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Board Reforms and Dividend Policy: International Evidence

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Abstract

We study the impact of board reforms implemented in 40 countries worldwide on corporate dividend policy. Using a difference-in-differences analysis, we find that firms pay higher dividends following the reforms. The increase in dividend payouts is more pronounced for firms with weak board governance in the pre-reform period and those in countries with strong external governance mechanisms. Our findings corroborate the dividend outcome model, which postulates that board reforms strengthen the monitoring role of the board and empower outside shareholders to force management to disgorge dividends.

I. Introduction

Does better governance lead to higher dividend payouts? In an influential article, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000) make two opposing predictions regarding the relationship between governance strength (or investor-rights protection) and dividend payouts, based on the outcome model and the substitute model. The outcome model suggests that dividends are the outcome of effectively protecting shareholder rights. Firms pay out dividends because empowered shareholders exercise their right to payouts. Thus, firms that have better governance systems and treat their shareholders fairly pay higher dividends. The substitute model suggests that dividends are a substitute for poor governance. Firms pay dividends to establish a reputation for treating outside shareholders fairly, with

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the aim of ensuring that future equities are floated at a favorable price. Thus, firms with poor governance systems pay higher dividends.

In this study, we investigate the effects of the board-governance reforms on dividend payouts implemented in many countries. Our experimental setting is ideal for investigating the causal effect of governance strength on dividend payouts. A country's board reforms are exogenous to individual firms' governance practices and dividend policies, which therefore mitigates any endogeneity concerns between corporate governance and dividend policies. Because boards set dividend policies, board-governance reforms are particularly relevant to the relation between governance strength and dividend payout, hence our research question.

The outcome model predicts an increase in dividend payouts following board reforms because these strengthen the fiduciary responsibility and oversight of the board, and with effective board governance, outsider shareholders can force corporate insiders to disgorge cash. In contrast, the substitute model predicts a decrease in dividend payouts following board reforms because the resulting improvement to board oversight reduces the need for poorly governed firms to commit to long-term payouts and for rigorous scrutiny of capital markets.

Using a sample of 246,642 firm-year observations from 40 countries between 1990 and 2015, we conduct a difference-in-differences (DiD) analysis of the changes in dividend payouts after board reforms were implemented. We conduct regressions that control for time-varying firm- and country-specific characteristics, as well as firm and year fixed effects, and find a significant increase in dividend payouts following these reforms, which is consistent with the outcome model of dividend policy. The increase in dividend payout in our baseline regression model of 0.24% from a mean of 1.65% (an increase of 15%) is economically significant. In addition, firms in countries with board reforms that cover the three components of board independence, audit committee and auditor independence, and separation of the board chair and chief executive officer (CEO) positions pay higher dividends than those from countries that cover fewer components. Our main evidence is robust to using alternative dividend-payout measures and alternative samples; accounting for other reforms related to insider trading and takeover laws; and controlling for dividend and capital gain taxes, changes in dividend demand, political/legal institutions, and industry trends in dividend payouts.

To mitigate the concern that our findings may be driven by omitted time-varying covariates, we conduct a placebo test. If the increase in dividends simply occurs as a result of unknown time-varying variables and is unrelated to board reforms, then we should expect to see an increase in dividend payouts even in the placebo. We randomly assign board-governance-reform years to our sample countries during the sample period, which we consider as pseudo-board-reform years, and run our baseline regression. We repeat this process 1,000 times, generating a simulated distribution of the coefficients and *t*-statistics, under the null hypothesis that there is no reform effect in dividend payout. We find no change in dividends from the placebo test. Thus, our findings for dividend increases following the reforms are unlikely to be driven by omitted time-varying variables.

In an additional analysis, we examine whether board reforms have a greater effect on firms that were not compliant before reforms were implemented because the regulations are only binding for firms without independent boards, independent

audit committees, and chair/CEO separation in place before the reforms. Thus, if increases in dividend payouts are due to board-reform regulations, then they should be most evident in these noncompliant firms (i.e., those with weak board governance). Consistent with our prediction, we find that increases in dividend payouts following reforms are most significant for firms with weak board-governance systems prior to the reforms.

Finally, we examine how board reforms (i.e., internal governance) interact with external governance. When the mechanisms of external and internal governance are complementary, the outcome (substitute) model predicts a positive (negative) effect of board reforms on dividend payouts in the presence of strong external governance. When they are substitutes, the improvement in board governance is unlikely to have any additional effect on a firm's dividend-payout decisions in the presence of strong external governance. Thus, the outcome (substitute) model predicts that the effect of reforms on dividend payouts with strong external governance is nonnegative (nonpositive). The results indicate that the increase in dividends following board reforms is greater in countries with strong external governance mechanisms, which supports the outcome model.

A large body of empirical literature has sought to establish a causal relationship between governance and dividend payouts, but the strongly endogenous nature of both variables leads to conflicting evidence. Using a cross-country sample of 33 countries, La Porta et al. (2000) find that firms in common-law countries with stronger legal shareholder protection pay more dividends than those in civil-law countries. Mitton (2004) finds similar evidence when examining 19 emerging markets. Ben-Nasr (2015) uses a sample of newly privatized firms from 43 countries and finds that dividend payouts are negatively related to government ownership, particularly in countries with weak investor-rights protection. He, Ng, Zaiats, and Zhang (2017), however, show that dividend-paying firms use dividends to mitigate agency concerns and build credible reputations, thereby facilitating access to external financing. Similarly, Pinkowitz, Stulz, and Williamson (2006) find that minority shareholders in countries with poor investor protection value dividends more highly.

The empirical results for firm-level governance are also mixed. Adjaoud and Ben-Amar (2010) find that Canadian firms with stronger governance pay higher dividends. Price, Román, and Rountree (2011) find that Mexican firms with higher levels of compliance make higher dividend payments after governance reforms. Using governance data from Institutional Shareholder Services (ISS), Jiraporn, Kim, and Kim (2011) find that firms with stronger governance are more likely to pay dividends and to pay larger dividends. Jiraporn and Lee (2018) find that the presence of more co-opted directors, as a proxy for poor board oversight, is associated with a lower propensity to pay dividends. In contrast, John and Knyazeva (2006), Officer (2007), and Jo and Pan (2009) use the antitakeover index developed by Gompers, Ishii, and Metrick (2003) to measure governance quality, which they find to be negatively related to dividend payouts. Attig, Boubakri, El Ghoul, and Guedhami (2016) find that family control is negatively associated with dividend payout in East Asian firms suffering from pronounced agency costs of free cash flow. Jordan, Liu, and Wu (2014) find that dual-class firms tend to have higher cash dividend payments and higher total payouts.

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Our study makes two main contributions to the literature. First, because we investigate the effects of exogenous changes in board-governance regulations on dividend payouts, our research design mitigates the problem of endogeneity and more effectively establishes the causal effect of governance on dividend payouts. Our findings indicate that the enactment of board reforms results in higher dividend payouts, particularly for firms with weak board governance prior to the reform, and thus we contribute to the debate on the effect of corporate governance on dividend payouts.

Second, corporate governance and boards have long been of interest to researchers, but findings regarding the relation between board structure and firm performance are mixed or inconclusive because these two dimensions are jointly endogenous (Adams, Hermalin, and Weisbach (2010)). In the last two decades, many research designs have used regulatory shocks for identification purposes. These shock-based studies tend to focus on a single country and establish the effect of board structure on firm performance (e.g., Banerjee, Humphery-Jenner, and Nanda (2015) for the United States, Black and Kim (2012) for South Korea, Dahya and McConnell (2007) for the United Kingdom, Hossain, Prevost, and Rao (2001) for New Zealand, and Price et al. (2011) for Mexico). In a recent article, Fauver, Hung, Li, and Taboada (2017) provide cross-country evidence that firm value increases following board reforms aimed at enhancing oversight. Adding to this literature, we study changes in corporate dividend policy after the staggered enactment of board reforms across countries.

The remainder of this article is organized as follows: In Section II, we describe the sample selection, discuss our main variables and descriptive statistics, and outline the research design. Section III presents our empirical results and sensitivity tests. Section IV presents an additional analysis of the reform effect conditional on pre-reform board characteristics and the joint effect of board reform and external governance mechanisms on dividends. Section V concludes the article.

II. Data and Research Design

A. Corporate-Governance Reforms

Since the late 1990s, markets worldwide have introduced corporate-governance reforms to restore shareholders' confidence in the accountability of listed firms. Emerging markets, for example, experienced numerous governance problems, which were a primary cause of the Asian financial crisis. Developed markets also experienced scandals, such as the Enron and WorldCom bankruptcies, that highlighted the urgency of corporate-governance reforms.

Kim and Lu (2013) were the first to compile information on corporate-governance reforms in emerging markets that required the enactment of new rules for all listed firms. Fauver et al. (2017) expand on Kim and Lu (2013) and collect additional information on corporate-governance reforms worldwide from the World Bank, the European Corporate Governance Institute, and local stock exchange regulators.

