Received 11 March 2024
Revised 18 September 2024
19 December 2024
Accepted 24 December 2024

Private equity activity and corporate governance's spillover

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Abstract

Purpose – We examine the impact of private equity on corporate governance across industries and countries.
Design/methodology/approach – We gathered data from 15 countries and 16 industries spanning the period from 2005 to 2015 to construct an average corporate governance index and track private equity deals across both industries and countries. We analyze a country-industry-year panel dataset and address endogeneity issues.
Findings – The results indicate a strong and significant relationship between private equity activity and corporate governance quality. When the private equity investment begins earlier, it is more relevant to the corporate governance quality. Foreign private equity investment seems to complement domestic private equity to improve corporate governance in settings with low domestic private equity activity. The experience of the fund that originates the private equity activity is also a determinant of the quality of the corporate governance spillover.
Practical implications – Governments and institutions should promote private equity by creating a regulatory environment that attracts investment funds to countries or sectors that lack robust governance frameworks. Investors can design more effective governance practices according to the specific needs of their industries and countries. Shareholders would better understand how private equity corporate governance practices complement the company's long-term strategies. Finally, the market would benefit from the confidence in private equity investors that promote international corporate governance practices that are valuable to the stakeholders.
Originality/value – This research expands our understanding of the benefits of private equity activity on corporate governance quality across industries. We posit the importance of foreign private equity investors complementing domestic private equity activity and fund characteristics such as their experience in boosting corporate governance.

Keywords Private equity, Early stage investment, Corporate governance, Spillover effect
Paper type Research paper

1. Introduction

Private equity's global expansion has sparked scholarly inquiry due to its multifaceted economic implications. Bernstein *et al*. (2017) scrutinize its impact on industry performance, while Bloom *et al*. (2015) and Wright *et al*. (2009) analyze its effects on management practices. Davis *et al*. (2014) delve into its implications for job productivity; Guo *et al*. (2011) and Kaplan (1989) explore its role in value creation and Kortum and Lerner (2000), Dessí and Yin (2012) and Amess *et al*. (2015) investigate its influence on innovation. Popov and Roosenboom (2013) examined its effect on new business creation. Badertscher *et al*. (2010)

JEL Classification — G24, G34, G10

Journal of Economics, Finance and Administrative Science
Vol. 30 No. 60, 2025
pp. 232-249
Emerald Publishing Limited
e-ISSN: 2218-0648
p-ISSN: 2077-1886
DOI 10.1108/JEFAS-03-2024-0075

scrutinize its tax implications, and Berger and Udell (1998) investigate its role in financial growth. Lastly, Lerner *et al*. (2012) concentrate on its influence on entrepreneurship financing.

This paper examines the impact of private equity on corporate governance. We use the Thomson ONE Private Equity Capital database to extract information on private equity transactions in 15 developed countries from 2005 to 2015, a time window that spans the financial crisis. Natural unforeseen forces did not cause the 2008 financial crisis. It was caused by mismanagement, deregulation, reckless behavior, aggressive marketing and greed. However, past behavior resurfaces, and some financial institutions and industrial companies are falling under well-known paths of mismanagement. In this context, lessons from the past could be of value to investors and regulators alike. We hypothesize that private equity activity has a spillover effect on corporate governance across industries. To our knowledge, this is the first paper to evaluate how private equity activity affects corporate governance quality across industries. Our results have important implications for policymakers considering regulatory changes in the industry.

With the growing participation of private equity in private companies and spillover effects found at industry levels (Herrera-Echeverri *et al*., 2021), it is relevant to understand how private equity investors improve corporate governance in their backed companies. Previous academic studies suggest that private equity firms improve the corporate governance of the companies in which they invest. Ownership concentrated in the hands of a few shareholders highly involved in running the company might generate strong incentives to create value (Jensen, 1986). Private equity and buyout transactions have become an increasingly important governance mechanism to restructure organizations worldwide rapidly and radically (Verbouw *et al*., 2021).

Research trends (Wright *et al*., 2009; Cummings *et al*., 2007; Siegel *et al*., 2011) reveal conflicting evidence on the benefits of corporate governance in private equity due to pressure from limited partners for returns. The allure of high returns attracts transaction-focused investors who recognize limitations in adding managerial value. The 2008 financial crisis heightened scrutiny of highly leveraged deals, prompting increased interest in corporate governance. Many nations are enacting regulations on private equity. Consequently, there's a pressing need for a deeper exploration of private equity's impact on corporate governance.

We find a strong relationship between private equity investment and enhanced corporate governance quality across the industry. One interesting finding is that when private equity investment begins early, it is more relevant to improving the quality of corporate governance. Other interesting results are that foreign private equity investment is complementary to domestic private equity in enhancing corporate governance quality, and finally, the fund's experience is an important determinant factor of the quality of corporate governance.

