The impact of paid maternity leave on corporate financial decisions - Cash holdings and dividend payout ratio

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Declaration

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Abstract

The study investigates how paid maternity leave (PML) laws affect corporate financial decisions, using a difference-in-differences approach based on the staggered enactment of the laws across U.S. states. The first essay reveals that the adoption of PML laws significantly reduces corporate cash holdings, especially in labor-intensive firms. Further analysis indicates increased employee productivity post-adoption is associated with declining cash holdings, representing a channel linking the laws to reduced precautionary savings. The second essay shows a positive correlation between PML and the dividend payout ratio. The correlation is particularly pronounced for firms characterized by high labor intensity and significant agency issues. The potential channel of the relationship is improved labor productivity. Overall, the findings provide investors with critical insights into cash holding and dividend payout changes and highlight stakeholder policies' financial impacts.

Chapter 1. Introduction

1.1 Overview of the thesis

The thesis comprises two essays on the implications of paid maternity leave (PML) policies on corporate financial decisions. First, I investigate the relationship between mandatory PML on corporate cash holdings and, secondly, the impact of PML on the dividend payout ratio.

The first essay identifies the influence of state-level PML policy in the U.S. on corporate cash holdings, using a difference-in-differences approach based on the staggered enactment of the policy. It reveals that the enactment of PML laws significantly reduces firm cash reserves, especially in labor-intensive firms or industries. I fortify the robustness of these findings through various measures of cash holdings, alternative DID settings, and sensitivity analysis. I further enhance the credibility of the results by using placebo tests and entropy balancing. These rigorous assessments suggest that the study's outcomes are not only robust but also significantly compelling. In addition, I conduct a two-step channel analysis. The results indicate that post PML enactment, there is a discernible increase in labor productivity, but this increased productivity has an inverse relationship with cash holdings. In essence, as PML leads to augmented workforce productivity, the need for holding cash diminishes, which is the potential mechanism of the relationship between the PML policy and corporate cash holdings.

The second essay investigates the relationship between PML policy and corporate dividend payout ratios. There is a marked increase in the dividend payout ratio after the enactment of a PML policy. As in the first essay, I test the relationship's robustness by various methods. I explore different measures of dividend payout ratios and then use a smaller sample excluding observations with a negative net income. The baseline results consistently hold across an alternative DID framework and when conducting sensitivity analyses with industry

and year fixed effects. I further cement the reliability of the findings with placebo tests and entropy balancing. Like the first essay, which highlights the relationship between increased labor productivity and reduced post-PML cash reserves, this essay suggests that firms that experience improved labor productivity may be more likely to increase their dividend payouts, indicating their heightened operational efficiency.

1.2 Paid maternity leave

"Investing in women is not just good for corporate business. It's good for growing economies around the world." Melinda Gates, co-chair, and founder of Bill & Melinda Gates foundation.

Recent decades have seen substantial global growth in female participation in the workforce. This shift is evident in the marked increase in the rate of mothers engaging in the workforce, which rose from 63% in 2002 to 71% in 2019 (ILO, 2023, Thévenon, 2013). Region-specific trends underline this global shift. In the U.K., the percentage of employed mothers with dependent children increased from 66.5% in 2002 to 75.6% in 2021 (Murphy and Harris, 2022). There was a parallel trend in Australia, where the participation rate of mothers with children under 15 years rose from 57% in 1994 to 67% in 2014 (Statistics, 2021). Similarly, the U.S. experienced growth in women's participation rate, moving from 34% in 1976 to 72.5% in 2020 (BLS, 2022).

As women globally increase their presence in both workforce participation and political employment, the global community has seen corresponding progress in the enactment and implementation of maternity leave policies. Though most industrialized countries have implemented national paid maternity leave policies, offering at least 12 weeks paid leave (Magarino, 2022), the U.S. stands out as an exception (Son and Böger, 2021, Van Niel et al., 2020). Though the 1993 Family Medical Leave Act allows American women up to 12 weeks

unpaid leave, by 2021, only 10 U.S. states and districts had introduced laws for paid maternity leave.[1] Notably, California pioneered this movement in 2002, launching the California Paid Family Leave program. This initiative, the first of its kind in the U.S., offers eligible employees up to 12 weeks of paid family leave. After California set the precedent, by 2021, nine more states or districts had followed suit with similar paid maternity leave policies.

Beyond policy specifics, it's essential to recognize the broader societal and economic impact of paid maternity leave. Numerous studies validate the expansive benefits of such a policy. For families, one immediate advantage is improved income stability (Chatterji et al., 2011). From an economic perspective, the implications are even more significant. Expanding paid family leave policies can decrease government expenditure on public assistance while bolstering the labor force participation rate (Nandi et al., 2018). Del Rey et al. (2021) support this view, emphasizing that the benefits of reduced work-time costs surpass the drawbacks of wage penalties. Their research indicates increased female participation in the workforce, particularly when maternity leave periods extend to around 30 weeks.

The benefits of paid maternity leave are becoming increasingly clear in the business landscape. Bassanini and Venn (2008) point out its positive, or at least neutral, impact on workplace productivity. Moreover, firms see direct advantages, such as cost-saving from enhanced employee retention (Berger and Waldfogel, 2004) and the ability to attract top-tier female professionals (Liu et al., 2023). Building on these insights, Lim (2021) links the introduction of paid family leave to a reduction in labor market friction, suggesting a potential ripple effect leading to increased corporate innovation. Given these findings, it is reasonable to

[1] California (June 2002); New Jersey (April 2008); Rhode Island (June 2013); New York (April 2016); District of Columbia (December 2016); Washington (June 2017); Massachusetts (June 2018), Connecticut (June 2019); Oregon (June 2019) Colorado (November 2020). Enactment dates sourced from Website of the National Conference of State Legislatures, Employment Development Department of California, Ogletree Deakins, Reporter today, Vox, Office of Human Rights in D.C., Washington House Democrats, Land and the Workplace, Connecticut House Democrats, Jackson Lewis, and Colorado FAMLI.

hypothesize that the implementation of paid maternity leave policies may affect corporate financial decisions, such as cash holdings and dividend payout.

1.3 Paid maternity leave and cash holdings

Cash holdings, covering cash and highly liquid assets, indicate a firm's financial health, with a significant place on its balance sheet. These holdings underscore a firm's ability to finance its operations, manage uncertainties and make strategic decisions. The Pecking Order Theory, introduced by Myers and Majluf (1984), posits that firms prioritize internal financing from cash holdings over raising external funds through issuing debt or stocks, given the latter's higher associated costs. There are primarily two reasons firms opt to maintain significant cash or liquid assets: the transaction and precautionary motives (Keynes, 1936). Holding ample cash enables firms to reduce transaction costs and avoid hasty asset liquidation or external financing (Opler et al., 1999). This not only allows them to capitalize on attractive investment opportunities (Ye, 2018) but also smoothly finances their day-to-day operations. By retaining cash or liquid assets, firms create a buffer against potential future cash flow shortages. Another reason for holding cash is the agency motive (Myers and Majluf, 1984, Opler et al., 1999). Specifically, management may maintain surplus cash to gain flexibility to allow them to pursue objectives. These could include withholding dividend payouts to shareholders or using the cash as a defense against takeovers.

Numerous studies have explored the determinants of corporate cash holdings, with motivations stemming from the precautionary and agency motives. Much of this literature emphasizes the relationship between cash reserves and labor dynamics, such as employee performance and welfare policy. Research highlights that paid maternity leave positively impacts female workforce participation, counteracting wage challenges (Devos and Rahman, 2018). This policy also elevates a firm's appeal to skilled female talent, fostering diversity(Liu

et al., 2023) and driving innovation (Lim, 2023). Conversely, labor dynamics play a crucial role in a firm's cash strategy; firms aligned with high-performing talent tend to maintain more cash (Ryan et al., 2021). In highly competitive talent markets, abundant cash reserves becomes a strategic asset for recruitment and retention (He, 2018). Firms that rely heavily on human capital view their cash reserves as a commitment to employee welfare (Ghaly et al., 2015). Interestingly, regions with strong labor protection, like China, see varying trends: some labor-intensive firms boost their cash reserves because of rising operational costs (Deng et al., 2022), whereas others witness a dip because of the introduction of worker-centric policies (Gupta and Krishnamurti, 2023).

Despite extensive research on labor practices' financial impacts, a clear understanding of the relationship between policies like paid maternity leave and corporate cash reserves remains elusive. As the dynamics of corporate governance shift, accommodating broader stakeholder requirements (Ibrahimov and Omarova, 2020), new policies, such as paid maternity leave, might significantly influence financial strategies, especially cash holdings. This untouched domain offers rich study opportunities for both finance and management scholars. Recognizing the synergy between vital financial instruments, like cash holdings, and essential human resource investments, such as paid maternity leave (Bishnoi and Bishnoi, 2022) is vitally important. This study aims to shed some light on this intricate relationship.

To study the relationship between state-mandated paid maternity leave policies and corporate cash holdings, I use the difference-in-differences method with the staggered introduction of PML policies in U.S. states. The results show a significant decrease in cash holdings post-PML enactment, which is more pronounced in labor-intensive business sectors. The findings hold across varied methodologies, with their robustness confirmed through multiple measures of cash, different DID settings, and sensitivity analysis. Placebo tests and entropy balancing provide further validation, emphasizing the credibility and significance of

the results. A subsequent two-step channel analysis reveals an potential mechanism: PML policies lead to a marked rise in labor productivity that, in turn, shows a negative correlation with cash reserves. This suggests that as PML enhances workforce productivity, the precautionary motive for maintaining substantial cash reserves reduces, revealing a potential channel connecting PML policy and corporate financial strategy.

1.4 Paid maternity leave and dividend payout ratio

Many researchers have explored the determinants of dividend policies: dividend yield, dividend payout ratio, and propensity to pay dividends. However, the findings from various studies often present contradictions. For example, Boţoc and Pirtea (2014) identify profitability and liquidity as positive drivers of the dividend payout ratio in emerging markets. In contrast, Kuzucu (2015) argues, in the context of Turkish firms, that profitability negatively influences the dividend payout ratio (DPR) and liquidity doesn't significantly affect it. Since the 1950s, researchers have scrutinized past dividends as a determinant of dividend policy, with Lintner (1956) pioneering such investigations. However, the results are varied. Yusof and Ismail (2016) find that past dividends do not significantly predict DPR in Malaysia. Conversely, Al-Kayed (2017) emphasizes the role of past dividends in shaping corporate dividend policies in Saudi Arabia. Interestingly, though Al-Kayed (2017) finds a negative relationship between dividend yield and factors like profitability, liquidity, leverage, growth, and past dividends among conventional banks, other studies like those by Boţoc and Pirtea (2014) and Yusof and Ismail (2016) draw different conclusions, highlighting profitability, liquidity and past dividends as primary influencers.

Recent research has examined how policies on employees might affect dividend payout decisions. As with the other determinants, the results regarding the impact of such policies are inconsistent. For instance, Saeed (2021) suggests that, in emerging markets, firms with

employee-friendly practices tend to pay fewer dividends, highlighting a focus on future investments. In contrast, Benlemlih (2019) examined U.S. firms and finds that those upholding employee rights, in the larger framework of corporate social responsibility, are more likely to have a higher dividend payout. However, Cheung et al. (2018) find no clear link between firm-employee relationships and dividend decisions in U.S. firms. In this body of research, a literature gap becomes evident: the role of PML policies in the broader context of employee-friendly practices and their specific influence on corporate dividend payout ratios. Existing research provides only a glimpse into this pivotal area. To fill this gap, I aim to explore how mandatory PML policies influence firms' dividend policies.

To investigate the potential relationship between mandatory state-level paid maternity leave policies and corporate dividend payout ratios, I use the difference-in-differences (DID) approach, based on the staggered enactment of these policies across U.S. states. The sample is from a substantial dataset with 76,566 firm-year observations from 7,881 firms from 1999 to 2021. The data reveal that the implementation of state-level paid maternity leave policies sees a notable rise in firms' dividend payout ratios. This observation holds true across a variety of model evaluations, highlighting its reliability and consistency. Whether I adjust the measures of cash holdings, use alternative DID methodologies, shift the sample frame, or engage in placebo tests, the results remain robust. Even when I delve into more rigorous statistical evaluations, such as sensitivity analysis and entropy balancing, the core finding persists. Further cross-sectional analysis insights reveal that the correlation is more pronounced in labor-intensive industries and in firms experiencing significant agency problems. Following a two-step channel analysis, an interesting pattern emerges: the implementation of PML policies contributes to a significant boost in labor productivity. This rise in productivity is positively associated with increased corporate dividend payout ratios. Essentially, as PML policies bolster

workforce efficiency, firms may be more inclined to raise their dividend payouts, reflecting their heightened operational prowess.