The details of corporate governance reforms vary by country, but a common objective is to strengthen investor rights by changing the practices pertaining to, for

example, the board of directors, external auditors, disclosure requirements, and protection of minority shareholders. We note that not all reforms are related to board governance. Fauver et al. (2017) identify the years in which major board reforms became effective and whether each reform comprises three key components: board independence, audit committee and auditor independence, and the separation of the board chair and CEO positions.[1] We use this set of major reform years with our sample countries to investigate the response to the reforms in terms of dividend-payout policies.

B. Sample Construction

We select 41 countries identified by Fauver et al. (2017), collect firm-level annual accounting information from Compustat's North America and Global files, and obtain macroeconomic data from the World Development Indicators (WDI) database. We restrict our sample period to 1990–2015 because of the limited country coverage before 1990. We exclude firm-year observations with missing or negative values for sales, total assets, cash dividends declared on common/ordinary capital, and shareholder equity. Following Fauver et al. (2017), we also exclude firms with total assets of less than $10 million[2] to improve the comparability of firms across countries and those in the financial (Standard Industrial Classification (SIC) codes 6000–6999) and utility (SIC codes 4900–4999) sectors. Finally, we drop countries with fewer than 10 unique firms.[3] Our main sample then contains 246,642 firm-year observations from 28,801 unique firms across 40 countries for the 1990–2015 period.

Table 1 shows the distribution of our sample firms, firm-year observations, and the years of major board reforms by country. The number of firm-year observations varies between countries, with the greatest percentage (35.1%) of firms being domiciled in the United States. We exclude the United States from our robustness tests to gauge whether our main results are driven by an overrepresentation of U.S. firms.

The timings of the introduction of board reforms also vary widely. In response to increasing concerns about unexpected company failures and corporate frauds, the main U.K. board reforms followed the Greenbury Report in 1998. The major board reforms implemented by the countries in our sample occurred between 1998 (United Kingdom) and 2007 (Indonesia).

In our robustness tests, we aim to attenuate the effect of other country-level developments that could confound our estimation during the full sample period. We examine a subsample where we limit the sample period to $t-5$ to $t+5$, where $t=0$ is the year of major board reform (hereafter, *[−5, +5] sample*). The [−5, +5] sample includes 107,530 firm-year observations (19,997 unique firms) from 36 countries.

[1]Brazil, Colombia, Hungary, and Switzerland introduced board reforms that do not cover any of these three components. Board reforms in these four countries are mainly related to the definitions of board responsibilities, election of boards, or disclosure of board practices. Excluding these countries from our analyses does not alter our results.

[2]The results remain intact without this restriction.

[3]This resulted in excluding the Czech Republic.

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TABLE 1

List of Sample Countries with Years of Governance Reforms

Table 1 reports the country distribution for our main sample and the years of the major board reforms by country (Fauver et al. (2017)). Our main sample consists of 246,642 firm-year observations for 28,801 unique firms from 40 countries during the 1990–2015 period.

Countries	No. of Firms	No. of Firm-Years	Frequency (%)	Major Reform Year
Argentina	31	109	0.0%	2001
Australia	677	4,846	2.0%	2004
Austria	87	604	0.2%	2004
Belgium	88	532	0.2%	2005
Brazil	210	1,137	0.5%	2002
Canada	1,948	13,740	5.6%	2004
Chile	46	119	0.0%	2001
China	2,745	25,180	10.2%	2001
Colombia	17	63	0.0%	2001
Denmark	146	1,305	0.5%	2001
Egypt	27	65	0.0%	2002
Finland	143	1,380	0.6%	2004
France	373	1,424	0.6%	2003
Germany	569	4,252	1.7%	2002
Greece	138	560	0.2%	2002
Hong Kong	111	1,155	0.5%	2005
Hungary	11	56	0.0%	2003
India	1,620	12,351	5.0%	2002
Indonesia	150	585	0.2%	2007
Israel	182	644	0.3%	2000
Italy	211	968	0.4%	2006
Japan	3,640	49,315	20.0%	2002
Malaysia	813	6,115	2.5%	2001
Mexico	53	167	0.1%	2001
Netherlands	185	1,499	0.6%	2004
Norway	176	1,162	0.5%	2005
Pakistan	162	1,024	0.4%	2002
Peru	28	68	0.0%	2005
Philippines	82	390	0.2%	2002
Poland	62	119	0.0%	2002
Portugal	44	220	0.1%	2001
Singapore	543	3,586	1.5%	2003
South Korea	897	5,712	2.3%	1999
Spain	117	755	0.3%	2006
Sweden	350	2,757	1.1%	2006
Switzerland	207	1,912	0.8%	2002
Thailand	278	996	0.4%	2002
Turkey	64	197	0.1%	2002
United Kingdom	1,528	12,931	5.2%	1998
United States	10,042	86,642	35.1%	2003
Total	28,801	246,642	1.00	—

Argentina, Colombia, Egypt, and Hungary are excluded from the full sample because they do not have 10 unique firms during the 11-year window.

C. Measuring Dividend Payouts

Table 2 summarizes the variable definitions and sources. We measure dividend payout by DIV/S, the ratio of cash dividends declared on common/ordinary shares (DVC) to total sales (SALE). We choose DIV/S for three reasons. First, deflators other than sales typically depend on local accounting rules, making comparisons across countries difficult (Brockman and Unlu (2009)). Second, some deflators (e.g., earnings) could be more easily manipulated by insiders, and the extent of such manipulation depends on the level of shareholder protection (Leuz, Nanda, and

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TABLE 2
Variable Definitions

Variables	Definitions	Sources
Dependent Variables		
DIV/S	One hundred (100) times the ratio of cash dividends declared on common/ordinary shares (DVC) to total sales (SALE).	Authors' calculations based on Compustat data
DIV/A	One hundred (100) times the ratio of cash dividends declared on common/ordinary shares (DVC) to total assets (AT).	As above
DIV/MC	One hundred (100) times the ratio of dividends declared on common/ordinary shares (DVC) to market capitalization (PRCC_F × CSHO for North American firms and PRCCD × CSHOC for global firms).	As above
DIV/CF	One hundred (100) times the ratio of dividends declared on common/ordinary shares (DVC) to cash flow (IB + DP). We set DIV/CF to missing for dividend-paying firms with negative cash flow.	As above
DIV/E	One hundred (100) times the ratio of dividends declared on common/ordinary shares (DVC) to earnings (IB). We set DIV/E to missing for dividend-paying firms with negative earnings.	As above
TOTPAY/S	One hundred (100) times the ratio of cash dividends declared on common/ordinary shares (DVC) plus share repurchases to total sales (SALE). The repurchase amount equals the purchase of common and preferred stock (PRSTKC) minus any decrease in the value of the net number of preferred stock outstanding (PSTKRV or PSTK if PSTKRV is missing). The repurchase amount is set as 0 if missing.	As above
$DPS	For North American firms, we use cash dividends per share adjusted for stock splits and stock dividends, which is available from Compustat (DVPSX_F). For global firms, we use the Compustat Security Daily file and sum all split-adjusted dividends per share declared during the fiscal year (DIVD/AJEXDI). To align with the North American definition, we keep the common share class with the highest average trading volume during the fiscal year in case the firm has multiple common share classes. We convert DPS to U.S. dollars using fiscal year-end exchange rates.	As above
$DIV	Amount of cash dividends declared on common/ordinary shares (DVC) in millions of U.S. dollars.	As above
DIV_INC	Dummy variable that equals 1 if the firm has increased cash dividends in year t relative to year $t-1$, and 0 otherwise.	As above
Variables of Interest		
POST	Dummy variable that equals 1 beginning in the year a major board reform becomes effective in the country, and 0 otherwise.	Fauver et al. (2017)
POST3	Dummy variable that equals 1 beginning in the year the major reform becomes effective in countries that have passed all the three reform components, and 0 otherwise.	Authors' calculations based on Fauver et al. (2017)
POST2	Dummy variable that equals 1 beginning in the year the major reform becomes effective in countries that have passed at least two reform components, and 0 otherwise.	As above
POST1	Dummy variable that equals 1 beginning in the year the major reform becomes effective in countries that have passed at least one reform component, and 0 otherwise.	As above
POST_PSEUDO	Dummy variable that equals 1 beginning in the pseudo-board-reform year in each country, and 0 otherwise.	As above
Control Variables		
RE/A	Ratio of retained earnings (RE) to total assets (AT).	Authors' calculations based on Compustat data
TE/A	Ratio of common stockholders' equity (CEQ) to total assets (AT).	As above
ROA	Return on assets, computed as the ratio of net income before extraordinary items (IB) to total assets (AT).	As above
SGR	Natural logarithm of sales growth, computed as $\log(SALE_t/SALE_{t-1})$.	As above
SIZE	Natural logarithm of total assets (AT) in millions of U.S. dollars.	As above
CH/A	Ratio of cash and short-term investments (CHE) to total assets (AT).	As above
GDP_PC	Natural logarithm of gross domestic product (GDP) per capita in constant 2010 U.S. dollars.	World Development Indicators (WDI) database
GDP_GROWTH	GDP growth, computed as the annual percentage change in GDP.	As above