2. Theoretical framework

2.1 The spillover effect of private equity on corporate governance

The literature indicates that private equity funds are significant contributors to governance issues by altering ownership structures to enhance monitoring, align incentives and mitigate agency problems (Masulis and Thomas, 2009; Wruck, 2008; De Silva *et al*., 2025; Baldwin, 2012; Bruton *et al*., 2010; Cornelli and Karakaş, 2008; Masulis and Thomas, 2009; Wruck, 2008; Wright *et al*., 2009). Their practices may become industry standards, influencing broader sectors. Some researchers have explored how private equity investments impact other local firms within industries (Aldatmaz and Brown, 2020; Bernstein *et al*., 2017; Chevalier, 1995; Hsu *et al*., 2010; Oxman and Yildirim, 2008). While the exact effect on corporate governance remains uncertain, established theoretical frameworks suggest spillover effects from foreign direct investment (Görg and Greenaway, 2004). Thus, private equity could disseminate governance practices via imitation, demonstration and competition effects, impacting firms at national and industry levels.

The imitation effect is produced by knowledge transferred from private equity firms to non-private equity firms. It constitutes an information spillover, allowing the imitation of corporate

governance practices and, consequently, increasing the overall corporate governance performance of the industry (Greenaway *et al*., 2004; Mijiyawa, 2017). When new corporate governance practices emerge, firms could be more cautious in adopting them because of the inherent short-term costs. Private equity firms' adoption of good corporate governance practices reveals enough information that allows the non-private equity firms to understand the associated benefits. As private equity firms show that corporate governance pays back in the long term, a spillover effect is generated by demonstration. Aldatmaz and Brown (2020) find that following private equity investment, labor productivity, employment, profitability and capital expenditures also increase in publicly listed companies in the same country and industry. Concerning the competition effect, Hsu *et al*. (2010) analyze why private equity firms outperform their rivals. Some rivals experience a decrease in stock prices and operating performance around the time of private equity investment. Performance differences among competitors are explained by changes introduced by private equity fund management: specialization, better corporate governance, technological innovation, managerial incentives and higher cost efficiency. It is expected that firms unable to survive tougher competition created by adopting better corporate governance practices will be pushed out of the market. This selection process increases the overall level of corporate governance. The above discussion led us to propose the following hypothesis:

H1. In an industry setting, the higher the private equity activity, the higher the quality of the corporate governance.

2.2 Early stage private equity investment effects on corporate governance

Venture capital significantly boosts new business creation (Popov and Roosenboom, 2013) and enhances productivity through value-added activities (Rosenstein *et al*., 1993). This financing establishes strong corporate governance foundations for startups, aiding decision-making and growth. Early adoption of good governance practices helps founders, investors and employees better understand governance principles, potentially preventing failures like those at Uber, Theranos, Zenefits and SoFi. Venture capital creates positive externalities by promoting good governance, leading to broader industry and national benefits (Barber *et al*., 2018).

The optimal time to establish strong corporate governance rules is when a firm is still small, and private equity funds play a crucial role in this process. Hochberg (2012) finds that venture capital backing positively influences governance, reducing the likelihood of aggressive accounting practices and promoting the separation of the board chairman and chief executive officer (CEO) roles. Therefore, we propose:

H2. In an industry setting, the earlier the investment stage of private equity, the higher the quality of corporate governance.

2.3 Foreign private equity investment effects on corporate governance

The literature suggests that foreign ownership positively impacts firm performance and profitability by introducing technology, capital, managerial skills and training techniques (Blomstrom, 2014; Harrison, 1996; Doms and Jensen, 1998; Kimura and Kiyota, 2004). Additionally, good corporate governance practices are seen as potential benefits of foreign investment (Black *et al*., 2006; Durnev and Kim, 2005; Klapper and Love, 2004). Theoretical models anticipate a favorable influence of foreign investment on corporate governance by viewing foreign investors as outside shareholders. Often acting as block holders, these investors possess the capacity and motivation to monitor management and initiate behavioral changes through voting rights and incentive structures (Shleifer and Vishny, 1986).

Some foreign investors are used to higher corporate governance standards in their home countries, which can lead to improvements in disclosure, internal controls and accounting practices when they invest abroad. Ananchotikul (2008), however, notes that when foreign industrial firms acquire large stakes, governance remains unchanged, whereas minority

foreign stakes improve it. Private equity investors typically hold minority shares in various investment stages but can also be significant stakeholders in LBOs, where creditor oversight supports strong governance. Ultimately, private equity funds rely heavily on their reputation, which is vital for international fundraising and deal-making. Thus, we propose:

H3. In an industry setting, higher levels of foreign private equity activity are related to better corporate governance quality in the host country.

2.4 Private equity fund seniority effects on corporate governance

The reputation of private equity funds plays a direct role in their future success. Hsu (2004) finds that high-reputation funds are more likely to have their offers accepted than low-reputation funds. In the case of venture capital, high-reputation funds pay between 10 and 14% less for shares than low-reputation funds.

