Board reforms and M&A performance: international evidence

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Abstract

This research employs a difference-in-differences framework to study the impact of major board reforms on the performance of mergers and acquisitions (M&As). Using an international sample of board reforms implemented in 61 countries from 1985 to 2021, we document a drastic redistribution of wealth from target shareholders to acquirer shareholders after the board reforms in target countries. This effect is most pronounced in M&A transactions that involve the sale of controlling shares, thereby supporting the hypothesis that corporate board reforms mitigate the private benefits of control in the target firm. Furthermore, these reforms increase expected deal synergies, in that deal-level announcement returns are higher after the implementation of the reforms. When country-level institutional quality and legal protection of shareholders are greater, it reinforces the reform effects. Overall M&A activity remains unchanged following the reforms, yet financial bidders complete fewer transactions, implying a reform-induced squeeze-out of financial bidders from the M&A market in the target country. Collectively, these international results are consistent with the predictions of the private benefits of control theory and underscore the role of institutional quality and investor protection in reinforcing the effects of board reforms worldwide.

Keywords Board reforms · M&A activity · Target gains · Corporate governance

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Introduction

Board oversight is a fundamental mechanism of corporate governance, and a key responsibility of corporate directors involves supervising merger and acquisition (M&A) deals. Extant literature shows that M&A negotiations are often susceptible to agency issues.[1] Thus, a key question arises: How do reforms related to board practices affect the market for corporate control in general and the distribution of wealth between acquirer and target shareholders in particular?

Despite its importance, the impact of board reforms on M&A transactions remains unexplored. In an effort to fill this research gap, we focus on how board reforms affect takeover targets. Since 1990, more than 60 countries have implemented board reforms, designed to improve boards' supervisory function. Many of these reforms require greater board independence and mandate the separation of the chair and CEO positions. To the extent that the reforms in the target country alleviate some agency problems and improve the growth potential of the target firm (Fauver et al., 2017), post-reform M&As should be driven more by economic synergies, which arguably should lead to greater overall efficiency gains. Yet these reforms could also alter the *distribution* of

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[1] See, e.g., Jensen (1986), Lang et al. (1991), John and Senbet (1998), Masulis et al. (2007), and Tosun and Senbet (2020).

synergetic gains between target and acquirer shareholders. It thus is theoretically ambiguous, ex ante, which transacting party (acquirer or target shareholders) obtain a greater share of acquisition gains after reforms.

On the one hand, board reforms may bolster the bargaining power of the target firm, particularly when it is managed efficiently. The resulting increase in target value and bargaining power implies that target shareholders benefit from a greater share of the takeover gain. On the other hand, according to the theory of private benefits of control (Dyck & Zingales, 2004; Grossman & Hart, 1988), if the controlling shareholders in the target firm lose their private benefit of control over corporate resources, the value of their potential rent extraction decreases, which could lower the reservation price for target controlling shareholders during a corporate sale.[2] In that scenario, acquirer firms could gain a greater share of the deal synergies, in that they pay a lower premium in the transaction (i.e., less the amount of the benefit loss to target controlling shareholders). These competing hypotheses imply that the net effect of wealth redistribution in post-reform M&As depends on whether the decrease in target controlling shareholders' private benefits outweighs the increase in the target value.

To test these hypotheses empirically, we investigate a comprehensive set of board-related corporate governance reforms across 61 countries during 1985–2021. With a sample including both domestic and cross-border M&A deals, we document several key findings. First, target shareholders experience a significant *decrease* in merger gains after the reform. The economic magnitude is substantial: Over a 7-day window, target shareholders' announcement return (*Target CAR*) is 5% lower in the post-reform period. In contrast, acquirers' abnormal returns (*Acquirer CAR*) following merger announcements are 0.6% higher after the reforms come into effect in the target country. These results, obtained with quasi difference-in-differences (DiD) regressions that control for an extensive set of firm, deal, and country characteristics and fixed effects, suggest that board reforms trigger a drastic redistribution of wealth from target shareholders to acquirer shareholders. Consistent with the theory of private benefits of control, we determine that the effect on wealth redistribution is driven mainly by transactions that involve sales of block shares. Second, deal-level abnormal returns (*Combined CAR*) are 1.9% higher in the post-reform period. With *Combined CAR*, we capture expected takeover synergies, and the result confirms the hypothesis that board reforms improve overall economic gains in M&As.

Substantial literature in international business and finance establishes that country-level institutional quality and legal protection of investors affect the value of each nation's capital markets (La Porta et al., 1997, 1998, 2000, 2002). In our research context, heterogeneity in country-level legal characteristics might influence the effectiveness of the board reforms in M&A deals. Using various measures of institutional quality and shareholder protection, we establish that better quality institutions and high investor protection reinforce the effects of board reforms on target returns. This result suggests that firm-level governance reforms are more effective in countries where legal protections are stronger.

Our research contributes to investigations of the role of corporate boards in takeovers. Most studies examine the effect on acquirers and find that corporate governance is a fundamental mechanism that drives M&A profitability (e.g., Dahya et al., 2019; Masulis et al., 2007). Establishing causality remains challenging though. Using board reforms as an exogenous shock to corporate governance practices, this study sheds new light on the research domain by documenting a *causal* link between board oversight and merger performance.

We also expand research into the direct impact of country characteristics on financial markets. As initiated by La Porta et al. (1997), an ongoing literature stream has established that legal protections of external investors affect firm value and corporate actions, such as stock liquidity (Huang et al., 2020), initial public offerings (Boulton et al., 2010), innovation (Hillier et al., 2011), and cross-listings (Diniz-Maganini et al., 2023). We build on such insights to link country-level legal characteristics to firm-level takeover outcomes across a large sample of M&As from 61 countries; as such, we also add to growing international business and M&A literature (e.g., Ahern et al., 2015; Alimov, 2015; Bhagwat et al., 2021; Brockman et al., 2013; Cannon et al., 2020; Dessaint et al., 2017; Glendening et al., 2016; Zhou et al., 2016).

Theory and hypotheses

Board reforms and corporate outcomes

Since 1990, various reforms designed to strengthen corporate board functions have been implemented across the world. Although the details differ, the key goal of these reforms is to increase the oversight of board directors by promoting board independence and the separation of the chair from the CEO. Research in turn has established that corporate board reforms increase firm value (Fauver et al., 2017) and firm profitability during initial public offerings (Chen et al., 2022). Bae et al. (2021) reveal that firms pay higher dividends once reforms have empowered board directors and shareholders, and similarly, Chen et al. (2020) show

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[2] In their study across 39 countries, Dyck and Zingales (2004) estimate the average value of private control to be 14% of the firm equity value.

that managers reduce corporate cash holdings and increase R&D after reforms. According to Hu et al. (2020), board reforms are associated with reductions in stock price crash risks. Finally, Driss (2022) documents improvements in investment–stock price sensitivity. In summary, extant studies offer consistent, convincing evidence that board reforms improve corporate governance practices that eventually enhance shareholder value.

Unlike these prior studies though, we explore a distinct value creation channel, namely, that due to corporate takeovers. Our findings – that reform-induced M&A synergies mainly accrue to acquirer shareholders rather than target shareholders – also differ from previous M&A literature that suggests the benefits of value creation mainly benefit target shareholders and that most acquirers of listed targets barely break even or experience negative returns (e.g., Fuller et al., 2002; Moeller et al., 2004). We explore the reasons for these differences hereafter.

Corporate governance, bid competition, and M&A performance

Corporate governance is a key determinant of M&A performance for acquirer and target shareholders (Dahya et al., 2019; Masulis et al., 2007). To the extent that corporate governance improves due to better board oversight in the target firm, board reforms in the target country should enhance overall takeover value, including greater economic synergies at the deal level. This increase in takeover value stems from two sources. First, better governed targets offer greater growth potential (Gompers et al., 2003) and a more transparent informational environment (Durnev et al., 2009; Sugathan & George, 2015), so the acquirer can more readily identify sources of synergetic gains.[3] Second, strengthened board oversight may decrease the private benefits of control in some target firms. Following these arguments, we propose:

Hypothesis 1 Overall M&A value and deal synergies increase after a board reform is implemented in the target country.

Moreover, board reforms could affect the distribution of transaction gains between the acquirer and target shareholders. However, it is unclear ex ante which transaction party benefits more from the value redistribution induced by these reforms. If board reforms simultaneously enhance the target firm's value *and* strengthen the target's bargaining power, targets likely bargain for greater value from the acquisition. Meanwhile, acquirers in the post-reform era may experience lower (or comparable) returns, relative to the pre-reform period. In other words, board reforms may tilt the balance of bargaining power in favor of targets, allowing them to capture a larger share of the "acquisition pie." This hypothesis gives rise to the following predictions:

Hypothesis 2 M&A targets receive higher value (stock returns), while acquirers receive lower or comparable value, after a board reform is implemented in the target country, compared with before the reform.

