What happens with a zero Corporate Income Tax? Evidence from a Corporate Payout Tax System

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Abstract

Academics and policymakers frequently suggest replacing the traditional corporate income tax system—where both corporations and their shareholders are taxed—with a tax on payouts ("corporate payout tax"). Arguably, this approach could reduce administrative burdens for firms and incentivize investment. However, there is limited empirical evidence on the economic effects of such a tax system. Our study addresses this gap by examining a unique corporate tax reform in Latvia, which introduced a corporate payout tax in 2018. Using a difference-in-differences design, we find that firms affected by the reform decrease investment, increase payouts, and reduce leverage. These results suggest that payout incentives resulting from the shift from the old to the new tax system crowd out the expected positive investment effects of the payout tax. Additionally, by eliminating the preferential tax treatment of interest expenses as common under the traditional corporate income tax, the payout tax reduces incentives for debt financing. All effects persist several years after the reform, except for payouts, which decline in the long run consistent with the payout tax incentivizing corporations to retain profits. Our study provides novel evidence on firm responses to a corporate payout tax, informing reform deliberations in the U.S. and globally.

Keywords: payout tax, distributed profits tax, capital investment, payout, debt financing

JEL Classification: D25, G31, G35, H25

1. Introduction

In most countries, corporate taxation follows a traditional two-tier system that imposes taxes on both (i) the profits earned by corporations and (ii) the dividends distributed to shareholders. Advocates of this system argue that it offers several advantages, such as acting as a backstop against tax base erosion and compensating governments for providing infrastructure to corporations (Weichenrieder 2005). However, this approach can also distort economic decisions, introduce complexity, and create uncertainty for both corporations and their shareholders (Gravelle 1994, Bird 1996). As a result, policymakers and experts in the U.S. and around the globe are exploring alternatives to the traditional corporate income tax system (McBride et al. 2023). One proposed alternative is a single-tier system that only taxes profits distributed to shareholders ("corporate payout tax"). Proponents, such as the Tax Foundation, suggest that such a system could significantly boost economic activity (McBride et al. 2023), though there is little empirical evidence on its actual economic impact. Our study seeks to fill this gap by investigating how firms adjust their investment, payout, and financing strategies in response to a corporate payout tax.[1]

A corporate payout tax, in its simplest form, only taxes the payouts a firm makes to its shareholders (Shome and Schutte 1993). Hence, unlike the traditional corporate income tax system, which taxes both corporate profits and shareholder dividends, a corporate payout tax applies just one level of taxation at the point when profits are distributed to shareholders. However, as in the traditional system, equity contributions by shareholders (e.g., via share issuances) do not qualify for tax deductions. One advantage of taxing only payouts is the administrative simplicity it offers, as there is no need to calculate taxable income at the corporate level or prepare any tax filings other than when payouts are made (Meade Committee 1978; Cansier 1990). Consequently,

[1] For simplicity, we use the terms "corporate payout tax" and "payout tax" interchangeably.

such a tax system is expected to significantly lower firms' compliance costs (McBride et al. 2023).

Since the corporate payout tax does not tax profits at the time they are earned by the corporation, it can encourage investment in two ways. First, under a corporate payout tax, corporations are not required to depreciate long-lived assets over their useful life, eliminating the need for tax depreciation. This treatment resolves the misalignment between tax and economic depreciation of long-lived assets that is common under the traditional corporate income tax (King 1987). As a result, eliminating tax depreciation is expected to incentivize investment, particularly in depreciable assets. Moreover, the corporate payout tax allows corporation to retain profits without immediate tax liabilities, thereby freeing-up additional cash for investment. We expect these effects to be particularly pronounced for small firms, which regularly face severe financing constraints (Schiffer and Weder 2001; Beck et al. 2005; Beck et al. 2006; Beck et al. 2008; Holton et al. 2014; Bakhtiari et al. 2020).

Second, the corporate payout tax mitigates the tax bias towards debt financing that exists under the traditional corporate income tax system. Under the payout tax, investment financed through debt is treated the same as investment financed through internal equity (i.e., retained earnings), eliminating the preferential tax treatment of debt over equity financing (King 1987; Shome and Schutte 1993). This approach also influences investment incentives because, in the traditional system, interest expenses from debt-financed investments are tax deductible, reducing the cost of such investment (Jacob et al. 2023). Since firms with low leverage have fewer interest expenses and therefore fewer tax deduction opportunities, the traditional system reduces their investment incentives. By treating both debt and internal equity financing equally, the corporate payout tax should enhance investment incentives for low-leverage firms.[2] However, both tax

[2] We illustrate the stronger incentives for low leverage firms in Appendix A1 where we show that the incremental benefits of a corporate payout tax are greater when equity financing is more prevalent.

systems—traditional and payout tax— discriminate against financing investment through external equity, as neither allows for tax deductions on equity contributions (Becker, Jacob, and Jacob 2013). As a result, firms that depend heavily on external equity as a financing source, could have weaker investment incentives under a corporate payout tax.

By mitigating the tax bias towards debt financing, a corporate payout tax system is expected to lower firms' debt financing incentives. However, its impact on dividend payouts depends on shareholders' expectations about future payout tax rates. If shareholders expect the payout tax rates to remain constant over time, the payout tax should not influence firms' payout decisions (Hartmann 1985). On the other hand, if shareholders anticipate a future decrease (increase) in tax rates, firms should be included to retain (payout) current profits, leading to a reduction (increase) in dividend payouts (Korinek and Stiglitz 2009).

We empirically examine the effects of a corporate payout tax utilizing a unique tax reform in Latvia. In 2018, Latvia transitioned from its traditional corporate income tax system to a payout tax system. Under the previous system, the country imposed a 15 percent tax on corporate profits, along with a 10 percent dividend tax at the shareholder level. The new system only taxes payouts to shareholders at a rate of 25 percent. Thus, Latvia no longer imposes any corporate-level tax so that neither corporations nor their shareholders are taxed until profits are paid out (Gerzova 2018). To manage the transition, Latvia introduced a two-year transitional period during which retained profits accumulated prior to the reform could be paid out at the pre-reform dividend tax rate of 10 percent. Without this provision, these profits would have faced unfavorable tax treatment after January 1, 2018, as they would have been subject to the pre-reform corporate income tax rate of 15 percent and the higher post-reform payout tax of 25 percent. After the transitional period ended in 2019, the 25 percent tax rate applies to all payouts (Gerzova 2023).

The tax reform in Latvia offers a powerful setting for studying firms' responses to a corporate payout tax for several reasons. First, Latvia is a well-developed market economy with robust institutions and a strong rule of law (Heritage Foundation 2023), suggesting our findings are likely generalizable to other developed economies. Second, the reform was implemented relatively quickly in 2017, minimizing the chances for anticipatory actions by firms. Third, it replaced a traditional corporate income tax system that resembles those currently in use in many other countries. Hence, insights gained from the Latvian setting can inform policymakers around the globe about the potential impacts of a payout tax system. Finally, as most firms in our sample are privately held, our study sheds light on how a corporate payout tax can affect the behavior of firms that represent a significant portion of the global economy. Policymakers often emphasize the importance of creating a beneficial environment for such firms to stimulate the overall economy, making them a key focus for policy initiatives (U.S. House Ways and Means Committee 2017).

Our empirical tests use firm-level financial statement data from Bureau van Dijk's Orbis database for the years 2016 to 2021. We adopt a difference-in-differences research design to identify changes in firm-level capital investment, payout, and leverage between pre- and post-reform years, comparing firms affected by the reform (the treatment group) to unaffected firms (the control group). Latvian firms make up the treatment group, while firms from Estonia and Lithuania serve as the control groups. The firms are ideal control observations due to the historical and institutional similarities of the three Baltic countries, as well as their highly correlated business cycles (Masso et al. 2013). Since Estonia implemented a corporate payout tax in 2000 and Lithuania has maintained a traditional corporate income tax, we use both control groups separately but confirm our findings are robust to combining them (Herm 2023; Vaiciuliene 2023).

Our primary analysis provides no evidence that the corporate payout tax, on average, leads

to an increase capital investment. In fact, we observe that Latvian firms *reduce* their capital investment and *increase* payouts in response to the reform. These results are robust to using both control groups and matching treatment and control firms based on observable pre-reform characteristics. Additional tests indicate that the reduction in capital investment is associated with an increase in efficiency. We also find that leverage decreases after the reform, consistent with the notion that the payout tax removes the tax bias towards debt financing inherent in the traditional corporate income tax system. Overall, these initial results suggest that while the payout tax reduces both investment and debt financing incentives of Latvian firms, it results in increased payouts.

Next, we leverage Latvia's transition rule, which allows pre-reform retained profits to be taxed at the pre-reform payout tax rate if paid out within two years after the reform. We split our post-reform period into two separate periods: (i) the transition period and (ii) the post-transition period. This approach allows us to differentiate between (i) the effects of moving from the traditional corporate income tax system to the payout tax and (ii) the potential long-run effects of the payout tax. Our findings suggest that investment declines in both post-reform periods. However, payouts by Latvian firms increase during the transition period but subsequently decrease in the long run. Similarly, while debt levels begin to decline immediately after the reform, the decrease is more pronounced once the transition rule expires.

Collectively, these results indicate that the transition between tax systems temporarily alleviates the "lock-in" effect of retained profits (Becker et al. 2013). Specifically, once the payout tax was announced, Latvian firms recognized that the payout tax rate will increase under the new tax system, creating a strong incentive to distribute retained pre-reform profits to avoid incurring higher payout taxes.[3] The payout incentive was strong enough to crowd out positive investment

[3] Payout incentives are similar with and without an explicit transition rule as firms face an incentive to increase payouts either during the period of the transition rule or, if no rule exists, in the period between the announcement and the

effects in both the short and the long run. Notably, the observed decline in investment improves efficiency, consistent with the pre-reform tax system encouraging inefficient overinvestment. As the transition rule expires, the higher payout taxes associated with the new tax system make internal financing more appealing (Becker et al. 2013), incentivizing Latvian firms to retain profits. To support these conclusions, we also employ an event study design and analyze the dynamics of treatment effects around the reform. The results from the event study reinforce the findings of our primary analysis. We also find generally similar pre-treatment trends for both treatment and control firms, alleviating concerns that the parallel trends assumption is violated in our setting.

Finally, we examine variation in the degree to which firms might benefit from the payout tax and investigate heterogenous responses to the reform within the sample of Latvian firms. Theory suggests that transitioning from a traditional corporate income tax system to a payout tax system should particularly incentivize capital investment among small firms, which often face severe financing constraints. Hence, the elimination of tax depreciation on assets and the additional cash available from not taxing profits at the level of the corporation are particularly beneficial for these firms (Schiffer and Weder 2001; Zwick and Mahon 2017). To test this prediction, we partition Latvian firms by firm size. Consistent with our expectations, we find that small firms exhibit relatively higher capital investment following the reform. These firms also tend to distribute relatively less, likely to finance new investment. We then partition the sample based on pre-reform leverage, finding that low leverage firms invest more and pay out less after the reform compared to high leverage firms. These results are consistent with the notion that low leverage firms face limited tax deduction opportunities for investment costs under the traditional system (Jacob et al. 2023). Supporting this investment-based argument, we observe that these firms

effectiveness of the reform.

increase their leverage after the reform. Collectively, our results suggest that the payout tax has heterogenous effects, incentivizing investment among distinct groups of firms within Latvia.

Our findings have two important implications. First, they suggest that a corporate payout tax can indeed stimulate capital investment at the firm level, empirically supporting a key argument frequently made by policymakers and commentators in favor of such a system. However, the responses in terms of investment, payout, and debt financing are nuanced, with increased investment (reduced payouts) primarily observed in firms that face severe financing constraints or have limited tax deduction opportunities for investment costs under the traditional system. Second, our results highlight that the transition from a traditional corporate income tax system to a payout tax is critical for the latter's success. The temporary alleviation of the "lock-in" effect, achieved by offering favorable tax treatment for retained profits accumulated under the pre-reform system, creates a strong incentive for payouts that can crowd out the positive investment effects expected from a payout tax. Thus, at least in the short term, a corporate payout tax system is unlikely to lead to an overall increase in capital investment. However, this payout incentive does mitigate overinvestment tendencies fostered by the pre-reform tax system, ultimately enhancing efficiency.

