	0.18	0.08	0			4,225	0.19	0.17
Turkey	2,034	18.37	17	1.34	1.19	0.19	0.14	0.10	0			2,034	0.11	0.10
United Arab Emirates	251	16.52	14	1.14	1.10	0.10	0.10	0.00	2	0.38	0.38	251	0.02	0.00
United Kingdom	13,902	8.39	7	1.39	1.25	0.21	0.17	0.10	1,258	0.33	0.32	13,898	0.07	0.00
United States	43,199	12.28	12	1.34	1.25	0.21	0.18	0.08	17,945	0.35	0.34	43,191	0.08	0.07
Venezuela	227	16.35	14	1.17	1.11	0.12	0.09	0.04	0			227	0.09	0.08
Total	254,947	11.86	10	1.35	1.19	0.18	0.13	0.09	29,033	0.37	0.35	254,097	0.10	0.06

Table 4: Summary statistics for the board variables over time.

This table shows descriptive statistics for the board variables over the 1998-2010 period. Board Size is the number of both executive and non-executive directors at a firm's fiscal year end date. Directorships is the average number of directorships per board member. Busyness refers to the fraction of directors with more than one directorship at a firm's fiscal year end date. Busy Board is an indicator variable which is set to one if the majority of board members is busy and zero otherwise. CPS is the CEO play slice, defined as the ratio of CEO total compensation to the sum of all top directors' total compensation. Women is the fraction of women on a firm's board.

	Variables related to director affiliations								**Other board variables**					
		Board Size		**Directorships**		**Busyness**		**Busy Board**	**CPS**			**Women**		
Year	*N*	Mean	50%	Mean	50%	Mean	50%	Mean	*N*	Mean	50%	*N*	Mean	50%
1998	11,978	11.56	10	1.25	1.10	0.14	0.09	0.06	1,036	0.32	0.32	11,867	0.08	0.00
1999	14,396	11.51	10	1.26	1.11	0.15	0.09	0.06	1,199	0.32	0.31	14,261	0.09	0.00
2000	15,915	11.67	10	1.28	1.13	0.15	0.10	0.06	1,222	0.33	0.33	15,803	0.09	0.00
2001	16,333	11.99	10	1.30	1.14	0.16	0.11	0.07	1,249	0.33	0.33	16,243	0.10	0.04
2002	17,507	12.15	10	1.32	1.17	0.17	0.13	0.07	1,260	0.34	0.33	17,419	0.10	0.05
2003	19,057	12.13	11	1.34	1.18	0.17	0.13	0.08	1,465	0.34	0.33	19,000	0.10	0.06
2004	20,317	12.11	11	1.36	1.20	0.18	0.14	0.09	1,740	0.35	0.33	20,279	0.10	0.06
2005	22,794	11.99	10	1.37	1.20	0.19	0.14	0.09	2,366	0.35	0.33	22,751	0.10	0.06
2006	23,665	11.83	10	1.39	1.21	0.20	0.14	0.10	3,021	0.37	0.35	23,620	0.10	0.06
2007	24,078	11.81	10	1.40	1.22	0.20	0.15	0.11	3,615	0.39	0.36	24,037	0.11	0.07
2008	23,261	11.83	10	1.39	1.23	0.20	0.15	0.10	3,625	0.39	0.36	23,228	0.11	0.07
2009	23,164	11.68	10	1.39	1.23	0.20	0.15	0.11	3,770	0.39	0.36	23,134	0.11	0.07
2010	22,482	11.71	10	1.39	1.23	0.20	0.16	0.10	3,465	0.40	0.37	22,455	0.11	0.08
Total	254,947	11.86	10	1.35	1.19	0.18	0.13	0.09	29,033	0.37	0.35	254,097	0.10	0.06

Table 5: Determinants of board structure.

This table presents the results of regressing various board variables on firm characteristics. The dependent variable is given in the first row of the table. Board Size is the number of both executive and non-executive directors at a firm's fiscal year end date. Busyness refers to the fraction of directors with more than one directorship at a firm's fiscal year end date. CPS is the CEO play slice, defined as the ratio of CEO total compensation to the sum of all top directors' total compensation. Women is the fraction of women on a firm's board. Size is the natural logarithm of total assets in millions of $US (WC02999). Leverage is book leverage defined as total debt (WC03255) deflated by total assets. Profitability is earnings before interest and taxes (WC18191) to total assets. Retained earnings is retained earnings (WC03495) deflated by total assets. Tangibility is defined as net property, plant, and equipment (WC02501) deflated by total assets. Growth is the one-year logarithmic sales (WC01001) growth. Inflation, GDP per Capita, and Market Capitalization to GDP are obtained from the World Bank. Ratios are winsorized at the 1% level. T-values based on White (1980) standard errors clustered at the firm-level are given in parentheses. Statistical significance at the 1%, 5%, or 10% level is indicated by ***, **, or *, respectively.

