

Title: Institutional Exit Threat and Dividend Payouts: A Difference-in-Differences Approach

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Abstract:

This paper examines how the threat that large investors might sell their shares (the exit threat) influences corporate dividend policy.

The study focuses on a unique setting created by the 2013–2014 reform of Polish pension funds (OFE). This reform did not directly regulate firms but changed how these investors operate. It made it easier to sell their shares, increasing pressure on companies to retain investors.

Using panel data for Warsaw Stock Exchange firms from 2011–2016, we compare companies with substantial OFE ownership to similar firms without it. We find robust evidence of an increase in the dividend payout ratio among firms facing higher exit threat. By contrast, effects for dividend yield and dividends scaled by total assets are weaker and less consistent.

These findings highlight how investors' ability to exit can shape corporate financial policy through market-based governance pressure.

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JEL Classification: G32 (Financing Policy; Capital and Ownership Structure), G34 (Corporate Governance), G35 (Payout Policy)

Introduction:

Dividend policy provides a natural setting to study corporate governance because it directly reallocates cash away from insider control. When governance is strong, insiders are more likely to distribute cash rather than retain it for discretionary use. When governance is weak, firms may instead rely on dividends to reassure outside investors and build credibility. In both cases, dividend policy reflects how agency conflicts translate into observable financial decisions (Jensen, 1986; Easterbrook, 1984; La Porta et al., 2000).

The decision to distribute or retain cash depends not only on investment opportunities (DeAngelo, DeAngelo, & Stulz, 2006) but also on the structure of corporate governance. In settings with concentrated ownership and weaker investor protection, the primary agency conflict arises between controlling and minority shareholders (Shleifer & Vishny, 1997). In such environments, standard governance mechanisms based on direct intervention or shareholder voice may be limited in effectiveness, particularly when intervention is costly or constrained.

An alternative mechanism of corporate governance is the threat of exit by large shareholders. The possibility that an informed investor may sell a significant stake can generate valuation pressure and discipline controlling shareholders (Admati & Pfleiderer, 2009; Edmans, 2009). However, despite a large literature on institutional ownership, existing empirical work provides limited causal evidence on whether exit can influence corporate dividend payout. Most studies rely on static ownership measures and fail to distinguish between the presence of institutional investors and the credibility of their exit (Velte, 2024). As a result, it remains unclear whether observed payout patterns reflect disciplinary effects of exit or persistent firm and investor characteristics. For exit to operate as a governance mechanism, it must represent a credible disciplinary threat rather than routine portfolio rebalancing (Levit, 2019; Cvijanović et al., 2022).

The relationship between governance and dividend policy may be framed by two competing hypotheses (La Porta et al., 2000). Stronger monitoring forces insiders to distribute cash rather than retain it. Under the substitution hypothesis, dividends compensate for weak governance: firms pay out more to build credibility when other mechanisms are insufficient. At the same time, if dividends serve as a substitute for governance, an increase in exit threat reduces the need to use payouts as a credibility device, implying an opposite response of dividends to changes in exit threat.

An increase in the credibility of exit can affect these mechanisms. If insiders expect that divestment by a large investor would reduce firm value, retaining cash becomes more costly in governance terms (Admati & Pfleiderer, 2009; Edmans & Manso, 2011). This leads to a clear empirical prediction under the outcome hypothesis: stronger exit threat should increase payout as insiders are pressured to disgorge free cash flow. At the same time, if dividends serve as a

substitute for governance, firms facing weak monitoring may rely more heavily on payouts, implying a weaker or even opposite response to changes in exit threat.

The key empirical question is therefore whether dividend policy adjusts in response to an exogenous increase in exit pressure. This paper addresses this question using a quasi-natural experiment created by the Polish pension fund reform of 2013-2014. The reform fundamentally changed the constraints and incentives of open-ended pension funds (OFEs), which were major institutional investors on the Warsaw Stock Exchange. The reform increased their ability, willingness, and credibility of exit by relaxing portfolio constraints, strengthening performance-based competition, and introducing systematic capital outflows.

Importantly, the reform did not directly target corporate governance or dividend policy. Instead, it altered the external environment faced by firms by making investors exit more credible. This provides a setting in which changes in exit threat are exogenous to firm-level characteristics. We exploit this variation using a difference-in-differences approach that compares firms with OFE ownership to firms without such exposure.

We find no effect of increased exit threat on the level of cash distributions, as measured by dividend yield and dividends-to-assets. In contrast, the dividend-to-earnings ratio increased significantly following the reform for firms exposed to higher exit threat. Dividend yield responses may be muted if improved governance is capitalized into higher firm valuations. While consistent with stronger payout discipline, this effect may also reflect changes in earnings or investment policies rather than a pure increase in cash transfers to shareholders.

More broadly, the results highlight that corporate payout policy is shaped not only by firm fundamentals and internal governance, but also by changes in the external incentive environment. They also suggest that public policy can affect corporate governance indirectly by altering the constraints and behavior of institutional investors.

This paper contributes to several strands of literature. First, it provides causal evidence on the role of exit threat as a corporate governance mechanism, focusing on how changes in exit threat affect corporate financial policy. Second, it contributes to the dividend literature by distinguishing between outcome and substitution interpretations in a setting where governance pressure changes exogenously. Third, it adds to the literature on institutional investors by showing that not only ownership, but also the credibility of exit, matters for firm behavior.

The remainder of the paper proceeds as follows. Section 2 reviews relevant literature and develops the hypotheses. Section 3 describes the research design. Section 4 presents the main empirical results. Section 5 reports a range of robustness tests. The final section concludes.

2. Background and hypothesis development

2.1 Exit threat and dividend policy

In the literature, exit threat is framed as a market-based corporate governance mechanism whereby large shareholders discipline managers not only through “voice,” but also through the credible possibility of selling their stake (Admati & Pfleiderer, 2009; Edmans, 2009). What distinguishes this channel from standard monitoring is that discipline operates through prices. Actual exit (block sales) exerts downward pressure on the stock price, and importantly, this pressure is anticipated when investors are informed, and markets are liquid, making the threat credible. In this sense, it is not merely expectations that matter, but the fact that expectations are backed by a feasible and potentially imminent trade, which gives rise to real price impact and thus real managerial incentives (Bharath et al., 2013; Edmans, 2009).

Theoretical work further shows that this mechanism can be strengthened in settings with multiple blockholders, as competition in trading increases price informativeness and reinforces incentives (Edmans & Manso, 2011). Taken together, the literature suggests that exit threat disciplines managers precisely because the fear of price decline arising from actual or highly credible selling is internalized ex ante. However, an important limitation of existing work is that it rarely disentangles the disciplining role of expectations about exit from the additional force generated by realized or imminently credible selling pressure, which is the element that ultimately drives market prices.

While the exit-threat mechanism is conceptually clear, its implications for payout policy are not uniform across institutional settings, highlighting the unresolved tension between the outcome and substitution views of dividends. Under the outcome view, stronger governance (including a more credible exit threat) leads to higher payouts as managers and controlling shareholders are pressured to disgorge free cash flow. Under the substitution view, dividends serve as a credibility device when other governance mechanisms are weak, implying that improvements in governance may reduce the need for high payouts. Empirical evidence suggests that both channels may operate depending on the environment. For instance, Chen et al. (2024) show that in settings with weak investor protection, stronger exit threats can lead to higher excess cash holdings rather than higher payouts, consistent with a collusion or entrenchment interpretation in which large shareholders align with controlling owners to preserve private benefits. This indicates that exit threat may not always induce shareholder-friendly outcomes, and may instead reallocate cash in ways that are detrimental to minority investors.

At the same time, despite these insights, there is limited causal evidence on whether exit operates as an effective governance mechanism through price-based discipline in shaping corporate payout policy. Existing studies typically rely on static ownership measures and rarely

exploit exogenous variation in the credibility of exit, making it difficult to distinguish disciplinary effects from persistent firm and investor characteristics. This gap is particularly pronounced in emerging markets, where ownership concentration and weaker investor protection amplify agency conflicts, yet credible identification of governance mechanisms remains scarce. Moreover, little is known about how firms respond when changes in exit threat originate from shocks affecting investors rather than firms directly, leaving the role of investor-driven variation in shaping corporate policies largely unexplored.