Our study also contributes to the academic literature in various ways. First, we empirically evaluate firm-level responses to a corporate payout tax system, an area where evidence is scarce due to the limited number of countries that have implemented such a tax. One notable exception is Estonia, which adopted a payout tax in 2000. Prior studies on this reform document that firms reduced their debt levels and increased investment and productivity in response to the reform (Hazak 2009, Masso et al. 2013). However, it is unlikely that these findings generalize to well-developed market economies such as the U.S. or Latvia, as the Estonian reform occurred during a period when the country was still transitioning to a market economy, with firms likely facing

severe financing constraints and limited retained earnings. By empirically analyzing the shift to a corporate payout tax system in Latvia—a well-developed market economy—our study provides new insights into the economic effects of such a tax system.

Second, we contribute to research examining the effects of tax systems on investment, payout, and financing decisions. Given the distortive nature of tax depreciation that diverges from economic depreciation, prior studies find that accelerated tax depreciation acts as an investment stimulus (Zwick and Mahon 2017). Our study provides evidence that a corporate payout tax system, which eliminates tax depreciation, can have a similar effect on financially constrained firms. Additionally, we inform the literature on intertemporal tax arbitrage (Korinek and Stiglitz 2009, Yagan 2015) by demonstrating that firms increase payouts during the transitional period but reduce them afterwards. This pattern aligns with the notion that the transition to a corporate payout tax system can temporarily unlock retained profits. We also find that this effect is associated with lower investment but higher efficiency, which (i) supports a key theoretical prediction made by Chetty and Saez (2010) and (ii) extends the findings of Becker et al. (2013) by suggesting that the traditional corporate income tax system can encourage overinvestment. Finally, our findings add to research on the debt bias inherent in the traditional system (Heider and Ljungqvist 2015) by indicating that a payout tax system induces firms to reduce leverage. In sum, our results suggest that a payout tax mitigates several economic frictions associated with the traditional tax system.

2. Institutional and Theoretical Background

2.1 Payout Tax Systems versus Traditional Corporate Income Tax Systems

A payout tax refers to a tax levied on a corporation's distributions to its shareholders. Unlike the traditional corporate income tax system, which taxes both the corporation's net income and its payouts to shareholders, a corporate payout tax system only taxes payouts. This system, in

addition to being administratively simpler (e.g., no need for tax-specific calculations at the firm level; Meade Committee 1978; Cansier 1990), can promote investment by reducing two distortions present in the traditional system.

First, under the traditional corporate income tax, net income for tax purposes is calculated using accrual accounting. As a result, firms are required to capitalize and depreciate long-lived assets, which can lead to a discrepancy between tax depreciation and economic depreciation. Ideally, the cost of a newly acquired asset should be deducted for tax purposes in accordance with its decline in economic value. However, in practice, accurately aligning tax depreciation schedules with the economic obsolescence of various asset classes is challenging (Edwards 2003). This often results in tax depreciation being delayed relative to the asset's actual loss in economic value, thereby understating a firm's investment costs—particularly in inflationary environments, where rising profits are not matching by correspondingly higher investment costs.[4]

We outline the impact of tax depreciation in Appendix A1. Specifically, we apply a multiperiod net present value (NPV) model to calculate the after-tax returns of an identical investment under different tax systems. The less tax depreciation aligns with economic depreciation, the more the traditional system discourages investment. For example, if the traditional corporate income tax system mandates a ten-year straight-line depreciation, but the asset generates returns only during the first three years, the after-tax NPV of the investment under the traditional will be lower compared to that under a payout tax system (see Models (1) and (2)).

Second, the traditional corporate income tax system introduces a bias towards debt

[4] In some cases, the traditional corporate income tax system can favor capital investment. Specifically, generous bonus depreciation rules, such as the full expensing of investment costs under the U.S. Tax Cuts and Jobs Act of 2017, results in tax depreciation being faster than economic depreciation of the asset, incentivizing capital investment under the traditional corporate income tax system. Since such rules did not exist in our setting, we focus on the distorting effect of the traditional corporate income tax system highlighted in the literature (King 1987; Shome and Schutte 1993).

financing, as interest payments are tax deductible, while dividend payments to shareholders (or notional interest on equity) are not. This bias creates a preference for debt over equity financing. The debt bias under the traditional corporate income tax system strengthens investment incentives when compared to financing with retained earnings. We illustrate this aspect in Appendix A1, where the NPV after tax increases with debt financing in Model (3) relative to Model (1).

A corporate payout tax mitigates both distortions (King 1987). By only taxing payouts to shareholders, new capital investments under a corporate payout tax are not subject to tax depreciation, rendering tax depreciation rules unnecessary. This approach corresponds to full expensing of new investment in the year of acquisition (Bunn 2019; see Models (2) and (4) in Appendix A1). In addition, the immediate deductibility of investment costs exempts the normal return on investment from taxation. Since this tax exemption applies regardless of whether the investment is financed through retained earnings (internal equity) or debt, the payout tax eliminates the bias between the two financing options. In Appendix A1, we demonstrate that the after-tax NPV of a capital investment financed with retained earnings is higher under a payout tax (Model (2)) compared to the traditional corporate income tax (Model (1)). Moreover, while debt financing increases the after-tax NPV under a traditional corporate income system tax (Model (3)), it has no effect on the after-tax NPV under the payout tax system (Model (4)).

Since a corporate payout tax system does not allow tax deductions for shareholders' equity contributions, financing an investment with new equity lowers the after-tax NPV (Model (6)) compared to financing with internal equity (Model (2)) or debt (Model (4)). Thus, while a corporate payout tax treats internal equity and debt financing equally, it disadvantages financing through external equity (i.e., new equity). This discrimination arises because equity contributions are not tax deductible, a feature also present under the traditional tax system (Model (5)). However,

by eliminating the mismatch between tax and economic depreciation, the after-tax NPV of an investment financed with new equity is still higher under the payout tax system (Model (6)) than under the traditional corporate income tax (Model (5)).

In sum, Appendix A1 indicates that, compared to a traditional corporate income tax system, a payout tax (i) encourages capital investment, particularly when tax depreciation is less aligned with economic depreciation, and (ii) does not influence the choice between internal equity and debt financing. Further, the payout tax system is especially beneficial for firms with low leverage, which do not benefit from interest deductions available under the traditional corporate income tax system (Model (3) versus Model (2)). We leverage this feature in our cross-sectional tests.

2.2 The Adoption of a Corporate Payout Tax System in Latvia

On January 1, 2018, Latvia replaced its traditional corporate income tax system with a corporate payout tax, following concerns from policymakers that the previous tax system was uncompetitive. The objectives of the reform were to enhance the country's tax competitiveness and stimulate economic growth by encouraging investment and simplifying tax administration (Jurušs et al. 2017). The new corporate tax law was passed by the Latvian parliament on July 28, 2017, and came into effect on January 1, 2018 (Parliament of the Republic of Latvia 2017). The new corporate tax system ranks highly in international comparisons, securing the top spot in the Tax Foundation's International Tax Competitiveness Index (Tax Foundation 2022).

Before the 2018 reform, Latvia had a traditional corporate income tax system similar to that used in many other countries (e.g., the U.S.), with a 15 percent corporate income tax on the profits generated at the firm level and a 10 percent dividend tax on profits distributed to shareholders. The 2018 reform replaced this system with one that taxes only payouts from corporations to shareholders. Under the new system, there is no corporate-level tax, meaning

neither corporations nor their shareholders are taxed until profits are distributed (Gerzova 2023). Once profits are paid out, a 20 percent tax applies on the paid-out amount, which is grossed up prior to taxation by a coefficient of 0.8 (calculated as 1 minus the tax rate), which effectively results in a 25 percent tax rate on payouts to shareholders. Additionally, Latvian firms are not required to file a tax return in years when no payouts are made, and the obligation to make advance tax payments has been eliminated (Gerzova 2018). These changes simplify the tax system and lower firms' compliance costs.

Taxable payouts under the new regime include deemed distributions, such as shareholder-induced expenses unrelated to the firm's economic activity, excessive interest payments, and transfer pricing adjustments. This tax regime applies to all types of businesses, including sole proprietorships and partnerships, taxing payouts made to their owners or partners. Dividends received by a Latvian firm from another Latvian firm are deducted from the tax base, effectively preventing economic double taxation and ensuring that profits are taxed only once when distributed to the ultimate shareholder. The same treatment extends to dividends received from foreign entities that are subject to corporate income tax in the source country or located in jurisdictions that impose a withholding tax on the dividends (Gerzova 2018).

To facilitate the transition to the payout tax, the reform introduced a two-year transitional period for retained profits accumulated before to the reform. These profits, which were subject to the pre-reform corporate income tax rate of 15 percent, could be distributed at the pre-reform dividend tax rate of 10 percent, provided the board of directors declared the distribution resolution by the end of 2019. This transition rule prevents adverse tax treatment of profits earned before to the reform but distributed afterward. Without this rule, such profits would have been taxed at both the pre-reform corporate income tax rate of 15 percent and the post-reform payout tax of 25

percent. After the transition period in 2018 and 2019, the 25 percent tax rate applies to all payouts, including retained profits earned prior to the reform (Gerzova 2023).

2.3 Expected Economic Effects of a Payout Tax

2.3.1 Overview

The 2018 tax reform replaced Latvia's traditional corporate income tax system with a corporate payout tax, taxing only the payouts firms make to their shareholders. Consequently, we expect this reform to impact investment and financing decisions in line with the discussion in Section 2.1. In addition, the transition from the old to the new system temporarily removed the "lock-in" effect of corporate profits, a feature of the traditional system where taxes on dividend payouts incentivize firms to retain profits (Becker et al. 2013). Specifically, when the reform was announced, Latvian firms knew that the payout tax on pre-reform retained profits would increase after 2019, thus removing the "lock-in" effect for those profits during the transitional period. As long as firms had sufficient time between the reform's announcement and its effective date, the transition would temporarily remove the "lock-in" effect, even without an explicit transition rule.[5] In the following subsections, we outline how the payout tax might influence Latvian firms' incentives for investment, payout, and debt financing.

2.3.2 Effect on Investment

We expect the corporate payout tax to influence investment incentives in two ways. First, the absence of tax depreciation and the implied immediate expensing of investment costs should encourage capital investment. Additionally, by not taxing profits retained in the firm, the payout tax frees-up cash for investment. The immediate tax deductibility of investment costs and any

[5] The temporary removal of the "lock-in" effect is comparable to the repatriation tax holiday on foreign profits enacted under the American Jobs Creation Act (ACJA) of 2004. This reform temporarily reduced U.S. tax on repatriated foreign profits, providing an incentive for U.S. firms to bring foreign profits back to the U.S. (Blouin and Krull 2009).

additional cash should be particularly important for small firms, which often face severe financing constraints (Zwick and Mahon 2017). Hence, we expect positive investment effects of the payout tax to be more pronounced for these firms. Second, the payout tax could indirectly affect investment incentives. Under the traditional system, the deductibility of interest expenses makes investment costs, at least partially, deductible for tax purposes (Jacob et al. 2023). However, firms with low leverage—and thus low interest payments—have limited opportunities to benefit from these deductions. By making investment costs fully and immediately tax deductible, the payout tax should reduce the cost of capital for these firms and boost their investment incentives.

The expected increase in investment assumes that firms could not fully exploit valuable investment opportunities under the traditional corporate income tax system, due to economic distortions such as the limited tax deductibility of investment costs or firm-level financing constraints. However, under traditional corporate income tax systems, dividend taxes can create a "lock-in" effect (Becker et al. 2013), encouraging firms to re-invest profits at the firm level, which can lead to inefficient overinvestment (Amberger, Markle, and Samuel 2021). If Latvian firms had already exploited all viable investment opportunities under the traditional system, investment might not increase under the payout tax. In fact, if the temporary removal of the "lock-in" effect reduces overinvestment incentives, investments might initially decline under the new system. However, this reduction could improve the efficiency of investment for the affected firms.