Company founders often invoke private equity fund reputation and track record as reasons to accept an investment offer. Hellmann and Puri (2002) found that venture capital backing accelerates the hiring of senior executives, the adoption of stock option plans and the CEO turnover after analyzing human resource practices at companies in Silicon Valley. They observed that private equity funds often relocated the replaced CEOs to another position within the same company. This practice suggests that private equity funds value founder-CEOs' skills (Hearn *et al.*, 2023), which are nonetheless coupled with external CEOs experienced in managing large companies.

Private equity funds with excellent know-how implement better incentive alignment and contracts between managers and shareholders and provide better oversight to avoid opportunistic behavior (Wynant *et al.*, 2022). Kaplan (1989) finds that management ownership substantially increases on average in a sample of leveraged buyouts. More experienced private equity funds better align incentives through increases in managerial equity ownership. As the market observes the benefits of these practices, other firms would be inclined to implement them, corroborating a spillover effect. The above argument led us to propose:

H4. The older the fund that originated the private equity activity, the higher the quality of the corporate governance.

3. Method

3.1 The model

We use unbalanced panel data in which the unit of analysis is the country-industry-year, and the model specification is as follows.

$$Y_{ijt} = \beta_0 + \beta_1 X_{ijt} + \beta_2 I_{ijt} + \beta_3 C_{it} + \mu_{ij} + \eta_t + \varepsilon_{ijt} \quad (1)$$

The subscripts i and j denote country and industry, while t denotes years. Y_{ijt} represents corporate governance scores, X_{ijt} represents private equity activity, I_{ijt} represents industry control variables, C_{it} indicates country control variables, η_t represents country-industry and year-fixed effects (not shown in the tables to conserve space) and ε_{ijt} is the residual error term. We consider the delay between private equity activity and its effects on corporate governance to reduce the risk of simultaneous error misspecification. We use robust standard errors for panel regression and Driscoll–Kraay estimators to solve contemporaneous correlation, autocorrelation and heteroskedasticity problems (Hoechle, 2007).

3.2 Data and variables

Using Bloomberg data, we compiled firm names, countries, industries and tickers with Corporate Governance Quotient (CGQ) index scores (CGQ) from various stock exchanges

between 2005 and 2016. This period allows us to capture how private equity investors helped improve industry corporate governance practices.

Countries with fewer than 21 firms and industries with incomplete data were excluded, resulting in 3,861 firms across 24 countries and 11 Global Industry Classification Standard indicators. Table 3 displays the average corporate governance indices by industry. Nerantzidis (2018) underscores the importance of weighting in corporate governance indices by addressing critiques on the transparency of rating methodologies and variable weights. We cross-referenced weighted average governance scores by industry and country with the private equity database.

Private equity data come from the Thomson ONE private equity Capital database. The database contains information for all private equity deals within the countries in the sample (Australia, Britain, Canada, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Netherlands, New Zealand, Singapore, Sweden and the USA) over 11 years from January 1, 2005, to December 31, 2015. Table 1 presents the distribution of private equity deals by country, Table 2 shows the distribution of private equity deals by year and Table 3 shows the distribution of private equity deals by industry.

The perceived quality of institutions also affects the level of corporate governance in an economy. We determine the lagged institutional quality as the country's average of the six dimensions of the Worldwide Governance Indicators in the previous year (Kaufmann *et al.*, 2010). The size of the financial market also greatly influences corporate governance practices. A strong capital market strengthens the regulation in favor of disclosure and transparency. We compute the lagged market cap as the share price multiplied by the number of issued shares of domestic companies listed in the stock market in the previous year. A change in a country's productivity may mediate the effects of private equity on corporate governance (Horvát and Webb, 2020). We define the lagged added value measure as the ratio of the industry value added volume to the total value added of the economy. Finally, we use the annual percentage lagged gross domestic product (GDP) growth to control the relationship between economic development and corporate governance. Aggregates are based on constant 2010 US dollars. Appendix contains the variable definition details.

Table 1. Number of private equity deals by country

Country	Total	Domestic deals	Foreign deals	VC	LBO-MBO
Australia	1,548	1,272	276	525	359
Britain	7,578	5,947	1,631	3,203	2,124
Canada	6,080	5,051	1,029	2,160	581
France	6,365	5,659	706	2,873	1,617
Germany	4,180	3,117	1,063	2,266	1,052
Greece	58	37	21	29	14
Hong Kong	240	73	167	81	42
Ireland	580	369	211	376	60
Italy	1,077	827	250	422	414
Japan	1,449	1,248	201	810	304
Netherlands	1,241	881	360	490	437
New Zealand	241	142	99	74	70
Singapore	427	216	211	204	56
Sweden	1,978	1,462	516	1,147	390
United States of America	60,541	57,173	3,368	19,159	7,356
Total	93,583	83,474	10,109	33,819	14,876

Note(s): VC: Venture capital deals and LBO-MBO: Leverage buyouts and management buyouts
Source(s): Authors' own work