Empirical evidence relating exit threat to dividend policy broadly supports the view that stronger external discipline increases payouts, consistent with an “outcome” interpretation of dividends as the result of effective shareholder control. Francis et al. (2011), using the adoption of U.S. state antitakeover laws as an exogenous reduction in market discipline, find that firms reduce both dividend payout ratios and the likelihood of paying dividends once they become more insulated from takeovers. This effect is particularly pronounced in smaller firms and in those with weaker internal governance, indicating that external pressure via exit substitutes for weak internal mechanisms. Complementary evidence is provided by Cao et al. (2022), who show that institutional actions that enhance the credibility of exit lead to higher subsequent cash dividends; notably, this effect operates through a disciplining channel tied to the threat of investor withdrawal. A key contribution of this literature is to highlight that dividends respond to changes in the credibility of exit, not merely ownership structure per se.

However, identification strategies typically rely on broad institutional shocks (e.g., takeover protection or investor access) that affect multiple governance channels simultaneously, making it difficult to isolate the price-pressure channel linked to actual exit behavior. As a result, these studies do not cleanly separate whether observed payout increases reflect stronger governance forcing firms to disgorge cash (outcome mechanism) or a strategic use of dividends to pre-empt exit and stabilize the investor base (closer to the substitution hypothesis).

Additionally, evidence from European markets indicates that the relationship between institutional ownership and dividend policy is heterogeneous and context-dependent, suggesting that investor type and monitoring intensity can matter as much as ownership level itself (Aleknevičienė & Vilimaitė, 2023; Enescu & Szeles, 2026). Building on this insight, recent work refines the exit-threat perspective by emphasizing that the credibility of exit depends not only on who holds the shares, but also on whether trading conditions allow large investors to adjust positions in a value-relevant way. In particular, Caiazza et al. (2025) show that cross-firm differences in payout behavior become much less pronounced once stock market liquidity and institutional ownership are accounted for, highlighting the role of trading frictions and market depth in shaping exit credibility.

Consistent with this view, the effectiveness of institutional investors in influencing dividend policy depends on investor heterogeneity: only those with sufficiently high trading activity or informational advantages can exert credible exit-based discipline, while others are more likely to remain passive monitors. Moreover, emerging evidence suggests that firms may use dividends strategically to attract or retain mobile capital, especially foreign institutional investors. This implies that payout policy can operate as a response to potential exit, rather than purely as an outcome of governance (Sreeram et al., 2026). In this perspective, firms facing a stronger threat of exit by a large shareholder may seek to retain that investor by increasing dividend payouts.

Taken together, this literature shifts the focus from ownership levels to the credibility of trading and exit, reinforcing the idea that the disciplining role of capital markets depends on both the ability and the willingness of investors to sell.

2.2 Institutional context

Open-Ended Pension Funds (Otwarte Fundusze Emerytalne, OFEs) were introduced in 1999 following the adoption of a three-pillar pension framework that added a mandatory funded second pillar managed by private pension societies alongside the pay-as-you-go pillar administered by ZUS (Koronkiewicz, 2019).

Despite their size, the exit threat of OFEs before 2014 was relatively weak because regulation constrained both portfolio choice and incentives. First, investment limits restricted equity exposure and tightly capped foreign investments, which reinforced home bias and limited the scope for reallocating away from poorly governed firms (Kurach & Papla, 2014). Second, OFE portfolios were dominated by government bonds for much of the pre-reform period, which further reduced the need and willingness to trade equities actively. Third, the minimum rate-of-return mechanism evaluated funds against peer performance and imposed penalties for underperformance, creating strong incentives for herding and portfolio similarity especially among smaller funds and thus discouraging differentiated trading strategies (Witkowska & Kompa, 2015). In this environment, exit from underperforming firms could be constrained not only by ownership considerations, but also by regulation that discouraged active portfolio divergence.

The pension reform implemented at the turn of 2013/2014 constituted a major institutional shock that materially changed the investment constraints and incentives of OFEs. The reform was motivated primarily by public-finance considerations, including lowering the public debt-to-GDP ratio and addressing concerns related to the constitutional debt threshold (Roszkowska et al., 2021). To reduce the risk of an immediate equity sell-off, the reform introduced transitional portfolio rules. In 2014, OFEs were required to hold at least 75% of assets in domestic equities,

with the minimum gradually reduced to 55% in 2015, 35% in 2016, and 15% in 2017, and then removed from 2018 onward. In parallel, the foreign investment limit increased from 10% in 2014 to 30% by 2016, expanding feasible outside options and making domestic divestment more credible over time (Błaszczak, 2020).

Equally important, the reform strengthened incentives to trade by changing the competitive environment within the OFE sector. It eliminated the minimum rate-of-return mechanism and restricted marketing, shifting competition toward performance and reducing the regulatory forces that previously induced herding. The reform also altered the flow structure of the second pillar: participation became voluntary (opt-in), and the “slider/zipper” mechanism introduced predictable outflows by transferring assets to ZUS in the ten years prior to retirement. Together, these changes increased (i) the ability of OFEs to exit (greater portfolio flexibility and external alternatives), (ii) the willingness to exit (stronger performance incentives and weaker herding), and (iii) the credibility of exit (reduced inflows and systematic outflows that shortened the effective investment horizon) (Roszkowska et al., 2021; Kałdoński & Jewartowski, 2024).

This institutional shock increased the exit threat faced by portfolio firms without directly targeting corporate payout regulation. Although the reform affected the OFE sector broadly, its governance implications are expected to be most pronounced in firms with substantial OFE ownership, where potential divestment is more likely to affect prices and discipline insiders.

Consistent with this mechanism, recent evidence from Poland shows that the same reform reduced real earnings management in firms with OFE blockholders, suggesting that exit threat can operate as an effective governance channel in this market (Kałdoński & Jewartowski, 2024). We exploit this setting to examine how a stronger and more credible exit threat shapes corporate dividend policy.

2.3 Hypothesis development

Agency theory emphasizes that dividends can serve as a bonding mechanism that reduces insiders’ discretionary resources and limits inefficient investment or private benefits funded from free cash flow (Jensen, 1986). Cross-country evidence suggests that stronger minority shareholder protection is associated with higher payouts. The so-called outcome hypothesis consistent with dividends reflecting effective constraints on insiders’ ability to retain and divert cash (La Porta et al., 2000).

Bringing these perspectives together, exit-based governance may affect payout policy through at least two competing channels. On the one hand, stronger exit threats increase the expected costs of retaining cash: value-destroying decisions raise the likelihood of informed selling and adverse

price reactions. In this case, managers may respond by increasing dividends to mitigate investor concerns and signal commitment to shareholder value. This interpretation is consistent with evidence that weakening external governance reduces dividend payouts (Francis et al., 2011; Bae et al., 2021). On the other hand, exit and dividends may act as substitutes. If institutional blockholders can effectively discipline managers through the threat of exit, the need to use dividends as a bonding mechanism may diminish. In such a setting, firms may optimally retain more cash, as external market discipline reduces agency concerns.

This hypothesis aligns with broader insights in the corporate governance literature that different governance mechanisms can replace one another depending on their relative effectiveness (Schmidt & Fahlenbrach, 2017; Kacperczyk et al., 2021).

Taken together, the theoretical relationship between exit threats and dividend policy is ambiguous and ultimately an empirical question. However, if dividends primarily reflect an outcome of stronger governance induced by divestment risk, one expects a positive relationship between exit threats and payouts.

H1a: An increase in the exit threat of institutional blockholders leads to higher corporate dividend payouts.

Alternatively, if dividends substitute for governance, a stronger exit threat may reduce the need for dividends.

H1b: An increase in the exit threat of institutional blockholders leads to lower corporate dividend payouts, reflecting reduced reliance on dividends as a governance device.