2.3.3 Effect on Payouts

The impact of the payout tax on dividend payouts is theoretically ambiguous. On the one hand, the equal tax treatment of debt financing and internal equity under the payout tax system should enhance the relative attractiveness of retained profits as a source of financing, potentially discouraging payouts to shareholders (King 1987). On the other hand, Hartman (1985)

theoretically demonstrates that, when tax rates remain constant over time, taxes on payouts do not influence a firm's decision between retaining or distributing profits. Therefore, if shareholders of Latvian firms anticipate no future changes in the tax rate introduced by the reform, the payout tax should not affect payout behavior. If shareholders, however, expect future tax rates to decrease (increase), firms would be incentivized to retain (distribute) current profits, leading to a decline (increase) in dividend payouts under the payout tax (Korinek and Stiglitz 2009). Thus, these arguments suggest it is ex-ante unclear whether and how the payout tax affects payout incentives.

The temporary removal of the "lock-in" effect, however, could create a strong incentive for increased payouts. Latvian firms, aware at the time of the reform's announcement that the payout tax on retained pre-reform profits would increase after 2019, had a strong incentive to distribute these before the end of the transitional period. Consequently, the anticipation of higher future payout taxes could lead to an increase in payouts during the transitional phase, as firms take advantage of the lower tax rates on retained pre-reform profits.

2.3.4 Effect on Financing Decisions

As discussed in Section 2.1, the corporate payout tax treats debt financing and financing with retained earnings equally, meaning tax considerations do not influence the choice between internal equity or debt financing. Specifically, the immediate deductibility of investment costs exempts the normal return on investment from taxation. Since this exemption applies regardless of whether the firm is financed with internal equity or debt, the payout tax system eliminates the tax bias favoring debt financing that is present in traditional corporate income tax systems (e.g., King 1987; Cansier 1990; Edwards 2003; Patel and McClelland 2017; Garnaut 2020). This feature raises the after-tax cost of debt capital, potentially making debt financing less attractive. As a result, we expect the corporate payout tax to reduce the debt financing incentives for Latvian firms.

However, if the payout tax system encourages firms to increase investment, debt financing

might rise in response to the reform. Recent evidence by Ivanov et al. (2021) suggests that even if the after-tax cost of debt increases, a corresponding boost in investment can drive firms to borrow more. Thus, despite the higher cost of debt, debt financing could increase under the corporate payout tax if firms expand their investment set.

3. Research Design, Data, and Sample Selection

3.1 Research Design

In our initial set of tests, we examine the impact of the payout tax on firms' decisions regarding capital investment, payout, and debt financing using a cross-country sample. Specifically, we employ a difference-in-differences research design and estimate variations of the following firm-level OLS regression model:

$$DependentVariable_{i,t} = \alpha_i + \alpha_t + \beta_1 Latvia_i \; x \; Post_t + \sum \beta_k Controls_{i,t}^{k} + \varepsilon_{i,t} \qquad (1)$$

where *i* denotes the firm and *t* the year. The Appendix provides an overview of all variables, their definitions, and the respective data sources.

DependentVariable is one of three outcome variables: (i) capital investment, (ii) payout, and (iii) leverage. First, we measure capital investment (*Investment*) as the annual change in tangible fixed assets divided by lagged total assets (Amberger et al. 2023; De Simone and Olbert 2022). The measure captures annual investment in depreciable assets, such as buildings or machinery, focusing on the subset of assets for which the payout tax should alter investment incentives. Second, we follow Bethmann et al. (2018) and approximate payouts (*Payout*) as the profit or loss for the period less the annual change in total equity divided by lagged total assets. Third, we measure leverage (*Leverage*) as non-current liabilities divided by lagged total liabilities. By focusing on non-current liabilities, this measure focusses on interest bearing debt, which is

affected by the payout tax removing the traditional system's tax bias towards debt financing.[6]

Latvia is an indicator variable equal to one for Latvian firms (treatment group) and zero for control firms (control group). We use firms from Estonia and Lithuania as control firms because the two countries have close historical ties with Latvia and all three countries share institutional similarities. Moreover, the business cycles of the Baltic countries (Latvia, Estonia, and Lithuania) are highly correlated, exposing firms in the three countries to similar economic conditions and shocks (Masso et al. 2013). Since Estonia introduced a payout tax in 2000 (Herm 2023) while Lithuania applies a traditional corporate income tax system to date (Vaiciuliene 2023), we use the two countries as separate control groups but combine them for robustness. In additional tests, we also match treatment and control firms on their pre-reform characteristics to account for potential differences in firm characteristics between groups. *Post* is an indicator variable equal to one for post-reform years 2018 to 2021, and zero for years prior to the reform (2016-2017).

β_1 is a difference-in-differences estimator and indicates the differential change in capital investment, payout, or leverage between the pre- and post-reform period for firms in the treatment group compared to those in the control group. If the introduction of the payout tax leads to an increase (decrease) in capital investment, payout, or debt financing, β_1 will be positive (negative).

To distinguish between the economic effects of the transitional period (specifically, the years 2018 and 2019) and the potential long-term impacts of the payout tax, we modify Equation (1) as follows:

$$DependentVariable_{i,t} = \alpha_i + \alpha_t + \beta_1 Latvia_i \; x \; Transition_t + \beta_2 Latvia_i \; x \; Longterm_t + \sum \beta_k Controls_{i,t}^k + \varepsilon_{i,t} \quad (2)$$

[6] We scale non-current liabilities by lagged total liabilities to avoid mechanical effects that can occur when scaling with lagged total assets as the discussion in Section 2.3 suggests the cash flow tax can alter investment and payout incentives. We use lagged total assets as an alternative scalar in Table 9 and find consistent results.

where *Transition* (*Longterm*) is an indicator variable equal to one for years 2018 and 2019 (years 2020 and 2021), and zero otherwise. β_1 and β_2 are again difference-in-differences estimators that isolate the treatment effects for the transitional period and the subsequent period, respectively.

In Equations (1) and (2), we include three sets of controls. First, we include firm fixed effects (α_i), which absorb the effect of unobservable time-invariant firm characteristics. Hence, we identify β_1 from within firm variation in the exposure to the payout tax. Second, we include year fixed effects (α_t) to control for the effect of time-specific shocks and the business cycle. Since *Post*, *Transition*, *Longterm*, and *Latvia* are collinear with the two sets of fixed effects, the estimation subsumes their main effects. Third, we include a vector of time-varying firm characteristics (*Controls*) prior research has shown to be associated with investment, payout, and debt financing (Cummings et al. 1996; Baker et al. 2003). Specifically, we include *Size* to control for firm-level investment and growth opportunities, *Age* to capture the firm's life cycle stage, *SalesGrowth* to control for past growth, and *Profitability* to capture profitability. We follow prior research (Amberger et al., 2021; Bethmann et al., 2018) and lag all *Controls* by one year. We winsorize continuous variables at the 1 percent and 99 percent level of the distribution to mitigate the influence of outliers. To account for serial correlation in the data, we cluster standard errors at the firm level (Petersen 2009).

In addition to our cross-country analysis, we explore potential heterogeneity in the effect of the payout tax within the sample of Latvian firms. To this end, we modify Equation (1) as follows:

$$DependentVariable_{i,t} = \alpha_i + \alpha_t + \beta_1 Split_i \; x \; Post_t + \sum \beta_k Controls_{i,t}^{k} + \varepsilon_{i,t} \qquad (3)$$

Split is a set of indicator variables that partition Latvian firms into groups based on their pre-reform characteristics, measured in 2016. These groups should reflect the varying degrees to

which firms are expected to be affected by the payout tax. First, we define *SizeLow* as an indicator variable equal to one for firms in the lowest size quartile (based on total assets). Second, we define *LeverageLow* as an indicator variable equal to one for firms in the lowest leverage quartile. Third, we define *RetProfitsHigh* as an indicator variable equal to one for firms with retained profits in the highest quartile. Fourth, we use *CloselyHeld* as an indicator variable equal to one if the firm is closely held by an individual, i.e., ultimately owned by an individual or a family. β_1 again serves a difference-in-differences estimator, assessing whether the payout tax has varying effects on outcome variables for small firms, firms with low leverage, firms with high retained profits, or firms owned by individuals, in comparison to large firms, firms with high leverage, firms with low retained profits, or firms with non-individual shareholders.[7]

3.2 Data and Sample

We collect firm-level unconsolidated financial statement data from Bureau van Dijk's Orbis database for the period 2014 to 2021. Since some of our control variables require two years of prior data, our final sample effectively covers the years 2016 to 2021, yielding two years pre- and four years post-reform.[8] Following prior research, we require non-missing industry information and exclude firms in the financial and utility sectors (e.g., Badertscher et al., 2013; Amberger et al., 2021). To avoid denominator effects, we exclude firm-years with total assets below EUR 50,000 and fixed assets below EUR 5,000 (Jacob and Zerwer 2023). We also require non-negative values for total assets, sales, and cash and cash equivalents, and drop firms with data missing to compute regression variables. Finally, we remove firms with an interrupted time series of data and obtain a balanced panel with six observations per firm. The final sample includes

[7] Including firm and year fixed effects in Equation (3) again subsumes the coefficients on *Post* and *Split*.
[8] We lag firm-level controls in Equations (1), (2), and (3) by one year and define *SalesGrowth* as the annual change in sales, requiring two years of prior data.

161,436 (60,498) firm-year observations for the cross-country (within-Latvia) analysis. In total, 97.91 percent of the observations concern non-listed (i.e., privately held) firms.[9] Table 1 provides an overview of the sample selection procedure.

3.3 Descriptive Statistics

Table 2 (Table 3) shows descriptive statistics for the cross-country (within-Latvia) sample. In Panel A, we present descriptive information for the entire sample period (2016 to 2021). We present information for the pre-reform years (2016 to 2017) in Panel B and the post-reform years (2018 to 2021) in Panel C. For the full sample, descriptive statistics in Table 2, Panel A are generally comparable to those reported in prior studies using unconsolidated financial statement data from Orbis (e.g., Bethmann et al. 2018; De Simone and Olbert 2022; Amberger et al. 2023). In Table 3, mean capital investment (*Investment*) for Latvian firms equals 0.027 in the pre-reform period (Panel B) but drops to 0.013 after the reform (Panel C). Payouts (*Payout*), on average, increase (from 0.051 to 0.058) while debt levels (*Leverage*) decrease after the reform (from 0.401 to 0.352). Collectively, these univariate results suggest that capital investment of Latvian firms declined under the payout tax. Latvian firms also reduced debt financing but increased dividend payouts. We next conduct a multivariate analysis, comparing the investment, payout, and debt financing responses of Latvian firms to those of Estonian and Lithuanian firms.

4. Results

4.1 Main Results

Table 4 presents the results from estimating Equations (1) and (2) on the cross-country sample. We use Estonian (Lithuanian) firms as the control group in Panel A (B). *Investment* is the dependent variable in Columns 1 and 2, *Payout* in Columns 3 and 4, and *Leverage* in Columns 5

[9] Our inferences are unchanged when we remove publicly listed firms and their subsidiaries from the sample.

and 6. In Column 1, we find negative and statistically significant coefficients on *Post x Latvia* for both control groups (all $p < 0.01$). This result suggests that Latvian firms decrease their investment in tangible fixed assets under the payout tax system compared to firms from Estonia or Lithuania. The coefficient estimate suggests Latvian firms exhibit 1 percentage point (2.3 percentage points) less investment after the reform relative to firms from Estonian (Lithuania). When evaluated at the mean investment of Latvian firms before the reform (2.7 percent; Table 3, Panel B), the estimates imply an economically meaningful decrease by 37 percent and 85 percent, respectively.[10] In sum, our results are consistent with the Latvian corporate payout tax reducing investment incentives.