(*continued on next page*)

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TABLE 2 (continued)
Variable Definitions

Variables	Definitions	Sources
Variables for Further Analysis		
AFTER_IT_ENF	Dummy variable that equals 1 after the first prosecution under an insider trading law is recorded in a country, and 0 otherwise.	Bhattacharya and Daouk (2002)
AFTER_TKVR_LAW	Dummy variable that equals 1 after the enactment of a takeover law in a country, and 0 otherwise.	Lel and Miller (2015)
CG_TAX	Maximum statutory capital gains tax rate for individuals (in percent). Values for each country after 2004 are set to the value in 2004.	Hail, Sikes, and Wang (2017)
DIV_TAX	Maximum statutory dividend tax rate for individuals (in percent). Values for each country after 2004 are set to the value in 2004.	As above
DIV_PREM	Difference between the logarithm of the value-weighted (by book value) average market-to-book ratio of dividend payers and of nonpayers for each country-year.	Authors' calculations based on Compustat data
RL_LAW	Rule-of-law index that captures perceptions of the extent to which agents have confidence in and abide by the rules of society, particularly contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Rule of law is time varying from 1996. The values for each country prior to 1996 are set to the value in 1996. For gap years (1997, 1999, and 2001), we use the values from 1996, 1998, and 2000, respectively.	Worldwide Governance Indicators (WGI) database
POLITIC_FREE	Average score of the indexes of political rights and civil liberties. The original variable is transformed by subtracting it from 8 so that higher values indicate a higher level of political freedom.	Freedom House (2018)
IND_DIV	Median value of DIV/S for firms in the same industry-year, based on the Fama and French 12-industry classification.	Authors' calculations based on Compustat data
MOST_IMPACT3	Indicator variable that equals 1 if i) the proportion of independent directors is less than 50%, ii) the proportion of independent audit committee members is less than 50%, and iii) the chief executive officer (CEO) is the board chair in the year prior to the reform, and 0 otherwise.	Calculated using sample merged from Institutional Shareholder Services (ISS), BoardEx, and ASSET4
MOST_IMPACT3_CN	Indicator variable that equals 1 if i) the proportion of independent directors is lower than the country median, ii) the proportion of independent audit committee members is lower than the country median, and iii) the CEO duality is higher than the country median in the year prior to the reform, and 0 otherwise.	As above
MOST_IMPACT2	Indicator variable that equals 1 if i) the proportion of independent directors is less than 50% and ii) the proportion of independent audit committee members is less than 50% in the year prior to reform, and 0 otherwise.	As above
MOST_IMPACT2_CN	Indicator variable that equals 1 if i) the proportion of independent directors is lower than the country median, and ii) the proportion of independent audit committee members is lower than the country median in the year prior to the reform, and 0 otherwise.	As above
IT_ENF	Dummy variable that equals 1 for countries that enforced insider trading laws before the board reforms, and 0 otherwise.	Bhattacharya and Daouk (2002)
TKVR_LAW	Dummy variable that equals 1 for countries that had takeover laws before the board reforms, and 0 otherwise.	Lel and Miller (2015)
RANTIDIR	The revised anti–director-rights index that measures the extent to which minority shareholders are protected in the corporate decision process, in terms of the right to vote. It covers the following six areas: "(1) vote by mail; (2) obstacles to the actual exercise of the right to vote (i.e., the requirement that shares be deposited before the shareholders' meeting); (3) minority representation on the board of directors through cumulative voting or proportional representation; (4) an oppressed minority mechanism to seek redress in case of expropriation; (5) preemptive rights to subscribe to new securities issued by the company; and (6) the right to call a special shareholder meeting."	Djankov, La Porta, Lopez-de-Silanes, and Schleifer (2008)
RL_LAW_HI	Dummy variable that equals 1 for countries in which the rule-of-law index (RL_LAW) is above the sample country median in the year prior to the introduction of major board reforms, and 0 otherwise.	WGI database
PUB_ENF	Index of public enforcement, including fines and prison terms for related parties in self-dealing if all disclosure and approval requirements have been met. The index varies from 0 to 1.	Djankov et al. (2008)

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Wysocki (2003)). Third, when earnings are negative, the payout ratio becomes meaningless. Deflating dividends by sales circumvents these issues. In our robustness tests, we consider alternative dividend-payout measures using different scaling variables. They are DIV/A, the ratio of dividends to total assets (AT); DIV/MC, the ratio of dividends to market capitalization (PRCC_F × CSHO for North American firms and PRCCD × CSHOC for global firms); DIV/CF, the ratio of dividends to cash flow (IB + DP); and DIV/E, the ratio of dividends to earnings (IB). We set DIV/CF and DIV/E to missing observations for dividend-paying firms with negative cash flow and earnings, respectively. All dividend-payout-ratio variables are expressed in percentage points. Finally, given the increasing importance of share repurchases to payout policy, we consider TOTPAY/S, the ratio of dividends (DVC) plus share repurchases to total sales. The repurchase amount equals the purchase of common and preferred stock (PRSTKC) minus any decrease in the value of preferred stock outstanding and is set to 0 if missing.

Panel A of Table 3 presents the summary statistics for the variables used in our analyses. DIV/S exhibits typical negative skewness, with a mean (median) of 1.65% (0.53%) and a standard deviation of 3.16%. The other measures of dividend payout exhibit similar patterns.

D. Measuring Board-Governance Reforms

To capture the effect of board-governance reforms on dividend payout, we define POST, a dummy variable that takes a value of 1 beginning in the year a major board reform becomes effective in the country, and 0 otherwise. Fauver et al. (2017) identify three key components of board reforms: i) board independence, ii) audit committee and auditor independence, and iii) requirements of separating the CEO and board chair positions. We capture the effect of the breadth of board reforms using POST3, POST2, and POST1 as dummy variables, which equal 1 beginning in the year major reforms become effective in countries that have passed all three reform components, at least two components, and at least one component, respectively, and 0 otherwise.

E. Control Variables

Following Brockman and Unlu (2009), we select the following set of firm-level control variables: retained earnings (RE/A), the ratio of retained earnings (RE) to total assets (AT); equity ratio (TE/A), the ratio of common stockholders' equity (CEQ) to total assets (AT); profitability (ROA), the ratio of net income before extraordinary items (IB) to total assets (AT); sales growth (SGR), the natural logarithm of sales growth computed as $\log(\text{SALE}_t/\text{SALE}_{t-1})$; firm size (SIZE), the natural logarithm of total assets (AT) in millions of U.S. dollars; and cash holdings (CH/A), the ratio of cash and short-term investments (CHE) to total assets (AT). We also control for two time-varying country-level variables: GDP per capita (GDP_PC) to measure the level of economic development, which uses the natural logarithm of GDP per capita in constant 2010 U.S. dollars, and GDP growth rate

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TABLE 3
Descriptive Statistics and Correlations

Panel A of Table 3 reports the number of observations, means, standard deviations, and the 5th, 25th, 50th, 75th, and 95th percentiles for the variables used in this article. Our full sample consists of 247,003 firm-year observations for 28,820 unique firms from 40 countries during the 1990–2015 period. Panel B presents the Pearson pairwise correlation coefficients among all variables in the baseline regression. All coefficients are significant at the 1% level except those in italics. The variable definitions and sources are provided in Table 2.