3. Research design

Since actual exits only capture situations in which the threat failed to discipline managers and controlling shareholders, the exit threat itself cannot be directly observed. To address this limitation, we exploit a unique quasi-natural experiment created by Polish pension fund (OFE) reform, discussed in Section 2.2 (Institutional Context). This approach also helps mitigate concerns about endogeneity, including potential reverse causality between corporate governance mechanisms and dividend policy.

We implement a difference-in-differences (DiD) approach using panel data on non-financial companies primarily listed on the Warsaw Stock Exchange between 2011 and 2016. All the data required to calculate the variables were gathered from the S&P Capital IQ database, Notoria and the Warsaw Stock Exchange's GPW statistics portal.

In our baseline approach, we conduct the difference-in-differences (DiD) analysis by estimating the following regression:

$$DIV_{it} = \alpha + \beta_1 Treatment_{it} + \beta_2 After_{it} + \beta_3 Treatment_{it} After_{it} + \gamma Controls_{it-1} + \varepsilon_{it}$$

where *DIV* denotes the dividend payout measure under consideration, *Treatment* is a dummy variable equal to 1 if a firm belongs to the treatment group and 0 otherwise, and *After* is a dummy variable equal to 1 for observations in the post-reform period (2014 and later) and 0 otherwise. The treatment group consists of firms in which at least one OFE held more than 5% of the firm's shares (equity stake) prior to the reform, while the control group includes firms without such ownership exposure. This threshold is consistent with the approach used by Konijn et al. (2011), Bai & Li (2024). In robustness tests, we also consider alternative ownership cutoffs to ensure that the results are not driven by the specific threshold choice.

We use three measures of dividend policy commonly applied in empirical research. The first is dividend yield (*DY*), defined as the ratio of annual dividends per share to the firm's share price at the day of the payment (e.g., El-Helaly & Al-Dah, 2022). The second measure is dividend payout ratio (*DPR*), calculated as annual dividends in year *t* divided by net income in year *t-1* (e.g., Tjipta et al., 2022). The third measure is dividends-to-assets (*DTA*) defined as annual dividends in year *t* scaled by total assets at the end of year *t-1* (e.g., Sheikh, 2026).

We include firm-level control variables (*Controls*) commonly used in empirical studies on dividend policy and corporate governance to account for systematic cross-sectional differences among firms. The selection of controls is grounded not only in prior empirical evidence but also in well-established theories of dividend payouts.

First, following Fama and French (2002) and Denis and Osobov (2008), we include firm size (*lnMV*), leverage (*Lev*), firm age (*lnAge*), and profitability (*ROA*), as these variables are consistently identified as core determinants of payout behavior. The relevance of these control variables is closely linked to the life-cycle theory of dividends (DeAngelo et al., 2006), which posits that firms transition from a growth phase (characterised by low profitability, high investment needs, and low payouts) to a mature stage where retained earnings accumulate and dividend payments become more likely. Larger, older, and more profitable firms (captured by *lnMV*, *lnAge*, and *ROA*) are more likely to distribute dividends because they face fewer growth opportunities and generate excess internal funds. Conversely, leverage (*Lev*) reflects financial constraints and creditor monitoring, which, according to both life cycle theory and agency theory, can limit dividend payments due to debt covenants and the need to preserve financial liquidity.

To capture firms' valuation profiles and investment opportunities, we use the book-to-market ratio (*BV/MV*). This variable is directly linked to both the investment opportunities (growth opportunities) hypothesis and the life-cycle theory. Firms with low *BV/MV* (growth firms) are

expected to retain earnings to finance investment, while firms with high BV/MV (value firms) are more likely to distribute cash to shareholders due to a relative lack of profitable projects. This is also consistent with signaling models of dividends (Bhattacharya, 1979; Miller & Rock, 1985), where mature firms use stable dividend payments to signal financial strength and limited information asymmetry.

The cash-to-assets ratio (*Cash ratio*) serves as a proxy for the availability of free cash flow and is central to the agency theory of dividends (Jensen, 1986). According to this framework, managers may have incentives to overinvest when firms generate excess cash. Dividend payouts act as a disciplining mechanism by reducing free cash flow under managerial discretion. Firms with higher cash holdings may face stronger pressure to distribute dividends.

Finally, stock return volatility is included as a measure of firm risk, which interacts with several theoretical perspectives. From the standpoint of transaction cost and precautionary motives, more volatile firms may retain cash to buffer against uncertainty, reducing payouts. At the same time, as suggested by John and Knyazeva (2006), risk influences governance changes and monitoring intensity, thereby affecting dividend policy. In addition, in signaling models, high volatility may weaken the credibility of dividend signals, leading firms to adopt more conservative payout strategies (Karpavičius and Yu, 2018).

To mitigate potential endogeneity concerns arising from simultaneity between firm characteristics and payout decisions, all control variables are lagged by one year relative to the dividend policy measures. To mitigate the influence of extreme observations, we apply an upper-tail winsorization to selected firm characteristics. Specifically, ROA, stock return volatility, the book-to-market ratio (BV/MV), leverage, and the cash-to-assets ratio are winsorized at the 95th percentile. This procedure reduces the impact of unusually large values without dropping observations. In addition, we use the natural logarithm of one plus the variable, $\ln(1+x)$, for dividend-based variables (*DY*, *DPR*, *DTA*) and leverage to reduce right-skewness and allow for zero observations. This timing structure is consistent with empirical practice and reflects the assumption that firm characteristics are predetermined when dividend decisions are made. Standard errors are clustered at the firm level to account for heteroskedasticity and within-firm serial correlation.

Table 1 reports the descriptive statistics for all variables, while Table 2 presents the pairwise correlation matrix.

Table 1. Descriptive statistics

Variable	Mean	Std.Dev.	Skewness	Kurtosis	5 th percentile	Median	95 th percentile
<i>DY</i>	0.012	0.027	4.947	53.059	0.000	0.000	0.063
<i>DPR</i>	0.171	0.672	12.867	252.355	0.000	0.000	0.827
<i>DTA</i>	0.011	0.047	16.751	416.242	0.000	0.000	0.056
<i>lnMV</i>	5.088	1.740	0.363	3.768	2.610	4.925	8.330
<i>Lev</i>	0.260	0.978	-1.132	249.938	0.000	0.243	0.701
<i>lnAge</i>	1.793	1.005	-1.742	8.561	0.022	1.946	2.915
<i>ROA</i>	0.018	0.190	-3.402	37.803	-0.223	0.036	0.188
<i>BV/MV</i>	0.618	7.480	-16.766	347.239	0.078	0.879	3.399
<i>Cash ratio</i>	0.082	0.100	2.965	15.699	0.003	0.051	0.260
<i>Volatility</i>	0.067	0.052	4.775	39.727	0.029	0.053	0.155

The table reports descriptive statistics for all variables used in the analysis for the full sample over 2011-2016, covering both the pre- and post-treatment periods. Dividend policy is captured by three commonly used measures: dividend yield (*DY*), defined as annual dividends per share divided by the payout-day share price; dividend payout ratio (*DPR*), measured as dividends in year *t* scaled by net income in year *t*-1; and dividends-to-assets (*DTA*), defined as dividends in year *t* divided by total assets at the end of year *t*-1. Firm characteristics include market value of equity (*MV*) (firm size), leverage (*Lev*) measured as total debt scaled by total capital, and firm age (*Age*) defined as the (log) number of years since first listing. Profitability is proxied by return on assets (*ROA*). Valuation and growth opportunities are captured by *BV/MV*, the book-to-market ratio. A proxy for free cash flow is measured by the cash ratio, defined as cash and cash equivalents scaled by total assets (*Cash ratio*). *Volatility* is computed as the standard deviation of weekly log returns.