In Column 2, we estimate Equation (2) to isolate the treatment effects for (i) the transitional period and (ii) the subsequent period. We find the coefficients on *Post x Transition* and *Post x Longterm* are negative and significant in both panels (all $p < 0.01$); the coefficients on *Post x Longterm* are significantly larger than those on *Post x Transition* (all $p < 0.01$). Thus, relative to the pre-reform period, investment under the corporate payout tax system decreases during the transitional period and the two years afterwards. These results are consistent with the payout tax reducing investment incentives for Latvian firms both in the short and the long run.

In Column 3, we examine the effect on payout. The coefficient on *Post x Latvia* is positive and significant in both panels (all $p < 0.01$). Hence, compared to firms from Estonia (Lithuania), Latvian firms increase payouts by 1.1 (1.5) percentage points after the reform, suggesting a payout increase of 21.6 percent (29.4 percent) relative to the pre-reform mean (5.1 percent; Panel B of Table 3).[11] When splitting the post-reform period in Column 4, we find that the transitional period drives the observed increase in payouts while payouts fall in the years 2020 and 2021. Collectively, the observed investment and payout patters are consistent with the temporary removal of the "lock-

[10] We calculate the magnitudes as follows: -0.010 (-0.023) / 0.027 = -0.37 (-0.85).
[11] We calculate the magnitudes as follows: 0.011 (0.015) / 0.051 = 0.22 (0.29).

in" effect creating a strong incentive for Latvian firms to distribute retained profits during the transitional period, which, turn, limits potential positive investment responses to the payout tax. However, the effect on payout reverses once the transitional rule expires, suggesting that, in the long run, the payout tax encourages Latvian corporations to retain profits in the firm.

Column 5 presents the results for leverage. The coefficients on *Post x Latvia* are negative and significant in both panels (all $p < 0.01$). Compared to firms from Estonia (Lithuania), Latvian firms reduce *Leverage* by 3.6 (4.0) percentage points after the reform, or 9 percent (10 percent) relative to the pre-reform mean (40.1 percent; Panel B of Table 3).[12] In Column 6, the coefficient on *Latvia x Transition* is negative, but turns statistically insignificant when using Lithuanian firms as the control group (Panel B; $p = 0.165$). Regarding the long-term effect, we find that the coefficients on *Latvia x Longterm* are negative and significant in both panels (all $p < 0.01$). Moreover, these coefficients are significantly larger than those on *Latvia x Transition* (all $p < 0.01$). Overall, our results are consistent with the payout tax reducing the debt bias inherent in the traditional system, thereby weakening firms' long-term incentives for debt financing.

4.2 Event Study Design

We next investigate the dynamics of the treatment effects around the reform. To this end, we adopt an event study design, replace the *Post* indicator in Equation (1) with a set of year indicators, and interact the year indicators with *Latvia*. We then condition our estimation on the first year of our sample (2016) and omit the respective interaction from the specification. Figure 1, Panel A (B) depicts the results when using Estonian (Lithuanian) firms as the control group.

The results from the event study confirm our initial findings. Specifically, in terms of investment, we observe a sharp decline for Latvian firms immediately after the reform, with the

[12] We calculate the magnitudes as follows: -0.036 (-0.040) / 0.401 = 0.09 (0.10).

most pronounced drop occurring in 2019 and 2020, followed by a slight recovery in the final sample year. In contrast, payouts of Latvian firms increase sharply in the two years following the reform. After the transition rule expires in 2019, payouts drop below pre-reform levels. These contrasting dynamics support our initial interpretation that the payout incentives created by the temporary removal of the "lock-in" effect crowd-out positive investment responses to the payout tax. This effect continues even beyond the transitional period. Consequently, our results suggest that the corporate payout tax, on average, does not stimulate investment, at least not in the short term. Additionally, the rise in payouts, which beings in the year before the reform takes effect, indicates that Latvian firms reacted promptly to the reform announcement in July 2017.

In terms of debt financing, we observe a slight decline in debt levels immediately following the reform, with a more pronounced drop occurring after the transitional period. These results align with idea that the payout tax reduces incentives for debt financing, though this effect materializes only after the payout incentives induced by the transition rule disappear. We interpret this pattern as evidence that Latvian firms relied on debt to finance their payouts in 2018 and 2019, which delayed a significant reduction in leverage immediately after the introduction of the payout tax.

Finally, Figure 1 indicates that treatment and control firms exhibit similar pre-reform trends in both investment and leverage. The absence of differential pre-reform trends in the dependent variable alleviates concerns about a violation of the parallel trends assumption, supporting the validity of our differences-in-differences design. As noted above, the payout increase in 2017 is consistent with Latvian firms responding promptly to the reform announcement in July 2017.

4.3 Efficiency Analysis

Our results so far suggest that, due to the temporary removal of the "lock-in" effect, Latvian firms reduce capital investment under the corporate payout tax. While this finding contradicts the

theoretical expectation that the payout tax would encourage capital investment, the observed decline in investment could still be economically efficient. Specifically, if the traditional corporate income tax system had encouraged overinvestment (Becker et al. 2013), Latvian firms might have been investing in low value projects prior to the reform.

To test this notion, we investigate whether the efficiency of Latvian firms changed after the reform. We use two measures to capture potential efficiency changes in response to the payout tax. First, we follow Jacob (2021) and measure capital productivity (*Capital Productivity*) as the residual of a regression of output (measured as sales) on fixed assets. We estimate the regression for each industry-year with at least 10 observations. The assumption is that firms choose a certain input level to maximize output. Thus, a positive (negative) residual implies higher (lower) capital productivity because a firm creates more (less) output than predicted relative to its industry peers. Second, following Biddle et al. (2009), we create a measure for investment efficiency by estimating the deviation of actual investment from its predicted value based on firm-level growth opportunities (measured as lagged sales growth). The deviation is the residual of a regression of capital investment on lagged sales growth within each industry-year with at least 10 observations. A positive (negative) residual suggests firms invest more (less) in year *t* than expected given their growth opportunities. To obtain *Investment Efficiency*, we take the absolute value of the residuals and multiply them by negative one. Higher (lower) values of *Investment Efficiency* indicate a value closer to (further away from) zero, consistent with higher (lower) investment efficiency (Chay et al. 2023). We use *Capital Productivity* and *Investment Efficiency* as dependent variables in Equations (1) and (2). If the reduction in investment in Table 4 increases (reduces) capital productivity and investment efficiency, the coefficient on *Post x Latvia* will be positive (negative).

We present the results for *Capital Productivity* (*Investment Efficiency*) in Table 5, Panel A

(Panel B). We use Estonian firms as a control group in Columns 1 and 2, Lithuanian firms in Column 3 and 4, and firms from both countries in Columns 5 and 6. As before, we differentiate between the average post-reform effect (odd columns) and the separate treatment effects for the transitional period and the years afterwards (even columns). Across all odd columns, we find positive and statistically significant coefficients on *Post x Latvia* (all $p < 0.01$), consistent with the efficiency of Latvian firm increasing under the payout tax. In terms of economic magnitude, the estimate of 0.070 (0.008) in Column 5 of Panel A (Panel B) implies a 5.4 percent (7.7 percent) higher capital productivity (investment efficiency) after the reform.[13] Across even columns, we find the coefficients on *Latvia x Transition* and *Latvia x Longterm* are positive and generally statistically significant with the observed increase in efficiency being stronger in the long run (all $p < 0.10$). Collectively, these results suggest the temporary removal of the "lock-in" effect reduces inefficient overinvestment among Latvian firms. The increase in efficiency is not confined to the transitional period but persists at least four years after the reform.

4.4 Effect Heterogeneity

The results so far indicate the payout incentive created by the temporary removal of the "lock-in" effect generally crowds out positive investment responses to the payout tax. In this section, we examine heterogenous effects by leveraging variation in the extent to which firms might benefit from the payout tax. Specifically, we divide Latvian firms based on their pre-reform characteristics in 2016 and estimate Equation (3) within the sample of Latvian firms. We present the results in Table 6.

In Columns 1 to 3 of Panel A, we partition the sample by firm size and compare the reform

[13] As *Capital Productivity* is a residual with a mean of zero, we use its standard deviation as reference and calculate the economic magnitude as follows: 0.070 / 1.304 = 0.054. For *Investment Efficiency*, we calculate the economic magnitude using the mean as reference: 0.008 / 0.104 = 0.077.

responses of small firms (bottom size quartile) to those of larger firms (top three size quartiles). We expect that the removal of tax depreciation and the additional cash made available under the payout tax will be especially valuable for small firms, which often face financing constraints (Zwick and Mahon 2017). Therefore, the payout tax should enable small firms to expand their investment sets. In line with this expectation, we find the coefficient on *Post x SizeLow* is positive and significant in Column 1 ($p < 0.01$). Since increased investment should lead to greater financing needs, we find relatively lower post-reform payouts in Column 2 ($p < 0.01$) and higher leverage in Column 3. However, the coefficient on *Post x SizeLow* in Column 3 is not statistically significant ($p = 0.10$). In sum, these results suggest that the payout tax alleviates financing constraints, encouraging small firms to expand their investments while reducing their payouts.

In Columns 4 to 6 of Panel A, we partition the sample based on pre-reform leverage. We expect the payout tax to enhance the investment incentives of firms with low pre-reform leverage levels, as these firms have minimal tax-deductible interest expenses under the traditional system, which restricts the tax-deductible portion of their investment costs (Jacob et al. 2023). By allowing investment costs financed with internal equity and debt to be fully tax deductible, the payout tax should mitigate this tax disadvantage and bolster the investment incentives for low leverage firms.[14] The positive and significant coefficient on *Post x LeverageLow* in Column 4 supports our prediction ($p < 0.01$) and indicates that firms with low pre-reform leverage have relatively higher investment after the reform compare to high-leverage firms. Consistent with the results in Columns 1 to 3, we observe that low-leverage firms have relatively lower payouts (Column 5) but higher leverage (Column 6) post-reform (all $p < 0.01$). The latter result aligns with the findings of Ivanov et al. (2021) and suggests that, despite the increase in the after-tax cost of debt financing under the

[14] We also illustrate this aspect in Appendix A1. The increase in the NPV is larger for firm with no leverage (i.e., going from Model (1) to (2)) than for firms with high leverage (i.e., going from Model (3) to (4)).

payout tax, the expanded investment set induces low leverage firms to take on more debt.

Finally, we conduct two sets of cross-sectional tests focusing on the firms with the strongest incentives to increase payouts in response to the reform. As discussed above, these incentives should be most pronounced for firms with high retained pre-reform profits. We identify such firms as those in the top sample quartile for retained pre-reform profits (*RetProftsHigh*). Moreover, due to reduced shareholder conflicts (Jacob and Michaely 2017), we expect closely held firms to respond strongly to increased payout incentives. We define firms with an individual as the global ultimate owner as closely held (*CloselyHeld*). In Columns 1 to 3 of Panel B, we find that firms with high retained pre-reform profits increase their payouts after the reform compared to firms with low retained pre-reform profits ($p < 0.01$). However, these firms also invest less under the payout tax ($p < 0.01$). In Columns 4 to 6, we observe a similar pattern for closely held firms.

Overall, the results from the within-Latvia analysis indicate that the corporate payout tax incentivizes investment among specific subgroups of firms. Specifically, by alleviating financing frictions, the payout tax spurs investment among small firms and low leverage firms—two groups of firms that are disadvantaged under the traditional corporate income tax system. Meanwhile, firms with high retained pre-reform profits and weak shareholder conflicts show the most significant relative increase in payouts, albeit at the cost of reduced investment.

5. Robustness Tests

In this section, we present several sets of robustness tests. First, we reestimate our cross-country analysis on a matched sample. Although firm fixed effects control for time-invariant differences between treatment and control firms, the two groups might differ, which can confound the observed treatment effect. To address this concern, we match treatment and control firms on their pre-reform characteristics: *Size*, *Age*, *SalesGrowth*, and *Profitability*. We use propensity score

matching with a caliper of 0.005 and match observations without replacement in the first sample year (2016). We match treated firms separately to control observations from Estonia and Lithuania.