Table 2. Number of private equities deals by year

Year	Total	Domestics deals	Foreign deals	VC	LBO-MBO
2005	6,934	6,136	798	2,526	1,334
2006	8,741	7,767	974	3,131	1,653
2007	9,418	8,381	1,037	2,553	2,033
2008	8,990	8,131	859	2,513	1,429
2009	5,858	5,262	596	2,657	842
2010	7,805	7,010	795	3,258	1,145
2011	8,621	7,736	885	3,654	1,273
2012	9,063	8,229	834	3,389	1,361
2013	9,064	8,170	894	3,467	1,141
2014	9,523	8,388	1,135	3,293	1,350
2015	9,566	8,264	1,302	3,378	1,315
Total	93,583	83,474	10,109	33,819	14,876

Note(s): VC: venture capital deals and LBO-MBO: leverage buyouts and management buyouts
Source(s): Authors' own work

Table 3. Number of private equities deals by industry

Industry	Total	Domestic deals	Foreign deals	VC	LBO-MBO	CGQ
B	1735	1,349	386	192	315	5.29
C	30,398	27,149	3,249	10,032	5,962	5.26
D	807	656	151	302	120	5.07
E	528	428	100	172	116	5.76
F	1,151	1,000	151	289	401	5.57
G	5,712	5,129	583	1,675	1,786	5.42
H	1,137	965	172	223	415	5.19
I	438	367	71	86	169	5.53
J	33,411	30,499	2,912	14,725	2,023	5.10
K	4,605	3,673	932	1,733	879	5.63
L	397	315	82	113	131	5.30
M	7,393	6,678	715	2,737	1,001	5.48
N	2,291	2,015	276	605	640	5.52
P	761	695	66	260	198	4.92
Q	2,382	2,188	194	573	583	5.67
R	437	368	69	102	137	5.28
Total	93,583	83,474	10,109	33,819	14,876	

Note(s): VC: venture capital deals, LBO-MBO: leverage buyouts and management buyouts
(B): Mining and quarrying; (C): Manufacturing; (D): Electricity, gas, steam, and air conditioning supply; (E): Water supply; sewerage, waste management and remediation activities. (F): Construction; (G): Wholesale and retail trade, repair of motor vehicles and motorcycles; (H): Transportation and storage; (I): Accommodation and food service activities; (J): Information and Communication; (K): Financial and insurance activities; (L): Real State; (M): Professional, scientific, and technical activities; (N): Administrative and support service activities; (P): Education; (Q): Human health and social work activities; (R): Arts, entertainment and recreation and CGQ: monthly corporate governance measures are weighted by firm market capitalization and country market capitalization. Annual averages are computed for each firm
Source(s): Authors' own work

4. Results

4.1 Private equity and corporate governance analysis

Some private transactions, such as LBOs, are less likely to suffer from agency costs because of the controlling shareholder's interest in making the business successful (Jensen, 1989). This

situation would allow us to expect a better corporate governance perspective as the company progresses. In Table 4, which we show the results for Hypothesis 1, the dependent variable measures the corporate governance scores (*CGQ*). In column (1), the primary explanatory variable is 3-*year private equity deals*, the natural logarithm of one plus the total number of private equity investment deals made in the last three years. The sign and significance level (1%) confirm Hypothesis 1: Private equity activity increases corporate governance quality within the industry. For the robustness test, in Column (2), we use two new independent variables. *High x 3-year private equity deals* is an interaction variable between 3-*year private equity deals* and a dummy equal to 1 if the number of deals is above the mean, and *Low x 3-year private equity deals* is an interaction variable between *3-year private equity deals* and a dummy equal to 1 if the number of deals is below the mean. In both cases, the results show positive and significant coefficients supporting a consistent relationship between private equity and corporate governance quality.

In Column (3), the *private equity industry* is a dummy variable equal to 1 if the respective country's industry had any private equity investment in the past three years. Again, the results corroborate Hypothesis 1. For the robustness test, in Column (4), we use two dummy variables: *High x private equity industry*, which is equal to 1 if the respective country–industry had any private equity investment in the past three years and if the number of deals is above the mean, and *Low x private equity industry*, which equals 1 if the respective country–industry had any private equity investment in the past three years and if the number of deals is below the mean. The results show that the coefficient associated with the *High x private equity industry* is more significant than that of the *Low x private equity industry*. The overall results indicate that many deals improve the corporate governance quality in a country-industry.

Although the results show a strong relationship between private equity and corporate governance quality, some could argue that the corporate governance scores may need to be more representative of the firms in the country. Therefore, we use a new variable, (*WA_CGQ)*, which is the annual value of the corporate governance scores, weighted average by its market capitalization, relative to the companies with scores for each industry country. In this way, we can test the impact of private equity activity on corporate governance quality nationwide. The results in Columns (5) to (8) are like the previous ones presented in Columns (1) to (4), indicating a strong positive relationship between corporate governance quality and private equity activity.

4.2 Endogeneity

Even though the above results are aligned to support our hypotheses, the empirical methodology could be exposed to endogeneity problems. For instance, private equity activity is concentrated in industries with high corporate governance levels. Our models use lagged values and/or three-year averages for the private equity variables to account for possible simultaneity bias. Lagged private equity data and averages correlate less with current corporate governance issues and partially address the concern that private equity activity and corporate governance mechanisms react to the same market information. Similarly, lagged data and averages deal with the correlation that can emerge due to the omitted variables in aggregated models. However, there are better solutions to the endogeneity problem than lagged private equity variables and historical moving averages, since private equity activity and corporate governance will likely be correlated over extended periods.