Table 2. Correlation matrix

Variable	<i>DY</i>	<i>DPR</i>	<i>DTA</i>	<i>lnMV</i>	<i>Lev</i>	<i>lnAge</i>	<i>ROA</i>	<i>BV/MV</i>	<i>Cash ratio</i>	<i>Volatility</i>
<i>DY</i>	1.000									
<i>DPR</i>	0.731	1.000								
<i>DTA</i>	0.691	0.639	1.000							
<i>lnMV</i>	0.189	0.193	0.137	1.000						
<i>Lev</i>	-0.129	-0.128	-0.089	-0.001	1.000					
<i>lnAge</i>	0.040	0.011	-0.057	0.168	0.070	1.000				
<i>ROA</i>	0.151	0.144	0.146	0.240	-0.061	0.030	1.000			
<i>BV/MV</i>	0.033	0.023	0.008	0.155	0.002	0.012	0.025	1.000		
<i>Cash ratio</i>	0.117	0.133	0.130	0.061	-0.226	-0.035	0.107	-0.066	1.000	
<i>Volatility</i>	-0.218	-0.204	-0.155	-0.470	0.021	-0.184	-0.345	-0.164	-0.071	1.000

The table presents the matrix of pairwise correlations for all variables in the full sample over the period 2011-2016, encompassing both the pre- and post-treatment phases. Dividend policy is captured by three commonly used measures: dividend yield (*DY*), defined as annual dividends per share divided by the payout-day share price; dividend payout ratio (*DPR*), measured as dividends in year *t* scaled by net income in year *t*-1; and dividends-to-assets (*DTA*), defined as dividends in year *t* divided by total assets at the end of year *t*-1. Firm characteristics include market value of equity (*MV*) (firm size), leverage (*Lev*) measured as total debt scaled by total capital, and firm age (*Age*) defined as the (log) number of years since first listing. Profitability is proxied by return on assets (*ROA*). Valuation and growth opportunities are captured by *BV/MV*, the book-to-market ratio. A proxy for free cash flow is measured by the cash ratio, defined as cash and cash equivalents scaled by total assets (*Cash ratio*). *Volatility* is computed as the standard deviation of weekly log returns.

4. Main results

The baseline regression results are presented in Table 3. Panel A reports the estimated coefficients from specifications without controlling for firm-level characteristics, while Panel B presents estimates for models that include a set of control variables. The coefficient on the interaction term (*Treatment*After*) captures the effect of higher exit threat on firms' dividend policy, as measured by three alternative indicators: dividend yield (*DY*), dividend payout ratio (*DPR*), and dividends-to-assets (*DTA*).

Hausman tests are conducted separately for each specification. For models without firm-level controls, the null hypothesis of no systematic difference between estimators cannot be rejected, which supports the use of random effects. However, once firm-level controls are included, the Hausman test strongly rejects the null hypothesis ($p < 0.01$), indicating that unobserved firm-specific effects are correlated with the regressors. Accordingly, specifications without controls are estimated using random effects, whereas models including controls rely on firm fixed effects. Standard errors are clustered at the firm level to account for within-firm serial correlation.

In Panel A, the coefficient on the interaction term (*Treatment*After*) is positive and statistically significant for the dividend payout ratio (*DPR*), and weakly significant for dividend yield (*DY*) at the 10% level, while the estimate for dividends-to-assets (*DTA*) remains statistically insignificant.

In Panel B, adding firm-level controls substantially improves model fit, consistent with dividend policy being closely related to firm characteristics. The positive and significant *Treatment*After* effect on *DPR* remains robust, while *DY* and *DTA* remain unaffected. The fixed-effects specification further supports this interpretation: the interaction term remains significant only for *DPR*, implying that the result is not driven by time-invariant firm characteristics, and that correlated unobserved heterogeneity is relevant in this setting, as also indicated by the Hausman test. This pattern suggests that the reform primarily affected payout intensity relative to earnings, rather than market-implied dividend yield or dividend amounts scaled by the asset base. One interpretation is that the higher exit threat increased market-based governance pressure on treated firms, leading managers to commit to distributing a higher share of current profits.

By contrast, effects for dividend yield (*DY*) are weaker and less consistent across specifications. Dividend yield mechanically combines dividends with the market price, so governance-related improvements can be priced in through higher valuations. If the reform raises expected governance quality or reduces agency frictions, the market value of treated firms may increase, muting changes in *DY* even if payouts rise. In this sense, *DY* may understate payout adjustments when the reform simultaneously increases the numerator and the denominator through a governance premium.

The absence of a robust effect for dividends-to-assets (*DTA*) is also informative. A null estimate implies that any payout adjustment is not systematically financed through shrinking the asset base, for example via asset sales or reduced investment that would mechanically lower assets. Put differently, the evidence is consistent with payout adjustments that operate through changes in the allocation of earnings and cash flows, such as lower cash retention or improved payout discipline, rather than through a contraction in firms' productive capacity. This pattern is consistent with, though not proof of, payout adjustments that are not systematically financed by reducing assets or increasing leverage.

Taken together, the results highlight a selective exit threat effect. Higher exit threat is associated with a higher propensity to distribute earnings as captured by *DPR*, while measures that embed market valuation (*DY*) or scale payouts by the balance-sheet base (*DTA*) show limited response. The findings are consistent with the idea that shifts in institutional investors' ability to exit can indirectly shape corporate financial policy through market-based governance pressure, with the most visible adjustment occurring in payout intensity rather than in yield or asset-scaled dividend levels.

The estimated coefficients on control variables are broadly in line with theoretical expectations. Across these specifications, leverage is negatively and often significantly associated with dividend measures, indicating that more indebted firms tend to distribute lower dividends under higher exit threat. Firm size (*lnMV*) is positively related to dividend payouts in some specifications, consistent with larger firms exhibiting more stable payout policies. Other controls, including profitability (*ROA*), firm age (*lnAge*), valuation (*BV/MV*), liquidity (*Cash ratio*), and stock return volatility, show weaker and less consistent effects, although higher volatility is generally associated with lower payouts, reflecting greater uncertainty reducing firms' willingness to commit to dividends.

Table 3. Difference-in-Differences estimation

<i>Panel A: No control variables</i>			
<i>Model</i>	(1)	(2)	(3)
<i>Dependent variable</i>	DY	DPR	DTA
<i>Treatment * After</i>	0.003* (0.002)	0.060*** (0.020)	0.002 (0.003)
<i>After</i>	0.001 (0.001)	0.003 (0.013)	0.003* (0.002)
<i>Treatment</i>	0.008*** (0.002)	0.051** (0.021)	0.006* (0.003)
<i>Constant</i>	0.007*** (0.001)	0.070*** (0.014)	0.006** (0.002)
<i>No. of observations</i>	1,908	1,884	1,884
<i>R²</i>	0.0139	0.0186	0.0076
<i>Adj. R²</i>	0.0123	0.0171	0.0060
<i>Type of effect</i>	RE	RE	RE
<i>Panel B: With control variables</i>			
<i>Model</i>	(1)	(2)	(3)
<i>Dependent variable</i>	DY	DPR	DTA
<i>Treatment * After</i>	0.002 (0.002)	0.070*** (0.024)	0.004 (0.003)
<i>lnMV</i>	0.000 (0.001)	0.022** (0.011)	0.002 (0.001)
<i>Lev</i>	-0.008* (0.005)	-0.105** (0.052)	-0.013** (0.006)
<i>lnAge</i>	0.001 (0.001)	0.015 (0.015)	0.002 (0.002)
<i>ROA</i>	0.001 (0.004)	0.021 (0.046)	0.006 (0.005)
<i>BV/MV</i>	0.000 (0.000)	0.007* (0.004)	0.001 (0.000)
<i>Cash ratio</i>	0.017 (0.013)	0.164 (0.143)	0.019 (0.017)
<i>Volatility</i>	-0.047 (0.031)	-0.520 (0.351)	-0.025 (0.041)
<i>Firm FE</i>	Yes	Yes	Yes
<i>Year FE</i>	No	No	No
<i>Observations</i>	1547	1545	1547
<i>R² (within)</i>	0.0102	0.0275	0.0151
<i>Type of effect</i>	Within FE	Within FE	Within FE

Treatment denotes a dummy variable equal to 1 for firms exposed to the treatment and 0 for control firms, while After equals 1 for the post-treatment period (2014-2016) and 0 for the pre-treatment period (2011-2013). Dividend policy is captured by three commonly used measures: dividend yield (DY), defined as annual dividends per share divided by the payout-day share price; dividend payout ratio (DPR), measured as dividends in year t scaled by net income in year t-1; and dividends-to-assets (DTA), defined as dividends in year t divided by total assets at the end of year t-1. Firm characteristics include market value of equity (MV) (firm size), leverage (Lev) measured as total debt scaled by total capital, and firm age (Age) defined as the (log) number of years since first listing. Profitability is proxied by return on assets (ROA). Valuation and growth opportunities are captured by BV/MV, the book-to-market ratio. A proxy for free cash flow is measured by the cash ratio, defined as cash and cash equivalents scaled by total assets (Cash ratio). Volatility is computed as the standard deviation of weekly log returns. t-statistics with standard errors clustered by a firm are given in parentheses, and asterisks denote the statistical significance at the 0.1 (*), 0.05 (**) and 0.01 (***) level.