Before turning to the multivariate results, we assess whether the matching achieved covariate balance between treatment and control observations. In Table 7, we therefore compare post-matching means for *Size*, *Age*, *SalesGrowth*, and *Profitability* across treatment and control firms. Estonian (Lithuanian) firms form the control group in Panel A (B). After matching, means of covariates generally do not differ between Latvian firms and the respective control group, consistent with the matching addressing observable differences between treatment and control firms. Table 8, Panels A and B present the regression results when estimating Equation (1) on the propensity-scored matched samples. For both controls groups, we find results consistent with those in Table 4. The coefficient estimates are also similar in size. Since propensity-score matching causes a substantial loss in sample size, we employ entropy balancing as an alternative matching technique. Following Hainmueller (2012), we balance covariates along the first two moments of the variable distribution in 2016 to avoid the reform confounding the balancing (McMullin and Schonberger 2020; 2022). We then estimate Equation (1) on the entropy-balanced sample. The results in Table 8, Panel C are again consistent with our main findings, further addressing concerns that differences between treatment and control observations confound our results.

Second, to increase the size of our control group, we combine the two control groups and estimate Equation (1) on the combined sample. The results in Table 9, Panel A are again similar to those in Table 4. Third, we modify our measure for investment. Our primary measure, *Investment*, captures annual changes in *tangible* fixed assets, isolating the asset class for which the payout tax repeals tax depreciation. In Column 1 of Table 9 (Panels B and C), we use *InvestTotal* as a broader investment measure, including not only investment in tangible fixed assets but also

investment in financial and intangible fixed assets. The coefficient on *Post x Latvia* is negative and significant in both panels (all $p < 0.01$), consistent with Latvian firms reducing total investment under the payout tax. In Columns 2 and 3, we examine the remaining components of total investment, namely investment in financial fixed assets (*InvestFinancial*) and investment in intangible fixed assets (*InvestIntangible*), respectively. We find economically small investment effects when using Estonian firms as a control group (Panel B); the investment effects are statistically insignificant when using Lithuanian firms as a control group (Panel C). Collectively, these results are consistent with Latvian firms reducing investment in tangible fixed assets after the reform while not changing their investment in other asset classes.

Fourth, we modify our measure for leverage. Our primary measure scales non-current liabilities by lagged total liabilities to prevent post-reform changes in investment and payout, which can alter a firm's total asset base, from mechanically affecting our leverage measure. In Column 4, we follow prior research (Bethmann et al. 2018; Ivanov et al. 2021; Hundsdoerfer 2023) and scale total non-current liabilities by lagged total assets (*LeverageAssets*). Our inferences are unchanged. In Column 5, we use the natural logarithm of non-current liabilities (*Log(Leverage)*) as a dependent variable and again find consistent results.

6. Conclusion

In this study, we examine firms' investment, payout, and financing responses to a corporate payout tax. Academics and policymakers frequently propose a payout tax as an alternative to the traditional corporate income tax system (McBride et al. 2023), making it critical to understand its economic effects for both academia and tax policy. However, empirical evidence in this regard is limited. By leveraging a unique tax reform in Latvia in 2018 and employing a difference-in-differences research design, we provide evidence along three lines: (i) Latvian firms reduce capital

investment under the payout tax compared to control firms from Estonia and Lithuania, (ii) Latvian firms experience a sharp increase in payouts in the two years following the reform but reduce payouts in the long run, and (iii) debt levels among Latvian firms decline in response to the reform.

The contrasting dynamics for investment and payout are likely influenced by the transition to the corporate payout tax, which temporarily alleviates the "lock-in" of effect corporate profits under the traditional corporate tax system. We find that this transition creates strong payout incentives, which crowd out potential positive investment effects of the payout tax in both the short and the long run. However, the reduction in investment enhances efficiency, suggesting that the payout tax reduces overinvestment tendencies fostered by the traditional system. Additionally, the decline in debt following the reform indicates that the payout tax removes the debt bias inherent in traditional corporate income tax systems, thereby reducing firms' incentives for debt financing.

We also explore heterogeneity in firms' responses to the payout tax and find that small firms and low leverage firms show relatively greater investment but lower payouts after the reform. These findings support the notion that the payout tax can enable financially constrained firms (small firms) and those with limited deduction opportunities for investment costs under the traditional system (low leverage firms) to increase their investment. Overall, our results suggest that while the payout tax can stimulate investment, it primarily benefits distinct subgroups of firms.

Our study informs policy discussions around the world. Commentators frequently propose transitioning from the traditional corporate tax system to a payout tax system and anticipate positive investment effects that could stimulate economic growth (McBride et al. 2023). Our study speaks to these debates by emphasizing heterogenous firm responses, identifying the implications for investment, payout, and debt financing, and highlighting the importance of carefully designing the transition between tax systems for the successful implementation of the corporate payout tax.

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Appendix

A1. Corporate Payout Tax vs. Traditional Corporate Income Tax

This appendix illustrates the investment effects of a corporate payout tax, which is the payout tax version implemented in Latvia, relative to the traditional corporate income tax system used in many countries around the world (e.g., the U.S.).

We make the following assumptions in all cases:

(a) Corporate income tax rate of 15% (traditional corporate income system)
(b) Shareholder-level dividend tax rate of 10% (traditional corporate income system)
(c) Shareholder-level tax rate on distributed profits of 25% (corporate payout tax system)
(d) Pre-tax discount rate and loan interest rate of 4%
(e) We assume the firm invests in a depreciable asset (e.g., a machine). We assess the net present value (NPV) of the investment project, requiring an investment of 300 in Year 0 and yielding returns of 150, 130, and 120 in Year 1, 2, and 3, respectively.
(f) All after-tax profits/cash flows are paid out to shareholders.

We first compare the NPV of the investment project under the traditional corporate income tax system to the NVP under the corporate payout tax system. We assume the investment is financed with retained earnings. To illustrate the mismatch between tax and economic depreciation common under the traditional corporate income tax system, we assume the real investment must be depreciated over 10 years in the traditional corporate income tax system.

Accordingly, in the traditional corporate income tax system, the NPV is calculated as follows:

(1) Traditional Corporate Income Tax System – Financing with Retained Earnings

Years	**0**	**1**	**2**	**3**	**4-10**
Retained Earnings	300.00				
Initial Investment	(300.00)				
Pre-Tax Cash Flow		150.00	130.00	120.00	
Pre-Tax Cash Flow		150.00	130.00	120.00	0.00
- Tax Depreciation		(30.00)	(30.00)	(30.00)	(30.00)
Tax Base		120.00	100.00	90.00	(30.00)
Corporate Income Tax		(18.00)	(15.00)	(13.50)	4.50
After-Tax Cash Flow		132.00	115.00	106.50	4.50
(Foregone) Shareholder Distribution	(300.00)	132.00	115.00	106.50	4.50
Dividend Tax	30.00	(13.20)	(11.50)	(10.65)	(0.45)
After-Tax Payment Shareholder	(270.00)	118.80	103.50	95.85	4.05
NPV after tax	**49.49**				

The corporate payout tax system yields a higher after-tax NPV:

(2) Corporate Payout Tax – Financing with Retained Earnings

Years	**0**	**1**	**2**	**3**
Retained Earnings	300.00			
Initial Investment	(300.00)			
Pre-Tax Cash Flow		150.00	130.00	120.00
(Foregone) Shareholder Distribution	(300.00)	150.00	130.00	120.00
Dividend Tax	75.00	(37.50)	(32.50)	(30.00)
After-Tax Cash Flow	(225.00)	112.50	97.50	90.00
NPV after tax	**53.33**			

Under the corporate payout tax, the corporation does not have to depreciate the asset for tax purposes, avoiding a mismatch between tax and economic depreciation.

The previous two models compared the case where the investment is fully financed with retained earnings. We repeat the same comparison but now assume the investment project is fully debt financed:

(3) Traditional Corporate Tax System – Financing with Debt

Years	**0**	**1**	**2**	**3**	**4-10**
Initial Investment	(300.00)				
Loan	300.00				
Loan Repayment		(100.00)	(100.00)	(100.00)	
Interest Payments		(12.00)	(8.00)	(4.00)	
Pre-Tax Cash Flow		150.00	130.00	120.00	
Pre-Tax Cash Flow		150.00	130.00	120.00	0.00
- Depreciation		(30.00)	(30.00)	(30.00)	(30.00)
- Interest Payments		(12.00)	(8.00)	(4.00)	
Tax Base		108.00	92.00	86.00	(30.00)
Corporate Income Tax		(16.20)	(13.80)	(12.90)	4.50
After-Tax Cash Flow		21.80	8.20	3.10	4.50
(Foregone) Shareholder Distribution	0.00	21.80	8.20	3.10	4.50
Dividend Tax	0.00	(2.18)	(0.82)	(0.31)	(0.45)
After-Tax Payment Shareholder	0.00	19.62	7.38	2.79	4.05
NPV after tax	**50.51**				

(4) Corporate Payout Tax – Financing with Debt

Years	**0**	**1**	**2**	**3**
Loan	300.00			
Initial Investment	(300.00)			
Loan Repayment		(100.00)	(100.00)	(100.00)
Interest Payments		(12.00)	(8.00)	(4.00)
Pre-Tax Cash Flow		150.00	130.00	120.00
Shareholder Distribution		38.00	22.00	16.00
Dividend Tax		(9.50)	(5.50)	(4.00)
After-Tax Cash Flow		28.50	16.50	12.00
NPV after tax	**53.33**			

The comparison of the debt-financed case reveals that debt financing under the traditional corporate income tax system yields a higher after-tax NPV compared to financing via retained earnings that is due to the tax deductibility of interest payments. Under the corporate payout tax system, however, debt financing does not affect the after-tax NPV, consistent with the corporate payout tax addressing the debt bias inherent in the traditional corporate income tax system.

Finally, we examine the case of financing the real investment with new equity. Compared to financing with retained earnings and debt, the NPV after-tax is lower under both tax systems:

(5) Traditional Corporate Tax System – Financing with New Equity

Years	**0**	**1**	**2**	**3**	**4-10**
New Equity	300.00				
Initial Investment	(300.00)				
Pre-Tax Cash Flow		150.00	130.00	120.00	
Pre-Tax Cash Flow		150.00	130.00	120.00	0.00
- Depreciation		(30.00)	(30.00)	(30.00)	(30.00)
Tax Base		120.00	100.00	90.00	(30.00)
Corporate Income Tax		(18.00)	(15.00)	(13.50)	4.50
After-Tax Cash Flow		132.00	115.00	106.50	4.50
Shareholder Contribution / Repayment	(300.00)	132.00	115.00	53.00	
Shareholder Distribution				53.50	4.50
Dividend Tax				(5.35)	(0.45)
After-Tax Payment Shareholder	(300.00)	132.00	115.00	101.15	4.05
NPV after tax	**47.72**				

(6) Corporate Payout Tax – Financing via New Equity

Years	**0**	**1**	**2**	**3**
New Equity	300.00			
Initial Investment	(300.00)			
Pre-Tax Cash Flow		150.00	130.00	120.00
Shareholder Contribution / Repayment	(300.00)	150.00	130.00	20.00
Shareholder Distribution				100.00
Dividend Tax				(25.00)
After-Tax Cash Flow	(300.00)	150.00	130.00	95.00
NPV after tax	**48.88**			

The comparison of the new-equity-financed investments reveals that both tax systems discriminate against new equity financing. This effect is due to neither tax system providing a tax deduction for shareholders' equity contributions (e.g., in the case of new share issuances). Importantly, by addressing the potential mismatch between tax and economic depreciation, the after-tax NPV of the real investment under the corporate payout tax system and assuming new-equity financing is still higher than under the traditional corporate income tax system.