Panel A. Summary Statistics

Variables	*N*	Mean	Std. Dev.	P5	P25	P50	P75	P95
Dependent Variables								
(1) DIV/S	246,642	1.65	3.16	0.00	0.00	0.53	1.78	7.42
DIV/A	247,003	1.36	2.27	0.00	0.00	0.55	1.66	5.62
DIV/MC	230,986	1.72	2.28	0.00	0.00	1.02	2.54	6.12
DIV/CF	230,881	15.11	21.02	0.00	0.00	8.67	21.67	55.25
DIV/E	232,518	31.34	53.70	0.00	0.00	16.79	40.29	105.92
TOTPAY/S	246,599	2.37	4.67	0.00	0.00	0.73	2.35	10.75
log(1 + DPS$)	189,435	0.13	0.25	0.00	0.00	0.02	0.13	0.69
log(1 + DIV$)	247,003	1.33	1.59	0.00	0.00	0.76	2.15	4.71
DIV_INC	246,998	0.38	0.49	0.00	0.00	0.00	1.00	1.00
Variables of Interest								
(2) POST	247,003	0.61	0.49	0.00	0.00	1.00	1.00	1.00
POST3	247,003	0.10	0.30	0.00	0.00	0.00	0.00	1.00
POST2	247,003	0.46	0.50	0.00	0.00	0.00	1.00	1.00
POST1	247,003	0.60	0.49	0.00	0.00	1.00	1.00	1.00
Firm-Level Control Variables								
(3) RE/A	247,003	0.08	0.56	−0.74	0.02	0.15	0.31	0.60
(4) TE/A	247,003	0.50	0.21	0.16	0.34	0.49	0.66	0.86
(5) ROA	247,003	0.03	0.11	−0.15	0.01	0.04	0.07	0.16
(6) SGR	247,003	0.11	0.28	−0.24	−0.01	0.08	0.20	0.59
(7) SIZE	247,003	5.64	1.77	2.99	4.33	5.47	6.74	8.92
(8) CH/A	247,003	0.16	0.17	0.00	0.04	0.11	0.23	0.54
Country-Level Control Variables								
(9) GDP_PC	247,003	10.11	1.13	7.26	10.35	10.62	10.72	10.82
(10) GDP_GROWTH	247,003	3.41	3.27	−1.09	1.65	2.81	4.49	9.80
Other Variables								
AFTER_IT_ENF	246,642	0.88	0.33	0.00	1.00	1.00	1.00	1.00
AFTER_TKVR_LAW	246,642	0.63	0.48	0.00	0.00	1.00	1.00	1.00
CG_TAX	242,016	18.24	11.18	0.00	10.00	20.00	26.00	40.00
DIV_TAX	242,016	24.52	13.13	0.00	15.00	25.00	38.60	43.10
DIV_PREM	184,227	0.03	0.34	−0.69	−0.04	0.05	0.17	0.46
RL_LAW	246,642	1.16	0.71	−0.45	1.18	1.45	1.59	1.79
POLITIC_FREE	245,484	6.04	1.75	1.50	6.50	7.00	7.00	7.00
IND_DIV	246,642	0.55	0.47	0.00	0.19	0.58	0.78	1.24
MOST_IMPACT3	33,684	0.02	0.14	0.00	0.00	0.00	0.00	0.00
MOST_IMPACT3_CN	33,684	0.46	0.50	0.00	0.00	0.00	1.00	1.00
MOST_IMPACT2	36,797	0.04	0.19	0.00	0.00	0.00	0.00	0.00
MOST_IMPACT2_CN	36,797	0.57	0.50	0.00	0.00	1.00	1.00	1.00
IT_ENF	246,642	0.89	0.32	0.00	1.00	1.00	1.00	1.00
TKVR_LAW	246,642	0.62	0.49	0.00	0.00	1.00	1.00	1.00
RANTIDIR	246,642	3.55	1.16	1.00	3.00	3.50	4.50	5.00
RL_LAW_HI	246,642	0.77	0.42	0.00	1.00	1.00	1.00	1.00
PUB_ENF	246,642	0.21	0.36	0.00	0.00	0.00	0.50	1.00

Panel B. Pearson Correlation Coefficients

	1	2	3	4	5	6	7	8	9	10
1	1.00									
2	0.08	1.00								
3	0.15	*0.00*	1.00							
4	0.16	0.06	0.05	1.00						
5	0.26	0.06	0.60	0.07	1.00					
6	−0.03	−0.05	−0.06	0.03	0.09	1.00				
7	0.08	0.10	0.22	−0.29	0.12	−0.08	1.00			
8	0.02	0.06	−0.24	0.45	−0.15	0.06	−0.18	1.00		
9	−0.09	−0.18	−0.09	*0.00*	−0.16	−0.08	0.18	0.05	1.00	
10	0.04	0.05	0.01	0.03	0.12	0.17	−0.14	*0.00*	−0.69	1.00

(GDP_GROWTH) to proxy for the investment opportunity set, calculated as the annual percentage change in GDP. We winsorize all of the firm-level variables at the 1st and 99th percentiles to alleviate the influence of outliers, and we lag all of the control variables by 1 period to mitigate endogeneity concerns.

Panel A of Table 3 presents the summary statistics for our sample firms. The average of POST is 61%, indicating that more of the sample observations are from post–board-reform periods. The average firm in our sample has 8% of total assets from retained earnings (RE/A), an equity ratio (TE/A) of 50%, 3% profitability (ROA), a sales growth rate (SGR) of 11%, total assets of $1.7 billion, and 16% of assets held in cash (CH/A).

Panel B of Table 3 presents the Pearson correlation coefficients between all variables. DIV/S is positively correlated with the board-reform indicator (POST) at the 1% level, which is consistent with the outcome model's prediction.

F. Research Design

Our full sample includes multiple treatment groups and multiple periods. To examine the average effect of the staggered passage of board reforms across countries on corporate dividend-payout policies, we use a panel DiD design following Fauver et al. (2017). Specifically, we estimate the following regression model:

$$\text{PAYOUT}_{i,j,t} = \beta_1 \times \text{POST}_{j,t} + \gamma \cdot \text{Z}_{i,j,t-1} + \delta_t + \alpha_i + \varepsilon_{i,t}, \tag{1}$$

where i, j, and t index firms, countries, and years, respectively. The dependent variable $\text{PAYOUT}_{i,j,t}$ measures corporate dividend payout, $\text{Z}_{i,j,t-1}$ is a vector of covariates to control for time-varying firm- and country-level characteristics, and α_i and δ_t are firm and year fixed effects.

Controlling for time-varying covariates in the panel DiD regression can ease the effect of possible nonparallel trends. Time-invariant differences between the treatment and control groups can be captured by firm fixed effects, including the pretreatment condition and any common time trend unrelated to the treatment (Atanasov and Black (2016), Imbens and Wooldridge (2009)). Following Fauver et al. (2017), we cluster robust standard errors by country because board reforms occur at the country level.[4] Our main coefficient of interest is β_1. It captures the difference between changes in the dividend payouts of firms in countries after board reforms and those of firms in countries without board reforms during the corresponding years. Note that board reforms are staggered over time. Thus, all firms in countries where board reforms were already in effect are used as the treatment group, and those in countries where reforms were not yet in effect in year t are assigned to the control group. The outcome model of dividend policy predicts β_1 to be positive, whereas the substitute model predicts it to be negative.

[4] POST is highly serially correlated within a country because it equals a string of 0s for all firm-year observations, followed by a string of 1s after the country has passed a board reform (Cameron and Miller (2015)). Clustering standard errors at the country level adjusts for correlations among observations in a given country over time.

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III. Empirical Results

A. Effect of Board Reforms on Dividend Payouts

We begin by examining the average effect of corporate board reform on dividend payout (DIV/S) for firms in our full sample. Table 4 presents the regression results. Model 1 includes only the variable of interest (POST), in addition to firm and year fixed effects. We find a significantly positive coefficient estimate on POST at the 5% level, suggesting that firms pay higher dividends in the postreform period.

To reduce any concerns about nonparallel trends between the treatment and control groups, we control for time-varying covariates at the firm and country levels in model 2 of Table 4. On average, we find that firms that are more profitable, hold more cash, have higher equity ratios and fewer growth opportunities, and are

TABLE 4

Effect of Board Reforms and Their Breadth on Dividends

Table 4 shows the results of difference-in-differences regressions of dividends on board reforms. The dependent variable is DIV/S, defined as 100 times the ratio of cash dividends declared on common/ordinary shares (DVC) to total sales (SALE). Our full sample consists of 246,642 firm-year observations for 28,801 unique firms from 40 countries during the 1990–2015 period. In models 1 and 2, POST is a dummy variable that equals 1 beginning in the year a major board reform becomes effective in the country, and 0 otherwise. Models 3–5 provide additional results on the effects of the breadth of board reforms on corporate dividend policy. POST3 is a dummy variable that equals 1 beginning in the year the major reform becomes effective in countries that have passed all three reform components, and 0 otherwise. POST2 is a dummy variable that equals 1 beginning in the year the major reform becomes effective in countries that have passed at least two reform components, and 0 otherwise. POST1 is a dummy variable that equals 1 beginning in the year the reform becomes effective in countries that have passed at least one reform component, and 0 otherwise. All variables are defined in Table 2. Year and firm effects are included in all regressions. t-statistics are reported beneath each coefficient estimate in parentheses, with standard errors clustered at the country level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Variables	1	2	3	4	5
POST	0.517**	0.237***			
	(2.166)	(3.929)			
POST3			0.639***		
			(3.710)		
POST2				0.284***	
				(3.362)	
POST1					0.190**
					(2.677)
RE/A		−0.024	−0.019	−0.002	−0.024
		(−0.315)	(−0.276)	(−0.020)	(−0.313)
TE/A		1.568**	1.566**	1.594**	1.569**
		(2.547)	(2.522)	(2.597)	(2.545)
ROA		2.023**	2.021**	2.005**	2.025**
		(2.049)	(2.088)	(2.032)	(2.049)
SGR		−0.273***	−0.266***	−0.263***	−0.273***
		(−4.741)	(−5.129)	(−4.867)	(−4.731)
SIZE		0.135	0.118	0.115	0.135
		(1.450)	(1.531)	(1.303)	(1.445)
CH/A		1.154***	1.160***	1.104***	1.156***
		(4.997)	(5.142)	(4.925)	(5.005)
GDP_PC		−2.782***	−2.777***	−2.871***	−2.791***
		(−6.670)	(−7.369)	(−8.103)	(−6.675)
GDP_GROWTH		−0.056	−0.057	−0.054	−0.055
		(−1.122)	(−1.129)	(−1.066)	(−1.114)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
No. of obs.	246,642	246,642	246,642	246,642	246,642
Adj. R^2	0.639	0.659	0.660	0.660	0.659

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located in less developed countries pay higher dividends. The magnitude of the coefficient estimate on POST becomes smaller, but it remains positive and is significant at the 1% level. The magnitude of the increase in dividends is economically large. Model 2 implies that DIV/S significantly increases by 15% (0.24/1.65) on average after board reforms become effective.