To address this issue, we present two strategies in Table 5. First, we use longer-lagged private equity variables to account for the potential endogeneity between corporate governance mechanisms and private equity activity in Columns (1) and (2). Second, we use two-stage least squares (2SLS) regression analysis in Columns (3) and (4). In the 2SLS specification, we use as instruments for private equity variables the size of the private pension and insurance company asset pool in the country and year expressed as a percentage of GDP (Bernstein *et al*., 2017; Kortum and Lerner, 2000; Popov and Roosenboom, 2013). The

Table 4. Corporate governance and private equity

	CGQ				WA_CGQ			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3-year private equity deals	0.633***				0.0545**			
	(0.158)				(0.0220)			
High × 3-year private equity deals		0.651***				0.0597**		
		(0.153)				(0.0218)		
Low × 3-year private equity deals		0.560**				0.0325		
		(0.186)				(0.0256)		
Private equity industry			1.059**				0.0516	
			(0.356)				(0.0508)	
High × private equity industry				1.637***				0.158***
				(0.342)				(0.0351)
Low × private equity industry				0.837***				0.0564
				(0.191)				(0.0393)
Institutional Quality$_{t-1}$	22.23***	22.22***	21.66***	21.57***	0.0560	0.0538	−0.0126	0.00881
	(2.766)	(2.807)	(2.643)	(2.684)	(0.0805)	(0.0967)	(0.139)	(0.104)
Market cap$_{t-1}$	0.725	0.720	0.696	0.723	0.0516	0.0502	0.0543	0.0503
	(1.012)	(1.019)	(1.028)	(1.059)	(0.0323)	(0.0326)	(0.0363)	(0.0326)
Added value$_{t-1}$	19.43**	20.65**	22.68**	23.15***	1.550	1.915	1.796	2.034
	(6.240)	(6.470)	(7.001)	(6.507)	(1.011)	(1.076)	(1.106)	(1.178)
GDP growth$_{t-1}$	0.0678	0.0698	0.0919	0.0868	−0.00598	−0.00537	−0,00,351	−0.00426
	(0.0986)	(0.0987)	(0.103)	(0.105)	(0.00399)	(0.00375)	(0.00369)	(0.00375)
Observations	832	832	813	832	832	832	813	832
Number of groups	125	125	125	125	125	125	125	125
Fixed effects	Country-industry and year							
Within *R*-sq	0.208	0.209	0.194	0.208	0.00920	0.0124	0.00485	0.0106

Note(s): Robust standard errors are in parentheses $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$
Source(s): Authors' own work

Table 5. Endogeneity issues in corporate governance and private equity deals

	(Using lags)		(2SLS estimation)	
	(1)	(2)	(3)	(4)
5–3 year private equity deals	0.536**		7.831***	
	(0.170)		(1.839)	
5–3 year private equity industry		1.511**		3.772***
		(0.526)		(1.094)
Institutional quality$_{t-1}$	25.97***	23.76***	−38.01*	−24.64
	(3.438)	(3.439)	(19.17)	(15.11)
Market cap$_{t-1}$	0.0646	−0.106	−1.447	0.120
	(0.786)	(0.826)	(1.857)	(1.582)
Added value$_{t-1}$	19.53*	20.92*	−185.9**	−103.5
	(9.608)	(10.64)	(88.99)	(66.89)
GDP growth$_{t-1}$	0.0925	0.124	0.517**	0.287*
	(0.105)	(0.106)	(0.204)	(0.164)
Observations	684	656	80	80
Number of groups	134	132		
Fixed effects	Country-industry and year			
Within *R*-sq	0.213	0.177		
F-Statistic			21.71	18.24

Note(s): Robust standard errors are in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
Source(s): Authors' own work

relevance condition for this instrument is satisfied because the 1979 clarification of the Employee Retirement Income Security Act (ERISA) by the US Department of Labor led to a fivefold increase in venture capital investment in the following two decades (Gompers *et al.*, 1998).

In Table 5, the positive and significant coefficient of *5–3 years of private equity deals* shows that the private equity activity in the previous 5 to 3 years has a strong relationship with the corporate governance quality. Similarly, in Column (2), we use a dummy variable, *5–3 years of private equity industry*, whether the country-industry had any private equity deals in the previous 5 to 3 years. We find a solid and positive relationship between private equity deals and corporate governance quality. The results for the 2SLS regression in Columns (3) and (4) confirm the strong relationship between private equity activity and corporate governance quality. The above results support Hypothesis 1 after controlling for endogeneity issues.