5. Robustness tests

5.1. Alternative Estimation Specifications

The results of the Hausman test are not conclusive. In specifications with control variables, the null hypothesis of no correlation between individual effects and regressors is rejected, favoring the fixed effects model, whereas without controls it cannot be rejected, supporting the use of

random effects. This inconsistency introduces uncertainty regarding the appropriate model specification. For this reason, we estimate both random effects models including control variables and fixed effects models without additional controls, providing complementary evidence on the robustness of the estimated treatment effects.

To additionally address this issue, we adopt the approach proposed by Mundlak (1978), which provides a more flexible framework by relaxing the strict exogeneity assumption underlying the standard random effects model. Specifically, the Mundlak specification augments the model by including firm-level means of time-varying explanatory variables. This extension allows the model to account for potential correlation between regressors and unobserved individual effects.

An important feature of this approach is that it decomposes the estimated effects into within-firm (time-series variation) and between-firm (cross-sectional variation) components. The coefficients on the original regressors capture within effects, analogous to those obtained from a fixed effects estimator, while the coefficients on the group means reflect between effects, capturing systematic differences across firms. Moreover, the statistical significance of the group mean variables provides a direct test of the key random effects assumption. Significant coefficients on these variables indicate that unobserved firm-specific heterogeneity is correlated with the explanatory variables, implying that the standard random effects model is misspecified. In such cases, the Mundlak specification offers a more robust alternative, preserving the efficiency advantages of random effects while addressing this source of endogeneity.

In Section 5.4 in Table 4 we report estimated *Treatment*After* coefficients for fixed effect model without control variable, random effect model with control variables estimates and Mundlak model.

5.2 Propensity score matching

Additionally, we employ propensity score matching (PSM) to address potential selection bias arising from the non-random allocation of firms to OFE ownership. The objective is to compare firms that are similar in observable characteristics but differ with respect to the presence of OFE blockholders. Following the approach used in prior literature, we construct the matching sample based on firm characteristics measured prior to treatment. In our setting, firm-level characteristics are derived from cross-sectional data, ensuring that the matching procedure is not contaminated by post-treatment information.

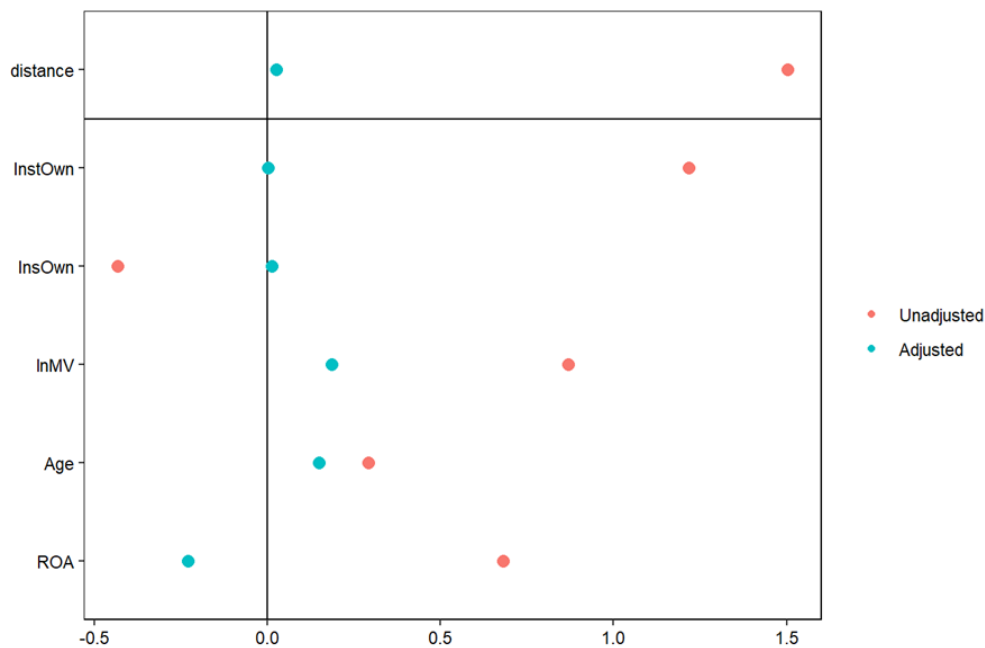
We consider a set of firm characteristics, including ownership structure variables (institutional and insider ownership) and financial indicators (firm size, firm age and ROA) that may influence the likelihood of being selected by OFE investors. Institutional ownership is defined as the

percentage of outstanding shares held by institutional investors, while insider ownership represents the percentage of shares held by company insiders. Firm size, age and profitability (ROA) remain the same as defined in Section 3 (Research design).

Using the estimated propensity scores from a probit model, we implement 1:1 nearest-neighbor matching without replacement and a caliper of 0.05. Each treated firm is matched to the control firm with the closest propensity score within the caliper, ensuring that only sufficiently similar firms are paired. The resulting matched sample consists of 96 firms.

To assess the quality of the matching procedure, we examine covariate balance before and after matching using standardized mean differences, as illustrated in Figure 1. Prior to matching, substantial imbalance is observed across covariates. In particular, institutional ownership, firm size, and profitability exhibit large standardized differences, indicating significant disparities between treated and control firms. Following matching, the covariate balance improves markedly. As shown in Figure 1, the standardized mean differences are substantially reduced for all variables, with most values close to zero and below the commonly accepted threshold of 0.2.

Figure 1. Covariate Balance Before and After Matching



Notes: The figure displays standardized mean differences for covariates before (unadjusted) and after matching (adjusted).

In Table 4 (Section 5.4) we report estimated *Treatment*After* coefficients for model with PSM.

5.3 Entropy balancing

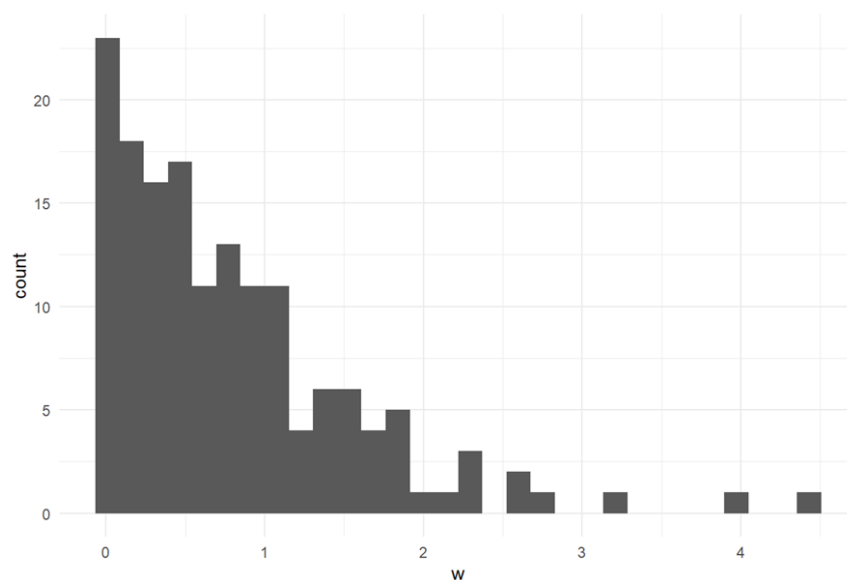
To assess the robustness of our baseline results and alleviate concerns about non-random selection into the treatment group, we implement an alternative reweighting approach based on entropy balancing (Hainmueller, 2012). Unlike propensity score matching, which may reduce the analysis sample due to unmatched observations, entropy balancing retains all observations and reweights control firms so that their covariate distribution matches that of treated firms.