In unreported regressions, we redefine POST to capture each of the three components of board reforms (board independence, audit committee and auditor independence, and separation of CEO and chair) and reestimate equation (1) with subsamples restricted to countries with reforms involving each individual component of board reforms. We therefore avoid benchmarking against countries that have passed other components. The results show that POST loads positively and significantly at the 1% level in all of the regression models. The chair/CEO separation component has the largest coefficient estimate on POST, but the differences between the coefficients of the three subsamples are not statistically significant. We also note that 10 out of 11 countries with reforms for chair/CEO separation have also passed reforms for board independence and audit committee and auditor independence, and so these are the countries with regulatory changes in all three components of board reforms. This suggests that POST in the chair/CEO-separation subsample may not be capturing this component of board reform but, rather, the breadth of board reforms in a given country.

To further examine how the breadth of board reforms influences corporate dividend policy, in models 3–5 of Table 4, we replace POST with POST3, POST2, and POST1, respectively. In Model 3, we find that POST3 loads positively and significantly at the 1% level, suggesting that firms in countries enacting all three board-reform components pay higher dividends than those in countries without reforms or with less comprehensive reforms in the postreform period. The increase in dividend payouts is up to 39% (0.64/1.65). Models 4 and 5 show that the estimates for POST2 and POST1 are much smaller and correspond to increases in dividend payouts of 17% (0.28/1.65) and 12% (0.19/1.65), respectively.

The positive effect of board reforms, and particularly comprehensive reforms, supports the outcome model of dividend payout, which predicts that board reforms strengthen the monitoring role of the board and enable outside shareholders to force the management to pay higher dividends.

B. Robustness Tests

In this section, we investigate the robustness of our results to alternative measures of dividend payouts, alternative samples, controlling for confounding events around board reforms, tracking the effects of reforms around initiation, and conducting a placebo test. Tables 5 and 6 report the results.

1. Alternative Measures of Dividend Payouts

To determine whether our results are sensitive to the choice of the scaling variable, we replicate our main results using dividends to assets (DIV/A), dividends to market capitalization (DIV/MC), dividends to cash flow (DIV/CF), and dividends to earnings (DIV/E), respectively. The results are reported in models 1–4 in

TABLE 5

Robustness Tests: Alternative Dependent Variables

Table 5 shows the results of difference-in-differences regressions of alternative measures of dividends on board reforms. We reestimate equation (1) after replacing DIV/S with DIV/A, DIV/MC, DIV/CF, DIV/E, TOTPAY/S, log(1 + $DPS), log(1 + $DIV), and DIV_INC as dependent variables in models 1–8, respectively. Table 2 provides a detailed definition of each variable used in this table. Sample size varies across the models as a result of the availability of each variable. We measure the effect of board reform using POST, a dummy variable that equals 1 beginning the year a major board reform becomes effective in the country, and 0 otherwise. Year and firm effects are included in all regressions. Odds ratios are reported in model 8. *t*-statistics (*z*-statistics in model 8) are reported beneath each coefficient estimate in parentheses, with standard errors clustered at the country level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Variables	DIV/A 1	DIV/MC 2	DIV/CF 3	DIV/E 4	TOTPAY/S 5	log(1 + $DPS) 6	log(1 + $DIV) 7	DIV_INC 8
POST	0.167*** (4.172)	0.492*** (3.515)	2.288*** (3.462)	3.479** (2.472)	0.361*** (3.861)	0.015** (2.707)	0.136*** (2.958)	1.264*** (2.869)
RE/A	0.029 (0.684)	0.030 (1.150)	0.650** (2.517)	0.211 (0.387)	0.012 (0.160)	0.005*** (2.846)	−0.046* (−1.692)	1.603* (1.818)
TE/A	0.769*** (3.541)	0.618*** (3.605)	10.306*** (2.763)	20.692*** (2.960)	2.918*** (11.235)	0.060*** (9.590)	0.625*** (4.550)	1.183 (0.359)
ROA	2.171** (2.249)	0.601** (2.121)	5.645** (2.200)	−7.951 (−0.976)	4.316*** (6.287)	0.082** (2.269)	0.734* (1.956)	63.981*** (3.412)
SGR	−0.101*** (−2.739)	−0.106*** (−3.037)	−2.085*** (−3.599)	−6.109*** (−2.814)	−0.813*** (−5.253)	−0.005** (−2.044)	0.024 (1.437)	1.668*** (4.244)
SIZE	−0.047 (−0.942)	0.095* (1.936)	1.143* (1.804)	5.753** (2.259)	0.609*** (3.785)	0.031*** (4.316)	0.340*** (4.260)	1.198 (1.231)
CH/A	0.838*** (4.336)	−0.011 (−0.058)	5.345*** (4.875)	2.900 (0.826)	2.632*** (4.680)	0.046*** (4.586)	0.122 (1.211)	1.277 (0.747)
GDP_PC	−1.437*** (−6.313)	−1.412*** (−5.321)	−15.497*** (−5.416)	−24.292*** (−3.523)	−3.673*** (−5.143)	−0.111*** (−6.377)	−0.915*** (−8.823)	0.304*** (−3.840)
GDP_GROWTH	−0.030 (−1.072)	−0.027 (−0.921)	−0.494 (−1.291)	−0.836 (−1.462)	−0.039 (−0.832)	0.001 (0.631)	−0.021 (−0.928)	0.938 (−1.616)
Firm-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	247,003	230,986	230,881	232,518	246,599	189,435	247,003	180,782
Adj. R^2/ Pseudo-R^2	0.661	0.627	0.523	0.287	0.511	0.759	0.845	0.0542

Table 5. We find that POST enters the regressions positively and significantly at the 5% level or lower, alleviating concerns about the choice of the scaling variable.

Firms can pay out cash to shareholders through either dividends or share repurchases. La Porta et al. (2000) argue that share repurchases occur in only a few countries; they are not generally popular. We also find that whereas firms in the United States and Canada do repurchase shares, over 90% of the firm-years in our full sample do not. Nevertheless, we additionally capture share repurchases in corporate payout policies by using TOTPAY/S in model 5. The coefficient estimate of POST remains positive and significant at the 1% level.

An issue with using scaled dividend variables is that the resulting increase in dividend payout ratios may be due to changes in the denominator (i.e., the scaling variable) rather than the numerator (i.e., dividends). Payout ratios will increase if the denominator decreases, even when the numerator is constant. Thus, we examine the evolution of the scaling variables around the reform year and estimate DiD regressions of the scaling variables expressed in millions of U.S. dollars (i.e., sales ($SA), assets ($A), market value ($MC), cash flow ($CF), and earnings ($E)) on

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TABLE 6
Other Robustness Tests