1.5 Contributions

This study makes notable contributions in several aspects. First, the study explores a largely overlooked area: it examines the influence of PML policies on corporate financial decisions. By analyzing how firms adjust their cash reserves and dividend strategies in response to the introduction of state-level PML policies, the study offers a detailed understanding of the financial implications of such policies. The study shows that, beyond the direct benefits to employees, PML policies can have broader, systemic effects on corporate financial behavior. The study provides a comprehensive insight into the multifaceted channels through which PML can shape a firm's financial approach.

Secondly, the study serves as a nexus between finance and management. It demonstrates how management decisions in human resource policies can have profound financial ramifications, highlighting the interconnectedness of these disciplines in shaping corporate outcomes. Management studies primarily examine the impacts of employee-centric policies, emphasizing results like job satisfaction, loyalty, and retention rate. Finance research tends to focus on the broader financial implications of policies, including aspects like productivity and firm value. This study bridges these two perspectives by suggesting that improvements in labor productivity because of PML policies can significantly influence corporate financial choices.

Finally, this study's implications stretch beyond academic discussion. It provides potential guidance for corporations and policymakers addressing the financial dimensions of updated employee welfare programs. Furthermore, investors and stakeholders gain a clearer

understanding of potential financial adjustments firms might consider in the wake of introducing PML.

1.6 Thesis structure

The structure of this thesis is as follows. Chapter 2 explores the impact of PML policy on the corporate cash holdings. Chapter 3 examines the relationship between PML policy and the corporate dividend payout ratio. Chapter 4 summarizes the study findings, discusses the significance and contributions of the study, and reflects on its potential limitations.

Chapter 2. Do Paid Maternity Leave Mandates Affect Corporate Cash Holdings?

Abstract

This study investigates how paid maternity leave (PML) laws affect corporate cash holdings. Using a difference-in-differences approach based on the staggered enactment of these laws across U.S. states, I find that the adoption of PML laws significantly reduces firm cash reserves, especially in labor-intensive firms. Further analysis indicates increased employee productivity post-adoption is associated with declining cash holdings, representing a channel linking the PML laws to reduced precautionary savings. The findings provide investors with critical insights into cash holdings shifts and highlight stakeholder policies' financial impacts.

2.1 Introduction

Recent decades have witnessed substantial global growth in female participation in the workforce, with the rate of mothers in the labor force rising dramatically (ILO, 2023, Thévenon, 2013). This trend shows in the U.S. where women's participation grew from 34% in 1976 to 72.5% in 2020 (BLS, 2022). Concurrently, PML policies emerged and are now present in all industrialized countries except the U.S. (Addati et al., 2014). Though the 1993 Family Medical Leave Act provides American women with up to 12 weeks of unpaid leave, progress at state-is that, by 2021, 10 U.S. states and districts had enacted PML laws.[2]

Numerous studies find that PML can have a positive impact on both individual families and society. Specifically, research shows that PML has either a neutral or beneficial effect on workplace productivity (Bassanini and Venn, 2008), reduces costs for employers by improving employee retention rates (Berger and Waldfogel, 2004), and improves family incomes (Chatterji et al., 2011). Studies suggest that paid family leave policies can result in economy-wide benefits, such as decreased government spending on public assistance programs and higher labor force participation rates (Nandi et al., 2018). These gains could ultimately lead to broader economic benefit.

Previous research shows that PML has a significant impact on corporations in various ways. Del Rey et al. (2021) show that the positive effect of reduced work-time cost outweighs the negative effect of the wage penalty and that the female labor force participation rate increases until maternity leave is around 30 weeks. Additionally, PML in the U.S. can efficiently attract highly-skilled female employees and increase gender diversity and female

[2] California (June 2002); New Jersey (April 2008); Rhode Island (June 2013); New York (April 2016); District of Columbia (December 2016); Washington (June 2017); Massachusetts (June 2018), Connecticut (June 2019); Oregon (June 2019) Colorado (November 2020). Enactment dates sourced from websites of the National Conference of State Legislatures, Employment Development Department of California, Ogletree Deakins, Reporter today, Vox, Office of Human Rights in D.C., Washington House Democrats, Land and the Workplace, Connecticut House Democrats, Jackson Lewis, and Colorado FAMLI.

labor force participation (Liu et al., 2023). Lim (2021) investigated the link between PML and corporate innovation. The study finds that, by alleviating labor market frictions through the introduction of PML, there is a notable boost in corporate innovation. Given these findings, it is reasonable to hypothesize that the implementation of PML policies may affect corporate financial decisions, such as cash holdings.

Based on the precautionary (Opler et al., 1999) and agency motives (Jensen, 1986, Myers and Majluf, 1984), much literature investigates the determinants of corporate cash holdings, among which several studies relate it to firm labor, such as employee performance and welfare policies. Ryan et al. (2021) indicate that employee performance can positively influence corporate cash holdings, because firms tend to accommodate the preferences of better performing employees. He (2018) finds that firms may choose to hold more cash to enhance their competitiveness in an intensified talent competition environment, ensuring they have the necessary funds to attract and retain top-tier talent. Ghaly et al. (2015) highlight that employee welfare can positively affect a firm's cash holdings to show the ability to honor welfare promises to employees, especially for human-capital-intensive firms. Deng et al. (2022) observe that, in China, rising social insurance premiums result in increased cash holdings, especially for labor-centric firms, because of augmented operational demands. However, as Gupta and Krishnamurti (2023) note, corporate cash holdings decrease because of the introduction of employee-friendly practices, particularly in countries with strong labor laws and regulations.

Although previous studies investigate how cash holdings can be influenced by labor practices, there is little study on the relationship between the specific welfare practice of PML and cash holdings, representing a critical research gap this study addresses. To examine the relationship between mandatory state-level paid maternity leave policy and corporate cash holdings, I adopt a DID approach based on the staggered enactment of PML laws across U.S.

states. Using a sample comprising 78,436 firm-year observations from 8,059 unique firms from 1999 to 2021, I find strong evidence that firms tend to hold more cash post the enactment of state-level paid maternity leave policy. This inference remains consistent and robust across varied model specifications. I also find that the relationship is more pronounced in labor-intensive firms and firms in labor-intensive industries such as high-tech, telecommunications, and healthcare. To better establish the channel of the PML-cash holdings relationship, I investigate employee productivity. The results indicate increased employee productivity post-adoption is associated with declining cash holdings, representing a channel linking the PML policies to reduced precautionary cash holdings.

This study makes several contributions. First, it provides significant insight into an underexplored area: the relationship between PML policies and corporate cash holdings. The study shows that PML policies can shape a company's financial strategy, particularly its decisions regarding cash holdings. By presenting empirical evidence, the study highlights the notable association between the adoption of state-level PML policies and decreased corporate cash reserves. This study enhances understanding of the intricate mechanisms connecting PML and cash holding decisions, thus broadening the academic landscape on th topic.

Secondly, this study bridges the traditionally distinct domains of finance and management that are often separated. It reveals how PML policies might lead to reduced corporate cash holdings, primarily by boosting labor productivity. In doing so, this study establishes a unique intersection of the management and finance literature, underscoring the value of cross-disciplinary understanding.

Thirdly, beyond its academic significance, this study has crucial implications for the real world. It offers tangible guidance to corporations and policymakers to help them navigate cash policies in the context of paid leave mandates. It also offers investors and stakeholders

valuable perspectives on how shifts in cash reserves because of the enactment of PML policies may influence corporate risk dimensions, including refinancing risk (Harford et al., 2014), liquidity (Huang and Mazouz, 2018), and opportunity costs, in general, (Kim and Bettis, 2014).

The structure of the chapter is as follows. Section 2 presents a literature review and develops the hypothesis. Section 3 describes the sample, data and model used in the analysis. Section 4 reports the analysis results and section 5 conclude the chapter.

2.2 Literature review and hypothesis development

Existing research presents conflicting perspectives on what the relationship might be between PML policies and corporate cash holdings. One view, centered on labor expense, suggests that PML policies may lead to an increased corporate cash holding. This is primarily because of two types of labor costs associated with PML: adjustment costs incurred when employees are on leave and insurance costs related to providing maternity leave benefits. When employees take maternity leave, businesses often face adjustment costs because they may need to hire temporary workers or authorize additional hours for current employees to maintain operations. These added labor costs, including the expenses in recruitment, training, or extra wages, can amplify a firm's financial load. The wages of employees on maternity leave are commonly financed by social or private insurance, sustained by contributions from both employers and employees, as required by PML policies. These contributions are a direct labor cost and, if not paid, can lead to penalties for the firm, adding to its financial obligations. Like labor adjustment costs, the obligation to contribute to social insurance for maternity leave represents an additional financial burden for firms (Deng et al., 2022). The combination of increased labor adjustment and insurance costs can raise a firm's operating leverage, thereby escalating the possibility of financial distress (Alimov, 2015, Cui et al., 2018). As a result, firms with mandatory PML might bolster their cash reserves as a precautionary move (Keynes, 1936),

aiming to buffer against these financial risks. Chava et al. (2023) suggest that higher labor costs could lead to less access to bank credit, especially for small enterprises. This situation, exacerbated by the implementation of PML policies, may increase a firm's likelihood of financial strain and reduce its ability to secure outside funding. Consequently, to accommodate the requirements of PML legislation, firms are likely to increase their cash holdings because of the precautionary motive. In summary, the above arguments suggest that firms may increase cash holdings.

The opposing argument, however, supports the view that PML can lead to decreased cash holdings for a firm. Studies indicate that, when firms adopt employee-friendly practices like PML, it can substantially boost employee productivity. This boost is beneficial because it can significantly enhance a company's ability to generate more capital, innovate, and improve operational performance (Darrough et al., 2019, Gupta and Krishnamurti, 2023). When employees feel supported by policies that allow them to balance their personal and professional lives, they may be more engaged and motivated at work, leading to higher productivity and, consequently, better financial outcomes for the firm. Furthermore, the study by Krekel et al. (2019) indicates that paid leave policies can directly lead to surges in productivity and, consequently, profitability. This improved financial performance may reduce the imperative for a firm to hold large amounts of cash as a buffer. Instead, the financial inflows resulting from a more productive workforce may provide sufficient funds for the firm's operational needs, thus diminishing reliance on cash holdings. With the financial benefits from a satisfied, productive workforce, firms might find less rationale to retain high levels of cash. This could lead to a strategic shift in financial resource allocation, with firms choosing to invest more in their workforce and less in cash holdings. Given the increased financial inflows coupled with a satisfied workforce, firms may see less need to maintain high cash holdings. In essence, this

discussion indicates that the enactment of PML policies could lead firms to reduce their cash holdings.

In summary, there are arguments that support opposing views on whether PML increases or decreases corporate cash holdings. The cost perspective asserts that PML increases a firm's expenses, potentially leading to a need for larger cash reserves to cover the costs. This view emphasizes the direct financial outlay associated with PML, such as the payment of salary during leave and the cost of temporary replacement staff. In contrast, the productivity perspective suggests that PML improves a firm's profitability by enhancing employee productivity. This view argues that well-supported employees are likely to be more motivated and efficient, which could increase company profits and reduce the necessity for large cash reserves. Given these conflicting predictions, I write my hypothesis in the null form:

H1: Paid maternity leave is not associated with changes in corporate cash holdings.

2.3 Research design

2.3.1 Sample and data sources

This study uses the DID approach based on the staggered enactment of PML laws across U.S. states from 1999-2021 (California pioneered the legislative movement in 2002). To ensure rich data for analysis, the timeline commences three years before this initial enactment, providing a substantial pre-treatment observation window. The treatment group in the sample is firms headquartered in states where PML laws had been enacted by 2021 (California, New Jersey, Rhode Island, New York, District of Columbia, Washington, Massachusetts, Connecticut, Oregon, and Colorado). The control group comprises firms headquartered in states where no such legislation had been enacted by the end of 2021. Table 1 shows the detailed information on U.S. state-level PML policy.

Table 1. State-level paid maternity leave

State	Enactment date	PML period
California	September 23, 2002	8 weeks
New Jersey	May 2, 2008	12 weeks
Rhode Island	July 23, 2013	30 weeks
New York	April 4, 2016	12 weeks
District of Columbia	April 7, 2017	12 weeks
Washington	July 5, 2017	16 weeks
Massachusetts	Jun 28, 2018	26 weeks
Connecticut	June 25, 2019	12 weeks
Oregon	August 9, 2019	12 weeks
Colorado	November 3, 2020	12 weeks

Note: This table presents the detailed information on the state-level paid maternity leave in the U.S. by 2021.