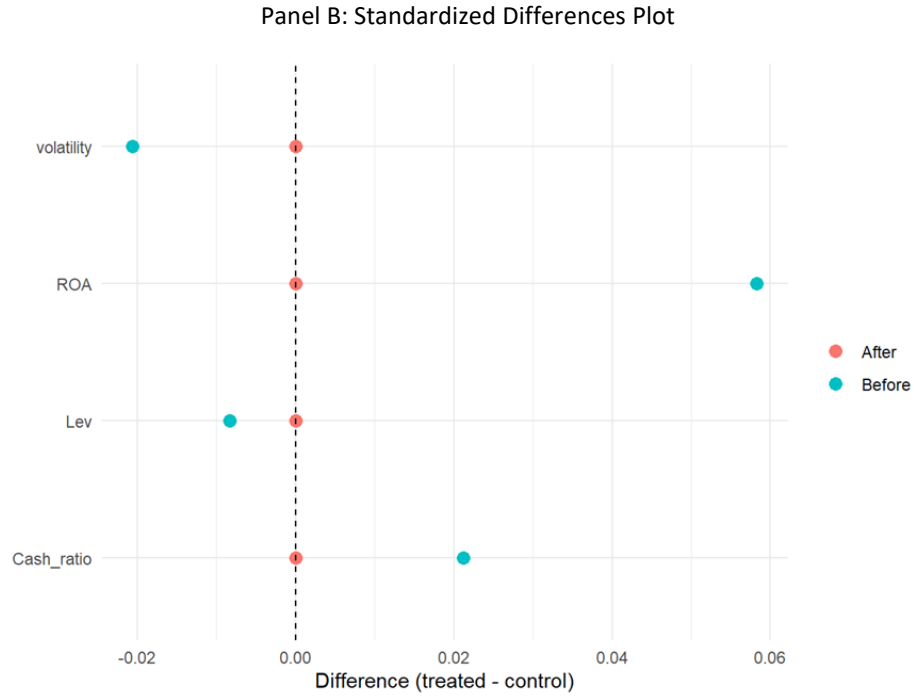
Specifically, we use a pre-treatment cross-sectional set of firm characteristics measured in 2013 as baseline covariates. The set of covariates used in the balancing procedure includes leverage (*Lev*), profitability (*ROA*), cash holdings (*Cash ratio*), and return volatility (*Volatility*). Observations from the treatment group are assigned a unit weight, whereas weights for control observations are determined endogenously so as to match the moments of the covariate distributions in the treated group. In line with standard practice, we target three moments of the distributions (means, variances, and skewness), ensuring a comprehensive balance between groups.

To assess the quality of the balancing procedure, we examine both the distribution of the weights (Figure 2, Panel A) and the differences in covariate means between treated and control groups before and after reweighting (Figure 2, Panel B). The results indicate that entropy balancing substantially improves covariate balance, as the post-weighting differences in means, variances, and skewness converge to zero for all included variables. Additionally, the distribution of weights does not exhibit extreme values, suggesting that the reweighting procedure does not rely excessively on a small number of observations.

Figure 2. Post-Weighting Balance Diagnostics (Entropy Balancing)

Panel A: Distribution of Entropy Balancing Weights





In Table 4 (Section 5.4) we report estimated *Treatment*After* coefficients for model with entropy balancing.

5.4 Robustness models overview

To assess the robustness of our baseline findings, we report the estimated *Treatment*After* coefficients across a range of alternative specifications. The results are presented in Table 4.

Table 4. Estimated *Treatment*After* Effects Across Alternative Specifications

Variable	(1) DY	(2) DPR	(3) DTA
Random effects (with controls)	0.005* (0.003)	0.064*** (0.023)	0.003 (0.003)
Fixed effects (without controls)	0.003* (0.002)	0.070*** (0.023)	0.003 (0.003)
Mundlak RE	0.002 (0.003)	0.065** (0.026)	0.003 (0.003)
PSM (matched)	0.006* (0.003)	0.137*** (0.047)	0.008** (0.004)
Entropy balancing	0.003 (0.003)	0.075*** (0.027)	0.006 (0.004)

The table reports the estimated coefficients on the interaction term *Treatment*After* from difference-in-differences regressions across alternative model specifications. The dependent variables are dividend yield (*DY*), dividend payout ratio (*DPR*), and dividends-to-assets (*DTA*). Each column corresponds to a different dependent variable, while each row presents results from a different estimation approach, including baseline random effects with controls, fixed effects, propensity score matching (PSM), entropy balancing, and correlated random model (Mundlak). Standard errors are reported in parentheses, and asterisks denote the statistical significance at the 0.1 (*), 0.05 (**), and 0.01 (***) level.

The results reported in Table 4 demonstrate that the estimated treatment effects are largely robust across alternative model specifications. In particular, the coefficient on the *Treatment*After* interaction remains positive for all dividend payout ratio (*DPR*) across most specifications. For this variable, the estimated effect is consistently positive and statistically significant at conventional levels in all models.

For dividend yield (*DY*), the estimated effects are smaller in comparison to *DPR* and only weakly significant in selected specifications (random effects, fixed effects, and PSM), indicating a more limited response. In contrast, the results for dividends-to-assets (*DTA*) are generally not statistically significant, with the exception of the PSM specification, where the effect becomes positive and significant.

The consistency between random effects, fixed effects, and Mundlak specifications suggests that the results are not driven by misspecification of the panel structure or by correlation between regressors and unobserved firm-specific effects.

Importantly, the PSM estimates tend to yield larger coefficients, which may reflect the effect of focusing on a more comparable subsample of firms but at the cost of reduced sample size. In contrast, entropy balancing results are more conservative, as this approach retains all observations (though their influence varies by weights).

5.5 Threshold analysis

A further robustness test is provided by threshold analysis based on pre-reform institutional ownership. The analysis is repeated for subsamples defined by increasingly stringent OFE ownership thresholds (beginning above 5%). Figure 3 presents a sensitivity analysis of the results to alternative OFE ownership thresholds. Panel A reports the difference-in-differences estimates across thresholds with 95% confidence intervals, while Panel B shows the corresponding firm counts by treatment status.

While the estimated effects are stable across thresholds, a temporary decline in statistical significance is observed around the 7% and 14% threshold for *DPR*. Although the point estimates remain positive and of similar magnitude, the confidence intervals widen and barely overlap zero. Although the 95% confidence interval includes zero around the 7%-14% thresholds, the estimates may still remain significant at the 10% level if the corresponding 90% confidence interval excludes zero.