Yet existing literature also shows that agency issues (i.e., conflicts of interest between managers and shareholders and between controlling and minority shareholders) are prevalent in some merger negotiations (e.g., Fich et al., 2011; Hartzell et al., 2004). The private value of control is so substantial for some shareholders that they demand significant transaction premia when they negotiate a sale of their controlling block of shares (Dyck & Zingales, 2004). According to the theory of private benefits of control, when controlling target shareholders lose their private benefits due to board reforms, their reservation price decreases, so the M&A premium should decrease following board reforms.[4] This alternative hypothesis, which we term the *private benefits hypothesis*, predicts a significant wealth transfer from target shareholders to acquirer shareholders in the post-reform period:

Hypothesis 3 M&A targets receive lower value (stock returns), while acquirers receive higher value, after a board reform is implemented in the target country, compared with before the reform.

Thus, whether post-reform M&A value accrues more to the acquirer or target shareholders is an empirical question. The net effect of such wealth redistribution depends on whether the drop in target controlling shareholders' private benefits outweighs the improvement in the target value after the board reform. We explore this question. In addition, with regard to the value effect, substantial international business and finance research posits that the effectiveness of reforms

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[3] A more transparent informational environment would allow bidders to identify access to new products, services, technologies, and efficient management teams more readily, which are important sources of synergies (Aktas et al., 2021).

[4] Theoretically, the decrease in target shareholders' reservation price and the deal premium could be greater in a hostile bid scenario, in which the bidder speaks directly to shareholders. However, we would expect the same effect in a friendly merger negotiation because the target board – representing the controlling shareholders – has less bargaining power after the reform deprives shareholders of their private benefits. Because hostile takeovers are almost completely absent from our sample (Schwert, 2000), we do not distinguish between hostile and friendly takeovers for our empirical tests.

relies on the institutional quality and country-level protections available to external investors (e.g., La Porta et al., 1997, 1998, 2000, 2002). According to this view, enhanced institutional quality or shareholder protection increases the effects of firm-level corporate governance. Therefore, we also study the heterogeneity of reform effects in our empirical analyses.

Data and summary statistics

Board reforms around the world

We start with all countries that implemented major board reforms during 1985–2021. This initial sample of countries comes from Fauver et al. (2017), who use various data sources to identify these board reforms, including the World Bank, the European Corporate Governance Institute, and prior research (e.g., Kim & Lu, 2013).[5] Because the last board reform in their sample took place in 2007, we expanded it by manually identifying additional major reforms using the criteria applied by Fauver et al. (2017). The updated list of board reforms expands to 61 countries; the latest reform was implemented in 2016. Most reforms involve board independence, audit committee and auditor independence, and CEO/chair separation.[6] We report the reform year, reform components, and reform type for each country in Panel A of Table 1.

Countries implement board reforms for various reasons, but the ultimate motivation is to enhance corporate governance mechanisms that constitute an "important element in strengthening the foundation for individual countries' long-term economic performance and in contributing to a strengthened international financial system."[7] Anecdotal evidence suggests that boardroom reforms tend to occur after major corporate frauds and scandals. For example, the Enron and WorldCom scandals in the United States accelerated adoption of the 2002 Sarbanes–Oxley Act. The Parmalat scandals in Italy led to the institution of the Corporate Governance Code by the Borsa Itialiana.[8] Our

identification strategy leverages the assumption that such reforms are exogenous to individual firms, which seems likely, in that individual firms cannot determine the exact timing or outcomes of a nationwide reform implementation (e.g., Bae et al., 2021; Chen et al., 2020, 2022; Driss, 2022; Fauver et al., 2017). However, board reforms could correlate with a country's economic prospects or institutional quality, such that they would be endogenous to these country-level variables. To address this concern, in Panel B of Table 1, we include economic and institutional determinants, such as GDP growth, GDP per capita, economic size, stock market development, and quality of institutions, and we check whether they predict board reforms in our sample. The regression results indicate that none of these factors significantly correlates with the timing of the board reforms, confirming our sense that the reforms are plausibly exogenous.[9]

Sample of M&As

We gather M&A transactions from the Refinitiv SDC database. For each of the 61 sample countries, we extract all domestic transactions and cross-border M&A deals involving acquirer and target firms from our sample countries. The M&A sample starts in 1985 and ends in 2021, 5 years after the last board reform. We drop M&A transactions for which the status of the bidders or target firms is a government agency, joint ventures, or mutual funds, as well as those for which the acquisition form is buyback, exchange offers, or recapitalization. We also remove financial targets (standard industrial classification [SIC] codes 6000–6999). These data filters yield a sample of 607,293 deals across the 37-year sample period, with a total deal value of approximately $50 trillion.

In columns 6 and 7 of Table 1, Panel A, we find that, in terms of aggregate M&A number and deal value, the most active target countries are the United States and United Kingdom. In Fig. 1, we present the volume of M&A transactions by year; in terms of M&A deal number, a first peak occurs around 1999 and 2000, coinciding with the dotcom bubble. The second wave of M&A activities appears around 2006 and 2007, just before the global financial crisis, followed by another surge in deals during the last 2 years of our sample period. We find a similar pattern for M&A activity measured by deal value. These patterns signal that M&As occur in waves at the aggregate level, in both domestic and cross-border contexts (e.g., Ahmad et al., 2021; Harford, 2005; Maksimovic et al., 2013).

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[5] Fauver et al. (2017) provide a detailed description of the reforms implemented in each country in their "Appendix 1".

[6] Reforms in five countries focus on other aspects of board practices, such as definitions of board responsibilities, elections of board members, and board disclosures: Brazil, Colombia, Czech Republic, Hungary, and Switzerland. We keep these countries in our sample for completeness, like in Fauver et al. (2017). We do not find any countries that introduce reforms that weaken corporate governance mechanisms.

[7] See the statements from the 2009 Latin American Corporate Governance Roundtable.

[8] For a discussion of the rationales for some board reforms, see Rockness and Rockness (2005).

[9] In our robustness tests, we track the dynamic effects of board reforms to confirm their exogeneity.

Table 1 Sample description

Country	Reform year	Reform component			Reform type	Number of deals	Deal value
		A	B	C			
	1	2	3	4	5	6	7
Panel A. Reform country and sample distribution							
Argentina	2001	0	1	0	Rule-based	1811	75.60
Australia	2004	1	1	1	Comply-or-explain	21,443	1236.24
Austria	2004	1	1	0	Comply-or-explain	2563	88.08
Belgium	2005	1	1	1	Comply-or-explain	4591	258.53
Brazil	2002	0	0	0	Rule-based	7136	549.53
Bulgaria	2007	1	1	1	Comply-or-explain	600	19.79
Canada	2004	1	1	1	Rule-based	28,841	1821.98
Chile	2001	0	1	0	Rule-based	1355	81.49
China	2001	1	1	0	Rule-based	18,619	1860.32
Colombia	2001	0	0	0	Rule-based	936	53.79
Croatia	2007	1	0	1	Comply-or-explain	438	10.78
Cyprus	2002	1	1	1	Comply-or-explain	418	21.98
Czech Rep.	2001	0	0	0	Rule-based	2334	58.94
Denmark	2001	1	0	0	Comply-or-explain	5243	223.09
Egypt	2002	1	1	0	Rule-based	449	49.29
Finland	2004	1	1	1	Comply-or-explain	6001	188.42
France	2003	0	1	0	Rule-based	26,822	1390.59
Germany	2002	1	1	0	Comply-or-explain	27,717	1530.76
Greece	2002	1	1	0	Rule-based	969	87.85
Hong Kong	2005	1	1	1	Comply-or-explain	5239	509.21
Hungary	2003	0	0	0	Comply-or-explain	1340	26.19
Iceland	2004	1	1	1	Comply-or-explain	174	16.22
India	2002	1	1	0	Rule-based	6070	257.56
Indonesia	2007	1	1	0	Rule-based	1622	78.43
Ireland	1995	1	1	1	Comply-or-explain	3094	295.10
Israel	2000	1	1	1	Rule-based	1372	157.63
Italy	2006	1	1	0	Rule-based	11,960	963.51
Japan	2002	0	1	0	Rule-based	22,300	1222.43
Kazakhstan	2005	1	0	0	Comply-or-explain	236	19.64
Kenya	1999	1	1	1	Comply-or-explain	177	5.17
Kuwait	2010	1	1	1	Comply-or-explain	145	17.71
Luxembourg	2007	1	1	1	Comply-or-explain	653	149.74
Malaysia	2001	1	1	0	Comply-or-explain	7393	155.99
Mexico	2001	1	1	0	Rule-based	2409	259.94
Netherlands	2004	1	1	1	Comply-or-explain	10,799	944.98
New Zealand	2004	1	1	1	Comply-or-explain	3559	99.44
Nigeria	2003	1	1	1	Comply-or-explain	259	26.00
Norway	2005	1	1	1	Comply-or-explain	5312	286.96
Pakistan	2002	0	1	0	Comply-or-explain	150	7.93
Peru	2005	1	1	0	Comply-or-explain	867	32.30
Philippines	2002	1	1	0	Comply-or-explain	1017	45.25
Poland	2002	1	0	0	Comply-or-explain	3623	118.90
Romania	2001	1	0	0	Comply-or-explain	1038	17.81
Russia	2002	1	0	1	Comply-or-explain	9797	268.76
Saudi Arabia	2006	1	1	1	Comply-or-explain	293	107.72