I obtain the data from two main sources: (1) firm-level financial data for publicly listed U.S. firms from 1999-2022 come from the CRSP/Compustat merged dataset; (2) historical headquarters location data of the listed firms is from Bill McDonald's website.[3] State-level unemployment rates and GDP growth rates are from the Bureau of Labor Statistics and Bureau of Economic Analysis, respectively.[4] I winsorize all continuous variables at the 1st and 99th percentiles to limit the influence of extreme values.

I start sample selection with 127,298 firm-year observations from 13,359 listed the U.S. firms available in Compustat dataset from 1999-2022. I then match the historical firm headquarters location using the data from Bill McDonald's website. To ensure result reliability and a valid research design, I exclude the firms if a headquarters relocation led to the adoption or elimination of PML obligations. I also exclude firms adhering to PML at initial listing since

[3] https://www3.nd.edu/~mcdonald/
[4] https://www.bea.gov/itable/

no DID exists. Consistent with previous literature (Beuselinck et al., 2021, Ghaly et al., 2015), I exclude utilities firms (Standard Industrial Classification (SIC) codes 4900-4999) and financial industries (SIC codes 6000–6999) from the sample. After applying these criteria, the final sample contains 78,436 firm-year observations from 8,059 unique firms. Table 2 shows the process by which the final sample is generated from the initial one.

Table 2. Details of the construction of the sample firms

Factor	Number of unique firms	Number of firm-year observations
Initial sample	13,359	127,298
Merge with headquarter location data	-2,951	-27,927
Drop if the headquarters relocated	-1,566	-12,632
Drop if firms from utilities and financial industries	-783	-8,303
Final sample	8,059	78,436

Note: This table presents the process by which the final sample is constructed.

2.3.2 Variable measurements

Dependent variables: Following Beuselinck et al. (2021), Fritz Foley et al. (2007), Harford et al. (2008) and Opler et al. (1999), I construct two measures of cash holdings to ensure the results are not an artefact. In the baseline regressions, I implement two measures to represent corporate cash holdings: the logarithm of cash to net assets (*Cash1*) and the logarithm of cash to net sales (*Cash2*). Table 3 provides the detailed information on these two dependent variables.

Independent variables: In implementing the DID methodology, I construct two principal indicator variables. I derive these variables from the enactment times of PML laws in the 10 U.S. states and the historical location of all firms used in the study. *Treat* indicates if a firm's headquarters is in one of the treatment states) California, New Jersey, Rhode Island, New

York, District of Columbia, Washington, Massachusetts, Connecticut, Oregon, and Colorado). *Post* is an indicator determining if the state the firm is located in has enacted the paid leave laws in the given year. The interaction term *Treat* × *Post* is the key variable of interest in the regressions. Table 3 provides detailed information of *Treat* and *Post*.

Control variables: To facilitate a robust analysis, I employ a set of firm- and state-level control variables including *Firm age*, *IPO indicator*, *Dividend indicator*, *Firm size*, *Cash flow*, *Leverage*, *Net Working Capital*, *R&D expenditure*, *Capital expenditure*, *Market-to-book- value*, *Acquisition*, *Growth*, *State unemployment rate*, and *State GDP growth*, that are commonly used in prior research examining cash holdings (Beuselinck et al., 2021, Chen et al., 2012, Devos and Rahman, 2018, Opler et al., 1999). Firm-level control variables include the number of years since the firm went public (*Firm age*), an indicator variable of IPO equals 1 if the firm went public in the previous two years, and 0 otherwise (*IPO indicator*), an indicator variable of paying dividend equal to 1 if the firm pays cash dividends in the year, and 0 otherwise (*Dividend indicator*), the logarithm of sales (*Firm size*), the ratio of operating income before depreciation less interest expense less income taxes less common and preferred dividend to net assets (*Cash flow*), the ratio of the sum of long-term debt and debt in current liabilities to net assets (*Leverage*), the ratio of net working capital to net assets (*Net Working Capital*), the ratio of R&D expenditure to net assets (*R&D expenditure*), which equals to 0 if R&D data are missing, the ratio of capital expenditure to net assets (*Capital expenditure*), the ratio of the market value of equity to the book value of equity (*Market-to-book- value*), the ratio of acquisition expenditure to net assets (*Acquisition*), and the ratio of the market value of assets to net assets (*Growth*). State-level control variables include the state-level GDP unemployment rate (*State unemployment rate*) and the state-level GDP growth rate over the prior year (*State GDP growth*). Table 3 provides a full description of each variable used in the regressions and the source.

Table 3. Definitions of the dependent and independent variables for analysis

Variable	Definitions (Compustat items in brackets)	Source
Dependent variables		
Cash1	The natural logarithm of cash and cash equivalents to total assets net of cash and cash equivalents. (ln(che/(at- che)))	Compustat
Cash2	The natural logarithm of cash and cash equivalents to sales. (ln(che/revt))	Compustat
DID Indicators		
Treat	An indicator variable equal to one if the firm is in treatment group, and zero otherwise	Bill McDonald's website and policy information collected
Post	An indicator variable equal one if the firm implements the mandatory PML policy, and zero otherwise	
Control variables		
Firm age	The number of years since the firm went public.	Compustat
IPO indicator	An indicator variable equal to one if the firm Int public in the previous two years, and zero otherwise.	Compustat
Dividend indicator	An indicator variable equal to one if the firm pays cash dividends in the year, and zero otherwise.	Compustat
Firm size	The logarithm of sales. (ln(at))	Compustat
Cash flow	The ratio of operating income before depreciation less interest expense less income taxes less common and preferred dividends to net assets. ((oibdp- xint - txt- dvc- dvp)/at)	Compustat
Leverage	The ratio of the sum of long-term debt and debt in current liabilities to net assets. ((dltt+ dlc)/at)	Compustat
Net working capital	The ratio of net working capital (net of cash and short-term investments) to net assets. ((wcap - che)/at)	Compustat
R&D expenditure	The ratio of R&D expenditure to net assets (equals to zero if R&D is missing). (xrd/at)	Compustat
Capital expenditure	The ratio of capital expenditure to net assets. (capx/at)	Compustat
Market-to-book value	The ratio of the market value of equity to the book value of equity. (prcc_f* csho/ ceq)	Compustat
Acquisition	The ratio of acquisition expenditure to net assets. (aqc/at)	Compustat
Growth	The ratio of the market value of assets (the market value of equity plus the book value of total liabilities) to net assets (total assets net of cash and cash equivalents) ((prcc_f*csho + lt)/(at))	Compustat
State unemployment rate	The state-level GDP unemployment rate	U.S. Bureau of Labor Statistics
State GDP growth	The state-level GDP growth rate over the prior year	U.S. Bureau of Economic Analysis

2.3.3 Regression models

To investigate the relationship between paid maternity leave and cash holdings, following Lim (2023), I use a panel OLS regression with firm and year fixed effects:

$$Cash_{i,t+1} = \beta_0 + \beta_1 Treat_i \times Post_{i,t} + \beta_2 Controls_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \qquad (1)$$

In model (1), *i* and *t* represent the firm and time, respectively. *Cash,* the dependent variable, represents the firm's cash holdings. *Treat* is an indicator determining if the firm's headquarters is in a treatment state or not; *Post* is an indicator determining if the state the firm is in has enacted PML laws; and *Treat* × *Post* is the key variable of interest. *Controls* represents a set of firm- and state-level control variables. Finally, λ_i and μ_t represent firm and year fixed effects, respectively, and ε is the error term. The coefficient β_1 is crucial to hypothesis H1, with its significance and direction determining the empirical association between PML and cash holdings.

2.4 Empirical analysis

2.4.1 Descriptive statistics

Table 4 summarizes the statistics of the variables used in the study. The mean and median of *Cash1* for the sample firms are -2.1932 and -2.2649, respectively, indicating a relatively symmetric distribution, which is also true for *Cash2*. The mean value of *Treat* shows that approximately 40% of the firm-year observations are from the treatment group. The mean value of *Treat* × *Post* indicates that 14% of the firm-year observations are affected by state-level mandatory paid maternity leave policies. Table 5 shows the correlation matrix between the enactment of PML and corporate cash holdings (*Cash1* and *Cash2*); a positive correlation exists. Correlation coefficients between other variables are relatively small, thus clearly indicating the absence of multicollinearity issues. I strengthen this initial observation by conducting a

comprehensive Variance Inflation Factor (VIF) test to further examine the potential for multicollinearity. Encouragingly, the VIF values for all explanatory variables nestle below 7.39, comfortably beneath the generally accepted cutoff value of 10 as posited by Wooldridge (2002), thereby signaling a lack of serious multicollinearity concerns.

Table 4. Descriptive statistics

Variables	Mean	SD	Min	Max	Median
Cash1	-2.1932	1.8785	-7.6838	3.1771	-2.2649
Cash2	-1.8712	1.9783	-7.3715	3.8853	-1.7633
Treat	0.4085	0.4916	0.0000	1.0000	0.0000
Post	0.1460	0.3531	0.0000	1.0000	0.0000
Treat × Post	0.1460	0.3531	0.0000	1.0000	0.0000
Firm age	16.8526	14.7713	-3.0000	62.0000	13.0000
IPO indicator	0.1076	0.3098	0.0000	1.0000	0.0000
Dividend indicator	0.4452	0.4970	0.0000	1.0000	0.0000
Firm size	5.6000	2.6068	-3.2702	12.1077	5.8672
Cash flow	-0.2283	1.4490	-15.9444	0.2997	0.0327
Leverage	0.3109	0.7354	0.0000	7.7460	0.1648
Net working capital	-0.1980	1.7006	-19.7381	0.4754	-0.0094
R&D expenditure	0.0655	0.1744	0.0000	1.2932	0.0000
Capital expenditure	0.0419	0.0621	0.0000	0.4447	0.0222
Market-to-book value	2.7191	9.4770	-54.1055	58.4327	1.7203
Acquisition	0.0177	0.0524	0.0000	0.3148	0.0000
Growth	3.7448	12.9728	0.4065	158.5066	1.4115
State unemployment rate	5.7346	1.9603	2.1000	13.7000	5.3000
State GDP growth	2.1669	2.5202	-11.5000	22.4000	2.2000

Note: This table presents descriptive statistics of the primary variables for the whole sample. The sample consists of 78,436 firm-year observations from 8,059 unique U.S. firms from 1999 to 2021. All continuous variables are winsorized at 1% and 99% of each variable's empirical distribution. The variables are defined in Table 3.

Table 5. The correlation matrix of firm factors and the onset of paid maternity leave

	Factor	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	Cash1	1.000																
(2)	Cash2	0.747	1.000															
(3)	Treat × Post	0.180	0.136	1.000														
(4)	Firm age	-0.081	-0.173	0.045	1.000													
(5)	IPO indicator	0.056	0.097	-0.099	-0.372	1.000												
(6)	Dividend indicator	-0.231	-0.025	-0.087	0.259	-0.096	1.000											
(7)	Firm size	-0.243	-0.043	0.003	0.325	-0.126	0.378	1.000										
(8)	Cash flow	-0.092	-0.085	-0.014	0.105	-0.081	0.087	0.395	1.000									
(9)	Leverage	-0.093	-0.111	-0.011	-0.034	0.007	-0.052	-0.223	-0.615	1.000								
(10)	Net working capital	-0.046	-0.042	-0.015	0.072	-0.037	0.059	0.305	0.770	-0.767	1.000							
(11)	R&D expenditure	0.357	0.263	0.129	-0.121	0.046	-0.194	-0.347	-0.407	0.194	-0.260	1.000						
(12)	Capital expenditure	-0.105	-0.190	-0.089	-0.025	0.074	-0.087	-0.031	-0.029	0.050	-0.016	-0.026	1.000					
(13)	Market-to-book value	0.089	0.044	0.019	0.007	0.020	-0.005	0.018	0.101	-0.111	0.082	0.006	0.007	1.000				
(14)	Acquisition	-0.090	-0.138	-0.009	0.014	0.019	-0.024	0.089	0.047	0.003	0.036	-0.052	-0.023	0.016	1.000			
(15)	Growth	0.111	0.063	0.004	-0.073	0.084	-0.082	-0.331	-0.688	0.493	-0.647	0.264	0.028	0.003	-0.033	1.000		
(16)	State unemployment rate	0.070	0.070	0.235	0.080	-0.076	-0.006	0.073	-0.007	-0.006	-0.017	0.013	-0.078	-0.006	-0.031	0.006	1.000	
(17)	State GDP growth	0.009	-0.030	-0.035	-0.124	0.074	-0.069	-0.122	-0.020	0.000	-0.008	0.038	0.098	0.030	0.023	0.030	-0.427	1.000

Note: This table presents the correlation matrix between the variables used in the regression.