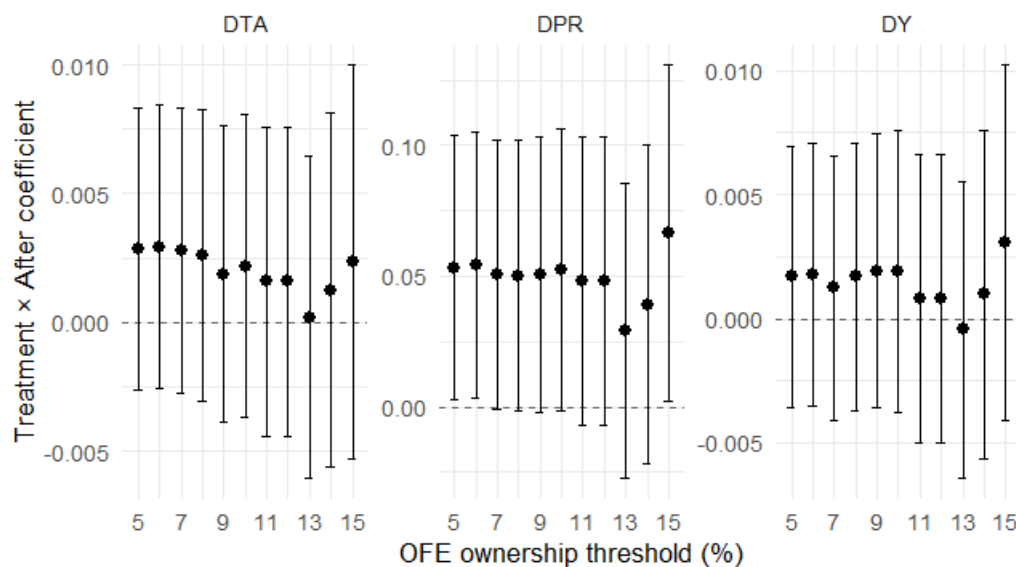
In contrast, the results for *DTA* and *DY* remain small and statistically insignificant across all thresholds, confirming earlier findings that these dimensions are largely unaffected. This

reinforces the interpretation that the observed effects are specific to payout policy (*DPR*), rather than reflecting broader changes in firms' financial structure (*DTA*) or market valuation (*DY*).

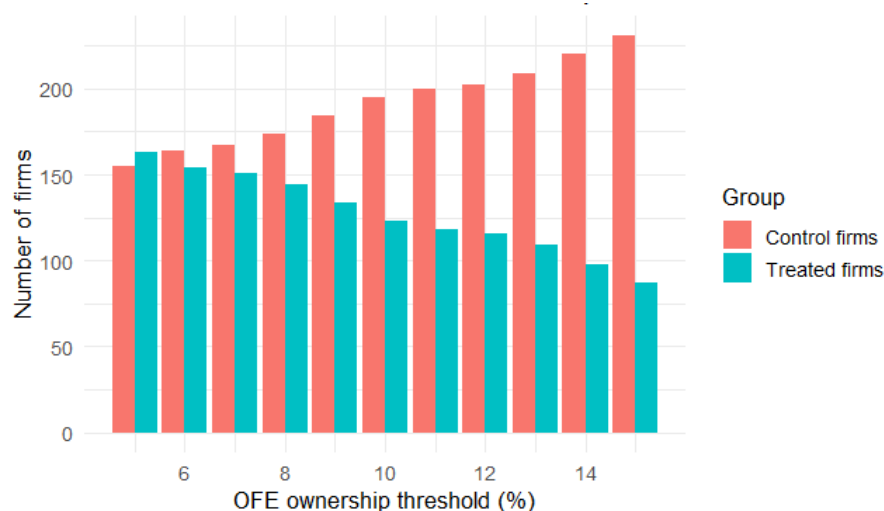
The variation in results across thresholds can be interpreted as reflecting a shift in the underlying governance mechanism (from exit threat to direct control). At lower and intermediate ownership levels, OFE can exert influence through the threat of exit, which is consistent with stronger effects on payout decisions. As ownership increases, however, exit becomes less credible and is replaced by more direct forms of control, potentially attenuating the observable impact on dividend policy.

Figure 3. Sensitivity Analysis to Alternative OFE Ownership Thresholds

Panel A: Difference-in-Differences Estimates Across Different OFE Ownership Thresholds



Panel B: Firm Counts by Treatment Status Across OFE Ownership Thresholds



Conclusion:

This study examines the role of exit threat as a corporate governance mechanism and its impact on corporate dividend policies, using the 2014 reform of open-ended pension funds (OFEs) as a natural experiment. The empirical results show that the reform led to an increase in dividend payouts, measured by the dividend payout ratio (*DPR*), among firms with higher exposure to OFE ownership, and that this effect is robust across specifications. In contrast, no consistent effects are observed for dividend yield (*DY*) or payouts relative to assets (*DTA*), suggesting that the reform affected the intensity of payouts rather than broader dimensions of financial policy. Consistent with agency theory and the outcome hypothesis interpretation, higher exit pressure appears to discipline controlling shareholders by tilting financial policy toward higher distributions rather than broader balance-sheet changes.

These findings are consistent with a response by controlling shareholders and managers to an increase in exit threat. From an agency perspective, heightened exit pressure appears to act as a disciplining device, incentivizing insiders to reduce free cash flow and increase payouts, thereby limiting the scope for value-destroying investments. This supports the view that exit can substitute for direct monitoring, particularly in environments characterised by concentrated ownership.

The threshold analysis reinforces this interpretation. Estimated effects on *DPR* remain broadly stable across ownership thresholds, with some loss of statistical precision at intermediate levels. This pattern suggests that the effect is not driven by a specific ownership cut-off, but rather reflects variation in the underlying governance mechanism: exit is more relevant at lower and intermediate ownership levels, while higher stakes may be associated with a greater role for direct control.

These results have several implications for the literature on corporate governance and institutional investors. First, they show that exit-based governance can shape firm-level financial policies through payout behaviour. Second, they highlight that what matters is not only the level of institutional ownership, but the credibility of exit as a source of governance pressure. Third, they suggest that regulatory reforms affecting investors' ability or incentives to exit may have real effects on corporate policies, even in settings with concentrated ownership.

Despite the robustness of the main findings, several limitations should be acknowledged. First, the analysis focuses on cash dividends and does not account for alternative payout channels such as share repurchases, which may lead to an underestimation of total payout responses. Second, although multiple identification strategies are employed, concerns related to selection and unobserved heterogeneity cannot be fully eliminated. Third, the analysis is conducted in a specific institutional setting characterised by an abrupt increase in exit threat, which may limit

the generalisability of the results to environments where such pressures evolve more gradually or decline over time.

Future research could extend this analysis in several directions. Incorporating broader measures of total payout would allow for a more comprehensive assessment of corporate responses to governance pressures. Further work could also explore the interaction between exit and other governance mechanisms, such as voice or board representation. Finally, examining similar reforms in different institutional contexts would help assess the external validity of exit-based governance and its role in shaping corporate financial decisions.

Overall, the results suggest that changes in the credibility of exit, rather than ownership levels alone, can play a meaningful role in shaping corporate payout decisions. This quasi-natural experiment therefore underscores the importance of dynamic governance shocks (shifts in exit credibility) for understanding how payout policies adjust in response to institutional investors.

References:

- Admati, A. R., & Pfleiderer, P. (2009). The "Wall Street Walk" and shareholder activism: Exit as a control device. *The Review of Financial Studies*, 22(7), 2445-2485. <https://doi.org/10.1093/rfs/hhp037>
- Aleknevičienė, V., & Vilimaitė, K. (2023). Effect of ownership structure on dividend payments: Evidence from public companies in Nordic and Baltic Countries. *Cogent Economics & Finance*, 11(2), 2238377. <https://doi.org/10.1080/23322039.2023.2238377>
- Bae, K. H., El Ghouli, S., Guedhami, O., & Zheng, X. (2021). Board reforms and dividend policy: International evidence. *Journal of Financial and Quantitative Analysis*, 56(4), 1296-1320. <https://doi.org/10.1017/S0022109020000319>
- Bai, T., & Li, Z. (2024). Exit as governance: The effect of stock liquidity on firm productivity. *Accounting and Finance*, 64, 2453-2483. <https://doi.org/10.1111/acfi.13222>
- Bharath, S. T., Jayaraman, S., & Nagar, V. (2013). Exit as governance: An empirical analysis. *The Journal of Finance*, 68(6), 2515-2547. <https://doi.org/10.1111/jofi.12073>
- Bhattacharya, S. (1979). Imperfect information, dividend policy, and "the bird in the hand" fallacy. *The Bell Journal of Economics*, 259-270. <https://doi.org/10.2307/3003330>
- Błaszczak, B. (2020). Filar kapitałowy w polskim systemie emerytalnym. Od OFE do PPK. *Gospodarka Narodowa. The Polish Journal of Economics*, 301(1), 9-54.
- Caiazza, E., Gambacorta, L., Oliviero, T., & Shin, H. S. (2025). Corporate payout policy: are financial firms different?. *The Review of Corporate Finance Studies*.
- Cao, J., Wang, H., & Zhou, S. (2022). Soft activism and corporate dividend policy: Evidence from institutional investors site visits. *Journal of Corporate Finance*, 75, 102221. <https://doi.org/10.1016/j.jcorpfin.2022.102221>
- Chen, K., Li, X., Kang, Y., & Yang, M. (2024). The downside of blockholder exit threats: Increasing excess cash holdings. *Journal of International Financial Management & Accounting*, 35(2), 584-609. <https://doi.org/10.1111/jifm.12205>
- Cvijanović, D., Dasgupta, A., & Zachariadis, K. E. (2022). The Wall Street stampede: Exit as governance with interacting blockholders. *Journal of Financial Economics*, 144(2), 433-455. <https://doi.org/10.1016/j.jfineco.2022.02.005>
- Das Mohapatra, D., & Panda, P. (2022). Impact of corporate governance on dividend policy: A systematic literature review of last two decades. *Cogent Business & Management*, 9(1), 2114308. <https://doi.org/10.1080/23311975.2022.2114308>

- DeAngelo, H., DeAngelo, L., Stulz, R. M. (2006). Dividend Policy and the Earned/Contributed Capital Mix: A Test of the Life-Cycle Theory. *Journal of Financial Economics*, 81, 227-254. <https://doi.org/10.1016/j.jfineco.2005.07.005>
- Denis, D. J., & Osobov, I. (2008). Why Do Firms Pay Dividends? International Evidence on the Determinants of Dividend Policy. *Journal of Financial Economics*, 89, 62-82. <https://doi.org/10.1016/j.jfineco.2007.06.006>
- Easterbrook, F. H. (1984). Two agency-cost explanations of dividends. *The American Economic Review*, 74(4), 650-659.
- Edmans, A. (2009). Blockholder trading, market efficiency, and managerial myopia. *The Journal of Finance*, 64(6), 2481-2513. <https://doi.org/10.1111/j.1540-6261.2009.01508.x>
- Edmans, A., & Manso, G. (2011). Governance through trading and intervention: A theory of multiple blockholders. *The Review of Financial Studies*, 24(7), 2395-2428.
- El-Helaly, M., & Al-Dah, B. (2022). Related party transactions and dividend payouts. *Finance Research Letters*, 49, 103114. <https://doi.org/10.1016/j.frl.2022.103114>
- Enescu, A. G., & Răileanu Szeles, M. (2026). Institutional Investors, Dividend Policy, and Idiosyncratic Volatility: Evidence from European Equity Markets. *International Journal of Financial Studies*, 14(2), 50.
- Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies*, 15(1), 1–33. <https://doi.org/10.1093/rfs/15.1.1>
- Farooq, M., Ahmed, A., Khan, I., & Munir, M. (2025). Impact of dividend policy on corporate social responsibility: the role of board governance mechanism. *Journal of Global Responsibility*, 16(1), 52-77. <https://doi.org/10.1108/JGR-08-2023-0135>
- Francis, B. B., Hasan, I., John, K., & Song, L. (2011). Corporate governance and dividend payout policy: A test using antitakeover legislation. *Financial Management*, 40(1), 83-112. <https://doi.org/10.1111/j.1755-053X.2010.01135.x>
- Hainmueller, J. (2012). Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis*, 20(1), 25-46. <https://doi.org/10.1093/pan/mpr025>
- Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, 76(2), 323-329. <http://dx.doi.org/10.2139/ssrn.99580>
- John, K. and A. Knyazeva (2006), Payout Policy, Agency Conflicts, and Corporate Governance (Working paper).

Kacperczyk, M., Sundaresan, S., & Wang, T. (2021). Do foreign institutional investors improve price efficiency?. *The Review of Financial Studies*, 34(3), 1317-1367. <https://doi.org/10.1093/rfs/hhaa076>

Kałodński, M., & Jewartowski, T. (2024). Governance through exit: Pension fund reform impact on real earnings management of portfolio companies. *Review of Quantitative Finance and Accounting*, 63, 1349-1389. <https://doi.org/10.1007/s11156-024-01294-0>

Karpavičius, S., & Yu, F. (2018). The impact of dividend-protected CEO equity incentives on firm value and risk. *Economic Modelling*, 71, 16-24. <https://doi.org/10.1016/j.econmod.2017.11.016>

Konijn, S. J. J., Kräussl, R., & Lucas, A. (2011). Blockholder dispersion and firm value. *Journal of Corporate Finance*, 17(5), 1330-1339. <https://doi.org/10.1016/j.jcorpfin.2011.06.005>

Koronkiewicz, A. A. (2019). Otwarte Fundusze Emerytalne—przegląd istotnych zmian ustawodawstwa w latach 1999-2019. <https://doi.org/10.19195/1733-5779.28.23>

Kurach, R., & Papla, D. (2014). Inwestycje alternatywne w portfelach otwartych funduszy emerytalnych. *Optimum. Economic Studies*, (1 (67), 71-81.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (2000). Agency problems and dividend policies around the world. *The Journal of Finance*, 55(1), 1-33. <https://doi.org/10.1111/0022-1082.00199>

Levit, D. (2019). Soft shareholder activism. *The Review of Financial Studies*, 32(7), 2775-2808. <https://doi.org/10.1093/rfs/hhy119>

Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *The Journal of finance*, 40(4), 1031-1051. <https://doi.org/10.1111/j.1540-6261.1985.tb02362.x>

Mundlak, Y. (1978). On the pooling of time series and cross section data. *Econometrica: Journal of the Econometric Society*, 69-85. <https://doi.org/10.2307/1913646>

Narang, N., Gupta, S., & Tripathy, N. (2023). A bibliometric analysis of governance mechanisms in dividend decisions: an overview and emerging trends: N. Narang et al. *International Journal of Disclosure and Governance*, 20(4), 410-430.

Roszkowska, P., Langer, L. K., & Langer, P. B. (2021). Pension funds and IPO pricing. Evidence from a quasi-experiment. *The British Accounting Review*, 53(4), 100943.

Schmidt, C., & Fahlenbrach, R. (2017). Do exogenous changes in passive institutional ownership affect corporate governance and firm value?. *Journal of Financial Economics*, 124(2), 285-306. <https://doi.org/10.1016/j.jfineco.2017.01.005>

Sheikh, S. (2026). CEO termination risk and the likelihood of paying dividends. *International Journal of Managerial Finance*, 22(2), 389-408.

Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, 52(2), 737-783.

Sreeram, L., Gwalani, H., Sreeram, N., & Mishra, N. (2026). Foreign institutional investments and dividend payout policy: analyzing the bidirectional relationship. *Managerial Finance*, 52(4), 659-676.

Szewc-Rogalska, A., & Wąsacz, M. (2024). The role of pension funds in corporate governance of portfolio companies. *Zeszyty Naukowe. Organizacja i Zarządzanie/Politechnika Śląska*.

Tjipta, R. V., Murhadi, W. R., & Ernawati, E. (2022). The effect of corporate governance toward dividend payout ratio. *Journal of Entrepreneurship & Business*, 3(2), 94-103.

Witkowska, D., & Kompa, K. (2015). Ocena efektywności funduszy emerytalnych z wykorzystaniem metod porządkowania liniowego. *Metody ilościowe w Badaniach Ekonomicznych*, 16(4), 191-200.

Velte, P. (2024). Institutional ownership and board governance: A structured literature review on the heterogeneous monitoring role of institutional investors. *Corporate Governance*, 24(2), 225–263. <https://doi.org/10.1108/CG-10-2022-0414>