Dependent variable	**Board Size**	**Busyness**	**CPS**	**Women**
Model	I	II	III	IV
Size	2.190***	0.046***	0.009***	0.007***
	(84.173)	(54.643)	(10.642)	(10.756)
Leverage	-2.327***	-0.046***	0.023***	-0.015**
	(-12.641)	(-6.666)	(3.150)	(-2.511)
Profitability	-1.139***	-0.061***	0.050***	0.023***
	(-8.233)	(-9.634)	(6.915)	(4.114)
Retained Earnings	-0.282***	-0.018***	-0.001	0.002
	(-11.824)	(-13.281)	(-1.007)	(1.279)
Tangibility	-0.411**	-0.064***	-0.002	-0.004
	(-2.366)	(-9.259)	(-0.237)	(-0.742)
Growth	-0.078**	0.001	-0.007***	-0.009***
	(-2.417)	(0.899)	(-2.723)	(-6.591)
Inflation	3.663***	0.085***	0.168	0.009
	(4.019)	(3.457)	(1.340)	(0.619)
GDP per Capita	1.069***	-0.025***	-0.068*	0.043***
	(4.675)	(-2.906)	(-1.772)	(5.051)
Market Cap to GDP	-0.131**	0.003	-0.008*	-0.005***
	(-2.223)	(1.632)	(-1.670)	(-2.992)
Constant	-8.276	0.121*	0.759**	-0.340***
	(-0.000)	(1.744)	(2.464)	(-4.963)
Observations	192,009	192,009	26,775	191,538
Cluster	25,207	25,207	6,701	25,179
Dummies	year / industry / country	year / industry / country	year / industry / country	year / industry / country
Model	OLS	tobit	tobit	tobit

Table 6: Determinants of board structure – U.S. vs. non-U.S. countries.

This table presents the results of regressing various board variables on firm characteristics. The sample is split into U.S. and non-U.S. firms. The dependent variable is given in the first row of the table. Board Size is the number of both executive and non-executive directors at a firm's fiscal year end date. Busyness refers to the fraction of directors with more than one directorship at a firm's fiscal year end date. CPS is the CEO play slice, defined as the ratio of CEO total compensation to the sum of all top directors' total compensation. Women is the fraction of women on a firm's board. Size is the natural logarithm of total assets in millions of $US (WC02999). Leverage is book leverage defined as total debt (WC03255) deflated by total assets. Profitability is earnings before interest and taxes (WC18191) to total assets. Retained earnings is retained earnings (WC03495) deflated by total assets. Tangibility is defined as net property, plant, and equipment (WC02501) deflated by total assets. Growth is the one-year logarithmic sales (WC01001) growth. Inflation, GDP per Capita, and Market Capitalization to GDP are obtained from the World Bank. Ratios are winsorized at the 1% level. T-values based on White (1980) standard errors clustered at the firm-level are given in parentheses. Statistical significance at the 1%, 5%, or 10% level is indicated by ***, **, or *, respectively.

	Panel A: U.S.				**Panel B: Non-U.S. countries**			
Dependent variable	**Board Size**	**Busyness**	**CPS**	**Women**	**Board Size**	**Busyness**	**CPS**	**Women**
Size	2.016***	0.054***	0.015***	0.015***	2.268***	0.042***	0.002	0.004***
	(60.554)	(39.909)	(14.779)	(13.151)	(68.890)	(41.193)	(1.585)	(4.451)
Leverage	-2.074***	-0.038***	0.018**	-0.042***	-2.454***	-0.048***	0.015	-0.006
	(-7.597)	(-3.129)	(2.181)	(-4.024)	(-11.125)	(-5.807)	(1.042)	(-0.882)
Profitability	-0.922***	-0.060***	0.058***	0.006	-1.156***	-0.056***	0.035**	0.031***
	(-5.223)	(-6.038)	(7.290)	(0.642)	(-6.349)	(-7.022)	(2.391)	(4.334)
Retained	-0.224***	-0.019***	-0.002	-0.001	-0.382***	-0.021***	-0.004	-0.000
Earnings	(-7.820)	(-10.467)	(-1.596)	(-0.382)	(-10.998)	(-10.440)	(-1.515)	(-0.013)
Tangibility	0.771**	-0.059***	-0.005	0.005	-0.651***	-0.058***	0.013	-0.008
	(2.419)	(-4.030)	(-0.481)	(0.397)	(-3.262)	(-7.377)	(1.049)	(-1.271)
Growth	-0.195***	-0.003	-0.004	-0.008***	-0.050	0.003*	-0.007*	-0.009***
	(-3.730)	(-0.918)	(-1.267)	(-2.970)	(-1.268)	(1.740)	(-1.794)	(-5.492)
Inflation					4.325***	0.098***	0.077	-0.003
					(4.668)	(3.878)	(0.506)	(-0.206)
GDP per					1.036***	-0.016*	-0.062	0.055***
Capita					(4.371)	(-1.767)	(-1.521)	(6.083)
Market Cap					-0.295***	0.002	-0.006	-0.001
to GDP					(-4.918)	(1.105)	(-1.282)	(-0.803)
Constant	1.899	-0.116***	0.181***	-0.143***	-7.379***	0.062	0.821**	-0.407***
	(0.874)	(-3.376)	(14.140)	(-4.219)	(-2.916)	(0.841)	(2.510)	(-5.580)
Observations	36,836	36,836	16,745	36,833	155,173	155,173	10,030	154,705

Continued on next page.