2.4.2 Baseline results

Table 6, Panel A presents the baseline model results, with and without controls, indicating PML enactment significantly reduces corporate cash holdings. Across all models, the interaction term coefficients (*Treat* × *Post*) are negative and statistically significant at the 1% level. In column 2 (4), the *Treat* × *Post* coefficient is -0.0851 (-0.1280), implying state mandated PML decreases firm cash holdings by 3.88% (6.84%) of the mean, relative to the control group in the post-enactment period.

DID estimation fundamentally relies on the parallel trend assumption between the treatment and control groups. To robustly validate this, I create dummy variables *Pre1*, *Pre2*, and *Pre3* for up to 3 years before the staggered enactment of PML, and another dummy variable, *After,* for all current and post-enactment years and place their interaction terms with the treatment group variables. Table 6, Panel B, reports the results. It shows that enactment of PML decreases corporate cash holdings, particularly beginning in the enactment year. In the pre-enactment year, the coefficients of *Treat x Pre3*, *Treat x Pre2*, and *Treat x Pre1* are insignificant, showing the research design satisfies the parallel trend assumption.

Table 6. The effect of paid maternity leave on firms' cash holdings

Panel A. Baseline regression results

Factor	(1) Cash 1 $_{i,t+1}$	(2) Cash 1 $_{i,t+1}$	(3) Cash 2 $_{i,t+1}$	(4) Cash 2 $_{i,t+1}$
Treat $_i$ × Post $_{i,t}$	-0.1035***	-0.0851***	-0.1601***	-0.1280***
	(-3.3102)	(-2.8153)	(-5.2476)	(-4.3092)
Firm age $_{i,t}$		0.0171		0.0168
		(0.9754)		(0.8886)
IPO indicator $_{i,t}$		0.1605***		0.2407***
		(6.6640)		(9.9373)
Dividend indicator $_{i,t}$		-0.0501**		-0.0339
		(-2.2752)		(-1.5324)
Firm size $_{i,t}$		-0.2154***		-0.0449***
		(-13.2371)		(-2.6016)
Cash flow $_{i,t}$		0.0230		-0.0458**
		(1.6351)		(-2.5620)
Leverage $_{i,t}$		-0.2024***		-0.3270***
		(-7.8579)		(-10.4959)
Net working capital $_{i,t}$		-0.0283**		-0.0463***
		(-2.1968)		(-2.8272)
R&D expenditure $_{i,t}$		-0.0821		-0.4137***
		(-0.9463)		(-3.8758)
Capital expenditure $_{i,t}$		-1.4554***		-1.1105***
		(-9.9100)		(-6.8312)
Market-to-book value $_{i,t}$		0.0019***		0.0016**
		(2.8972)		(2.3580)
Acquisition $_{i,t}$		-1.5674***		-1.2255***
		(-18.2613)		(-14.3012)
Growth $_{i,t}$		0.0067***		0.0079***
		(5.3716)		(5.1677)
State unemployment rate $_{i,t}$		-0.0068		-0.0080
		(-0.7705)		(-0.9203)
State GDP growth $_{i,t}$		0.0035		0.0021
		(1.2448)		(0.7557)
Constant	-2.1781***	-1.0997***	-1.8506***	-1.7067***
	(-477.3074)	(-3.5634)	(-418.8271)	(-5.0160)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	Firm	Firm
N	78,436	78,436	75,939	75,939
Adj-R^2	0.7367	0.7458	0.779	0.7842

Panel B. Test of parallel trends assumption

Factor	(1) Cash 1 $_{i,t+1}$	(2) Cash 1 $_{i,t+1}$	(3) Cash 2 $_{i,t+1}$	(4) Cash 2 $_{i,t+1}$
Treat x Pre3	0.0327	0.0239	0.0116	0.0054
	(0.8237)	(0.6211)	(0.2922)	(0.1412)
Treat x Pre 2	0.0186	0.0000	0.0450	0.0328
	(0.4175)	(0.0005)	(1.0134)	(0.7501)
Treat x Pre 1	0.0012	0.0119	-0.0040	-0.0010
	(0.0267)	(0.2695)	(-0.0891)	(-0.0230)
Treat x After	-0.0924**	-0.0742*	-0.1331***	-0.1066**
	(-2.0350)	(-1.6959)	(-2.9928)	(-2.4350)
Firm age $_{i,t}$		0.0170		0.0167
		(0.9718)		(0.8830)
IPO indicator $_{i,t}$		0.1616***		0.2428***
		(6.7183)		(10.0191)
Dividend indicator $_{i,t}$		-0.0503**		-0.0342
		(-2.2817)		(-1.5445)
Firm size $_{i,t}$		-0.2152***		-0.0445***
		(-13.2198)		(-2.5771)
Cash flow $_{i,t}$		0.0229		-0.0459**
		(1.6293)		(-2.5706)
Leverage $_{i,t}$		-0.2028***		-0.3277***
		(-7.8711)		(-10.5102)
Net working capital $_{i,t}$		-0.0284**		-0.0467***
		(-2.2044)		(-2.8514)
R&D expenditure $_{i,t}$		-0.0814		-0.4129***
		(-0.9390)		(-3.8651)
Capital expenditure $_{i,t}$		-1.4538***		-1.1084***
		(-9.8981)		(-6.8145)
Market-to-book value $_{i,t}$		0.0020***		0.0016**
		(2.8986)		(2.3396)
Acquisition $_{i,t}$		-1.5684***		-1.2265***
		(-18.2712)		(-14.3139)
Growth $_{i,t}$		0.0067***		0.0078***
		(5.3574)		(5.1345)
State unemployment rate $_{i,t}$		-0.0088		-0.0108

		(-0.9840)		(-1.2301)
State GDP growth $_{i, t}$		0.0024		0.0006
		(0.8260)		(0.1945)
Constant	-2.1785***	-1.0867***	-1.8525***	-1.6890***
	(-227.9569)	(-3.5188)	(-199.9752)	(-4.9634)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	Firm	Firm
N	78,436	78,436	75,939	75,939
Adj-R^2	0.7367	0.7457	0.7789	0.7842

Note: This table presents the results for the baseline regressions and parallel trends assumption tests. Panel A reports the result of OLS panel regressions. The dependent variables are Cash1(ln (cash/net assets)) and Cash2 (ln (cash/sales)), and the key variable of interest is Treat × Post. All the other variables are defined in Table 3. The t-statistics are based on standard errors robust to clustering by firm are reported in brackets. Panel B examines the parallel trend assumptions of DID analysis. Treat equals 1 if the firm is located in a state where PML is enacted. Pre1, Pre2, and Pre3 equal to 1 for 1, 2 or 3 years before enactment of PML. After equals 1 for the enactment year and each subsequent year thereafter. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

2.4.3 Channel analysis

The preliminary results from the baseline regressions suggest that the enactment of PML could lead to reduced corporate cash holdings. This naturally leads to a follow-up question: What is the mechanism underlying the impact of PML on a company's cash holdings? A conceivable explanation is that PML might enhance a firm's labor productivity, thereby improving profitability. As firms start generating a higher cash flow, the necessity to retain surplus cash as a precaution might diminish, thus reducing overall cash reserves. To test this potential channel, I carry out a two-step analysis. In the first step, I examine whether the introduction of PML policies results in a notable increase in the 3-year average labor productivity of firms (measured as net income scaled by the number of employees). In the second step, I explore whether there is a relationship between the change in the 3-year average

productivity and the change in the 3-year average cash holdings, both before and after the implementation of PML. I estimate:

$$\overline{Labor\ productivity}_{i,t+1} = \beta_0 + \beta_1 \times Treat_{i,t} \times Post_{i,t} + \beta_2 \times \overline{Controls}_{i,t} + \mu_t + \varepsilon_{i,t} \quad (2)$$

$$\Delta\overline{Cash}_i = \beta_0 + \beta_1 \times \Delta\overline{labor\ productivity}_i + \beta_2 \times \Delta\overline{Controls}_i + \mu_t + \varepsilon_{i,t} \quad (3)$$

In equation (2), $\overline{Labor\ productivity}$ is the 3-year average labor productivity of a firm and $\overline{Controls}$ denotes the three-year averages of the control variables, which remain consistent with the control variables used in equation (1). Equation (3) examines the relationship between changes in $\overline{Labor\ productivity}$ and changes in $\overline{Cash}$. The control variables for equation (2) are the 3-year averages of *Firm size*, *Firm age*, *Market-to-book value,* and *R&D expenditure*.

Table 7 presents the results of the channel analysis.[5] Column 1 shows the *Treat* × *Post* coefficient is positive and significant, indicating labor productivity increases after PML. In column 2, the coefficient on $\Delta\overline{Labor\ productivity}$ is negative and significant, indicating that productivity changes negatively related to cash changes. This implies rising labor productivity from PML enactment is associated with declining cash reserves because of a decreasing precautionary motive to hold excess cash.

[5] As PML law enactment in the states of Connecticut, Oregon, and Colorado occurred at the end of our sample period, I do not have three years of post-PML observations and so these states are excluded from the analysis.

Table 7. Labor productivity channel analysis

Factor	(1) $\overline{\text{Labor productivity}}_{i,t+1}$	(2) $\Delta\overline{\text{Cash1}}_i$
Treat × Post i, t	0.0365**	
	(1.9793)	
$\overline{\text{Firm age}}_{i,t}$	-0.0001	
	(-0.0945)	
$\overline{\text{Market-to-book value}}_{i,t}$	-0.0044***	
	(-3.2712)	
$\overline{\text{Firm size}}_{i,t}$	0.0300***	
	(7.3846)	
$\overline{\text{R\&D expenditure}}_{i,t}$	-0.8484***	
	(-14.8385)	
$\Delta\overline{\text{Labor productivity}}_{\text{i}}$		-0.7438***
		(-4.4794)
$\Delta\overline{\text{Firm age}}_i$		0.0218***
		(5.0963)
$\Delta\overline{\text{IPO dummy}}_i$		-0.1151
		(-0.7646)
$\Delta\overline{\text{Dividend dummy}}_i$		0.2726***
		(3.2549)
$\Delta\overline{\text{Firm size}}_i$		-0.3832***
		(-11.4400)
$\Delta\overline{\text{Cash flow}}_i$		0.7949***
		(7.3508)
$\Delta\overline{\text{Leverage}}_i$		-0.6833***
		(-5.4784)
$\Delta\overline{\text{Net working capital}}_i$		-1.1878***
		(-5.7745)
$\Delta\overline{\text{R\&D expenditure}}_i$		-0.4522
		(-1.4901)
$\Delta\overline{\text{Capital expenditure}}_i$		-9.0138***
		(-9.4754)
$\Delta\overline{\text{Market-to-book value}}_i$		-0.0021
		(-0.7066)
$\Delta\overline{\text{Acquisition}}_i$		-3.5982***
		(-6.2704)
$\Delta\overline{\text{Growth}}_i$		0.0251***

		(5.6129)
$\Delta\overline{\text{State unemployment rate}}_{i}$		0.0550**
		(2.4723)
$\Delta\overline{\text{State GDP growth}}_{i}$		0.0432**
		(2.0727)
Constant	-0.1485***	0.0047
	(-4.0651)	(0.3591)
N	933	1,445
Adj-R^2	0.3532	0.1940

Note: This table presents the results of channel analysis. Column (1) shows panel OLS regression results where the dependent variable is the 3-year average labor productivity (net income/number of employees), and the key variable of interest is Treat × Post. Column (2) shows the results of the second step in the channel analysis. The dependent variable is change in the 3-year average cash holdings (Cash1 measured as ln (cash/net assets)) before and after PML), and the key variable of interest is change in the 3-year average labor productivity before and after PML. All the other variables are defined in Table 3. t-statistics are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

2.4.4 Cross-sectional analysis

The preliminary findings underscore that the enactment of MPL has a negative effect on corporate cash holdings. To go more deeply into this relationship, I examine cross-sectional variation, aiming to identify which firms are most impacted by the enactment of PML. In particular, I expect a stronger association in firms with a labor-intensive operation. To empirically investigate this, I categorize the sample based on the level of labor intensity both at the industry and individual firm levels. Following Ertugrul (2013), Ghaly et al. (2015) and Ben-Nasr and Ghouma (2018), I collectively identify certain industries, including high-tech, telecommunications, and healthcare, as predominantly labor-intensive. With this framework, I divide the initial sample into two subsamples: firms characterized by high labor intensity and those by low labor intensity and rerun the baseline regressions using the two separate subsamples.