Table 6 shows additional robustness tests of our results to different subsamples, confounding events, and dynamic effects. The dependent variable is DIV/S, defined as 100 times the ratio of cash dividends declared on common/ordinary shares (DVC) to total sales (SALE). The sample size varies across models as a result of the availability of each variable. In models 1–6, we measure board reforms using POST, a dummy variable that equals 1 beginning in the year a major board reform becomes effective in the country, and 0 otherwise. In model 7, we replace POST with three dummy variables for the 3-year period leading up to the reform (YEARS_–2_TO_0), the first effective year (YEAR_1), and the remaining years (YEARS_2+). Table 2 provides a detailed definition of each variable used in this table. Year and firm effects are included in all regressions. *t*-statistics are reported beneath each coefficient estimate in parentheses, with standard errors clustered at the country level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Variables	Excluding the U.S. 1	Excluding Mandatory Dividend Countries 2	Additional Controls 3	[–5, +5] 4	Restricted [–5, 5] 5	Industry-Year Trend 6	Reform Timing 7
POST	0.242***	0.237***	0.240**	0.133***	0.122**	0.234***	
	(3.157)	(3.922)	(2.168)	(2.877)	(2.335)	(3.921)	
IND_DIV						0.227***	
						(3.038)	
YEARS_–2_TO_0							0.113
							(0.989)
YEAR_1							0.360***
							(3.080)
YEARS_2+							0.343**
							(2.057)
AFTER_IT_ENF			–0.122				
			(–1.107)				
AFTER_TKVR_LAW			–0.343***				
			(–5.183)				
CG_TAX			–0.013				
			(–1.034)				
DIV_TAX			0.004				
			(0.942)				
DIV_PREM			0.654***				
			(3.819)				
RL_LAW			1.626***				
			(4.584)				
POLITIC_FREE			–0.178				
			(–1.215)				
RE/A	0.067	–0.023	0.016	0.010	–0.016	–0.024	–0.024
	(0.381)	(–0.294)	(0.273)	(0.100)	(–0.172)	(–0.315)	(–0.314)
TE/A	2.548***	1.557**	1.201**	1.166*	1.441*	1.574**	1.571**
	(7.449)	(2.533)	(2.328)	(1.709)	(2.011)	(2.554)	(2.548)
ROA	4.956***	1.997**	1.258**	1.369*	1.477*	2.018**	2.019**
	(4.843)	(2.050)	(2.494)	(1.815)	(1.746)	(2.050)	(2.049)
SGR	–0.368***	–0.269***	–0.169***	–0.191***	–0.228***	–0.272***	–0.272***
	(–5.888)	(–4.764)	(–3.434)	(–3.285)	(–3.147)	(–4.721)	(–4.718)
SIZE	0.261***	0.137	0.075	0.022	0.075	0.135	0.134
	(3.083)	(1.461)	(1.085)	(0.199)	(0.651)	(1.459)	(1.440)
CH/A	1.372***	1.145***	0.951***	1.052***	1.103***	1.160***	1.151***
	(3.012)	(5.013)	(7.415)	(2.778)	(3.484)	(5.023)	(5.024)
GDP_PC	–2.677***	–2.790***	–2.713***	–5.080***	–5.062***	–2.766***	–2.770***
	(–6.375)	(–6.707)	(–9.934)	(–4.791)	(–5.212)	(–6.605)	(–6.451)
GDP_GROWTH	–0.056	–0.058	–0.047**	0.003	–0.003	–0.055	–0.053
	(–1.243)	(–1.160)	(–2.272)	(0.143)	(–0.157)	(–1.103)	(–1.060)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	160,000	244,763	179,468	107,530	81,831	246,642	246,642
Adj. R^2	0.673	0.657	0.603	0.673	0.651	0.660	0.659

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POST, GDP per capita, GDP growth rate, year fixed effects, and firm fixed effects. We cluster the standard errors by country. The results (unreported) show that the coefficient estimates on POST are statistically insignificant, suggesting that the scaling variables do not materially change around the reform year.

We also examine the evolution of the numerator (i.e., dividends) variables around the reform year. We consider dividends per share ($DPS)[5] and total dividends ($DIV), expressed in U.S. dollars and millions of U.S. dollars, respectively. In models 6 and 7 of Table 5, we report the regression results using the natural logarithm of 1 plus dividends per share (log(1 + $DPS)) and the logarithm of 1 plus cash dividends (log(1 + $DIV)) as the dependent variables, respectively. We find the coefficient estimates on the postreform dummy (POST) are positive and significant at the 5% level and below. In model 8, we create a dummy variable (DIV_INC) that equals 1 if the firm has increased cash dividends in year t relative to year $t - 1$, and 0 otherwise, and estimate a fixed-effects logit regression with DIV_INC as the dependent variable. We find that the estimated odds ratio of POST is greater than 1 and significant at the 1% level, suggesting that the dividend payout is more likely to increase year to year during the postreform period. Given that the dollar amount of cash dividends significantly increases following board reforms, but the scaling variables do not, firms must actively increase their dividend payouts.

2. Subsample Tests

In model 1 of Table 6, we limit our sample to non-U.S. firms to reduce concerns of overrepresentation by U.S. firms. In countries with mandatory dividend policies, firms are legally required to pay out a certain proportion of their earnings as dividends (La Porta et al. (2000)). To ensure that these rules do not bias our results, in model 2 we exclude Brazil, Chile, Colombia, and Greece, which have mandatory dividend rules. In both models, the coefficient estimates of POST are positive and significant at the 1% level.

3. Confounding Events

Confounding events (e.g., economic shocks, concurrent reforms, and institutional changes) and other omitted time-varying covariates may prevent our DiD research design from accurately identifying the effects of board reforms on corporate dividend policy. First, the enactment of takeover laws in many countries during the late 1990s and early 2000s led to a market that favored corporate control and improved managerial discipline. Lel and Miller (2015) find that following the enactment of takeover laws, poor firm performance is more likely to result in CEO turnover, and Glendening, Khurana, and Wang (2016) find a reduction in both the likelihood and the amount of dividends. Second, Hail, Tahoun, and Wang (2014) find that after insider trading laws were first imposed in the 1990s, firms in

[5]We thank the anonymous reviewer for suggesting this test. We follow several steps to construct DPS for our international sample. For North American firms, we use cash dividends per share adjusted for stock splits and stock dividends, which is available from Compustat (DVPSX_F). For global firms, we use the Security Daily file and combine all split-adjusted dividends per share declared during the fiscal year (DIVD/AJEXDI). To align with the North American definition, we keep the common share class with the highest average trading volume during the fiscal year in case the firm has multiple common share classes. We convert DPS to U.S. dollars using fiscal year-end exchange rates.

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many countries were less likely to pay or increase dividend payments and more likely to stop paying or decrease them. Third, dividend payouts are likely to have been significantly affected by the substantive changes in capital gains and dividend tax rates over the 1990–2004 period in many countries (Hail, Sikes, and Wang (2017)). Fourth, firms consider investors' time-varying demands for dividends when deciding their payout levels (Baker and Wurgler (2004)). Fifth, changes in the status of the institutional environment or political freedom may influence a country's investment environment and thus its corporate dividend payouts (Guedhami, Kwok, and Shao (2017), Kaufmann, Kraay, and Mastruzzi (2009)).

To mitigate the concern that board reforms coincided with other country-level changes, we additionally introduce the following variables: i) AFTER_IT_ENF, an indicator variable that equals 1 after the first prosecution under an insider trading law is recorded in a country, and 0 otherwise; ii) AFTER_TKVR_LAW, an indicator variable that equals 1 after the enactment of a takeover law in a country, and 0 otherwise; iii) CG_TAX and DIV_TAX, the maximum statutory capital gains tax rate and dividend tax rate for individuals, respectively; iv) DIV_PREM, the difference between the logarithm of the value-weighted (by the book value) average market-to-book ratio of dividend payers and nonpayers for each country-year; v) RL_LAW, an index capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, from the Worldwide Governance Indicators (WGI) database; and vi) POLITIC_FREE, the average score of the indexes of political rights and civil liberties from Freedom House (2018). Model 3 of Table 6 reports the regression results with these control variables. Controlling for additional country-level confounding events does not alter the effect of governance reform on dividends.

We also address the effects of other changes in the institutional environment in model 4 of Table 6 by confining our sample to an 11-year window [–5, +5] that surrounds the major board-reform year ($t = 0$) for each country. We exclude all firms that appear only in the pre-reform period or that enter the [–5, +5] sample only in the postreform period and report the results in Model 5. The magnitude of the reform effect on the dividend payout becomes smaller, but its significance remains at the 5% level.

In model 6 of Table 6, we additionally introduce the IND_DIV variable, defined as the median value of DIV/S for firms in the same industry-year based on the Fama and French 12-industry classification, to control for the time trend in DIV/S in each industry. Again, we find a significant reform effect on dividend payouts.

4. Dynamic Effects

In the late 1990s and early 2000s, board reforms were initiated in major economies to restore investor confidence in stock markets, following various corporate scandals. Listed firms may have increased dividends before these reforms to distance themselves from those involved in the scandal firms and show their commitment to treating minority shareholders fairly, instead of responding with stronger board governance. To rule out any preexisting dividend trend, we investigate the dynamic effect of board reform on corporate dividend policy by tracking

dividends before and after the reforms became effective, following the literature (Bertrand and Mullainathan (2003), Hail et al. (2014)).

We divide the sample into 4 subperiods, replacing the single dummy, POST, with three dummy variables for the 3-year period leading up to the reform (YEARS_–2_TO_0), the first effective year (YEAR_1), and the remaining years (YEARS_2+). Therefore, the period prior to the 3 years leading up to the reform serves as the base period. Model 7 of Table 6 reports the results.

We find that the coefficient estimate on YEARS_–2_TO_0 is insignificant, suggesting that the average level of DIV/S over the 3 years before the reforms is not significantly different from that over the base period. In contrast to the pre-reform period, YEAR_1 and YEARS_2+ load positively and significantly at the 1% and 5% levels, respectively. This suggests that firms disgorge excess cash after board reforms become effective, in response to enhanced monitoring of the board and empowered outside shareholders.