Table 1 (continued)

Country	Reform year	Reform component			Reform type	Number of deals	Deal value
		A	B	C			
	1	2	3	4	5	6	7
Singapore	2003	1	1	0	Comply-or-explain	3983	319.18
Slovakia	2002	1	1	1	Comply-or-explain	409	3.67
South Africa	2002	1	1	1	Comply-or-explain	3584	207.71
South Korea	1999	1	1	0	Rule-based	5683	566.38
Spain	2006	1	1	0	Comply-or-explain	13,350	635.27
Sweden	2006	1	1	1	Comply-or-explain	11,437	593.87
Switzerland	2002	0	0	0	Comply-or-explain	6488	730.75
Taiwan	2002	1	1	0	Rule-based	1153	123.88
Thailand	2002	1	1	0	Comply-or-explain	1293	77.66
Tunisia	2008	1	1	1	Comply-or-explain	115	1.81
Turkey	2002	1	0	1	Comply-or-explain	1710	100.17
UAE	2016	1	1	0	Rule-based	765	58.68
Ukraine	2003	1	0	1	Comply-or-explain	1029	21.53
UK	1998	1	1	1	Comply-or-explain	65,899	4274.40
US	2003	1	1	0	Rule-based	229,347	26395.73
Total						607,293	49,892.63

	Board reform	
	Within country	Cross country
	1	2
Panel B. Determinants of board reforms		
GDP growth	−0.002	−0.004
	(0.465)	(0.370)
Per-capita GDP	0.011	−0.003
	(0.927)	(0.919)
GDP	0.002	0.012
	(0.984)	(0.167)
Stock market development	0.002	0.011
	(0.926)	(0.340)
Investment profile	0.002	0.006
	(0.753)	(0.433)
Quality of institutions	−0.011	−0.005
	(0.409)	(0.597)
Year FE	Yes	Yes
Country FE	Yes	No
Adjusted R^2	0.840	0.793
Observations	1494	1494

Panel A presents the distribution of the M&A sample by target country. The M&A sample, covering the 1985–2021 period, is from Thomson Reuters SDC database and includes domestic and cross-border deals completed by acquirers and targets from the 61 countries for which major board reform data is available. For each country, we report the reform year in column 1, the reform component in columns 2–4, the reform type in column 5, the number of deals in column 6 and the aggregate deal value (in US$ billions) in column 7. Reform component A, B, and C are binary variables identifying board reforms related to board independence, audit committee independence, and chairman and CEO separation, respectively. Panel B reports the regression analysis of reform determinants. The dependent variable is a binary variable that equals one if a major board reform is effective in a given target country in a given year, and zero otherwise. All the macroeconomic factors are defined in "Appendix 1". *P* values are reported within parentheses below the coefficient estimates. Robust standard errors are clustered at the country level

Fig. 1 Sample distribution by year. This figure plots the sample distribution by year. The M&A sample, covering the 1985–2021 period, is from Thomson Reuters SDC database and includes domestic and cross-border deals completed by acquirers and targets from the 61 countries for which major board reform data is available. The sample includes 607,293 deals across the 37-year sample period, totaling a deal value of $49,892.64 billion. The *left axis* refers to the number of deals, and the right axis to the aggregate deal value in US$ billion
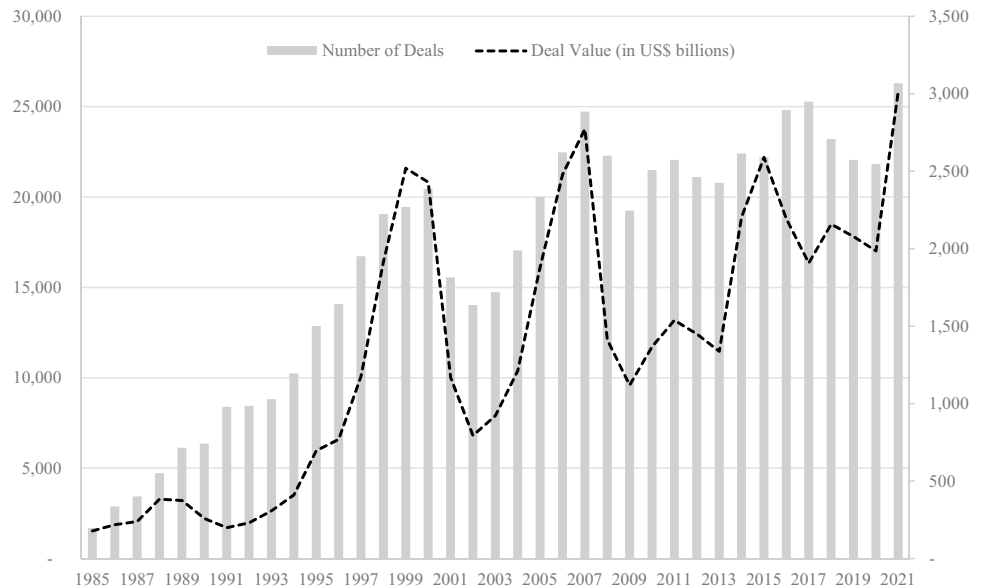
We rely on various data sources to construct the deal-, firm-, and country-level variables for our empirical analyses. Unless explicitly mentioned otherwise, SDC is the data source for deal-related variables; CRSP, Worldscope, and Compustat Global inform the firm-level variables; and the World Bank and International Country Risk Guide (ICRG) provide the country-level variables. All values are converted into U.S. dollars, if applicable.

The dependent variables in our empirical analyses are takeover gains measured by cumulative abnormal returns (CAR) at the target, acquirer, and deal levels. In the main analysis, we compute announcement CAR over a 7-day event window around the announcement day, as in Dessaint et al. (2017). In robustness checks, we also report results with 3-day and 11-day alternative event windows. To compute the abnormal return, we use a market model with parameters estimated over the estimation period ($-236, -36$) relative to the announcement day; the local market index is a proxy for the market portfolio.[10]

Table 2 presents the summary statistics for all the variables in our main analyses;[11] "Appendix 1" provides their detailed definitions. According to Table 2, the average *Target CAR* is 22.2%, and the average acquirer CAR is 1.2% for the full sample, including both private and listed targets. For the sample of only listed targets, the average acquirer CAR is negative and equal to -1.0%. In this subsample, the positive *Combined CAR* (2.1%) indicates that the sample deals are synergy-driven on average.[12] These statistics are consistent with prior international M&A literature (e.g., Dessaint et al., 2017). The average *Offer Premium* is 42.2%, consistent with the offer premium of 42% reported by Rossi and Volpin (2004) for an international sample and with the premium of 46% observed in a U.S. sample by Eckbo (2009). We also tabulate country-industry-year-level M&A activities (see Table 2), which compare favorably to the deal activities reported by Bargeron et al. (2008) for a sample of domestic U.S. transactions involving listed targets.

With regard to deal characteristics, such as the proportion of cross-border deals, horizontal deals, hostile deals, and cash-only payments, our sample also is comparable to prior research that relies on international M&A data (e.g., Alimov, 2015; Dessaint et al., 2017; Rossi & Volpin, 2004). The proportion of vertical deals in our sample is 13.6%.[13] For a sample of U.S. deals among listed companies, Kedia et al. (2011) report that the proportion of vertical deals ranges between 9.88 and 21.28%, depending on the industry classification applied.

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[10] We use the local market index, because Aktas et al. (2004) document that CARs are not affected by the choice of the market index (local versus global equity market index), on average. Our choice is also consistent with prior international M&A literature that relies on the local equity market index to compute M&A announcement returns (Ahern et al., 2015; Bhagwat et al., 2021; Dessaint et al., 2017). See also El Ghoul et al. (2023) for a discussion of how to conduct event studies in international finance research.

[11] To mitigate the influence of outliers, all firm-level variables are winsorized at the top and bottom 2.5% of the distribution. We obtain similar results if we use 1% as an alternative winsorization threshold (unreported).

[12] *Combined CAR* is the market value-weighted CAR (of the acquirer and target), using the merging parties' market capitalization 4 weeks before the announcement as the weight.

[13] We follow the approach in Kedia et al. (2011) to identify vertical deals (see variable definitions in "Appendix 1").