In addition, I also examine the effect of labor intensity on the relationship between the enactment of PML and cash holdings based on an alternative proxy of labor intensity. Specifically, I classify the firms having a higher ratio of R&D expenditure over total assets than the median ratio as labor-intensive firms. Following Ghaly et al. (2015), this classification stems from the fact that firms with higher R&D intensity are more likely to hire highly-skilled labor and tend to be more labor intensive. Based on this categorization, I conduct baseline regression analyses on both labor-intensive and less labor-intensive firms. Table 8 presents the results of regressions with these subsamples. The interaction coefficients are now significant only for firms in higher labor intensity industries and firms with higher labor intensity ratio, as demonstrated in Panels A and B, respectively. Such outcomes indicate that the effect of PML on corporate cash holdings is more pronounced in more labor-intensive firms. This finding corroborates our initial conjecture that PML has greater influence on more labor-intensive firms. It logically follows our premise, considering PML's direct impact on employees highlighting the larger influence on firms characterized by higher labor intensity.

Table 8. Cross-sectional analysis

Panel A. The effect of level of industry labor-intensity on the relationship between PML and cash holdings

Factor	Low	High	Low	High
	(1)	(2)	(3)	(4)
	Cash 1 $_{i,t+1}$	Cash 1 $_{i,t+1}$	Cash 2 $_{i,t+1}$	Cash 2 $_{i,t+1}$
Treat × Post $_{i,t}$	0.0154	-0.1795***	0.0035	-0.1981***
	(0.3794)	(-3.9937)	(0.0883)	(-4.3023)
Firm age $_{i,t}$	0.0263	0.0244	0.0207	0.0190
	(1.3454)	(1.2134)	(0.9705)	(0.5956)
IPO indicator $_{i,t}$	0.1587***	0.1803***	0.1864***	0.3158***
	(5.4047)	(4.5890)	(6.2765)	(7.6071)
Dividend indicator $_{i,t}$	-0.0106	-0.0810**	-0.0206	-0.0364
	(-0.4044)	(-2.1515)	(-0.7831)	(-0.9613)
Firm size $_{i,t}$	-0.2357***	-0.1553***	-0.0947***	0.0331
	(-11.0182)	(-6.1421)	(-4.1806)	(1.1960)
Cash flow $_{i,t}$	0.0307	-0.0032	0.0037	-0.0803***
	(1.1902)	(-0.1420)	(0.1555)	(-3.1975)
Leverage $_{i,t}$	-0.2522***	-0.2201***	-0.3158***	-0.3193***
	(-5.6873)	(-5.5187)	(-6.7803)	(-7.5050)
Net working capital $_{i,t}$	-0.0691***	-0.0111	-0.0822***	-0.0189
	(-2.9471)	(-0.5487)	(-3.1270)	(-0.8833)
R&D expenditure $_{i,t}$	-0.0055	-0.0065	-0.1252	-0.3681***
	(-0.0255)	(-0.0579)	(-0.6016)	(-2.9757)
Capital expenditure $_{i,t}$	-1.3402***	-1.7267***	-1.0921***	-1.2603***
	(-7.4215)	(-6.2477)	(-5.6428)	(-4.1402)
Market-to-book value $_{i,t}$	0.0019**	0.0007	0.0026***	0.0008
	(2.0474)	(0.7713)	(2.6850)	(0.8149)
Acquisition $_{i,t}$	-1.2830***	-1.8208***	-1.0591***	-1.3987***
	(-11.1727)	(-14.1062)	(-9.2880)	(-10.7681)
Growth $_{i,t}$	0.0067***	0.0070***	0.0073***	0.0092***
	(3.0130)	(3.4649)	(2.8082)	(4.5085)
State unemployment rate $_{i,t}$	-0.0122	0.0054	-0.0103	0.0029
	(-1.1604)	(0.3349)	(-0.9769)	(0.1755)
State GDP growth $_{i,t}$	0.0006	0.0055	0.0017	0.0041
	(0.1822)	(1.0227)	(0.5083)	(0.7460)
Constant	-1.5909***	-0.7545**	-1.8592***	-1.5291***
	(-4.1522)	(-2.3340)	(-4.4739)	(-3.0962)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	48,417	25,105	48,417	25,105

Adj-R^2	0.6813	0.7375	0.7876	0.7538

Panel B. The effect of level of firm labor-intensity on the relationship between PML and cash holdings

Factor	Low	High	Low	High
	(1)	(2)	(3)	(4)
	Cash 1 $_{i,t+1}$	Cash 1 $_{i,t+1}$	Cash 2 $_{i,t+1}$	Cash 2 $_{i,t+1}$
Treat × Post $_{i,t}$	0.0208	-0.1714***	0.0166	-0.1937***
	(0.4234)	(-4.6174)	(0.3428)	(-5.0029)
Firm age $_{i,t}$	0.0536	-0.0016	0.0489	-0.0108
	(1.3148)	(-0.1136)	(1.0252)	(-0.6448)
IPO indicator $_{i,t}$	0.1203***	0.2289***	0.1519***	0.3295***
	(3.8092)	(6.6383)	(4.7051)	(8.9797)
Dividend indicator $_{i,t}$	-0.0219	-0.0501	-0.0382	-0.0146
	(-0.7433)	(-1.5878)	(-1.2907)	(-0.4593)
Firm size $_{i,t}$	-0.2430***	-0.1832***	-0.1239***	0.0104
	(-10.1148)	(-8.1395)	(-5.0087)	(0.4177)
Cash flow $_{i,t}$	0.0146	-0.0006	-0.0131	-0.0869***
	(0.5450)	(-0.0279)	(-0.5486)	(-3.2652)
Leverage $_{i,t}$	-0.1874***	-0.2851***	-0.2932***	-0.3357***
	(-4.0738)	(-7.1948)	(-6.3543)	(-7.8926)
Net working capital $_{i,t}$	-0.0440*	-0.0355*	-0.0703***	-0.0210
	(-1.9263)	(-1.6790)	(-2.6306)	(-0.9890)
R&D expenditure $_{i,t}$	-0.0091	-0.1497	0.1262	-0.5276***
	(-0.0158)	(-1.5209)	(0.2506)	(-4.6915)
Capital expenditure $_{i,t}$	-1.3848***	-1.4941***	-1.0797***	-1.1870***
	(-7.1289)	(-6.3099)	(-5.1804)	(-4.5486)
Market-to-book value $_{i,t}$	0.0017	0.0011	0.0021*	0.0017**
	(1.4371)	(1.3795)	(1.7523)	(2.0381)
Acquisition $_{i,t}$	-1.1683***	-1.6808***	-0.8957***	-1.3421***
	(-7.9874)	(-16.6786)	(-6.0736)	(-13.5985)
Growth $_{i,t}$	0.0021	0.0103***	0.0027	0.0117***
	(0.9439)	(4.9985)	(1.1553)	(5.3680)
State unemployment rate $_{i,t}$	-0.0109	0.0016	-0.0060	-0.0009
	(-0.9151)	(0.1310)	(-0.5094)	(-0.0736)
State GDP growth $_{i,t}$	-0.0044	0.0106**	-0.0020	0.0090**
	(-1.1480)	(2.5436)	(-0.5177)	(2.0858)
Constant	-2.0620***	-0.4417	-2.1004***	-1.2425***
	(-2.9883)	(-1.5395)	(-2.6183)	(-3.6155)
Firm FE	Yes	Yes	Yes	Yes

Year FE	Yes	Yes	Yes	Yes
N	36,485	35,431	36,485	35,431
Adj-R^2	0.6850	0.7571	0.8014	0.7809

Note: This table presents the cross-sectional analysis. In Panel A, the sample firms are split into two groups: those in high labor intensity industries and those in low labor intensity industries. In Panel B, the sample is also split into two groups: those with a high labor intensity ratio and those with a low labor intensity ratio, based on the median of R&D expenditure scaled by total assets. t-statistics are based on standard errors robust to clustering by firm and are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

2.4.5 Robustness tests

To ensure the robustness of the conclusions drawn from the baseline regressions, I conduct several robustness checks with alternative measures of cash holdings, a placebo test, adopting an alternative DID method, sensitivity tests and entropy balancing.

2.4.5.1 Alternative measures of cash holdings

In the baseline regression, I measure cash holdings as the natural logarithm of cash and short-term investments to net assets (*cash1*) or the natural logarithm of cash and short-term investments to sales (*cash2*). To ensure the robustness of our primary findings, I examine the impact of PML enactment using three alternative cash holding measures: *Cash3* (the natural logarithm of cash and cash equivalents to total assets), *Cash4* (the ratio of cash and cash equivalents to total assets), and *Cash5* (the ratio of cash and cash equivalents to sales). As shown in Table 9, the coefficients of *Cash3* and *Cash5* are significant at the 1% level and *Cash4* is significant at the 5% level, underscoring a potent influence of PML enactment on corporate cash holdings. This analysis reinforces our primary findings, affirming that the observed relationship is inherent and not merely an artefact of the chosen measurement method.

Table 9. Analysis of the maternity leave effect with alternative measures of cash holdings

Factor	(1) Cash 3 $_{i,t+1}$	(2) Cash 4 $_{i,t+1}$	(3) Cash 5 $_{i,t+1}$
Treat × Post $_{i,t}$	-0.0702***	-0.0085**	-0.3195***
	(-2.9334)	(-2.1642)	(-2.9141)
Firm age $_{i,t}$	0.0194	-0.0007	0.0285*
	(1.2289)	(-0.4986)	(1.8659)
IPO indicator $_{i,t}$	0.1203***	0.0178***	0.3728***
	(6.1594)	(6.0124)	(3.6135)
Dividend indicator $_{i,t}$	-0.0456**	-0.0037	-0.0080
	(-2.4332)	(-1.4810)	(-0.1300)
Firm size $_{i,t}$	-0.1616***	-0.0234***	-0.1781***
	(-12.9953)	(-10.5060)	(-2.8317)
Cash flow $_{i,t}$	0.0210**	0.0024	-0.1492**
	(2.0648)	(1.2851)	(-2.3364)
Leverage $_{i,t}$	-0.1609***	-0.0226***	-0.4227***
	(-8.0997)	(-6.8347)	(-3.2298)
Net working capital $_{i,t}$	-0.0258***	-0.0031*	0.0375
	(-2.7280)	(-1.8150)	(0.6263)
R&D expenditure $_{i,t}$	-0.0442	-0.0098	-1.8344***
	(-0.7550)	(-0.7431)	(-3.1203)
Capital expenditure $_{i,t}$	-1.0396***	-0.1818***	-0.7629
	(-8.2807)	(-10.8113)	(-1.4271)
Market-to-book value $_{i,t}$	0.0014***	0.0002***	0.0042
	(2.7982)	(2.7442)	(1.3168)
Acquisition $_{i,t}$	-1.2471***	-0.1906***	-0.7979***
	(-16.2916)	(-21.2695)	(-4.0139)
Growth $_{i,t}$	0.0048***	0.0009***	0.0155***
	(5.1916)	(5.2065)	(2.6313)
State unemployment rate $_{i,t}$	-0.0056	-0.0007	-0.0480*
	(-0.7488)	(-0.7252)	(-1.7695)
State GDP growth $_{i,t}$	0.0031	0.0001	0.0097
	(1.2717)	(0.4621)	(0.9808)
Constant	-1.7717***	0.3538***	2.1753***
	(-6.4442)	(13.5579)	(5.1884)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	Firm
N	78,436	78,436	75,939
Adj-R^2	0.7184	0.7761	0.5662

Note: The table presents the results of panel OLS regressions using alternative measures of cash holdings. The dependent variables are Cash 3 (ln (cash/total assets)), Cash4 (cash/total assets), and Cash5 (cash/sales), and the key variable of interest is *Treat* × *Post*. The control variables are the same as in the baseline regression as defined in Table 3. The t-statistics based on standard errors robust to clustering by firm and are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

2.4.5.2 An alternative method for the difference in differences setting

Recent studies identify a persistent issue associated with two-way fixed effect (TWFE) DID regressions: the emergence of “forbidden comparisons.” These problem comparisons, often involving later-treated groups being compared with earlier-treated groups, can lead to various issues, including a flipping sign coefficient because of the "negative weighting" problem (Roth et al., 2023). This phenomenon not only compromises the integrity of regression outcomes but can potentially significantly distort the findings. To address the issue of “forbidden comparisons”, I adopt an alternative estimator introduced by Borusyak et al. (2021). This pioneering approach strategically sidesteps the problem by imputing counterfactuals and calculating treatment effects exclusively from untreated observations, effectively avoiding distortions from “forbidden comparisons.”