4.3 Early stage investment

Another concern is how the stage of development of private equity investment affects corporate governance quality. Hypothesis 2 argues that earlier-stage private equity investment significantly increases corporate governance quality. In Table 6, Columns (1) to (3) present the influence of venture capital and buyout transactions on corporate governance quality. The coefficient of the venture capital deals remains positive and significant in Models (1) and (2), while the impact of the buyout deals is positive but only significant in Model (3). These results confirm the analysis in the theoretical framework section: the best time to adopt good corporate governance practices is when a firm is small and private equity funds have substantial incentives to participate.

Columns (4), (5) and (6) show the results after comparing venture capital deals against non-venture capital deals. The strong relationship between venture capital deals and corporate governance quality is confirmed; non-venture capital deals show significant coefficients. Columns (7), (8) and (9) incorporate buyouts along venture capital deals in the variable *3-year VC-LBO-MBO deals*, which coefficient maintains positive and significant at a 1% level. The

Table 6. Corporate governance and venture capital

	VC vs buyouts			VC vs non-VC			VC + buyouts vs non-(VC + buyouts)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3-year VC deals	0.529***	0.535***		0.524***	0.535***				
	(0.131)	(0.130)		(0.136)	(0.130)				
3-year LBO-MBO deals	0.0848		0.164*						
	(0.0798)		(0.0804)						
3-year non-VC deals				0.0642		0.230			
				(0.151)		(0.159)			
3-year VC-LBO-MBO deals							0.605***	0.606***	
							(0.135)	(0.141)	
3-year non-(VC-LBO-MBO) deals							0.00313		0.230
							(0.140)		(0.167)
Institutional quality$_{t-1}$	22.25***	22.28***	22.52***	22.43***	22.28***	23.11***	22.13***	22.11***	23.46***
	(3.064)	(3.066)	(2.849)	(3.085)	(3.066)	(2.852)	(2.863)	(3.014)	(2.788)
Market cap$_{t-1}$	0.679	0.677	0.693	0.676	0.677	0.685	0.677	0.677	0.673
	(0.929)	(0.925)	(1.025)	(0.929)	(0.925)	(1.026)	(0.943)	(0.944)	(1.024)
Added value$_{t-1}$	20.17**	20.76**	19.44**	20.46**	20.76**	19.52**	18.22**	18.22**	20.56**
	(6.783)	(6.968)	(6.912)	(7.039)	(6.968)	(6.895)	(6.442)	(6.491)	(6.790)
GDP growth$_{t-1}$	0.0808	0.0833	0.0877	0.0816	0.0833	0.0860	0.0736	0.0736	0.0896
	(0.104)	(0.103)	(0.106)	(0.104)	(0.103)	(0.106)	(0.0983)	(0.0982)	(0.107)
Observations	884	884	884	884	884	884	884	884	884
Number of groups	134	134	134	134	134	134	134	134	134
Fixed effects	Country-industry and year								
Within *R*-sq	0.213	0.213	0.195	0.213	0.213	0.196	0.211	0.211	0.196

Note(s): Robust standard errors are in parentheses $^{***}p < 0.01$, $^{**}p < 0.05$ and $^{*}p < 0.1$
Source(s): Author's own work

results suggest that early private equity investment provides valuable foundations of corporate governance quality. Private equity investors know the importance of complying with legal, ethical and fiduciary considerations, prioritizing corporate governance mechanisms such as board independence, management accountability and financial reporting transparency. However, buyouts and highly leveraged operations provide an additional monitoring layer from financial creditors, and venture capital transactions yield more benefits regarding corporate governance improvements.

4.4 Domestic and foreign private equity investments

Hypothesis 3 postulates that foreign ownership positively influences corporate governance quality. We test this relation in Table 7. In Columns (1) to (3), domestic private equity activity is proxied by *3-year domestic private equity deals* (the natural logarithm of one plus the total number of private equity investment deals made in the last three years by domestic private equity funds). Similarly, foreign private equity activity is proxied by *3-year foreign private equity deals* (the natural logarithm of one plus the total number of private equity investment deals made in the last three years by foreign private equity funds). The results show a positive and significant relationship between corporate governance quality and domestic and foreign private equity activity.

Based on previous results, one natural question is whether the ability of foreign private equity to improve corporate governance quality is stimulated by domestic activity. To examine this, we interact foreign private equity activity with dummies equal to 1 if the respective domestic private equity activity is in the upper or lower half of its distribution across industries (Column 4). We find that the benefits of foreign private equity on corporate governance quality are more fructiferous in industries with low domestic private equity activity. The coefficient