Table 2 Summary statistics

Variable name	Mean	St. Dev.	Q1	Median	Q3	N
Dependent variables						
Target CAR	0.222	0.236	0.053	0.180	0.340	11,695
Offer premium	0.422	0.491	0.152	0.335	0.577	6186
Acquirer CAR	0.012	0.090	−0.034	0.004	0.048	48,755
Target CAR, public acquirers	0.217	0.233	0.052	0.184	0.338	4310
Acquirer CAR, public targets	−0.010	0.093	−0.064	−0.011	0.036	4310
Combined CAR	0.021	0.090	−0.031	0.016	0.067	4310
Number-based M&A activity						
Ln(1+M&A Volume)	2.587	1.402	1.386	2.398	3.466	12,237
M&A intensity Fin. Acq.	0.120	0.166	0.000	0.066	0.188	12,237
Value-based M&A activity						
Ln(1+M&A volume)	4.892	3.060	2.638	5.252	7.135	12,237
M&A intensity fin. acq.	0.123	0.255	0.000	0.000	0.093	12,237
Firm and deal characteristics						
Firm size	6.484	2.331	4.984	6.502	7.976	48,755
ROA	0.018	0.179	0.003	0.051	0.093	48,755
Market-to-book	0.027	0.024	0.014	0.022	0.030	48,755
Relative deal size	0.316	0.547	0.035	0.162	0.352	48,755
Cash only	0.284	0.451	0.000	0.000	1.000	48,755
Hostile	0.004	0.063	0.000	0.000	0.000	48,755
Cross-border	0.227	0.419	0.000	0.000	0.000	48,755
Number of bidders	1.016	0.146	1.000	1.000	1.000	48,755
Horizontal	0.566	0.496	0.000	1.000	1.000	48,755
Vertical	0.136	0.343	0.000	0.000	0.000	48,755
Country characteristics						
GDP	29.452	1.137	28.657	29.896	30.257	48,755
GDP per capita	10.498	0.571	10.400	10.618	10.791	48,755
GDP growth	2.882	2.047	2.011	2.783	4.077	48,755
Investment profile	4.747	0.333	4.638	4.841	4.967	48,755
Quality of institutions	3.668	3.152	1.590	3.069	6.324	48,755
Real interest rate	10.775	1.649	9.667	11.542	12.000	48,755
Stock market development	13.371	1.595	13.000	13.833	14.000	48,755

This table provides the descriptive statistics of the variables used in our multivariate analyses. All the variables are defined in "Appendix 1"

Empirical results

Board reforms and M&A performance

To investigate the impact of board reforms on M&A performance, we adopt a quasi-DiD method. Specifically, we compare the deal announcement returns for the treated firms (in a reform country) with those for the control firms. We estimate the following ordinary least squares (OLS) regression:

$$\text{CAR}_{i,[-3,+3]} = \alpha + \beta \cdot \text{Post Target}_{i,t} + \mathbf{Z}_{i,t} + \eta_{y,j} + \psi_{c,j} + \varepsilon_{i,t}, \quad (1)$$

where the dependent variable is the (acquirer or target) firm i's CAR; Post Target is a dummy variable that equals 1 for M&As that occur in the post-reform period in target

countries affected by the reforms. In all regressions, we include granular industry-year fixed effects ($\eta_{y,j}$) and country-industry fixed effects ($\psi_{c,j}$). We define the industry at the two-digit SIC level. The fixed effects control for country–industry-specific and time-varying factors, such as industry-level M&A competition, that could affect deal returns. Next, $\mathbf{Z}_{i,t}$ contains firm-, deal-, and country-level characteristics, such as acquirer size, relative deal size, return on assets, market-to-book value, hostile bid, cash-only deal, cross-border deal, number of bidders, acquirer country GDP, GDP per capita, GDP growth rate, market capitalization (as a percentage of GDP), real interest rate, investment profile, and the quality of institution index. We also control for horizontal and vertical deal types because they exert

Table 3 Board reforms and M&A returns

	Target CAR	Offer premium	Acquirer CAR	Target CAR	Offer premium	Acquirer CAR
	1	2	3	4	5	6
Panel A. Full sample						
Post target	−0.050	−0.111	0.006	−0.039	−0.116	0.005
	(0.001)	(0.005)	(0.019)	(0.035)	(0.021)	(0.047)
Post acquirer				−0.017	0.009	0.002
				(0.335)	(0.807)	(0.455)
Firm size	−0.013	−0.062	−0.005	−0.013	−0.061	−0.005
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROA	−0.011	−0.045	−0.005	−0.012	−0.046	−0.005
	(0.631)	(0.358)	(0.202)	(0.591)	(0.337)	(0.202)
Market-to-book	−0.043	−0.079	0.037	−0.039	−0.086	0.037
	(0.581)	(0.809)	(0.032)	(0.648)	(0.793)	(0.036)
Relative deal size	−0.037	0.050	0.011	−0.037	0.050	0.011
	(0.000)	(0.033)	(0.000)	(0.000)	(0.031)	(0.000)
Cash only	0.081	0.108	0.004	0.081	0.108	0.004
	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.002)
Hostile	0.050	0.227	−0.024	0.051	0.226	−0.024
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cross-border	0.024	0.082	0.000	0.024	0.080	0.000
	(0.260)	(0.013)	(0.773)	(0.253)	(0.011)	(0.773)
Number of bidders	−0.089	0.561	−0.029	−0.088	0.564	−0.029
	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.005)
Horizontal	0.035	−0.002	−0.001	0.035	−0.002	−0.001
	(0.000)	(0.889)	(0.116)	(0.000)	(0.880)	(0.136)
Vertical	0.036	0.026	−0.002	0.036	0.025	−0.002
	(0.000)	(0.175)	(0.137)	(0.000)	(0.164)	(0.141)
GDP	−0.151	−0.127	−0.077	−0.167	−0.124	−0.079
	(0.563)	(0.795)	(0.114)	(0.522)	(0.797)	(0.089)
GDP per capita	0.098	0.196	0.093	0.113	0.192	0.096
	(0.712)	(0.724)	(0.067)	(0.669)	(0.725)	(0.048)
GDP growth	−0.005	0.003	−0.002	−0.005	0.004	−0.002
	(0.138)	(0.688)	(0.061)	(0.150)	(0.648)	(0.062)
Stock market dev.	0.005	0.022	0.001	0.005	0.022	0.001
	(0.179)	(0.260)	(0.815)	(0.164)	(0.257)	(0.817)
Real interest rate	0.002	0.005	0.001	0.002	0.004	0.001
	(0.567)	(0.439)	(0.331)	(0.560)	(0.530)	(0.340)
Investment profile	0.005	0.022	0.002	0.006	0.022	0.002
	(0.409)	(0.155)	(0.012)	(0.386)	(0.153)	(0.015)
Quality of institutions	0.017	0.038	−0.001	0.016	0.038	−0.001
	(0.114)	(0.027)	(0.788)	(0.122)	(0.025)	(0.734)
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.115	0.049	0.042	0.116	0.048	0.042
Observations	11,695	6186	48,755	11,695	6186	48,755

	Target CAR	Offer premium	Acquirer CAR	Combined CAR
	1	2	3	4
Panel B. Deals between listed firms				
Post target	−0.032	−0.118	0.030	0.019
	(0.028)	(0.000)	(0.001)	(0.012)

Table 3 (continued)

	Target CAR	Offer premium	Acquirer CAR	Combined CAR
	1	2	3	4
Controls	Yes	Yes	Yes	Yes
Year×Industry FE	Yes	Yes	Yes	Yes
Country×Industry FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.138	0.085	0.019	0.045
Observations	4310	4310	4310	4310

This table presents the coefficient estimates of OLS regressions examining the effect of board reforms on M&A returns. Panel A reports the full sample and Panel B reports the subsample of deals between listed companies. The heading of the column refers to the dependent variable. The announcement CAR is computed using 7-day event window around the announcement day. *Offer premium* is defined as offer price relative to the target market price 4 weeks prior to the M&A announcement. The independent variable of interest is *Post Target* (*Acquirer*) which is a binary variable equal to one starting the year in which the board reform becomes effective in the target (acquirer) country. Variable definitions are in "Appendix 1". In Panel B, each model includes the same set of controls and fixed effects (FE) as in Panel A, whose coefficients are untabulated for brevity. The inclusion of fixed effects (FEs) is indicated at the bottom of the table. Industry FEs are based on two-digit SIC industry definition. *P* values are reported within parentheses below the coefficient estimates. Robust standard errors are clustered at the country level

differential effects on acquirer returns (Kedia et al., 2011). Robust standard errors are clustered at the country level.

We first examine the target's abnormal returns. The first column in Panel A of Table 3 contains the regression results based on Eq. (1), using the full sample of listed targets. The coefficient estimate of *Post Target* is negative and statistically significant at the 1% level, suggesting that targets experience lower deal returns after the board reform. On average, the target CAR is 5% lower than in the pre-reform period. This result supports the *private benefits* hypothesis that board reforms lead target firms to give up substantial takeover gains, because the reform deprives their controlling shareholders of private benefits of control over the target firm's resources. To examine directly whether the reforms lower the reservation price that the target shareholders demand, in column 2, we replace the dependent variable in Eq. (1) with *Offer Premium*.[14] The results show that for reform-affected transactions, the acquisition premium is approximately 11.1% lower, statistically significant at the 1% level. The magnitude of the premium decrease is economically sizeable, considering the average deal premium of 42.2%. The decrease in deal premium (− 11.1%) is also close to the average premium of private benefits of control reported by Dyck and Zingales (2004), namely, 14%. Therefore, this evidence is consistent with the theory that the loss of private benefits of control results in lower deal premia and lower target announcement returns.