As demonstrated in Table 10, which presents the results derived from this alternative approach, the coefficients of the interaction term Treat × Post are negative and maintain significance at the stringent 1% level across all columns. This pattern aligns harmoniously with the baseline regression outcomes, thereby offering a robust endorsement of the initial findings. The inclusion of firm fixed effects, year fixed effects and control variables helps to further strengthen the overall reliability and credibility, reinforcing the trustworthiness of the conclusions drawn from the initial analysis.

Table 10. The results using an alternative DID estimator

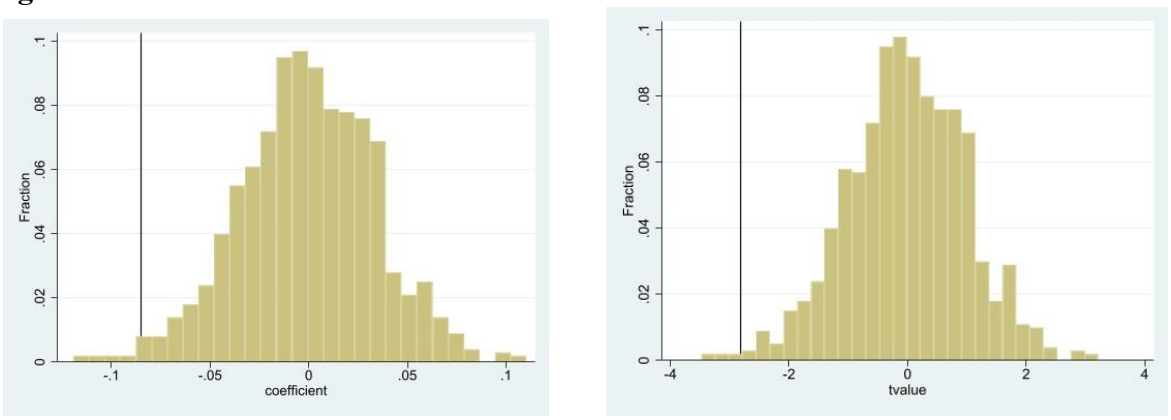
Factor	(1) Cash1 $_{i,t+1}$	(2) Cash1 $_{i,t+1}$	(3) Cash2 $_{i,t+1}$	(4) Cash2 $_{i,t+1}$
Treat $_i$ × Post $_{i,t}$	-0.1590***	-0.1161***	-0.2227***	-0.1776***
	(-4.0526)	(-3.2649)	(-5.5409)	(-4.8371)
Firm age $_{i,t}$		0.0298		0.0320
		(1.3899)		(1.3987)
IPO indicator $_{i,t}$		0.1526***		0.2179***
		(5.8268)		(8.2906)
Dividend indicator $_{i,t}$		-0.0375		-0.0217
		(-1.5807)		(-0.8924)
Firm size $_{i,t}$		-0.2334***		-0.0777***
		(-12.4846)		(-3.8813)
Cash flow $_{i,t}$		0.0177		-0.0393**
		(1.2137)		(-2.0219)
Leverage $_{i,t}$		-0.1989***		-0.3268***
		(-7.0709)		(-8.9847)
Net working capital $_{i,t}$		-0.0327**		-0.0547***
		(-2.3284)		(-2.8854)
R&D expenditure $_{i,t}$		-0.1100		-0.3693***
		(-1.0907)		(-2.8141)
Capital expenditure $_{i,t}$		-1.4588***		-1.0639***
		(-9.3436)		(-6.0560)
Market-to-book value $_{i,t}$		0.0018**		0.0018**
		(2.4715)		(2.3318)
Acquisition $_{i,t}$		-1.4483***		-1.1679***
		(-15.2198)		(-12.2660)
Growth $_{i,t}$		0.0060***		0.0066***
		(4.3836)		(3.7895)
State unemployment rate $_{i,t}$		-0.0003		0.0053
		(-0.0312)		(0.5183)
State GDP growth $_{i,t}$		0.0028		0.0017
		(0.9032)		(0.5752)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	Firm	Firm
N	78,266	78,266	75,802	75,802

Note: This table presents the results of panel OLS regressions using an alternative DID estimator suggested by Borusyak et al. (2021). The dependent variables are Cash1(ln (cash/net assets)) and Cash2 (ln (cash/sales)), and the key variable of interest is *Treat* × *Post*. The control variables are the same as in baseline regression, as defined in Table 3. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

2.4.5.3 Placebo tests

To validate the results against anomalies from other state-based events, I conduct a placebo test. Instead of using the actual assignment of firms to treatment and control groups, I randomize their assignment, reallocating firms to states different from their actual location. After creating this placebo sample, I re-estimate our baseline model. For a comprehensive analytical depth, I repeat this procedure (random assignment followed by regression analysis), 1,000 times. From these iterations, I collect a wealth of data characterized by a range of coefficient estimates and t-statistics, as illustrated in Figure 1. The distributions show that the coefficients and t-values center around the value of zero, with the vertical lines in the figures showing the estimated coefficient and t-statistics from the baseline regression using the correct firm headquarter location. The figures indicate that the original results are unlikely to be mere serendipity, underscoring the robustness and reliability of the conclusions reached from the baseline model.

Figure 1. Placebo test



(a) Pseudo *vs* true coefficient (b) Pseudo *vs* true *t*-value

Note: The histograms show the results of a placebo test where (a) and (b) plot the coefficients and *t*-values of 1,000 estimates of *Treat* × *Post,* respectively, constructed by random assignment of the *Treat* × *Post* variable across firms. The true coefficient and t-values from the baseline regression using *Cash1* as the dependent variable are -0.0851 and -2.8153, respectively.

2.4.5.4 Sensitivity Analysis

To further scrutinize the robustness of the findings, I conduct a sensitivity analysis. First, I substitute the year fixed effects with industry × year fixed effects in the baseline regression estimations, with industries classified by their 2-digit SIC. Secondly, I rerun the regressions by clustering the standard errors by state, rather than by firm. The first two columns in Table 11 present the regression results using these higher order fixed effects. The last two columns show the baseline results hold when clustering the standard errors by state. In all cases, the coefficients of the interaction terms remain significant, underscoring the consistency of the results and further supporting the finding that the enactment of PML notably decreases corporate cash holdings. This analysis further buttresses the primary finding, echoing the consequential impact of PML enactment on the financial strategies adopted by corporations.

Table 11. Sensitivity analysis using industry × year fixed effects

Factor	(1) $Cash1_{i,t+1}$	(2) $Cash2_{i,t+1}$	(3) $Cash1_{i,t+1}$	(4) $Cash2_{i,t+1}$
$Treat_i \times Post_{i,t}$	-0.0834***	-0.1182***	-0.0860**	-0.1297***
	(-2.6941)	(-3.8825)	(-2.1770)	(-2.8808)
Firm age $_{i,t}$	0.0192	0.0171	0.0171	0.0167
	(1.0123)	(0.8327)	(0.8319)	(0.9432)
IPO indicator $_{i,t}$	0.1372***	0.2284***	0.1636***	0.2422***
	(5.6531)	(9.3904)	(5.8615)	(9.4345)
Dividend indicator $_{i,t}$	-0.0385*	-0.0199	-0.0484**	-0.0321
	(-1.7214)	(-0.8967)	(-2.4849)	(-1.5405)
Firm size $_{i,t}$	-0.2057***	-0.0380**	-0.2151***	-0.0421
	(-12.3023)	(-2.1416)	(-11.0290)	(-1.3388)
Cash flow $_{i,t}$	0.0233	-0.0449**	0.0221	-0.0470**
	(1.6267)	(-2.4722)	(1.4421)	(-2.1858)
Leverage $_{i,t}$	-0.2035***	-0.3259***	-0.2081***	-0.3370***
	(-7.7290)	(-10.1860)	(-7.1691)	(-13.1034)
Net working capital $_{i,t}$	-0.0293**	-0.0445***	-0.0295**	-0.0457***
	(-2.2362)	(-2.6964)	(-2.1703)	(-2.8913)
R&D expenditure $_{i,t}$	-0.0679	-0.3942***	-0.0941	-0.4111***
	(-0.7655)	(-3.6121)	(-1.0862)	(-3.4195)
Capital expenditure $_{i,t}$	-1.4704***	-1.1730***	-1.5155***	-1.1720***
	(-9.5855)	(-6.8929)	(-8.8583)	(-6.5821)
Market-to-book value $_{i,t}$	0.0019***	0.0014**	0.0020***	0.0014**
	(2.7526)	(1.9730)	(3.7107)	(2.2297)
Acquisition $_{i,t}$	-1.6251***	-1.2777***	-1.5909***	-1.2337***
	(-18.9004)	(-14.8863)	(-11.1956)	(-11.0330)
Growth $_{i,t}$	0.0068***	0.0076***	0.0068***	0.0077***
	(5.2413)	(4.9518)	(6.9755)	(5.4494)
State unemployment rate $_{i,t}$	-0.0039	-0.0049	-0.0070	-0.0084
	(-0.4189)	(-0.5426)	(-0.7317)	(-0.6927)
State GDP growth $_{i,t}$	0.0057*	0.0032	0.0036	0.0022
	(1.9343)	(1.0997)	(1.0453)	(0.6861)
Constant	-1.2095***	-1.7751***	-1.0924***	-1.7133***
	(-3.5999)	(-4.7762)	(-3.1355)	(-6.0369)
Firm FE	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	Yes

Industry × year FE	Yes	Yes	No	No
Cluster s.e.	Firm	Firm	State	State
N	76,684	74,308	76,748	74,381
Adj-R^2	0.7521	0.7912	0.7422	0.7817

Note: This table reports panel OLS regressions results where industry x year fixed effects are used. The dependent variables are Cash1(ln (cash/net assets)) and Cash2 (ln (cash/sales)) and the key variable of interest is Treat × Post. Control variables are the same as in baseline regression, as defined in Table 3. The t-statistics based on standard errors robust to clustering by firm or clustering by state are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

2.4.5.5 Entropy balancing

It is possible that underlying differences in firm characteristics between the treatment and control groups drive the baseline results. To address this problem, following Hainmueller and Xu (2013), I adjust the weights of the covariates in the control group using entropy balancing so that the moments of the covariate distributions are balanced between the two groups. Table 12 displays the results with Panel A setting moment constraints for the first-order moments, Panel B for the first and second-order moments, and Panel C for third order moments. Three moments before balancing are shown in Panel A. Table 12 suggests that the entropy balancing procedure successfully adjusts means, variances, and skewness of the covariates in the control firms, thereby offering a balanced sample to examine the effects of PML

Table 13 presents the DID results from a balanced sample achieved through entropy balancing. The regression results are consistent with those from the unbalanced sample, though the inclusion of higher-order moments in the analysis results in a slight reduction in the significance levels of the coefficients.

Table 12. Entropy Balancing Results.