Table 7. Corporate governance and foreign ownership

	(1)	(2)	(3)	(4)	(5)
3-year domestic private equity deals	0.338**	0.405***			
	(0.125)	(0.123)			
3-year foreign private equity deals	0.582**		0.623**		
	(0.232)		(0.239)		
3-year foreign private equity deals X high 3-year domestic deals				0.608**	
				(0.242)	
3-year foreign private equity deals X low 3-year domestic deals				0.636**	
				(0.244)	
3-year domestic private equity deals X high 3-year foreign deals					0.398**
					(0.137)
3 years domestic private equity deals X low 3-year foreign deals					0.413**
					(0.130)
Institutional quality$_{t-1}$	21.43***	22.30***	20.88***	20.87***	22.31***
	(3.020)	(2.745)	(2.958)	(2.933)	(2.773)
Market cap$_{t-1}$	0.735	0.684	0.766	0.764	0.685
	(1.050)	(1.013)	(1.087)	(1.090)	(1.012)
Added value$_{t-1}$	21.15***	19.29**	22.42***	22.28***	19.24**
	(6.008)	(6.682)	(6.526)	(6.650)	(6.647)
GDP growth$_{t-1}$	0.0640	0.0779	0.0727	0.0727	0.0775
	(0.0978)	(0.102)	(0.104)	(0.104)	(0.103)
Observations	832	832	832	832	832
Number of groups	125	125	125	125	125
Fixed effects	Country-industry and year				
Within *R*-sq	0.216	0.199	0.210	0.210	0.199

Note(s): Robust standard errors are in parentheses ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$
Source(s): Authors' own work

associated with foreign private equity activity, originally of 0.623, rises to 0.636 in industries with low domestic private equity activity but decreases to 0.608 in industries with high domestic private equity activity. Foreign private equity investment seems to complement domestic private equity activity to improve corporate governance quality.

We also examine whether the ability of domestic private equity to improve corporate governance quality is driven by foreign activity. We interact domestic private equity activity with dummies equal to 1 if the respective foreign private equity activity is in the upper or lower half of its distribution across industries (Column 5). The coefficient associated with domestic private equity activity, originally of 0.405, rises to 4.13 in industries with low foreign private equity activity but decreases to 0.398 in industries with high foreign private equity activity.

These results imply that foreign and domestic private equity can increase corporate governance quality. Their complementary effect is relatively more robust in environments in which competition is weak or incipient.

4.5 Private equity fund seniority

Hypothesis 4 proposes that older private equity funds have a higher impact on the quality of corporate governance. We address this subject in Table 8. We tabulate the distribution of the year of foundation for the private equity funds in our sample. Then, we build the variables *3-year private equity deals (1st ter)* and *3-year private equity deals (3rd ter)*, multiplying the variable *3-year private equity deals* (from Table 4) by a dummy that indicates if the fund is in the first tercile (younger) or the third tercile (older) of the sample. Column (1) shows a positive and significant coefficient for *3-year private equity deals (3rd ter)*, indicating that older funds have more influence in generating corporate governance spillover in the industry. The specification in Column (2) uses only *3-year private equity deals (1st ter)*. The coefficient is positive and significant, but the coefficient associated with *3-year private equity deals (3rd ter)* in Column (3) is almost three times greater.

The results confirm Hypothesis 4: More experienced private equity funds are aware of the benefits of good corporate governance practices and are more inclined to implement best governance practices. As we mentioned in the literature review, older private equity funds have been shown to bring more experienced members to the firm boards, spend more time working on human resource issues, evaluate the management in their portfolio companies

Table 8. Corporate governance and fund seniority

	(1)	(2)	(3)
3-year private equity deals (1st ter)	−0.146	0.358***	
	(0.201)	(0.103)	
3-year private equity deals (3rd ter)	0.937***		0.856***
	(0.270)		(0.181)
Institutional quality$_{t-1}$	22.42***	22.71***	22.48***
	(2.826)	(2.928)	(2.839)
Market cap$_{t-1}$	1.017	0.700	0.993
	(1.013)	(1.011)	(0.993)
Added value$_{t-1}$	17.80**	19.09**	17.49**
	(5.776)	(6.846)	(5.495)
GDP growth$_{t-1}$	0.0562	0.0888	0.0579
	(0.0984)	(0.104)	(0.0980)
Observations	884	884	884
Number of groups	134	134	134
Fixed effects			
Within *R*-sq	0.227	0.200	0.226

Note(s): Robust standard errors are in parentheses $^{***}p < 0.01$, $^{**}p < 0.05$ and $^{*}p < 0.1$
Source(s): Authors' own work

closely and align the incentives between managers and shareholders better, generating a spillover effect.

5. Discussion

5.1 Theoretical implications

Our results extend the growing empirical studies focusing on private equity's role and impact on economic development. Previous studies have suggested mixed evidence about the benefits of private equity investments on corporate governance quality. We confirm these benefits by showing the private equity industry's importance in promoting better corporate governance standards. In addition, we showed that foreign private equity investments complement domestic equity activity and the fund's experience in improving corporate governance quality.

5.2 Managerial/policy implications

Our study has several practical implications for policymakers and investors. Governments should create a regulatory environment to attract private equity investment in sectors with weak corporate governance practices to enhance companies' corporate governance qualities. Investors should carefully consider the design of effective strategies according to the sectors and countries where they are interested in investing. Finally, regulators should take advantage of this opportunity and implement better corporate governance practices in favor of the market participants.

5.3 Limitations and future research agenda

A limitation of this study is the capacity of the index to assess the corporate governance practices of firms because it could not completely reflect the internal practices of the companies and industries involved in private equity deals.