Table 6: Determinants of board structure – U.S. vs. non-U.S. countries (continued).

	Panel A: U.S.				Panel B: Non-U.S. countries			
Dependent variable	**Board Size**	**Busyness**	**CPS**	**Women**	**Board Size**	**Busyness**	**CPS**	**Women**
Cluster	4,896	4,896	3,117	4,895	20,311	20,311	3,584	20,284
Dummies	year / industry	year / industry	year / industry	year / industry	year / industry / country	year / industry / country	year / industry / country	year / industry / country
Model	OLS	tobit	tobit	tobit	OLS	tobit	tobit	tobit

Table 7: Descriptive statistics for the turnover sample.

The table provides summary statistics for the CEO turnover sample over the 1998-2010 period. Panel A refers to the number of turnover events across countries and Panel B to the annual number of observations.

Panel A: Number of turnover events across countries

Country	Forced	Voluntary	Unknown	Total	% Forced
Argentina	10	46	7	63	0.1587
Australia	30	55	2	87	0.3448
Austria	79	104	13	196	0.4031
Belgium	20	56	2	78	0.2564
Brazil	15	54	10	79	0.1899
Canada	42	93	3	138	0.3043
China	49	112	6	167	0.2934
France	28	71	1	100	0.2800
Germany	51	83		134	0.3806
Hong Kong	56	139	2	197	0.2843
India	29	129	19	177	0.1638
Ireland	19	45	3	67	0.2836
Italy	27	48	9	84	0.3214
Japan	29	178	7	214	0.1355
Mexico	5	50		55	0.0909
Netherlands	44	86	1	131	0.3359
New Zealand	32	74	14	120	0.2667
Russian Federation	36	78	8	122	0.2951
Singapore	33	90	8	131	0.2519
Spain	19	61	6	86	0.2209
Switzerland	43	96	1	140	0.3071
United Kingdom	51	110		161	0.3168
United States	44	125		169	0.2604
Total	791	1,983	122	2,896	0.2731

Panel B: Annual number of observations

Year	Forced	Voluntary	Unknown	Total	% Forced
1998	23	64	6	93	0.2473
1999	35	110	5	150	0.2333
2000	57	124	16	197	0.2893
2001	68	123	14	205	0.3317
2002	63	143	10	216	0.2917
2003	62	144	10	216	0.2870
2004	61	185	10	256	0.2383
2005	52	191	15	258	0.2016
2006	76	159	9	244	0.3115
2007	74	193	4	271	0.2731
2008	85	199	4	288	0.2951
2009	80	190	11	281	0.2847
2010	55	158	8	221	0.2489
Total	791	1,983	122	2,896	0.2731

Table 8: CEO turnover.

This table presents the results of pooled logit regressions of CEO turnover (Model I) and forced CEO turnover only (Model II) on firm characteristics and a set of industry, country, and year dummies. In Model I, the dependent variable takes a value of one if a CEO leaves the firm and zero otherwise. In Model II, the dependent variable takes a value of one if a CEO is forced to leave the firm and zero otherwise. Growth is the one-year logarithmic sales (WC01001) growth. Size is the natural logarithm of total assets in millions of $US (WC02999). Leverage is book leverage defined as total debt (WC03255) deflated by total assets. Profitability is earnings before interest and taxes (WC18191) to total assets. Ratios are winsorized at the 1% level. Z-values based on White (1980) standard errors clustered at the firm-level are given in parentheses. Statistical significance at the 1%, 5%, or 10% level is indicated by ***, **, or *, respectively.

Dependendent variable	**CEO turnover**	**Forced CEO turnover**
Model	**I**	**II**
Growth	-0.429***	-0.660***
	(-6.322)	(-5.914)
Size	0.111***	0.100***
	(6.285)	(2.810)
Leverage	-0.119	0.258
	(-0.848)	(1.013)
Profitability	-2.252***	-3.178***
	(-11.433)	(-10.590)
Constant	-4.001***	-5.150***
	(-11.069)	(-6.668)
Pseudo R^2	0.0377	0.0610
Observations	27,837	27,824
Cluster	3,115	3,114
Dummies	country / industry / year	country / industry / year