Panel A: Only the first moments are adjusted

Before balancing:	**Treat**			**Control**		
	mean	variance	skewness	mean	variance	skewness
Firm age	15.8500	185.4000	1.3130	17.5400	239.7000	1.1600
IPO indicator	0.1058	0.0946	2.5640	0.1088	0.0970	2.5130
Dividend indicator	0.3482	0.2270	0.6372	0.5121	0.2499	-0.0485
Firm size	5.2480	6.8600	-0.1845	5.8430	6.6070	-0.5938
Cash flow	-0.2692	2.0770	-8.3440	-0.2001	2.1130	-8.7590
Leverage	0.2862	0.5342	7.7770	0.3279	0.5447	7.7460
Net working capital	-0.2191	3.0360	-9.3780	-0.1834	2.7920	-9.8230
R&D expenditure	0.0988	0.0392	3.6620	0.0426	0.0230	6.0330
Capital expenditure	0.0362	0.0028	3.6340	0.0458	0.0045	3.1130
Market-to-book value	3.0600	97.2300	0.7547	2.4840	84.5600	0.6547
Acquisition	0.0173	0.0027	3.9780	0.0181	0.0028	3.9060
Growth	3.8520	143.0000	9.8830	3.6710	185.7000	9.4460
State unemployment rate	5.9940	4.0340	1.0320	5.5560	3.6330	1.1590
State GDP growth	2.3880	6.4110	-0.1464	2.0140	6.2540	-0.6652
After balancing	**Treat**			**Control**		
	mean	variance	skewness	mean	variance	skewness
Firm age	15.8500	185.4000	1.3130	15.8500	200.5000	1.3590
IPO indicator	0.1058	0.0946	2.5640	0.1058	0.0946	2.5640
Dividend indicator	0.3482	0.2270	0.6372	0.3482	0.2270	0.6371
Firm size	5.2480	6.8600	-0.1845	5.2480	6.9450	-0.3944
Cash flow	-0.2692	2.0770	-8.3440	-0.2693	1.8440	-7.8260
Leverage	0.2862	0.5342	7.7770	0.2862	0.4131	8.2580
Net working capital	-0.2191	3.0360	-9.3780	-0.2191	2.9000	-9.3340
R&D expenditure	0.0988	0.0392	3.6620	0.0988	0.0671	3.4490
Capital expenditure	0.0362	0.0028	3.6340	0.0362	0.0026	3.3990
Market-to-book value	3.0600	97.2300	0.7547	3.0600	110.6000	1.2570
Acquisition	0.0173	0.0027	3.9780	0.0173	0.0027	3.9940
Growth	3.8520	143.0000	9.8830	3.8530	143.7000	9.5840
State unemployment rate	5.9940	4.0340	1.0320	5.9940	4.7190	1.0220
State GDP growth	2.3880	6.4110	-0.1464	2.3880	6.4810	-0.3271

Panel B: The first and second moments are adjusted

After balancing	Treat			Control		
	mean	variance	skewness	mean	variance	skewness
Firm age	15.8500	185.4000	1.3130	15.8500	185.4000	1.3070
IPO indicator	0.1058	0.0946	2.5640	0.1058	0.0946	2.5640
Dividend indicator	0.3482	0.2270	0.6372	0.3482	0.2270	0.6371
Firm size	5.2480	6.8600	-0.1845	5.2480	6.8600	-0.3206
Cash flow	-0.2692	2.0770	-8.3440	-0.2692	2.0770	-8.4740
Leverage	0.2862	0.5342	7.7770	0.2862	0.5343	8.0220
Net working capital	-0.2191	3.0360	-9.3780	-0.2191	3.0360	-9.2690
R&D expenditure	0.0988	0.0392	3.6620	0.0988	0.0392	2.8470
Capital expenditure	0.0362	0.0028	3.6340	0.0362	0.0028	3.6400
Market-to-book value	3.0600	97.2300	0.7547	3.0600	97.2300	1.0560
Acquisition	0.0173	0.0027	3.9780	0.0173	0.0027	3.9620
Growth	3.8520	143.0000	9.8830	3.8530	143.0000	9.7340
State unemployment rate	5.9940	4.0340	1.0320	5.9940	4.0340	0.9179
State GDP growth	2.3880	6.4110	-0.1464	2.3880	6.4110	-0.0661

Panel C: All moments adjusted

After balancing	Treat			Control		
	mean	variance	skewness	mean	variance	skewness
Firm age	15.8500	185.4000	1.3130	15.8500	185.4000	1.3130
IPO indicator	0.1058	0.0946	2.5640	0.1058	0.0946	2.5640
Dividend indicator	0.3482	0.2270	0.6372	0.3482	0.2270	0.6371
Firm size	5.2480	6.8600	-0.1845	5.2480	6.8600	-0.1846
Cash flow	-0.2692	2.0770	-8.3440	-0.2692	2.0770	-8.3430
Leverage	0.2862	0.5342	7.7770	0.2862	0.5343	7.7770
Net working capital	-0.2191	3.0360	-9.3780	-0.2191	3.0360	-9.3780
R&D expenditure	0.0988	0.0392	3.6620	0.0988	0.0392	3.6620
Capital expenditure	0.0362	0.0028	3.6340	0.0362	0.0028	3.6340
Market-to-book value	3.0600	97.2300	0.7547	3.0600	97.2300	0.7546
Acquisition	0.0173	0.0027	3.9780	0.0173	0.0027	3.9780
Growth	3.8520	143.0000	9.8830	3.8530	143.0000	9.8820
State unemployment rate	5.9940	4.0340	1.0320	5.9940	4.0340	1.0320
State GDP growth	2.3880	6.4110	-0.1464	2.3880	6.4110	-0.1464

Note: This table presents entropy balancing results. Panel A reports the results where only the first moment of the variables of control firms are adjusted. Panel B reports the results where the first and second moments of the variables of control firms are adjusted. Panel C reports the results where all three moments of the variables of control firms are adjusted.

Table 13. The effect of paid maternity leave on cash holdings, balanced sample

Factor	(1) $Cash2_{i,t+1}$	(2) $Cash2_{i,t+1}$	(3) $Cash2_{i,t+1}$
$Treat_i \times Post_{i,t}$	-0.0958***	-0.0807***	-0.0704**
	(-3.1598)	(-2.6481)	(-2.3011)
Firm age $_{i,t}$	0.0116	0.0074	0.0051
	(0.5528)	(0.3535)	(0.2512)
IPO indicator $_{i,t}$	0.2627***	0.2764***	0.2768***
	(9.9586)	(10.1438)	(9.8235)
Dividend indicator $_{i,t}$	-0.0342	-0.0268	-0.0313
	(-1.4148)	(-1.0532)	(-1.2423)
Firm size $_{i,t}$	-0.0034	-0.0089	-0.0029
	(-0.1756)	(-0.4357)	(-0.1378)
Cash flow $_{i,t}$	-0.0431*	-0.0464**	-0.0456**
	(-1.9043)	(-2.1568)	(-2.0350)
Leverage $_{i,t}$	-0.3557***	-0.3386***	-0.3454***
	(-10.1900)	(-9.2025)	(-10.3182)
Net working capital $_{i,t}$	-0.0525***	-0.0465**	-0.0548***
	(-2.7082)	(-2.5395)	(-2.9282)
R&D expenditure $_{i,t}$	-0.2834**	-0.3908***	-0.3783***
	(-2.3402)	(-3.3634)	(-3.3435)
Capital expenditure $_{i,t}$	-1.3776***	-1.2993***	-1.2295***
	(-7.6278)	(-7.1602)	(-6.6854)
Market-to-book value $_{i,t}$	0.0016**	0.0020**	0.0017**
	(2.0647)	(2.4272)	(2.2634)
Acquisition $_{i,t}$	-1.2950***	-1.3338***	-1.3507***
	(-14.5221)	(-14.9439)	(-15.0115)
Growth $_{i,t}$	0.0117***	0.0104***	0.0105***
	(6.2590)	(5.7633)	(5.7212)
State unemployment rate $_{i,t}$	-0.0059	-0.0075	-0.0043
	(-0.5860)	(-0.7000)	(-0.3945)
State GDP growth $_{i,t}$	0.0057*	0.0046	0.0057
	(1.6967)	(1.3569)	(1.6377)
Constant	-1.7249***	-1.5400***	-1.5254***
	(-4.7823)	(-4.2630)	(-4.3558)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	State
N	75,939	75,939	75,939
Adj-R^2	0.7870	0.7891	0.7874

Note: This table presents the baseline DID results with the balanced sample. The dependent variables are Cash2 (ln (cash/sales)), and the key variable of interest is Treat × Post. All the other variables are defined in Table 3. The t-statistics are based on standard errors robust to clustering by firm are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

2.5 Conclusion

In this chapter, I investigate the impact of mandatory state-level PML on corporate cash holdings. Using a sample of 78,436 firm-year observations from 8,059 unique firms, I show that state-based PML policies significantly reduce corporate cash holdings. This impact is more pronounced for labor-intensive firms and industries. The findings validate employee productivity as a significant underlying mechanism in this reduction. It appears that the enactment of PML policies improves workforce productivity, thereby diminishing the precautionary motive that typically necessitates having substantial cash holdings. As employee productivity increases, firms see less need to maintain high cash reserves, signaling a change in corporate financial strategy.

To ensure the robustness of these findings, I undertake multiple tests. First, I expand the study's scope by analyzing the impact of PML enactment across three alternative cash holding measures. Secondly, to address the concern of "forbidden comparisons", I use an alternative staggered DID estimator, as suggested by Borusyak et al. (2021). Thirdly, I conduct a placebo test by assigning firms randomly to states that are not their original location and repeating the baseline regression tests a thousand times. Fourthly, I do a sensitivity analysis using industry × year fixed effects or clustering the standard errors at the state level. Lastly, to address potential differences in the characteristics of firms in the treatment and control groups, I adjust the weights of the covariates in the control group through entropy balancing and then

rerun the primary regression tests. Consistently, all these tests reinforce the study's initial findings.

This study offers several contributions. First, it investigates the underexplored relationship between PML laws and corporate cash holdings. Next, it merges the oft-separated areas of finance and management, addressing crucial topics that have typically not been linked. It offers practical data for businesses and policymakers about cash strategies in the context of PML policies. Finally, for investors and potential stakeholders, the study provides a clear view of how changes in cash holdings because of PML policies might influence corporate risks, including refinancing risk (Harford et al., 2014), liquidity (Huang and Mazouz, 2018), and opportunity costs (Kim and Bettis, 2014).

Chapter 3. Do Paid Maternity Leave Mandates Affect Dividend Payout Ratios?

Abstract

This study investigates the effects of paid maternity leave (PML) laws on corporate dividend payout ratios. Using a difference-in-differences methodology based on the staggered adoption of PML laws across U.S. states, I observe that the enactment of these laws leads to a notable rise in both dividend payout ratios and the propensity to make dividend payments. This trend is particularly pronounced in firms with high labor intensity and significant agency problems. Channel analysis highlights that, as labor productivity improves because of these policies, firms tend to raise their dividend payouts, given the higher operational efficiency. This study offers invaluable insights for investors into dividend payout changes and highlights stakeholder policies' financial impacts.

3.1 Introduction

Recently, there has been a noticeable increase in the number of women participating in the global workforce. Globally, the percentage of mothers engaged in work has increased from 63% in 2002 to 71% in 2019 (ILO, 2023). Individual countries also exhibit this pattern, e.g., the U.K. reported a 9.1% increase from 2002 to 2021 (Murphy, 2022); Australia noted a 10% growth over two decades (Statistics, 2021); and U.S. saw rates rise from 34% in 1976 to 72.5% in 2020 (BLS, 2022).

As more women join the workforce, discussions on paid maternity leave (PML) policies has become increasingly prominent. Many industrialized countries, acknowledging the numerous advantages, have implemented PML policies for at least 12 weeks leave (Magarino, 2022). The U.S., however, is an outlier (Son and Böger, 2021, Van Niel et al., 2020). Though the 1993 Family Medical Leave Act provides American women with up to 12 weeks of unpaid leave, progress at the state-level has led, by 2021, to only 10 U.S. states and districts having enacted PML laws.[6]

The implications of PML are profound. Economically, it stabilizes family incomes (Chatterji et al., 2011) and encourages higher female labor participation that, in turn, can impact wage dynamics (Bassanini and Venn, 2008). Less reliance on public aid also becomes a significant advantage. For businesses, the benefits of PML extend beyond just economic ones. Implementing such policies can lead to enhanced productivity and better employee retention, ultimately resulting in cost savings (Berger and Waldfogel, 2004). Firms with PML have a

[6] California (June 2002); New Jersey (April 2008); Rhode Island (June 2013); New York (April 2016); District of Columbia (December 2016); Washington (June 2017); Massachusetts (June 2018), Connecticut (June 2019); Oregon (June 2019) Colorado (November 2020). Enactment dates sourced from websites of the National Conference of State Legislatures, Employment Development Department of California, Ogletree Deakins, Reporter today, Vox, Office of Human Rights in D.C., Washington House Democrats, Land and the Workplace, Connecticut House Democrats, Jackson Lewis, and Colorado FAMLI.

competitive edge in attracting top female talent (Liu et al., 2023). An especially intriguing insight is the potential link between PML and increased corporate innovation (Lim, 2021). Given the comprehensive benefits and implications for the labor market and corporate sector, it is essential to delve deeper into understanding how PML influences corporate decision-making, especially in the financial domain such as dividend decisions.

Researchers have exhaustively examined the determinants of dividend policy, putting factors like dividend yield, dividend payout ratio, and the propensity to pay dividends at the forefront of the discussion. However, the diverse findings across various studies leave much room for interpretation. For instance, researchers have scrutinized past dividends as a determinant of dividend policy since the 1950s, with Lintner (1956) pioneering this investigation. However, researchers find mixed results in the area. For instance, whereas Yusof and Ismail (2016) find that previous dividends do not play a significant role in influencing the dividend payout ratio in Malaysia, Al-Kayed (2017) underscores their pivotal influence on dividend policies in Saudi Arabia. Al-Kayed (2017) also identifies several determinants, including profitability, liquidity, leverage, growth, and past dividends, that negatively impact dividend yield among conventional banks. In contrast, studies by Boţoc and Pirtea (2014) and Yusof and Ismail (2016) identify profitability and liquidity as primary factors, with the latter study additionally emphasizing the role of past dividends.