A2. Decision to Retain versus Distribute under a Payout Tax System

This appendix illustrates the decision between retaining and distributing after-tax cash flows under a corporate payout tax system. We make the following assumptions:

(1) Constant tax rate of 25%
(2) Pre-tax discount rate (i.e., return on financial investment) and loan interest rate of 4%

In our example, the firm generates sales of 200. Purchases are 100. Moreover, the firm takes out a loan of 50 in Year 1 and repays the loan in Year 3. We calculate the present value of the after-tax cash flows paid to shareholders.

First, we assume that any after-tax flows are immediately paid out to shareholders, yielding the following total present value from the perspective of the firm's shareholders:

Profits paid out	**Year 1**	**Year 2**	**Year 3**
Sales	200.00	200.00	200.00
Purchases	(100.00)	(100.00)	(100.00)
New Loan	50.00		
Loan Repayment		(25.00)	(25.00)
Interest Payments		(2.00)	(1.00)
Tax Base: Payouts	**150.00**	**73.00**	**74.00**
Tax Payments	**(37.50)**	**(18.25)**	**(18.50)**
Total After Tax Cash Flows	112.50	54.75	55.50
Total present value of after-tax cash flows	**208.13**		

Second, we assume the firm retains the after-tax cash flows in the first two years and reinvests them at the market rate (i.e., the discount rate):

Profits retained	**Year 1**	**Year 2**	**Year 3**
Sales	200.00	200.00	200.00
Purchases	(100.00)	(100.00)	(100.00)
New Loan	50.00		
Loan Repayment		(25.00)	(25.00)
Interest Payments		(2.00)	(1.00)
Interest Income		6.00	9.16
Cash Balance	**150.00**	**229.00**	**312.16**
Tax Base: Payouts			**312.16**
Tax Payments			**(78.04)**
Total After Tax Cash Flows			234.12
Present value of after-tax cash flows	**208.13**		

As evidence from this comparison, the present value of after-tax cash flows paid to the shareholders is identical under both cases, showing that retaining after-tax cash flows instead of

paying them out does not affect the total tax burden in a corporate payout tax system. This equality depends on the assumptions that the return on invested cash is the market rate and that the tax rate remains constant (Assumptions (1) and (2) above; see Hartman (1985)).

If the tax rate increases (decreases) in the future, the present value of after-tax cash profits paid to shareholders will decrease (increase).

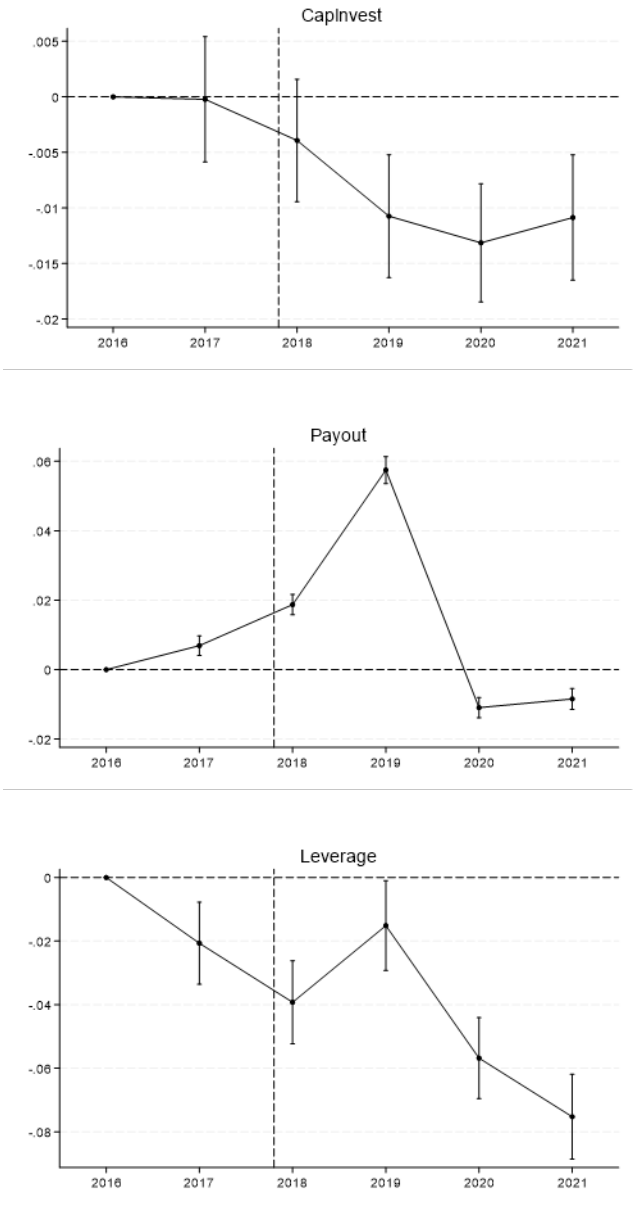
A3. Variables: Definitions and Sources

Variable	Definition and Source
Dependent Variables	
Investment	Change in tangible fixed assets divided by lagged total assets. (Source: Orbis).
Payout	Profit or loss for the period (=net income) less changes in total equity divided by lagged total assets. (Source: Orbis).
Leverage	Non-current liabilities divided by lagged total liabilities. (Source: Orbis).
Capital Productivity	Residual from the following regression: $\ln(Sales)_{i,t} = \beta_0 + \beta_1 \ln(FixedAssets)_{i,t-1} + \varepsilon_{i,t}$. We estimate the regression for each industry-year with a minimum of ten observations. (Source: Orbis).
Investment Efficiency	Absolute value of the residual from the following regression: $Investment_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t-1} + \varepsilon_{i,t}$. We estimate the regression for each industry-year with a minimum of ten observations. We multiply the absolute value of the residual by minus one. (Source: Orbis).
InvestTotal	Change in fixed assets divided by lagged total assets. (Source: Orbis).
InvestFinancial	Change in other fixed assets divided by lagged total assets. (Source: Orbis).
InvestIntangible	Change in intangible fixed assets divided by lagged total assets. (Source: Orbis).
LeverageAssets	Non-current liabilities divided by lagged total assets. (Source: Orbis).
Log(Leverage)	Natural logarithm of 1+ non-current liabilities. (Source: Orbis).
Partitioning Variables	
Post	Dummy variable that is 1 for the post-reform years 2018 to 2021 and 0 otherwise.
Transition	Dummy variable that is 1 for the post-reform years 2018 to 2019 and 0 otherwise.
Longterm	Dummy variable that is 1 for the post-reform years 2020 to 2021 and 0 otherwise.
Latvia	Dummy variable that is 1 for Latvian firms and 0 otherwise.
SizeLow	Lowest quartile of firms based on *Size* in 2016. (Source: Orbis).
LeverageLow	Lowest quartile of firms based on *Leverage* in 2016. (Source: Orbis).
RetProfitsHigh	Highest quartile of firms based on retained profits (Shareholder funds divided by lagged total assets) in 2016. (Source: Orbis).
CloselyHeld	Firms with one or more named individuals or families as global ultimate owner. (Source: Orbis).
Control Variables	
Size	Natural logarithm of total assets. (Source: Orbis).
Age	Natural logarithm of the difference between the year and the incorporation year. (Source: Orbis).
SalesGrowth	Change in sales divided by lagged sales. (Source: Orbis).
Profitability	Operating profit or loss (=EBIT) divided by lagged total assets. (Source: Orbis).

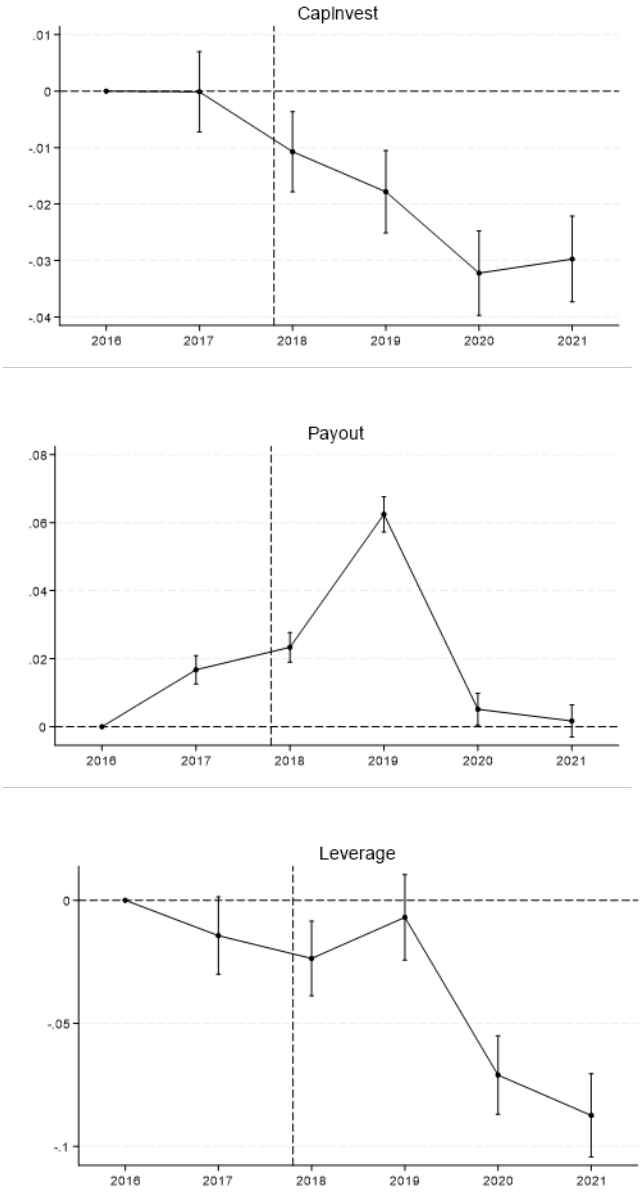
Figures and Tables

Figure 1: Event study plots

Panel A: Estonia as a control group



Panel B: Lithuania as a control group



Note: This figure presents event study plots for Equation (1) using dependent variables *Investment, Payout*, and *Leverage*. We estimate treatment effects relative to 2016 as the base year. Panel A uses firms from Estonia as a control group. Panel B uses firms from Lithuania as a control group. All variables are defined in the Appendix. We estimate robust standard errors clustered on the firm level. Whisker bars indicate the 95 % confidence interval for the coefficient estimate.

Table 1: Sample selection

Sample Selection	Firm-Years
Firms from Latvia, Estonia, or Lithuania recorded in Bureau van Dijk's Orbis database with unconsolidated financial statements (period: 2014-2021).	4,636,710
After dropping firms with missing industry information as well as financial firms (NACE codes: 6400-6899) and utility firms (NACE codes: 3500-3999).	3,896,030
After dropping observations with total assets below €50,000, fixed assets below €5,000, negative sales, and negative cash and cash equivalents.	2,322,107
After dropping observations with missing data to compute regression variables.	354,304
After dropping observations without data for all six years of the sample period.	161,436
Final sample: Cross-country Analysis (Sample Period: 2016-2021)	**161,436**
Minus observations from Estonia.	76,980
Minus observations from Lithuania.	23,958
Final sample: Within-Latvia Analysis (Sample Period: 2016-2021)	**60,498**

Note: This table summarizes the sample selection steps for (i) the cross-country analysis and (ii) the within-Latvia analysis.