C. Placebo Test

To further alleviate concerns that our DiD design fails to capture the effect of board reforms and merely reflects a trend of increasing dividend payouts over time that is otherwise unrelated to board reforms, we conduct a placebo (falsification) test. We randomly assign board-reform years ranging from 1990 to 2015 to each of the 40 countries in our sample and construct POST_PSEUDO, a dummy variable that equals 1 beginning in the pseudo-board-reform year in each country, and 0 otherwise. To examine the distribution of coefficient estimates and *t*-statistics of POST_PSEUDO under the null hypothesis that board reforms exert no influence on dividend payout, we create a pseudo-DIV/S series that contains no reform effect. We compute the mean values of DIV/S for each firm up to the year prior to board reform (DIV/S_BEFORE_REFORM) and the mean values of DIV/S starting from the year that the reform becomes effective (DIV/S_AFTER_REFORM). We then subtract the difference between DIV/S_AFTER_REFORM and DIV/S_BEFORE_REFORM from DIV/S in the years after board reform becomes effective in the country. Using the pseudo-DIV/S series, which is free from the reform effect by construction, we reestimate equation (1) by replacing POST with a set of randomized POST_PSEUDO values and repeat the process 1,000 times. This generates a simulated distribution of the coefficients and *t*-statistics, under the null hypothesis that there is no reform effect in dividend payout.

Table 7 presents the placebo test results. The distribution of estimates on POST_PSEUDO shows a mean and a median of –0.003 and –0.005, respectively, which are far below the actual estimate of 0.237. The simulated *p*-value associated with the actual estimate is less than 5%. Thus, we can reject the null hypothesis that the increase in dividend payouts following board-governance reform is random at the 5% significance level. Put differently, there is a 5% chance that our argument for the effects of board-governance reform on dividend payouts is incorrect.

The distribution of the *t*-statistics shows a similar pattern. Both the mean and median derived from the simulated regressions are substantially lower than the actual *t*-statistic. The simulation *p*-value for the actual *t*-statistic is less than 1%.

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TABLE 7
Placebo Test

Table 7 shows the results of a placebo test. We randomly assign board-reform years ranging from 1990 to 2015 to each of the 40 countries in our sample and construct POST_PSEUDO, a dummy variable that equals 1 beginning in the pseudo-board-reform year in each country, and 0 otherwise. For each firm in the main sample used in model 2 of Table 4, we remove the effect of board reform on DIV/S and reestimate equation (1) by replacing POST with POST_PSEUDO and repeat the process 1,000 times. To remove the reform effect on DIV/S from the data, we compute the mean values of DIV/S up to the year prior to board reform (DIV/S_BEFORE_REFORM) and the mean values of DIV/S starting from the year that board reform becomes effective (DIV/S AFTER REFORM). We then subtract the difference between DIV/S_AFTER_REFORM and DIV/S_BEFORE_REFORM from DIV/S in the years after board reform becomes effective in the country. This procedure ensures that the null hypothesis that POST_PSEUDO has no effect on DIV/S is true with simulated data.

		Distribution of Estimates of Board-Reform Effects Based on Pseudo-Reform Years									
	Actual	Mean	1%	5%	10%	25%	50%	75%	90%	95%	99%
Coefficients of POST_PSEUDO	0.237	−0.003	−0.292	−0.238	−0.182	−0.100	−0.005	0.095	0.179	0.227	0.337
t-statistic of POST_PSEUDO	3.929	−0.030	−3.145	−2.176	−1.860	−1.111	−0.063	0.943	1.842	2.350	3.847

IV. Additional Analyses

A. Role of Board Reforms on Dividends Conditional on Pre-Reform Board Characteristics

Our main results support those of the outcome model: Board reforms improve the effectiveness of board monitoring and empower outside shareholders to extract excess cash that would otherwise be expropriated by controlling shareholders/managers. In previous sections, we compare changes in the dividends of all firms in a given country following the board reform with changes in the dividends of firms in countries with no board reforms during the corresponding period. However, reforms may exert a stronger influence on some firms than others, depending on their pre-reform board governance. The outcome model predicts a stronger effect of board reforms on dividend payouts for firms with weak board practices prior to the reform because they are most likely to be exposed to the exogenous shift following the reform. Using the most affected firms instead of all treated firms provides a more effective DiD approach for detecting the effect of board reforms on dividend payout.[6]

Duchin, Matsusaka, and Ozbas (2010) and Balsmeier, Fleming, and Manso (2017) focus on the effect of U.S. board governance reform on firm performance and innovation, using noncompliance with a 100% independent audit committee requirement and with a majority of independent board directors, respectively, to identify treated firms that were forced to increase board independence after the reform. Identifying noncompliant firms is more challenging in a cross-country setting. The new requirements imposed by the reforms on board independence (31 countries), audit committee and auditor independence (33 countries), and separation between chair and CEO positions (11 countries) are less stringent than in the United States, vary considerably across countries, and are generally interwoven. For example, the percentage of board independence required by the new regulations is at least 25% in Mexico (Price et al. (2011)) and South Korea (Choi,

[6]We thank the anonymous reviewer for suggesting this test.

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Park, and Yoo (2007)) and 33% in China (Liu, Miletkov, Wei, and Yang (2015)). In 1999, firms listed on the Korea Stock Exchange were only required to set up an audit committee, with no regulations governing audit independence (Choi et al. (2007)). In India, the new regulations since the reform require 50% independent directors if the chair of the board is an executive director but require only 33% if the chair is a nonexecutive (Koirala, Marshall, Neupane, and Thapa (2020)). To reflect the specific countries' regulations in the reforms, we identify noncompliant firms using multiple reform components in both absolute and relative-to-country terms.

We first collect pre-reform firm-level board characteristics from ISS and then from BoardEx and ASSET4. Because of the limited availability of board attributes prior to the reforms, we observe a significant reduction in our sample size. We identify noncompliant firms (i.e., those likely to be most affected by board reforms) using two variables. MOST_IMPACT3 is an indicator variable that equals 1 if i) the proportion of independent directors is less than 50%, ii) the proportion of independent audit committee members is less than 50%, and iii) the CEO is the chair in the year prior to the reform, and 0 otherwise. MOST_IMPACT3_CN is an indicator variable that equals 1 if i) the proportion of independent directors is lower than the country median, ii) the proportion of independent audit committee members is lower than the country median, and iii) the CEO duality is higher than the country median in the year prior to the reform, and 0 otherwise. Given the relatively limited data on CEO duality and the limited number of countries (11) with CEO-duality reforms, we alternatively use only board and audit committee independence to identify the most affected firms. We define MOST_IMPACT2 as an indicator variable that equals 1 if i) the proportion of independent directors is less than 50% and ii) the proportion of independent audit committee members is less than 50% in the year prior to reform, and 0 otherwise. We define MOST_IMPACT2_CN as an indicator variable that equals 1 if i) the proportion of independent directors is lower than the country median and ii) the proportion of independent audit committee members is lower than the country median in the year prior to the reform, and 0 otherwise.

We estimate the following regression model:

$$\text{PAYOUT}_{i,j,t} = \beta_1 \times \text{POST}_{j,t} + \beta_2 \times \text{POST}_{j,t} \times \text{MOST_IMPACT}_j + \gamma \times Z_{i,j,t-1} + \delta_t + \alpha_i + \varepsilon_{i,t}, \tag{2}$$

where MOST_IMPACT is one of the four variables defined previously, used to capture the most affected firms. Table 8 presents the results from estimating several specifications of equation (2). The sample consists of 36,797 firm-year observations for 2,205 unique firms from 29 countries over the 1990–2015 period. The coefficients of interest are those on the interaction between POST and the four dummy variables indicating firms with weak board governance in the year prior to major board reforms. In models 1–4, we find that the coefficient estimates on the four interaction terms are positive and significant at the 5% level or lower, suggesting that the post-reform increase in dividend payout is more pronounced for firms with weak board attributes prior to reforms. These findings provide further evidence supporting the outcome model. Poorly governed firms prior to the reforms exhibit a more significant improvement in their board practices and thus pay more dividends after the reform.