Moreover, the results in column 3 of Panel A indicate that, following a reform in the target country, acquirer abnormal returns increase by 0.6%, significant at the 5% level. Taken together, these findings support the *private benefits*

hypothesis that board reforms trigger a wealth redistribution (Hypothesis 3). The treated target shareholders receive lower returns; the treated acquirer shareholders benefit from the reforms. In contrast, these results reject the prediction that, on average, target firms strengthen their bargaining power after board reforms (Hypothesis 2).[15]

One potential concern with the preceding analyses is that in some deals, the acquirer may be affected by the board reform too (i.e., in domestic deals or some cross-border deals in which the acquirer country implements a board reform around the same time as the target country). To confirm that the results are consistent with the private benefits of control theory, we must ensure that they are not driven by acquirer country reforms. To discern the effect of acquirer-side reforms, in columns 4–6 in Panel A of Table 3, we augment the specification of the first three columns with *Post Acquirer*, an indicator variable that identifies the post-reform period in acquirer countries affected by board reforms. These robustness tests account for both acquirer and target reforms, and they show that acquirer-side board reforms do not have a significant impact on announcement CARs or on the offer premium paid. The estimates of *Post Target* remain similar in both statistical significance and magnitude. These results reinforce our interpretation of the findings, on the basis of the private benefits of control theory.[16]

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[14] We include fewer observations in this regression because many deal premiums are unavailable in SDC.

[15] Some of the control variables in Table 3 yield results that are in line with existing M&A studies. For example, similar to Cai and Sevilir (2012) and Masulis et al. (2007), we find that firm size is inversely related to the market's reaction. As in Malmendier and Tate (2008), the cash payment indicator is positively related to the M&A announcement return. As in Alexandridis et al. (2010), the number of bidders is negatively associated with the target CAR but positively associated with the offer premium.

[16] Subsequently, given our focus on target country reforms and the

We also investigate deal-level performance (i.e., deal synergies), with a public M&A subsample in which both the acquirer and target firms are listed companies. We report the results in Panel B of Table 3. With this subsample, we first reexamine the wealth redistribution hypothesis. Consistent with the results that we derive from the full sample (Panel A), reform-affected target shareholders obtain significantly lower returns (approximately − 3.2% in magnitude), while their acquirer counterparts achieve significantly higher CARs (about 3.0%) with an M&A announcement (columns 1 and 3, Panel B). To establish the economic magnitude of these findings, considering that the average target market capitalization was $1475 million 4 weeks before the deal announcement, a 3.2% decrease in returns translates into a $47 million decrease in the acquisition gains for the target shareholders. Echoing the results in Panel A and consistent with the prediction of lower reservation prices required by target controlling shareholders, column 2 of Panel B shows that the offer premium is about 11.8% lower after the board reform comes into effect in the target country.

In the last column of Panel B, the dependent variable is *Combined CAR*, which captures the expected M&A synergies.[17] Following a reform in the target country, deal returns increase by 1.9%. This evidence suggests that enhancing board functions improves the overall economic gains in a transaction, consistent with the prediction outlined in Hypothesis 1.

Thus, we confirm Hypothesis 1, in which we predicted greater M&A synergies after board reforms, and Hypothesis 3, in which we anticipated worse (higher) target (acquirer) returns due to lowered reservation prices required in the M&A transaction. The evidence suggests that the reduction of targets' private benefits of control outweighs the possible increase in their bargaining power following the reform.

Assessing the role of target block ownerships

Our baseline finding of a wealth redistribution from target shareholders to acquirer shareholders is consistent with the *private benefits* hypothesis. As Dyck and Zingales (2004) argue, private benefits of control are most prevalent in companies with large (strategic) block owners. In line with this argument, those authors show that target shareholders

demand a higher premium in transactions that involve block sales. In this section, we therefore test whether our baseline results might be driven by M&As that involve sales of block shares. In doing so, we attempt to provide direct evidence of the validity of the theory of private benefits of control.

We begin by collecting strategic block ownerships from the Bureau van Dijk Orbis database. We do not consider financial institutional block owners, which generally exert better governance and therefore are less likely to extract private benefits. We note some caveats associated with the use of the Orbis data. In particular, the coverage of Orbis ownership data became more comprehensive after 2003. To address this concern and provide necessary time-series variation for our empirical tests, we follow Schwartz-Ziv and Volkova (2023) and de Bodt, Cousin and Officer (2022), by filling ownership data backward, up to 1996.[18] This test focuses on a subsample of 1039 M&As for which we can obtain ownership data.

We regress *Target CAR* on the interaction term of the *Post Target* dummy and *Blockholder* variable. We measure target block ownerships (*Blockholder*) in two ways: the number of strategic block holders and an indicator variable that equals 1 if at least one block holder is present at the time of the M&A deal. As we detail in Panel A of Table 4, in columns 1 and 2, we use a conventional 5% threshold of ownership to define a block shareholder.[19] The results show that the negative effect of reform on *Target CAR* becomes significantly stronger when the sale involves block shares. This evidence supports the conjecture that block ownerships, which tend to be associated with greater private benefits of control before the reform, drive our baseline findings. In columns 3 and 4, we probe the robustness of these findings by using a more stringent definition of block shareholders that identifies block holders as those who control at least 20% of the target firm. Our conclusion remains unchanged. In untabulated results, we replace the dependent variable with *Offer Premium*. Similar to the results of target CAR and consistent with the theory of private benefits of control, we find that, following reforms, acquirers pay significantly lower premiums in deals when block shareholders are present in the target firm.

Footnote 16 (continued)

insignificant *Acquirer Post* coefficient, we run models with *Post Target* only.

[17] Deal-level CAR measures synergetic gains in isolation from improvement of the target value due to the reform (e.g., Bradley et al., 1988; Moeller et al., 2004). By construction, combined CAR captures M&A-related *abnormal* stock returns in excess of the expected return. The latter incorporates the value improvement of the target firm following the reform.

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[18] The extrapolation relies on the assumption that ownership blocks remain stable – a reasonable assumption according to prior literature (e.g., de Bodt et al., 2022), though we still note the potential for measurement errors.

[19] We use the 5% threshold, following prior conventions (e.g., Anderson & Reeb, 2003; Claessens et al., 2000; Faccio & Lang, 2002; Villalonga & Amit, 2006).

Table 4 Heterogeneous effects of board reforms on target CAR

	Ownership above 5%		Ownership above 20%	
	Number	Dummy	Number	Dummy
	1	2	3	4
Panel A. Target's block ownership				
Post target	−0.095	−0.096	−0.103	−0.102
	0.050	(0.050)	0.017	0.017
Post target × Blockholder	−0.199	−0.181	−0.173	−0.181
	0.021	(0.094)	0.059	0.108
Blockholder	0.222	0.223	0.165	0.165
	0.003	(0.003)	0.026	0.033
Year × Industry FE	Yes	Yes	Yes	Yes
Country × Industry FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.086	0.086	0.083	0.083
Observations	1,039	1,039	1,039	1,039

	All reforms	Board independence	Audit committee independence	Chairman and CEO separation
	1	2	3	4
Panel B. Reform approaches and components				
Post target	−0.027	−0.059	−0.051	−0.056
	(0.085)	(0.000)	(0.000)	(0.021)
Post target × C-or-E	−0.060			
	(0.002)			
Controls	Yes	Yes	Yes	Yes
Year × Industry FE	Yes	Yes	Yes	Yes
Country × Industry FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.121	0.115	0.115	0.115
Observations	11,695	11,695	11,695	11,695

	Better accounting standards	Better shareholder protection	Better quality of institutions	High stock market development
	1	2	3	4
Panel C Country characteristics				
Post target	−0.030	−0.037	−0.052	−0.018
	(0.020)	(0.004)	(0.000)	(0.071)
Post target × Country characteristics	−0.081	−0.063	−0.041	−0.099
	(0.000)	(0.003)	(0.004)	(0.000)
Country characteristics			0.014	0.097
			(0.461)	(0.000)
Controls	Yes	Yes	Yes	Yes
Year × Industry FE	Yes	Yes	Yes	Yes
Country × Industry FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.126	0.126	0.126	0.127
Observations	11,695	11,695	11,695	11,695

	Financial acquirer	Acquirer cash ratio
	1	2
Panel D. Acquirer characteristics		
Post target	−0.052	−0.011

Table 4 (continued)

	Financial acquirer	Acquirer cash ratio
	1	2
	(0.000)	(0.628)
Post target × Acquirer characteristics	0.020	−0.062
	(0.019)	(0.027)
Acquirer characteristics	−0.043	0.010
	(0.000)	(0.612)
Controls	Yes	Yes
Year×Industry FE	Yes	Yes
Country×Industry FE	Yes	Yes
Adjusted R^2	0.111	0.126
Observations	11,695	5368