Table 2: Descriptive statistics (cross-country sample)

Panel A: Full sample (Period: 2016-2021)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	N	Mean	SD	P25	P50	P75
Investment	161,436	0.021	0.147	-0.039	-0.006	0.034
Payout	161,436	0.042	0.116	-0.000	0.000	0.034
Leverage	161,436	0.319	0.440	0.000	0.138	0.521
Capital Productivity	161,436	0.000	1.394	-0.726	0.102	0.838
Investment Efficiency	161,436	-0.085	0.117	-0.101	-0.047	-0.020
Size	161,436	6.507	1.470	5.387	6.281	7.398
Age	161,436	2.650	0.534	2.303	2.773	3.091
SalesGrowth	161,436	0.117	0.532	-0.110	0.037	0.205
Profitability	161,436	0.104	0.192	0.006	0.061	0.162

Panel B: Pre-reform sample (Period: 2016-2017)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	N	Mean	SD	P25	P50	P75
Investment	53,812	0.029	0.164	-0.040	-0.006	0.043
Payout	53,812	0.042	0.113	-0.000	0.000	0.037
Leverage	53,812	0.341	0.473	0.000	0.156	0.547
Capital Productivity	53,782	-0.000	1.348	-0.715	0.091	0.809
Investment Efficiency	53,782	-0.095	0.130	-0.112	-0.053	-0.023
Size	53,812	6.388	1.454	5.274	6.149	7.258
Age	53,812	2.481	0.614	2.079	2.639	2.996
SalesGrowth	53,812	0.139	0.602	-0.113	0.033	0.210
Profitability	53,812	0.107	0.197	0.007	0.061	0.166

Panel C: Post-reform sample (Period: 2018-2021)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	N	Mean	SD	P25	P50	P75
Investment	107,624	0.016	0.138	-0.039	-0.006	0.031
Payout	107,624	0.042	0.117	-0.000	0.000	0.033
Leverage	107,624	0.308	0.422	0.000	0.128	0.510
Capital Productivity	107,492	-0.081	0.109	-0.096	-0.044	-0.018
Investment Efficiency	107,564	0.000	1.417	-0.732	0.108	0.855
Size	107,624	6.567	1.474	5.447	6.346	7.466
Age	107,624	2.735	0.467	2.398	2.833	3.135
SalesGrowth	107,624	0.106	0.492	-0.108	0.039	0.202
Profitability	107,624	0.103	0.189	0.006	0.061	0.161

Note: This table presents descriptive statistics for the cross-country sample. Panel A reports statistics for the full sample period 2016-2021, Panel B for the pre-reform period 2016-2017, and Panel C for the post-reform period 2018-2021. All variables are defined in the Appendix.

Table 3: Descriptive statistics (within-Latvia sample)

Panel A: Full sample (Period: 2016-2021)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	N	Mean	SD	P25	P50	P75
Investment	60,498	0.018	0.156	-0.050	-0.010	0.038
Payout	60,498	0.056	0.139	-0.000	0.000	0.047
Leverage	60,498	0.369	0.445	0.000	0.225	0.616
Capital Productivity	60,393	0.026	1.342	-0.639	0.123	0.805
Investment Efficiency	60,450	-0.094	0.119	-0.115	-0.057	-0.025
Size	60,498	6.262	1.341	5.236	6.041	7.068
Age	60,498	2.646	0.559	2.303	2.773	3.135
SalesGrowth	60,498	0.120	0.552	-0.119	0.031	0.210
Profitability	60,498	0.113	0.215	0.005	0.063	0.178

Panel B: Pre-reform sample (Period: 2016-2017)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	N	Mean	SD	P25	P50	P75
Investment	20,166	0.027	0.173	-0.050	-0.010	0.047
Payout	20,166	0.051	0.132	-0.000	0.000	0.044
Leverage	20,166	0.401	0.478	0.003	0.263	0.651
Capital Productivity	20,150	-0.007	1.304	-0.671	0.083	0.754
Investment Efficiency	20,150	-0.104	0.131	-0.125	-0.063	-0.029
Size	20,166	6.168	1.324	5.152	5.939	6.955
Age	20,166	2.474	0.646	2.079	2.639	3.045
SalesGrowth	20,166	0.126	0.622	-0.137	0.015	0.198
Profitability	20,166	0.104	0.210	0.003	0.055	0.163

Panel C: Post-reform sample (Period: 2018-2021)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	N	Mean	SD	P25	P50	P75
Investment	40,332	0.014	0.146	-0.050	-0.010	0.034
Payout	40,332	0.058	0.142	-0.000	0.000	0.049
Leverage	40,332	0.352	0.426	0.000	0.208	0.598
Capital Productivity	40,243	0.042	1.361	-0.624	0.141	0.829
Investment Efficiency	40,300	-0.089	0.111	-0.109	-0.053	-0.023
Size	40,332	6.308	1.348	5.282	6.096	7.119
Age	40,332	2.733	0.488	2.398	2.833	3.178
SalesGrowth	40,332	0.117	0.514	-0.110	0.040	0.216
Profitability	40,332	0.118	0.218	0.006	0.068	0.184

Note: This table presents descriptive statistics for the within-Latvia sample. Panel A reports statistics for the full sample period 2016-2021, Panel B for the pre-reform period 2016-2017, and Panel C for the post-reform period 2018-2021. All variables are defined in the Appendix.

Table 4: Main results (cross-country sample)

Panel A: Estonia as a control group

	(1)	(2)	(3)	(4)	(5)	(6)
	DV: Investment		*DV: Payout*		*DV: Leverage*	
Latvia × Post	**-0.010*** **		**0.011*** **		**-0.036*** **	
	(-5.25)		**(10.13)**		**(-7.93)**	
Latvia × Transition		**-0.007*** **		**0.035*** **		**-0.017*** **
		(-3.63)		**(26.96)**		**(-3.40)**
Latvia × Longterm		**-0.012*** **		**-0.013*** **		**-0.056*** **
		(-5.72)		**(-10.95)**		**(-10.89)**
Size	-0.120***	-0.120***	0.010***	0.010***	-0.148***	-0.149***
	(-49.52)	(-49.52)	(8.07)	(7.40)	(-27.57)	(-27.69)
Age	0.014**	0.014**	0.000	0.001	0.001	0.002
	(2.39)	(2.40)	(0.08)	(0.21)	(0.09)	(0.12)
SalesGrowth	0.004***	0.004***	-0.002***	-0.002***	-0.001	-0.002
	(4.29)	(4.28)	(-3.37)	(-3.58)	(-0.65)	(-0.68)
Profitability	0.130***	0.130***	0.053***	0.055***	0.126***	0.127***
	(35.21)	(35.23)	(21.61)	(22.54)	(14.99)	(15.18)
Latvia × Transition = Latvia × Longterm		$p = 0.01$		$p < 0.01$		$p < 0.01$
Observations	137,478	137,478	137,478	137,478	137,478	137,478
Adjusted R^2	0.108	0.108	0.463	0.471	0.445	0.446
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	Estonia	Estonia	Estonia	Estonia	Estonia	Estonia

Panel B: Lithuania as a control group

	(1)	(2)	(3)	(4)	(5)	(6)
	DV: Investment		*DV: Payout*		*DV: Leverage*	
Latvia × Post	**-0.022*** **		**0.015*** **		**-0.040*** **	
	(-9.09)		**(9.41)**		**(-7.09)**	
Latvia ×Transition		**-0.014*** **		**0.034*** **		**-0.008**
		(-5.42)		**(19.52)**		**(-1.39)**
Latvia × Longterm		**-0.031*** **		**-0.005*** **		**-0.072*** **
		(-10.61)		**(-2.76)**		**(-11.16)**
Size	-0.119***	-0.119***	0.014***	0.013***	-0.137***	-0.138***
	(-39.81)	(-39.87)	(8.63)	(7.96)	(-22.08)	(-22.31)
Age	0.019**	0.020***	0.008**	0.011***	0.001	0.006
	(2.54)	(2.72)	(2.06)	(2.84)	(0.04)	(0.35)
SalesGrowth	0.005***	0.005***	-0.002***	-0.003***	-0.006*	-0.006*
	(3.76)	(3.71)	(-3.00)	(-3.19)	(-1.83)	(-1.91)
Profitability	0.137***	0.137***	0.066***	0.066***	0.102***	0.102***
	(28.45)	(28.43)	(18.68)	(18.66)	(10.25)	(10.22)
Latvia × Transition = Latvia × Longterm		$p < 0.01$		$p < 0.01$		$p < 0.01$
Observations	84,456	84,456	84,456	84,456	84,456	84,456
Adjusted R^2	0.115	0.116	0.428	0.432	0.479	0.479
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	Lithuania	Lithuania	Lithuania	Lithuania	Lithuania	Lithuania

Note: This table presents the results from estimating Equations (1) and (2) using the cross-country sample. The dependent variables are *Investment*, *Payout*, and *Leverage*. Panel A (B) uses firms from Estonia (Lithuania) as the control group. All variables are defined in the Appendix. All regressions include firm and year fixed effects. Standard errors are clustered on the firm level. t-statistics are reported in parentheses. ***, **, and * denote significance at the 1 %, 5 %, and 10 % levels (two-tailed), respectively.

Table 5: Efficiency results

Panel A: Effect on Capital Productivity

	(1)	(2)	(3)	(4)	(5)	(6)
			DV: Capital Productivity			
Latvia × Post	**0.085*** **		**0.021** **		**0.070*** **	
	(11.08)		**(2.12)**		**(9.75)**	
Latvia × Transition		**0.063*** **		**0.029*** **		**0.055*** **
		(9.40)		**(3.49)**		**(8.80)**
Latvia × Longterm		**0.108*** **		**0.012**		**0.085*** **
		(10.68)		**(0.95)**		**(9.06)**
Size	-0.007	-0.006	0.014	0.013	-0.002	-0.001
	(-0.66)	(-0.59)	(1.05)	(1.01)	(-0.21)	(-0.14)
Age	0.177***	0.177***	0.219***	0.220***	0.165***	0.164***
	(6.56)	(6.55)	(6.53)	(6.57)	(6.52)	(6.49)
SalesGrowth	0.118***	0.118***	0.128***	0.128***	0.122***	0.122***
	(24.17)	(24.19)	(19.17)	(19.16)	(26.09)	(26.10)
Profitability	0.067***	0.065***	0.040**	0.040**	0.064***	0.063***
	(4.93)	(4.79)	(2.37)	(2.37)	(5.05)	(4.97)
Latvia × Transition = Latvia × Longterm		$p < 0.01$		$p = 0.09$		$p < 0.01$
Observations	137,330	137,330	84,337	84,337	161,274	161,274
Adjusted R^2	0.874	0.874	0.875	0.875	0.878	0.878
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	Estonia	Estonia	Lithuania	Lithuania	Estonia & Lithuania	Estonia & Lithuania

Panel B: Effect on Investment Efficiency

	(1)	(2)	(3)	(4)	(5)	(6)
			DV: Investment Efficiency			
Latvia × Post	**0.006*** **		**0.018*** **		**0.008*** **	
	(4.17)		**(9.90)**		**(6.65)**	
Latvia × Transition		**0.004*** **		**0.012*** **		**0.006*** **
		(2.90)		**(5.90)**		**(4.26)**
Latvia × Longterm		**0.007*** **		**0.024*** **		**0.011*** **
		(4.56)		**(11.61)**		**(7.64)**
Size	0.078***	0.079***	0.074***	0.074***	0.075***	0.075***
	(42.53)	(42.55)	(32.81)	(32.89)	(44.49)	(44.53)
Age	-0.004	-0.004	-0.007	-0.008	-0.003	-0.003
	(-0.87)	(-0.87)	(-1.33)	(-1.51)	(-0.86)	(-0.89)
SalesGrowth	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***
	(-13.67)	(-13.66)	(-9.24)	(-9.19)	(-14.02)	(-14.00)
Profitability	-0.034***	-0.035***	-0.033***	-0.032***	-0.034***	-0.035***
	(-12.97)	(-13.00)	(-9.63)	(-9.61)	(-13.74)	(-13.80)
Latvia × Transition = Latvia × Longterm		$p = 0.06$		$p < 0.01$		$p < 0.01$
Observations	137,400	137,400	84,396	84,396	161,346	161,346
Adjusted R^2	0.231	0.231	0.232	0.232	0.229	0.229
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	Estonia	Estonia	Lithuania	Lithuania	Estonia & Lithuania	Estonia & Lithuania

Note: This table presents the results from estimating Equations (1) and (2) using the cross-country sample. The dependent variable are *Capital Productivity* (Panel A) and *Investment Efficiency* (Panel B). Columns 1 and 2 (3 and 4) use firms from Estonia (Lithuania) as the control group. Columns 5 and 6 use firms from Estonia and Lithuania as the control group. All variables are defined in the Appendix. All regressions include firm and year fixed effects. Standard errors are clustered on the firm level. t-statistics are reported in parentheses. ***, **, and * denote significance at the 1 %, 5 %, and 10 % levels (two-tailed), respectively.