A future research agenda could be to study the different components of governance practices directly in the firms, such as the board of directors structure, the CEO duality and the board diversity to capture a company's governance quality that could better evaluate the corporate governance practice across firms and industries to understand the mechanism that private equity investors use to improve the quality of the firms and how those specific governance practices among industries and countries are spillover. Also, comparative studies are needed to understand the different types of private equity investors' ability to implement corporate governance strategies across industries and economies, developed markets and emerging markets.

6. Conclusions

This paper provides evidence that private equity activity promotes corporate governance quality within industries and countries. We use a model of country-industry-year panel data with cross-sectional dependence. This approach provides a comprehensive understanding of the influences of private equity investment on the quality of corporate governance, generating a spillover effect within the industry. Specifically, when the private equity investment begins earlier, it is more relevant to improving the quality of corporate governance. Venture capital transactions yield the most benefits in terms of corporate governance improvement. Foreign private equity is an essential element in corporate governance transmission within industries.

Foreign private equity investment acts as a complement to domestic private equity to improve corporate governance quality. Moreover, the experience of a private equity fund is also a contributing factor to the quality of corporate governance.

The evidence indicates that older private equity funds are more inclined to implement good governance practices. Older private equity funds bring more experienced members to the boards and spend more time working on human resource issues and assessing the managerial performance of their portfolio companies.

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(The Appendix follows overleaf)

Appendix

Table A1. Variable definition.

Indicator name	Long definition	Source
CGQ	We obtain monthly value scores of the ISS_ QUALITYSCORE and CGQ_INDEX_SCORE mnemonics, which may be available in archives. The CGQ_INDEX_SCORE combines scores for four categories: Board Structure, Compensation/ Remuneration, Shareholder Rights, and Audit & Risk Oversight. The ISS_QUALITYSCORE indicates a company's relative governance risk. Monthly governance measures are weighted by the firm market capitalization and divided by the country's market capitalization We compute annual averages from the monthly value scores for each firm. Finally, the governance measures are averaged over industries and countries	Bloomberg
VC	Venture capital deals	Thomson ONE private equity database
LBO-MBO	Leverage buyouts and management buyouts	
3-year private equity deals	The natural logarithm of one plus the total number of private equity investment deals made in the last 3 years	
High x 3-year private equity deals	Is an interaction variable between *3-year private equity deals* and a dummy equal to 1 if the number of deals is above the mean	
Low x 3-year private equity deals	Is an interaction variable between *3-year private equity deals* and a dummy equal to 1 if the number of deals is below the mean	
Private equity industry	A dummy variable equals 1 if the respective country–industries had any private equity investment in the past 3 years	
High x private equity industry	A dummy variable equals 1 if the respective country–industry had any private equity investment in the past 3 years and if the number of deals is above the mean	
Low x private equity industry	A dummy variable equals 1 if the respective country–industry had any private equity investment in the past 3 years and if the number of deals was below the mean	
5–3 years private equity deals	The natural logarithm of one plus the total number of private equity investment deals made in the previous 5 and 3 years	
5–3 years private equity industry	A dummy variable equals 1 if the respective country–industries had any private equity investment deal in the previous 5 and 3 years	
3-year VC deals	The natural logarithm of one plus the total number of venture capital investment deals made in the last 3 years	
3-year LBO-MBO deals	The natural logarithm of one plus the total number of LBO-MBO investment deals made in the last 3 years	
3-year non-VC deals	The natural logarithm of one plus the total number of non-venture capital investment deals made in the last 3 years	
3 years VC-LBO-MBO deals	The natural logarithm of one plus the total number of VC-LBO-MBO investment deals made in the last 3 years	

(*continued*)

Table A1. Continued

Indicator name	Long definition	Source
3 years non-(VC-LBO-MBO) deals	The natural logarithm of one plus the total number of non-VC-LBO-MBO investment deals made in the last 3 years	
3 years domestic private equity deals	The natural logarithm of one plus the total number of private equity investment deals made in the last 3 years by domestic private equity funds	
3 years foreign private equity deals	The natural logarithm of one plus the total number of private equity investment deals made in the last 3 years by foreign private equity funds	
3 years private equity deals (1st ter)	The natural logarithm of one plus the total number of private equity investment deals made in the last 3 years by funds in the first tercile of time since its foundation (youngers)	
3 years private equity deals (3rd ter)	The natural logarithm of one plus the total number of private equity investment deals made in the last 3 years by funds in the third tercile of time since its foundation (older)	
Institutional quality	Indicates perceived institutional quality in a country and is measured as the average of the six dimensions of the Worldwide Governance Indicators in the previous year	World Development Indicators
Market cap	The share price multiplied by the number of outstanding shares for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded. Data are end of year values converted to US dollars using the corresponding year-end foreign exchange rates	World Federation of Exchanges database
Added value	Ratio of the value-added volume of a respective industries to the total value added of the economy	OECD's Structural Analysis Database
GDP growth	Annual percentage growth rate of GDP at market prices based on a constant local currency. Aggregates are based on constant 2010 US dollars	World Bank national accounts data

Source(s): Authors' own work

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