This table examines potential factors affecting the sensitivity of *Target CAR* to board reforms. Panel A considers target's block ownership to better assess the private benefits of control theory in explaining the baseline result. Columns 1–2 (3–4) account for blocks greater than 5% (20%). In columns 1 and 3, *Blockholder* corresponds to the number of block holders, and in columns 2 and 4, it is a dummy variable identifying firms with at least one block holder in a given year. In Panel B, *C-or-E* is a binary variable equal to one for countries adopting a comply-or-explain reform approach, and zero otherwise. Panel C considers four target country-level scores related to accounting standards, shareholder protection, quality of institutions, and stock market development. For each of these four variables, *Country characteristics* is a binary variable equal to one if the corresponding country score in a given year is above the median value, and zero otherwise. Panel D considers two acquirer characteristics, *Financial Acquirer* and *Cash Ratio*, likely affecting the sensitivity of *Target CAR* to board reforms. *Financial Acquirer* is a dummy variable identifying financial firms, and *Cash Ratio* corresponds to the acquirer's cash and short-term investments divided by its total assets. In all models, the dependent variable is *Target CAR* (i.e., 7-day announcement abnormal returns). *Post Target* is a binary variable equal to one starting the year in which the board reform becomes effective in the target country. Each model includes the same set of controls and fixed effects (FEs) as in Panel A of Table 3. Variable definitions are in "Appendix 1". *P* values are reported within parentheses below the coefficient estimates. Robust standard errors are clustered at the country level

Reform approaches and components

Next, we probe which reform approach and component are most relevant to target M&A performance.[20] First, we explore whether the reform implementation approach chosen matters for M&A deals. Board reforms are usually implemented with either a comply-or-explain or one-size-fits-all tactic. The former grants firms an opt-out option. For example, the U.K. Financial Aspects of Corporate Governance reform requires companies to explain why they do not comply if they choose to opt out. The one-size-fits-all approach, such as the U.S. Sarbanes–Oxley Act of 2002, requires all public firms to comply. Fauver et al. (2017) find that the comply-or-explain approach better facilitates improvements in firm value, because it avoids overregulation.

In the first column of Panel B of Table 4, we run a target CAR regression on a dummy variable, *C-or-E*, which indicates a comply-or-explain reform, a *Post Target* treatment variable, and their interaction term. Because country-industry fixed effects subsume the coefficient on *C-or-E*, this variable is not tabulated. We are mainly interested in the estimate of *Post Target × C-or-E*. Column 1 shows that this

interaction term is negative and statistically significant at the 1% level, indicating that a comply-or-explain reform has more a negative impact on the target's returns. In terms of the economic effect, a comply-or-explain reform decreases target CARs by 6%. This magnitude is slightly larger than the estimate in the baseline regression. Therefore, our results are consistent with those reported by Fauver et al. (2017).

The reform components also might reveal information about the effectiveness of various reform issues. Similar to Fauver et al. (2017), we classify reforms into three categories, related to (1) improving board independence, (2) increasing audit committee or auditor independence, and (3) mandating the separation of CEO and chairman positions.

We run the regressions of target CAR for the different reform components separately (see columns 2–4, Table 4, Panel B). All three reform components are associated with a negative impact on target returns, indicating that all these elements have material effects on reducing the private benefits of control in the target firm. In terms of economic magnitudes, the reforms that enhance board independence are associated with slightly larger effects.

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[20] We use the full M&A sample hereafter. All our results remain similar when we use the public M&A subsample (unreported).

Cross-country heterogeneity: Role of institutional quality and investor protection

Convincing evidence indicates that the quality of institutions at the country level has a strong impact on law enforcement and thus on the effectiveness of individual reforms (e.g., Robinson et al., 2005). Country-level legal protections for external investors also affect capital markets and firm value (e.g., La Porta et al., 1997, 1998, 2000, 2002). In our research context, stronger protections for external shareholders and enforcement likely reinforce reform effects, because controlling shareholders effectively are less able to extract the private benefits of control. We investigate this issue in this section, in an effort to contribute to international business research into the direct impacts of country characteristics on firm outcomes.

We use four proxies for the target country's legal protection of external shareholders and institutional quality: (1) an index of *accounting standards* that measures the quality of corporate disclosure (La Porta et al., 2000); (2) an index of *shareholder protection*, which captures the degree of legal protection of minority shareholders against managers and/or dominant shareholders (Djankov et al., 2008); (3) a *quality of institutions* index, gauging the time-varying level of corruption, law and order, and bureaucratic quality (Driffield et al., 2013); and (4) *stock market development*, which corresponds to the share of the aggregate stock market capitalization in the target country's GDP (Hsu et al., 2014) and also is highly correlated with shareholder protection. By construction, a higher value for each proxy indicates better shareholder protection or institutional quality.

In Panel C of Table 4, we run regressions of target CAR on the interaction term of *Post Target × Country characteristic*, where *Country characteristic* is one of the four proxies for legal protection or institutional quality. Across Panel C, this interaction term remains negative and highly significant. Thus, the findings support the conjecture that the effects of board reforms are amplified in the countries where shareholder protections or institutional quality are high. In other words, target country-level legal protection strengthens firm-level reforms.

To complement the analysis, we also investigate the role of acquirer country-level characteristics, in untabulated results. Specifically, we run target CAR regressions similar to those reported in Panel C, but we measure acquirer country-level legal protection and use it as the independent variable. Better acquirer shareholder protection, as proxied by accounting standards and shareholder protection laws, reinforces the reform effect on the target return, consistent with the idea that acquirers – facing fewer synergies due to the corporate governance improvement of the target firm – pay smaller premia after the target reform.

Firm-level heterogeneity: Role of financial bidders and overpayment

In this section, we explore another source of heterogeneity that may affect target M&A returns, at the acquirer firm level. Two acquirer characteristics are of particular interest to us: financial bidders and acquirer cash ratio.

Existing M&A studies distinguish strategic buyers from financial bidders, because the latter, such as private equity (PE) firms, chase inefficiently managed target firms rather than operational synergies (Garbenko & Malenko, 2014) and offer lower bid premia on average (Bargeron et al., 2008). Unlike strategic bidders that can achieve operational synergies through product bundling or technological complementarities, financial bidders seek non-operational synergies through the financing channel and improved corporate governance practices. To the extent that board reforms directly enhance corporate governance (Fauver et al., 2017), financial bidders may face a smaller pool of potential targets and fiercer competition with other acquirers following reforms. As a result, post-reform financial bidders might increase their offer premia to complete the transaction (relative to the pre-reform premium). This competition channel then might attenuate the negative effect of the reform on target CAR in deals involving financial bidders.

To test this possibility, we augment Eq. (1) by interacting the *Post Target* dummy variable with an indicator variable for a financial acquirer. The specification in column 1 of Table 4, Panel D, is otherwise similar to that reported in Table 3. The definition of financial acquirers comes from SDC, which collects information about the nature of acquirers to identify, for example, whether the bidder is registered as a PE firm. Our definition of financial acquirers thus follows that used in extant work (e.g., Garbenko & Malenko, 2014).

In column 1, the coefficient estimate of the term *financial acquirer* is negative and statistically significant at the 1% level. Before the reform, target shareholders in deals involving financial acquirers receive a lower abnormal return, by approximately 4.3 percentage points, than did targets acquired by non-financial acquirers, as also indicated by Bargeron et al. (2008). After the reforms, however, the spread in target CAR between non-financial and financial acquirers decreased by 2.0 percentage points, as indicated by the statistically significant coefficient of the interaction term *Post Target × Financial Acquirer*. Thus, for financial bidders, target CAR is negatively affected by the board reforms, as predicted by the private benefits of control theory, but this negative effect is less pronounced for non-financial bidders, consistent with the effects of competition.

Our deal-level analysis indicates that, on average, M&As are driven more by efficiency after the board reforms in target countries. In that case, we should expect less

Table 5 Board Reforms and M&A activity

	M&A volume		M&A intensity financial acquirers	
	Number-based	Value-based	Number-based	Value-based
	1	2	3	4
Post target	0.039	−0.096	−0.023	−0.040
	(0.367)	(0.314)	(0.008)	(0.006)
GDP	−0.286	−0.155	−0.124	−0.118
	(0.527)	(0.850)	(0.011)	(0.019)
GDP per capita	0.732	1.281	0.105	0.120
	(0.139)	(0.188)	(0.034)	(0.024)
GDP growth	0.010	0.032	0.000	0.000
	(0.058)	(0.003)	(0.681)	(0.959)
Stock market dev.	0.025	0.090	−0.004	0.000
	(0.265)	(0.004)	(0.123)	(0.946)
Real interest rate	0.002	0.011	0.000	0.000
	(0.418)	(0.006)	(0.926)	(0.199)
Investment profile	−0.011	0.033	0.002	0.005
	(0.637)	(0.322)	(0.391)	(0.020)
Quality of institutions	0.029	0.000	0.002	−0.001
	(0.288)	(0.993)	(0.548)	(0.807)
Year × Industry FE	Yes	Yes	Yes	Yes
Country × Industry FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.887	0.611	0.223	0.101
Observations	12,237	12,237	12,237	12,237

This table presents OLS regression results examining the effect of board reforms on M&A activity in number-based (columns 1 and 3) and value-based (columns 2 and 4). In columns 1–2, the dependent variable is M&A Volume (i.e., aggregate M&A activity in industry-target country, where the industry is defined as Fama-French 12-industry). In columns 3–4, the dependent variable measures the M&A intensity by financial acquirers. *Post Target* is a binary variable equal to one starting the year in which the board reform becomes effective in the target country. The inclusion of fixed effects (FEs) is indicated at the bottom of the table. Variable definitions are in "Appendix 1". *P* values are reported within parentheses below the coefficient estimates. Robust standard errors are clustered at the country level

overpayment ex post. As an alternative approach to test for increasing efficiency in deal making, we examine overpayment and report the results in column 2 of Table 4, Panel D, using the acquirer's cash holdings to proxy for the likelihood of overpayment. Harford et al. (2012) show empirically that acquirers with more cash holdings are more prone to overpayment in M&As. In a spirit similar to that established for column 1, we focus on the interaction term *Post Target × Acquirer Cash Ratio*. As column 2 in Panel D shows, abnormal returns to the targets acquired by a high cash bidder are significantly lower in the post-reform years than in the pre-reform period. This result further underscores reform-induced efficiency for deal making.