TABLE 8

Role of Pre-Reform Board Attributes

Table 8 shows the results of difference-in-differences regressions of dividends on board reforms conditional on pre-reform board attributes. We interact POST with four dummy variables indicating firms with weak board governance in the year prior to major board reforms: MOST_IMPACT3 in model 1, MOST_IMPACT3_CN in model 2, MOST_IMPACT2 in model 3, and MOST_IMPACT2_CN in model 4. POST is a dummy variable that equals 1 beginning in the year a major board reform becomes effective in the country, and 0 otherwise. We supplement the Institutional Shareholder Services (ISS) U.S. data with information from BoardEx and ASSET4 to collect pre-reform board characteristics. MOST_IMPACT3 is an indicator variable that equals 1 if i) the proportion of independent directors is less than 50%, ii) the proportion of independent audit committee members is less than 50%, and iii) the chief executive officer (CEO) is the board chair in the year prior to the reform, and 0 otherwise. MOST_IMPACT3_CN is an indicator variable that equals 1 if i) the proportion of independent directors is lower than the country median, ii) the proportion of independent audit committee members is lower than the country median, and iii) the CEO duality is higher than the country median in the year prior to the reform, and 0 otherwise. MOST_IMPACT2 is an indicator variable that equals 1 if i) the proportion of independent directors is less than 50%, and ii) the proportion of independent audit committee members is less than 50% in the year prior to reform, and 0 otherwise. MOST_IMPACT2_CN is an indicator variable that equals 1 if i) the proportion of independent directors is lower than the country median, and ii) the proportion of independent audit committee members is lower than the country median in the year prior to the reform, and 0 otherwise. The sample used consists of 36,797 firm-year observations for 2,205 unique firms from 29 countries between 1990 and 2015. All variables are defined in Table 2. The set of control variables is the same set used in Table 4. Year and firm effects are included in all regressions. t-statistics are reported beneath each coefficient estimate in parentheses, with standard errors clustered at the country level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	MOST_IMPACT3	MOST_IMPACT3_CN	MOST_IMPACT2	MOST_IMPACT2_CN
Variables	1	2	3	4
POST	0.147	0.032	0.166	0.055
	(1.048)	(0.217)	(1.699)	(0.557)
POST × heading variable	0.316**	0.244***	0.375***	0.226***
	(2.179)	(3.551)	(3.288)	(2.889)
Control variables	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
No. of obs.	33,684	33,684	36,797	36,797
Adj. R^2	0.696	0.696	0.708	0.709

B. Role of Board Reforms on Dividends Conditional on External Governance Mechanisms

The literature suggests that corporate dividend policies are related to external governance mechanisms, including the market for corporate control (Glendening et al. (2016)), enforcement of insider trading laws (Brockman, Tresl, and Unlu (2014), Hail et al. (2014)), and the legal protection of shareholders (La Porta et al. (2000)). In this section, we investigate whether an increase in dividend payouts following board reforms varies with the quality of external governance mechanisms.

The outcome and substitute models of dividends provide opposite predictions about the effect of board reforms (i.e., internal governance) on dividend payouts conditional on the strength of external governance. The outcome model suggests that strong governance is associated with larger dividend payouts. Thus, if internal and external governance mechanisms are complementary, the effect of board reforms should be greater with stronger external governance. However, if internal and external governance mechanisms are substitutes, board reforms may not be effective when strong external governance mechanisms are already in place. An improvement in internal governance mechanisms is unlikely to have any additional effect on a firm's dividend payout decisions with the presence of strong external governance mechanisms. Thus, the outcome model predicts that the effect of board reforms on dividend payouts conditional on strong external governance will be nonnegative.

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The substitute model holds that strong governance is associated with lower dividend payouts. Thus, if internal and external governance mechanisms are complementary, the effect of board reforms on dividend payouts should be smaller with stronger external governance. However, if external governance mechanisms substitute for internal ones, board reforms may not be effective with strong external governance mechanisms. The improvement in internal governance is unlikely to have any additional effect in the presence of strong external governance. Thus, the substitute model predicts that the effect of board reforms on dividend payouts conditional on strong external governance will be nonpositive.

To test these predictions, we estimate the following regression model:

$$\text{PAYOUT}_{i,j,t} = \beta_1 \times \text{POST}_{j,t} + \beta_2 \times \text{POST}_{j,t} \times \text{EXT_GOV}_j + \gamma \times Z_{i,j,t-1} + \delta_t + \alpha_i + \varepsilon_{i,t}, \tag{3}$$

where EXT_GOV is an external governance mechanism. Table 9 gives the results. To proxy for external governance mechanisms, we first use IT_ENF, which equals 1 for countries that enforced insider trading laws before the board reforms, and 0 otherwise. Similarly, we use TKVR_LAW, which takes a value of 1 for countries that had takeover laws before the board reforms, and 0 otherwise. The enforcement of insider trading laws and takeover laws alleviates asymmetric-information costs for outside shareholders and strengthens the market for corporate control, respectively, and both types of law make external monitoring more effective by reducing insider expropriation.

Model 1 (model 2) of Table 9 estimates equation (3) by interacting POST with IT_ENF (TKVR_LAW). The coefficient estimates on the interaction terms POST × IT_ENF and POST × TKVR_LAW are positive and significant at the 1% level in model 1 and at the 5% level in model 2, respectively. Thus, the increase in dividends following board reforms appears to be greater in countries with strong external governance mechanisms. This finding is consistent with the outcome model of dividend payouts.

We also use shareholder rights and legal enforcement as external governance mechanisms. La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1998) argue that the legal system is a fundamentally significant external mechanism. The law and finance literature demonstrate the importance of investor protection across many aspects of financial markets (see Schnyder (2016) for a review of this literature). We measure shareholder rights and the quality of legal enforcement with the variables RANTIDIR, RL_LAW_HI, and PUB_ENF, respectively. RANTIDIR is a revised anti–director-rights index that measures the extent to which minority shareholders are protected in the corporate decision process in terms of the right to vote (Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008)). RL_LAW_HI is a dummy variable that equals 1 for countries in which the rule-of-law index (RL_LAW) is above the sample country median in the year prior to the introduction of major board reforms, and 0 otherwise. PUB_ENF is an index of public enforcement, including fines and prison terms for related parties in self-dealing if all disclosure and approval requirements have been met (Djankov et al. (2008)).

We interact POST with the three measures of investor protection. The results are given in models 3–5 of Table 8. We find that the coefficient estimates on the

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TABLE 9

Role of External Governance Mechanisms

Table 9 shows the results of difference-in-differences regressions of dividends on board reforms conditional on external governance mechanisms. The dependent variable is DIV/S, defined as 100 times the ratio of cash dividends declared on common/ordinary shares (DVC) to total sales (SALE). POST is a dummy variable that equals 1 beginning in the year a major board reform becomes effective in the country, and 0 otherwise. All variables are defined in Table 2. Year and firm effects are included in all regressions. *t*-statistics are reported beneath each coefficient estimate in parentheses, with standard errors clustered at the country level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	IT_ENF	TKVR_LAW	RANTIDIR	RL_LAW_HI	PUB_ENF
Variables	1	2	3	4	5
POST	−1.748***	−0.224	−0.900	−0.584	0.032
	(−7.852)	(−1.210)	(−1.475)	(−1.414)	(0.307)
POST × IT_ENF	2.203***				
	(10.889)				
POST × TKVR_LAW		0.664**			
		(2.607)			
POST × RANTIDIR			0.314*		
			(1.699)		
POST × RL_LAW_HI				0.991*	
				(1.745)	
POST × PUB_ENF					0.863***
					(3.721)
RE/A	−0.008	0.034	−0.060	−0.009	−0.028
	(−0.117)	(0.684)	(−0.626)	(−0.129)	(−0.391)
TE/A	1.543**	1.631**	1.521**	1.561**	1.557**
	(2.583)	(2.594)	(2.543)	(2.579)	(2.514)
ROA	1.913**	1.951**	2.023**	1.967**	2.008**
	(2.105)	(2.056)	(2.107)	(2.071)	(2.100)
SGR	−0.251***	−0.243***	−0.284***	−0.260***	−0.269***
	(−4.183)	(−4.365)	(−4.838)	(−4.218)	(−5.205)
SIZE	0.122	0.084	0.161	0.124	0.119
	(1.346)	(1.122)	(1.609)	(1.347)	(1.595)
CH/A	1.249***	1.058***	1.250***	1.208***	1.151***
	(4.955)	(4.706)	(5.461)	(5.102)	(5.304)
GDP_PC	−1.734***	−2.667***	−2.408***	−2.227***	−2.786***
	(−6.764)	(−12.072)	(−8.845)	(−8.422)	(−8.330)
GDP_GROWTH	−0.049	−0.052	−0.061	−0.050	−0.057
	(−1.181)	(−1.076)	(−1.275)	(−1.139)	(−1.146)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
No. of obs.	246,642	246,642	246,642	246,642	246,642
Adj. R^2	0.663	0.661	0.661	0.660	0.661

interaction terms are all positive and statistically significant. These findings are consistent with the outcome model, suggesting that outside shareholders empowered by internal governance reforms can better discipline managers and extract cash under managerial control in countries with sound external governance mechanisms.

V. Conclusion

In this study, we use the staggered enactment of board reforms across countries as exogenous shocks for identification. We implement a DiD approach to examine the influence of board reforms on corporate dividend payouts. Following numerous high-profile corporate scandals and governance failures around the world, the board reforms enacted by each country were designed to enhance board oversight and thus to curb shareholder expropriation by corporate insiders. Based on the agency theory

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of dividends proposed by La Porta et al. (2000), we test the outcome model versus the substitute model, which are two competing models of the effect of board reforms on dividends, and find strong support for the outcome model.

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