Table 6: Cross-sectional tests (within-Latvia Sample)

Panel A: Small firms / firms with low pre-reform leverage

	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent variable			
	Investment	*Payout*	*Leverage*	*Investment*	*Payout*	*Leverage*
SizeLow* × *Post	**0.015*** **	**-0.006*** **	**0.012**			
	(4.34)	**(-2.67)**	**(1.46)**			
LeverageLow* × *Post				**0.023*** **	**-0.006** **	**0.176*** **
				(7.52)	**(-2.27)**	**(25.97)**
Size	-0.132***	0.010***	-0.153***	-0.132***	0.010***	-0.155***
	(-35.73)	(4.78)	(-20.60)	(-35.77)	(4.75)	(-21.26)
Age	0.015*	0.008*	-0.011	0.017**	0.007	-0.012
	(1.70)	(1.66)	(-0.56)	(1.99)	(1.46)	(-0.66)
SalesGrowth	0.004***	-0.003***	-0.006*	0.004***	-0.003***	-0.007**
	(3.06)	(-2.88)	(-1.72)	(3.01)	(-2.87)	(-1.99)
Profitability	0.134***	0.059***	0.098***	0.136***	0.059***	0.105***
	(25.19)	(14.81)	(9.04)	(25.52)	(14.71)	(9.81)
Observations	60,498	60,498	60,498	60,498	60,498	60,498
Adjusted R^2	0.124	0.442	0.485	0.124	0.442	0.493
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Firms with high retained pre-reform profits / closely held firms

	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent variable			
	Investment	*Payout*	*Leverage*	*Investment*	*Payout*	*Leverage*
RetProfitsHigh* × *Post	**-0.007** **	**0.013*** **	**0.005**			
	(-2.13)	**(5.22)**	**(0.52)**			
CloselyHeld* × *Post				**-0.014*** **	**0.010*** **	**-0.015**
				(-3.41)	**(3.29)**	**(-1.53)**
Size	-0.131***	0.009***	-0.153***	-0.121***	0.009***	-0.129***
	(-35.41)	(4.14)	(-20.67)	(-29.20)	(3.83)	(-16.21)
Age	0.016*	0.010**	-0.007	0.005	0.006	-0.063***
	(1.84)	(2.04)	(-0.38)	(0.52)	(1.09)	(-3.06)
SalesGrowth	0.005***	-0.003***	-0.006*	0.005***	-0.002**	-0.009***
	(3.12)	(-3.01)	(-1.72)	(2.97)	(-2.38)	(-2.78)
Profitability	0.134***	0.061***	0.100***	0.130***	0.057***	0.080***
	(25.00)	(15.19)	(9.16)	(21.24)	(12.40)	(6.91)
Observations	60,498	60,498	60,498	44,214	44,214	44,214
Adjusted R^2	0.123	0.442	0.485	0.120	0.424	0.501
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table presents the results from estimating Equation (3) on the within-Latvia sample. The dependent variables are *Investment*, *Payout*, and *Leverage*. All variables are defined in the Appendix. All regressions include firm and year fixed effects. Standard errors are clustered on the firm level. t-statistics are reported in parentheses. ***, **, and * denote significance at the 1 %, 5 %, and 10 % levels (two-tailed), respectively.

Table 7: Covariate balance after matching

Panel A: Estonia as a control group

	Latvia N = 10,072		Estonia N = 10,072	
Variables	Mean	SD	Mean	SD
Size	6.152	1.338	6.184*	1.398
Age	2.420	0.684	2.422	0.679
SalesGrowth	0.163	0.694	0.170	0.701
Profitability	0.112	0.216	0.113	0.201

Panel B: Lithuania as a control group

	Latvia N = 3,563		Lithuania N = 3,563	
Variables	Mean	SD	Mean	SD
Size	7.327	1.284	7.310	1.282
Age	2.509	0.635	2.521	0.595
SalesGrowth	0.172	0.665	0.165	0.544
Profitability	0.140	0.232	0.132	0.192

Note: This table presents descriptive statistics for firm-level control variables *Size, Age, SalesGrowth and Profitability* used to match treatment and control firms. We match observations in the first year of our sample (i.e., 2016). Panel A (B) uses firms from Estonia (Lithuania) as control group. The sample in each Panel corresponds to the sample used to examine the indicated dependent variable (*Investment*, *Payout* and *Leverage*). ***, **, and * denote significance at the 1 %, 5 %, and 10 % levels (two-tailed), respectively.

Table 8: Robustness Tests
(matched cross-country sample)

Panel A: Propensity-score matching

	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent variable			
	Investment	*Payout*	*Leverage*	*Investment*	*Payout*	*Leverage*
Latvia × Post	**-0.009*** **	**0.011*** **	**-0.036*** **	**-0.015*** **	**0.015*** **	**-0.026*** **
	(-4.67)	**(9.55)**	**(-7.34)**	**(-4.90)**	**(7.40)**	**(-3.79)**
Size	-0.121***	0.010***	-0.148***	-0.095***	0.020***	-0.111***
	(-46.86)	(7.46)	(-25.78)	(-24.24)	(8.12)	(-13.44)
Age	0.013**	0.001	0.002	0.017	0.012*	0.007
	(2.21)	(0.29)	(0.12)	(1.63)	(1.95)	(0.31)
SalesGrowth	0.004***	-0.002***	-0.002	0.005***	-0.001	-0.002
	(4.08)	(-3.36)	(-0.87)	(2.62)	(-0.94)	(-0.36)
Profitability	0.131***	0.054***	0.122***	0.124***	0.077***	0.096***
	(33.40)	(20.29)	(13.76)	(17.24)	(12.78)	(6.09)
Observations	120,864	120,864	120,864	42,756	42,756	42,756
Adjusted R^2	0.111	0.459	0.448	0.112	0.411	0.480
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	Estonia	Estonia	Estonia	Lithuania	Lithuania	Lithuania

Panel B: Entropy balancing

	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent variable			
	Investment	*Payout*	*Leverage*	*Investment*	*Payout*	*Leverage*
Latvia × Post	**-0.009*** **	**0.011*** **	**-0.036*** **	**-0.027*** **	**0.015*** **	**-0.039*** **
	(-4.94)	**(10.02)**	**(-7.78)**	**(-5.70)**	**(6.23)**	**(-4.17)**
Size	-0.120***	0.011***	-0.145***	-0.115***	0.009	-0.125***
	(-48.94)	(7.89)	(-26.24)	(-14.51)	(1.24)	(-6.29)
Age	0.014**	-0.001	-0.002	0.005	0.016**	-0.035
	(2.46)	(-0.17)	(-0.14)	(0.28)	(2.09)	(-0.65)
SalesGrowth	0.004***	-0.002***	-0.002	0.006*	-0.002	0.008
	(4.30)	(-3.55)	(-0.75)	(1.66)	(-1.56)	(0.55)
Profitability	0.128***	0.054***	0.117***	0.143***	0.072***	0.113***
	(33.79)	(21.01)	(13.81)	(13.32)	(7.98)	(3.87)
Observations	137,478	137,478	137,478	84,456	84,456	84,456
Adjusted R^2	0.110	0.462	0.451	0.120	0.402	0.453
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	Estonia	Estonia	Estonia	Lithuania	Lithuania	Lithuania

Note: This table presents the results from estimating Equation (1) using the cross-country sample. In Panel A, we use propensity score matching to match treatment and control firms on pre-reform characteristics. The dependent variables are *Investment*, *Payout,* and *Leverage*. In Panel B, we use entropy balancing. All variables are defined in the Appendix. All regressions include firm and year fixed effects. Standard errors are clustered on the firm level. t-statistics are reported in parentheses. ***, **, and * denote significance at the 1 %, 5 %, and 10 % levels (two-tailed), respectively.

Table 9: Robustness tests and additional analysis

Panel A: Estonia and Lithuania as combined control group

	(1)	(2)	(3)
	DV: Investment	*DV: Payout*	*DV: Leverage*
Latvia x Post	**-0.012*** **	**0.012*** **	**-0.037*** **
	(-7.15)	**(11.38)**	**(-8.72)**
Size	-0.116***	0.013***	-0.140***
	(-52.47)	(10.58)	(-28.92)
Age	0.013**	0.003	0.004
	(2.46)	(0.93)	(0.34)
SalesGrowth	0.004***	-0.002***	-0.002
	(4.77)	(-3.52)	(-0.76)
Profitability	0.130***	0.056***	0.123***
	(37.44)	(23.91)	(15.63)
Observations	161,436	161,436	161,436
Adjusted R^2	0.105	0.452	0.445
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Control Group	Estonia & Lithuania	Estonia & Lithuania	Estonia & Lithuania

Panel B: Alternative dependent variables with Estonia as a control group

	(1)	(2)	(3)	(4)	(5)
			Dependent variable		
	InvestTotal	*InvestFinancial*	*InvestIntangible*	*LeverageAssets*	*Log(Leverage)*
Latvia x Post	**-0.011*** **	**-0.001** **	**0.000** **	**-0.021*** **	**-0.093*** **
	(-5.33)	**(-2.30)**	**(2.12)**	**(-9.39)**	**(-4.90)**
Size	-0.157***	-0.012***	-0.000**	-0.054***	0.757***
	(-56.56)	(-14.99)	(-2.19)	(-19.15)	(36.81)
Age	0.017**	-0.002	0.000	-0.060***	-0.228***
	(2.47)	(-0.98)	(0.00)	(-7.55)	(-3.88)
SalesGrowth	0.004***	0.000	-0.000	0.005***	0.034***
	(3.73)	(1.22)	(-0.61)	(4.75)	(4.97)
Profitability	0.154***	0.007***	0.001***	-0.037***	-0.379***
	(36.00)	(5.69)	(5.18)	(-9.27)	(-13.17)
Observations	137,478	126,537	122,507	137,478	137,478
Adjusted R^2	0.119	0.061	0.169	0.740	0.793
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Control Group	Estonia	Estonia	Estonia	Estonia	Estonia

Panel C: Alternative dependent variables with Lithuania as a control group

	(1)	(2)	(3)	(4)	(5)
			Dependent variable		
	InvestTotal	*InvestFinancial*	*InvestIntangible*	*LeverageAssets*	*Log(Leverage)*
Latvia x Post	**-0.025*** **	**0.001**	**0.000**	**-0.026*** **	**-0.187*** **
	(-8.91)	**(1.51)**	**(1.25)**	**(-9.13)**	**(-6.10)**
Size	-0.146***	-0.011***	-0.000***	-0.064***	0.694***
	(-44.29)	(-12.32)	(-2.75)	(-17.51)	(25.62)
Age	0.021**	-0.001	-0.000	-0.053***	-0.173**
	(2.44)	(-0.65)	(-0.56)	(-5.03)	(-2.22)
SalesGrowth	0.006***	0.000	-0.000	0.007***	0.031***
	(3.71)	(0.41)	(-0.99)	(4.28)	(3.04)
Profitability	0.158***	0.008***	0.001***	-0.054***	-0.473***
	(28.98)	(5.53)	(5.36)	(-9.81)	(-12.23)
Observations	84,456	84,456	84,452	84,456	84,453
Adjusted R^2	0.119	-0.001	0.088	0.753	0.773
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Control Group	Lithuania	Lithuania	Lithuania	Lithuania	Lithuania

Note: This table presents the results from estimating Equation (1) on the cross-country sample. The dependent variables in Panel A are *Investment, Payout*, and *Leverage*. The dependent variables in Panels B and C are *InvestTotal, InvestFinancial*, *InvestIntangible, LeverageAssets,* and *Log(Leverage)*. Panel A uses firms from Estonia and Lithuania as a combined control group. Panel B (C) uses firms from Estonia (Lithuania) as the control group. All variables are defined in the Appendix. All regressions include firm and year fixed effects. Standard errors are clustered on the firm level. t-statistics are reported in parentheses. ***, **, and * denote significance at the 1 %, 5 %, and 10 % levels (two-tailed), respectively.