Additional evidence: M&A volume in the post-reform period

In this section, we investigate the economic impact of board reforms on aggregate M&A activities in the target country. The increase in deal synergies and acquirer gains following the reform might lead to a more active takeover market, but because target shareholders have less to gain from takeovers after the reform, they also may be less likely to sell. Therefore, the *net* impact of board reforms on aggregate M&A activities remains unclear ex ante. By studying this question, we gain insights into the macro-level effects of board reforms on the country-level M&A landscape.

To inform this discussion, we run regressions based on Eq. (1) but replace the dependent variable with target country *M&A Volume*, measured by deal number or transaction value completed for an industry-country-year.[21] We control for country characteristics, as well as industry-year and country-industry fixed effects. Table 5 presents the results.

We start with overall M&A activities. Columns 1 and 2 in Table 5 show that the aggregate M&A deal number or value

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[21] Following Dessaint et al. (2017), we measure M&A deal volume at the country-industry level, where industry is classified according to the Fama-French 12 industries.

Table 6 Additional results and robustness checks

	[−5, +5] year Window	Excluding US acquirers	Excluding UK acquirers	Excluding Canadian Acq.
	1	2	3	4
Panel A. Subsample analyses				
Post target	−0.033	−0.058	−0.036	−0.063
	(0.086)	(0.041)	(0.005)	(0.000)
Controls	Yes	Yes	Yes	Yes
Year×Industry FE	Yes	Yes	Yes	Yes
Country×Industry FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.104	0.082	0.123	0.117
Observations	4877	4866	10,260	10,412

	Acquisition of 100% stake			Including withdrawn deals
	1			2
Panel B. Different M&A data screens				
Post target	−0.061			−0.032
	(0.000)			(0.011)
Controls	Yes			Yes
Year×Industry FE	Yes			Yes
Country×Industry FE	Yes			Yes
Adjusted R^2	0.125			0.132
Number of observations	7269			12,642

	3-day CARs			11-day CARs
	1			2
Panel C. Alternative event window CARs				
Post target	−0.055			−0.048
	(0.000)			(0.000)
Controls	Yes			Yes
Year × Industry FE	Yes			Yes
Country × Industry FE	Yes			Yes
Adjusted R^2	0.104			0.111
Observations	11,695			11,695

	Propensity score matching	Placebo reform years	Dynamic model	Stacked DiD regression
	1	2	3	4
Panel D. Propensity score matching, placebo test, dynamic model, and stacked DD regression				
Post Target	−0.039	0.000		−0.041
	(0.047)	(0.972)		(0.082)
Year 1 before reform			0.006	
			(0.807)	
Year 2 before reform			0.034	
			(0.105)	
Year of reform			−0.028	
			(0.146)	
Year 1 after reform			−0.053	
			(0.009)	

Table 6 (continued)

	Propensity score matching	Placebo reform years	Dynamic model	Stacked DiD regression
	1	2	3	4
Year 2 after reform			−0.039	
			(0.014)	
Years 3 and plus after reform			−0.061	
			(0.000)	
Controls	Yes	Yes	Yes	Yes
Year×Industry FE	Yes	Yes	Yes	Yes
Country×Industry FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.139	0.114	0.110	0.087
Observations	6679	11,695	11,695	4605

This table presents the coefficient estimates of OLS regressions examining the effect of board reforms on *Target CAR*. In all models, *Target CAR* is computed over a 7-day event window around the announcement date (except in Panel C). Panel A reports various subsample analyses. Column 1 limits the sample to deals announced over the [−5, +5] year window relative to the board reform year. The remaining three columns present the results after excluding the three most active M&A markets respectively. Panel B reports the results with alternative M&A data filters. Column 1 considers completed deals involving the acquisition of 100% stake in the target, and column 2 augments the sample with withdrawn deals. Panel C replicates the main results with *Target CAR* calculated over a 5-day (column 1) and 11-day (column 2) event windows. Panel D reports the estimation results of the propensity-score matching approach (column 1), the model with placebo reform years (column 2), the dynamic model (column 3), and the stacked DiD regression (column 4). *Post Target* is a binary variable equal to one starting the year in which the board reform becomes effective in the target country. Each model includes the same set of controls and fixed effects (FEs) as in Table 3, whose coefficients are untabulated for brevity. Variable definitions are in "Appendix 1". *P* values are reported within parentheses below the coefficient estimates. Robust standard errors are clustered at the country level.

remains unchanged following a board reform. Therefore, it appears that the two opposing forces (i.e., more acquirer gains and less willingness to sell due to better managed companies following reforms) cancel each other out, leading to a negligible net effect on M&A volume at the aggregate level. However, as we have argued previously, financial bidders likely get (partially) "squeezed out" of the takeover market, because the board reform deprives them of an importance source of M&A gains, namely, the improvement in the target firm's corporate governance. We confirm this conjecture with the results in columns 3 and 4 of Table 5, which show that both the number and value of deals completed by financial acquirers drop significantly after the reforms are in place.

Robustness checks

In this section and Table 6, we report on a battery of robustness checks. First, to mitigate concerns about confounding events, we restrict our sample period to 5 years before and after the reform. As column 1 of Panel A shows, the coefficient estimate of *Post Target* is negative and statistically significant at the 10% level. The economic effect is comparable to our main findings, as reported in Table 3.

Second, legal origins arguably might explain the effects of corporate governance reforms. In particular, our results might be driven by common law countries with a more developed capital market (La Porta et al., 1997). We examine this possibility by removing three largest common law countries in our sample, namely, United States, United Kingdom, and Canada. These countries also represent the most active M&A markets during our sample period. In Panel A of Table 6, we affirm that the findings of lower target CAR in the post-reform period are not driven by these countries though; the effects remain statistically significant when we exclude M&As in these regions (columns 2–4). The economic magnitude of the reform effect is also similar in these subsample analyses.

Third, we check if our results might be sensitive to the screening criteria. For example, our results might be driven by partial acquisitions or a sample selection bias due to our inclusion of only completed deals. Panel B of Table 6 features only 100%-stake deals; its column 1 shows that the effects of board reforms are similar to the baseline results. In column 2, we include withdrawn transactions in the analysis. The results again remain robust.

Fourth, we examine some alternative announcement return windows. Specifically, we use [−1, +1] and [−5, +5] event windows, centered around the deal announcement. We continue to find a negative association between board reforms and target returns (Panel D, Table 6).

Fifth, an important assumption of the DiD analysis is that the treated and control groups would follow parallel trends in the absence of the reform. Therefore, prior to the

reform, we should not find differences in returns between treated and control firms. We adopt three strategies to test whether this parallel trends assumption holds. With propensity score matching (PSM), we create a matched sample in a Probit model[22] and thereby compare the treated and control firms with similar observable characteristics. "Appendix 2" reports the differences in means across samples before and after matching. In column 1 of Panel D, we use the PSM sample to run our baseline regression; the effect of board reforms remains highly significant. Then we check for parallel trends by running a placebo test, in which we randomly assign the reform year to countries and re-estimate the baseline model. As expected, the placebo estimate of *Post Target* is not statistically significant (column 2, Panel D). Finally, we check the dynamic effect of the reforms by expanding the statistical specification in Eq. (1), using a set of indicator variables that track reform effects from 2 years before until four or more years after the reform (similar to Fauver et al., 2017). In column 3, we see that prior to the reform, target returns are similar in the treated and control countries, confirming the parallel trends. The effects of the reforms are significant only 1 year after the reforms are first implemented. This evidence bolsters our confidence about using reforms as valid exogenous shocks to corporate governance that enable us to examine M&A performance.

Sixth, we address another concern related to the staggered DiD analysis. Staggered DiD regressions may produce biased estimates of the average treatment effect (ATE) with typical two-way fixed effects (e.g., Callaway & Sant'Anna, 2021; Sun & Abraham, 2021), because for these variance-weighted averages, some weights might be negative. The later-treated observations could act as control units before the treatment; the earlier-treated groups can serve as controls after the treatment. To deal with this concern, we follow a remedy suggested by Baker, Larcker and Wang (2022) and Cengiz, Dube, Lindner and Zipperer (2019) and create cohort-specific data sets that include target firms from a reform country (treated targets) and all M&A targets that do not experience a reform within $[-5, +5]$ years around the reform year (i.e., "clean" controls).[23] After stacking all the event-specific data sets in relative time, we perform the DiD estimation on these stacked data (column 4, Panel D, Table 6). The stacked DiD estimate remains statistically significant, with an economic magnitude close to that of the baseline treatment effect (Table 3). Therefore, our baseline findings appear unlikely to be biased by the heterogenous treatment effects identified in prior work.

Conclusions

Do improvements to corporate board functions affect M&A returns? We investigate this question using board reforms across 61 countries during 1985–2021. Our quasi-DiD regressions indicate that, following the reforms in a target country, acquirers' announcement returns increase, while target returns decrease. That is, board reforms trigger a significant wealth redistribution between acquirer and target shareholders. Moreover, deal-level announcement returns increase following the reform, suggesting that board reforms improve overall transaction synergies. As we show, reform-induced reductions in the private benefits of control over the target firm resources can explain these results, in that the main findings are driven by target firms owned by large block holders.

Exploring country-level heterogeneity in institutional quality and shareholder protection, we also find that the value effects of the board reforms are more pronounced in countries where legal protection of external investors is stronger. Therefore, country-level shareholder protection reinforces the effectiveness of firm-level board reforms. Moreover, after the board reforms, financial bidders participate relatively less in the takeover market, suggesting that these reforms change the composition of the acquirer pool. Among all the reforms, those implemented under a comply-or-explain approach deliver the most noticeable effects.

These results are informative for researchers, practitioners, and policymakers that seek to understand the role of board practices in M&A dynamics and outcomes. Corporate board reforms have been prominent in the policy agendas of several emerging markets (Ararat et al., 2021). Our findings suggest that such reforms may influence cross-border deal flows, takeover negotiations, and, ultimately, shareholder wealth in these countries. In addition to its relevance for policymaking, our study offers crucial insights for businesses, such as multinational enterprises seeking expansion through overseas takeovers. The success of their M&A strategy critically depends on the timing of the target country's board reforms and existing legal protections in that destination country. Moreover, the impact of board reforms on firm behaviors likely expand to contexts beyond M&A, such as foreign-market entry modes and foreign direct investment. We leave the exploration of these topics to further research.

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[22] The dependent variable equals 1 if the target firm is acquired after the introduction of board reform (treated) and 0 if before the reform (control). The control variables are all firm and deal characteristics from column 1 in Table 3. We match each treated firm with the control with the closest score to the treated firm. We also require that the maximum difference between the propensity score of each treated firm and the control firm does not exceed 0.1% in absolute value.

[23] We repeat this exercise with the $[-3; +3]$ year window around the reform year, and the results remain unchanged (unreported).

✳

Appendix 1: Variable definitions

Dependent variables

Target CAR: Cumulative abnormal return for the target firm over the 7-day event window $(-3, +3)$ around the announcement date. In robustness checks, 3-day and 11-day windows are also used as alternative event windows. The abnormal return is computed using a market model with parameters estimated over the estimation period $(-236, -36)$ with respect to the announcement day. The value weighted index for US firms is obtained from CRSP, while for other countries local indices are retrieved from Worldscope.

Offer premium: Final offer price relative to target market price 4 weeks prior to M&A announcement.

Acquirer CAR: Cumulative abnormal return for the acquiring firm over the 7-day event window $(-3, +3)$ around the announcement date. In robustness checks, 3-day and 7-day windows are also used as alternative event windows.

Combined CAR: The value weighted 7-day CAR of acquirer and target firms whereas the weights are based on market value of each firm 4 weeks prior to the announcement date. It is calculated over a 7-day window around the announcement date. In robustness checks, 3-day and 7-day windows are also used as alternative event windows.

M&A volume: Variable measuring the yearly aggregate M&A activity in a given industry-target country, either in number of deals or in value (million US$). The adopted industry definition is the Fama-French (FF) 12-industry classification. The regressions use the logarithm of one plus the corresponding variable.

M&A intensity financial acquirers: Variable measuring the intensity of financial acquirers' M&A activity. It corresponds to the aggregate M&A activity by financial acquirers divided by the aggregate M&A activity in the same industry-target country in that year. The aggregate M&A activity is either measured in number or in value (million US$).

Independent variables of interest

Post Target (Acquirer): Binary variable that equals the value of one beginning in a fiscal year when major board reforms became effective in a given target (acquirer) country, and zero otherwise.

Firm characteristics

Blockholder: It identifies target firms with strategic block owners, relying on ownership data from Orbis. Two variables are constructed: *Number*, which counts the number of block holders with ownership greater than 5% (or 20%), and

a dummy variable, which identifies target firms with at least one block holder in a given year.

Cash ratio: It is calculated as cash and short-term investments divided by the book value of total assets.

Financial acquirer: Binary variable that equals the value of one if the acquirer is a financial firm as defined in SDC, and zero otherwise.

Firm size: The natural logarithm of the firm's market value of equity 4 weeks prior to the announcement date (in $ million).

Market-to-Book: It is calculated as the market value of common equity divided by the book value of common equity and divided by 100.

ROA: It is calculated as EBITDA divided by the book value of total assets.

Deal characteristics

Cash only: Binary variable that takes the value of one if the method of payment is fully cash, and zero otherwise.

Cross-border: Binary variable that takes the value of one if the target and the acquirer are from different countries, and zero otherwise.

Horizontal: Binary variable that takes the value of one if the target and the acquirer are from the same two-digit SIC industries, and zero otherwise.

Hostile: Binary variable that takes the value of one if the deal attitude is classified as hostile in SDC, and zero otherwise.

Number of bidders: Variable that measures the degree of public competition, corresponding to the number of bidders reported in SDC. The regressions use the logarithm of the corresponding variable.

Relative deal size: The ratio of deal value to the market capitalization of the target firm 4 weeks prior to the announcement date.

Vertical: Binary variable that identifies vertical deals following the approach in Kedia et al. (2011). To that end, we estimate the vertical coefficient variable using the industry commodity flow information in the use table of benchmark input–output (IO) Accounts for the US Economy collected by the Bureau of Economic Analysis. For a given deal, we use the IO table corresponding to the year of the deal announcement. The variable takes the value of one if the vertical coefficient is higher than the 1% cutoff point.

Country characteristics

Accounting standards: Disclosure Quality index created by the Center for International Financial Analysis and Research to rate the quality of 1990 annual reports on their disclosure of accounting information. We use a dummy variable equal to one if the Disclosure Quality index for the target country

is above median, and zero otherwise (Source: La Porta et al., 2000).

Investment profile: Time-varying index measuring the government's attitude towards investment in the bidder (target) country. The investment profile is determined by summing the three following components: (1) risk of expropriation or contract viability; (2) payment delays; and (3) repatriation of profits. Each component is scored on a scale from 0, very high risk, to 4, very low risk. The index is coded in such a way that a higher score identifies countries with better investment profile, and vice versa (Source: International Country Risk Guide).

GDP: The natural logarithm of the country's gross domestic product.

GDP per capita: Per-capita gross domestic product in US$. We use the log transform of the variable.

GDP growth: The annual growth rate of gross domestic product.

Quality of institutions: Time-varying index measuring institutional quality of a country, which is calculated by summing the following three components: (1) corruption; (2) law and order; and (3) bureaucratic quality. The index is coded in such a way that high score identifies countries with better institutional quality (Source: International Country Risk Guide).

Real interest rate: The corresponding country's real interest rate in percentage.

Shareholder protection: Anti-Director Rights (ADR) index, which captures how strongly the legal system favors minority shareholders against managers and/or dominant shareholders. We use a dummy variable equal to one if the ADR index for the target country is above median, and zero otherwise (Source: Djankov et al., 2008).

Stock market development: Market capitalization of listed domestic companies as a percentage of the corresponding country GDP.

Appendix 2: First stage of propensity score matching

The table reports the differences in means across samples before and after matching.

	Before matching			After matching		
	Treated	Control	*t*-stat of differences	Treated	Control	*t*-stat of differences
Pscore	0.613	0.532	32.01	0.595	0.595	0.00
Firm size	5.148	4.657	13.67	4.892	4.937	−0.86
ROA	−0.028	−0.018	−3.30	−0.021	−0.018	−0.61
MTB	0.023	0.023	−0.02	0.022	0.024	−1.62
Relative deal size	0.403	0.430	−3.12	0.412	0.418	−0.47
Cash only	0.595	0.457	14.94	0.557	0.542	1.00
Hostile	0.021	0.083	−15.58	0.010	0.010	0.00
Cross-border	0.263	0.165	12.71	0.198	0.209	−0.99
Number of bidders	0.748	0.765	−5.69	0.749	0.742	1.49
Horizontal	0.498	0.482	1.73	0.494	0.502	−0.53
Vertical	0.088	0.145	−9.63	0.093	0.100	−0.77

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