When delving into the relationship between employee-related policies and dividend payout decisions, existing research offers a mosaic of diverse outcomes. Saeed (2021) argues that, in emerging markets, dividend payments are inversely related to employee-friendly practices. This suggests that firms might prioritize future investments over immediate payouts. Conversely, Benlemlih (2019) investigated the wider scope of corporate social responsibility in U.S. firms, which includes employee rights, and reveals a positive correlation between

employee rights and dividend payments. However, a study by Cheung et al. (2018) on corporate social responsibility has an absence of any significant correlation between firm-employee relationships and dividend payments for U.S. firms. A notable gap in these studies is the specific role of PML policies in the larger framework of employee-friendly practices, especially their effect on dividend payout decisions; existing research scarcely touches this pivotal issue. This study aims to bridge the gap by exploring the potential effects of mandatory PML policies on corporate dividend strategies.

To investigate a potential link between state-level PML policies and corporate dividend payout ratios, I use a DID approach, focusing on the staggered enactment of these policies by U.S. states. I use an extensive dataset for my research, encompassing 76,566 firm-year observations from 7,881 firms from 1999 to 2021. The findings are clear: firms tend to increase their dividend payout ratio following the enactment of state-level PML policies. Specifically, policy implementation leads to a 12.12% rise in the dividend payout ratio, compared with the average ratio. This trend remains across various robustness tests. Further insights reveal that the correlation is stronger for labor-intensive firms and for firms experiencing a significant agency problem. When examining the relationship between PML and dividend payout ratios, it is evident that employee productivity plays a crucial role. There is a clear indication that improved labor productivity—potentially influenced by PML policies—motivates firms to distribute a higher dividend. The increased dividend reflects firms' enhanced operational performance.

This chapter makes several contributions to knowledge. First, it examines the under-explored relationship between PML policy and the dividend payout ratio. The study highlights that, as states adopt PML policies, there's a notable influence on corporate dividend decisions. By uncovering this connection, the study not only enriches current understanding of PML's

impact but also paves the way for more in-depth exploration on how employee welfare policies might intersect with corporate financial strategies.

Secondly, this study bridges the finance and management disciplines, two fields often viewed separately. Management studies typically focus on the outcomes of employee-friendly policies, highlighting their impact on employee satisfaction (Shruti et al., 2014), loyalty (Roehling et al., 2001), and turnover intentions (Batt, 2002). The finance literature delves into how such practices influence areas like productivity (Darrough et al., 2019), performance (Gupta and Krishnamurti, 2020), innovation efficiency (Mao and Weathers, 2019) and firm value (Fauver et al., 2018). This study stands out by showing how PML policies can influence dividend payouts, mainly by boosting labor productivity. In doing so, it creates a unique intersection between management and finance.

Thirdly, beyond its academic significance, this study has crucial real implications. It provides firms and policymakers with tangible data, guiding their choice over dividend policies, especially in an environment influenced by paid leave laws. For investors and corporate stakeholders, this study sheds light on subtle changes in dividend decisions because of the adoption of PML policies.

The structure of this chapter is as follows. Section 2 presents a literature review and develops the hypothesis. Section 3 describes the sample, data and model used in the analysis. Section 4 reports the empirical results and section 5 concludes the chapter.

3.2 Literature review and hypothesis development

The relationship between PML and corporate dividend payout ratios has been the subject of various studies that present different perspectives. One argument posits a positive correlation, suggesting that PML leads to an increase in dividend payments by firms. The logic

behind this idea is twofold. First, PML may result in increased internal funds because of higher employee productivity, thereby giving firms more leeway to distribute profits to shareholders in the form of dividends. The foundation theory for this is the Stakeholder Theory (Donaldson and Preston, 1995), which asserts that equitable treatment of employees heightens their commitment and loyalty. This increased loyalty can manifest in several beneficial ways. For example, a committed workforce tends to have a lower turnover rate (Batt, 2002), leading to reduced recruitment and training costs. Gellatly (1995) points out that employee commitment is inversely related to absenteeism, which can be a significant drain on company resources. Employees who feel valued are also more likely to align with corporate policies and safeguard the firm's assets, reducing the risk of resource misappropriation (Whitener, 2001). The strategic adoption of employee welfare policies, including PML, may therefore not only be seen as a benevolent move but as a calculated strategy to increase productivity (Darrough et al., 2019). This, in turn, can create more stable and predictable income streams for the firm (Edmans, 2012). This stability is crucial because it provides the financial consistency required to maintain and potentially increase dividend payments to shareholders. Empirical studies, such as that by Jan-Emmanuel De et al. (2019), have shown that PML policies can enhance both productivity and profitability. Higher profitability can lead to an increased capacity to pay dividends (Aivazian et al., 2003, Chang and Rhee, 1990, Ho, 2003). This is because, as firms become more profitable, they have more funds available to reward shareholders, which can be a critical in the decision to increase dividend payout ratios. The above arguments suggest that firms may increase dividend payout ratios.

The argument against PML posits that its implementation might lead to a decreased dividend payout ratio because of increased operational costs. When employees take maternity leave, the firm may need to hire temporary workers or pay overtime to existing staff, leading

more expense. These costs, which include recruitment, training, and additional remuneration, could lead firms to retain excess cash to mitigate the financial risks associated with such operational disruptions (Cui et al., 2018). Moreover, the financial responsibilities that come with maternity leave, which are often managed through social security systems or private insurance schemes, can be substantial. These schemes often involve advance premium collections from employers and employees (Deng et al., 2022). Managing these premiums necessitates a careful approach to financial planning, with firms needing to ensure that they have sufficient cash reserves to cover these obligations as they arise. According to the precautionary motive for cash holdings (Keynes, 1936), firms may opt to hold larger cash reserves as a buffer against the financial uncertainties that PML might introduce. With more cash tied up in reserves, there may be less available for distribution to shareholders. This conservative approach to financial management, aimed at safeguarding the company's liquidity, could thus result in a reduced dividend payout ratio. In light of these financial considerations, firms might prioritize maintaining liquidity and financial flexibility over distributing excess funds to shareholders. The cash preserved as a precaution against the additional costs and financial obligations of PML could otherwise have been allocated as dividends. These arguments suggest that the implementation of PML could decrease the dividend payout ratio.

From the above discussion, it is evident that there are compelling arguments on both sides. Though the labor productivity perspective postulates that PML will increase dividend payouts because of increased revenue, the operating costs viewpoint implies that the increased financial burden associated with PML might bolster cash reserves, thereby curtailing dividend distributions. Given these conflicting predictions, my hypothesis is written in null form:

H1: Paid maternity leave is not associated with changes in corporate dividend payout ratios.

3.3 Research design

3.3.1 The sample and data sources

This study uses a DID approach based on the staggered enactment of PML laws in U.S. states between 1999 and 2021. California is the pivotal reference, pioneering the policy in 2002. To ensure a comprehensive analysis, the study period starts three years before California's law enactment, providing valuable insights into the period before such policies were in place. The study divides firms into two distinct groups: the treatment group, comprising firms headquartered in states that had enacted PML laws by 2021 (see Table 14) and the control group, which includes firms in states without such laws by the end of 2021.

The data for this study come from two primary sources. The financial variables of U.S. publicly listed firms from 1999-2022 are from the CRSP/Compustat merged dataset. The historical location data of these firms' headquarters are from Bill McDonald's Website[7]. Additional data, such as state-level unemployment rates and GDP growth rates, are from the Bureau of Labor Statistics and the Bureau of Economic Analysis, respectively.[8] To ensure a balanced analysis, I winsorize all the continuous variables at the 1st and 99th percentiles.

The sample selection began with an expansive 125,428 firm-year observations from 13,181 U.S. listed firms from the Compustat dataset from 1999-2022. I then merge these with firms' headquarters' historical location in Bill McDonald's data. To ensure robust, trustworthy results, I exclude firms that, because of a change in their headquarters' location, change their stance on PML obligations. I also exclude firms that offered paid leave from their inception, because their data do not align with the DID approach. In line with established research practice (Bae et al., 2021, Ye et al., 2019), I exclude observations with missing or negative cash

[7] https://www3.nd.edu/~mcdonald/
[8] https://www.bea.gov/itable/

dividends. Finally, firms from the utilities (Standard Industrial Classification (SIC) codes 4900-4999) and financial sectors (SIC codes 6000–6999) are excluded. This rigorous selection process culminates in a sample of 76,566 firm-year observations, representing 7,881 distinct firms. Table 15 shows the process by which the final sample was generated.

Table 15. The construction of the sample

Factor	Number of unique firms	Number of firm-year observations
Initial sample	13,181	125,428
Merge with headquarter location data	-2,951	-27,927
Drop if headquarters relocated	-1,566	-12,632
Drop firms from utilities and financial industries	-783	-8,303
Final sample	7,881	76,566

Note: This table presents the process by which the final sample was constructed.

3.3.2 Measurement of the variables

Dependent variables: To ensure a comprehensive analysis, I use various measures to accurately represent payout ratios. In the baseline regressions, there are two primary measures of the dividend payout ratio. Following some previous studies (Desai and Jin, 2011, John et al., 2011, Nguyen and Qiu, 2022), the first is cash dividends scaled by the market value of equity (Dividend_mv). To comprehensively capture a firm's payout policy, I also consider share repurchase. The second measure is cash dividends plus share repurchases scaled by the market value of equity (Tdividend_mv). Following several studies (Fama and French, 2001, Floyd et al., 2015), I calculate the net repurchases by subtracting the shares issued for employee stock option programs, acquisitions, and other purposes from the total share purchases. Specifically, I measure repurchases as the increase in common treasury stock (tstkc) if a firm uses the treasury stock method for repurchases. If the firm uses the retirement method (which I infer

from the fact that treasury stock is zero in the current and prior year), I measure repurchases as the difference between stock purchases (prstkc) and stock issuances (sstk) from the cashflow statement. In instances where either of these amounts (the change in treasury stock or the difference between prstkc and sstk) is negative or missing, repurchases are set to zero. Table 16 presents the detailed information on two dependent variables.

Independent variables: I use the DID methodology, which involves using two primary indicator variables rooted in the staggered adoption of paid leave laws across 10 U.S. states and the historical location data of the target firms. The first variable, *Treat*, identifies whether a company is headquartered in one of the states that adopted paid leave policies by 2021. They are California, New Jersey, Rhode Island, New York, District of Columbia, Washington, Massachusetts, Connecticut, Oregon, and Colorado. The second variable, *Post*, determines if a state has implemented paid leave laws in a specific year under consideration. The key variable of interest in the regression analysis is the interaction term, *Treat* × *Post*, which indicates the relationship between PML and the dividend payout ratio. Table 16 presents the detailed information of *Treat* and *Post*.

Control variables: To facilitate a robust analysis, I use a set of firm- and state-level control variables: *Firm size*, *Leverage*, *Cash*, *ROA*, *Q*, *Tang*, *Retain*, *R&D expenditure*, *State unemployment rate*, and *State GDP growth*, commonly used in prior research examining cash holdings (Chay and Suh, 2009, John et al., 2011, Nguyen and Qiu, 2022, Saeed, 2021, Ye et al., 2019). The logarithm of sales (*Firm size*), the ratio of the sum of long-term debt and debt in current liabilities to net assets (*Leverage*), the ratio of cash to total assets (*Cash*), the ratio of earnings before interest and taxes to total assets (*ROA*), the ratio of market value of assets to book value of assets (*Q*), the ratio of the net value of property, plant, and equipment over total assets (*Tang*), the ratio of R&D expenditure to net assets (*R&D expenditure*), which equals 0 if

R&D data missing, and the ratio of retained earnings to book value of equity (*Retain*). State-level control variables are the state-level GDP unemployment rate (*State unemployment rate*) and the state-level GDP growth rate over the prior year (*State GDP growth*). Table 16 provides a full description of each variable used in the regressions and its source.

Table 16. Variable definitions.

Variable	Definition (Compustat items in brackets)	Source
Dependent variables		
Dividend_mv	Cash dividends scaled by the market value of equity. (dvc/ (prcc_f* csho))	Compustat
Tdividend_mv	Cash dividends plus share repurchase scaled by the market value of equity. ((dvc+*repurchase*)/ (prcc_f* csho))	Compustat
DID Indicators		
Treat	An indicator variable equal to one if the firm is in treatment group, and zero otherwise	Bill McDonald's website and policy information collected
Post	An indicator variable equal one if the firm implements the mandatory PML policy, and zero otherwise	
Control variables		
Firm size	Logarithm transformation of total assets (ln(at))	Compustat
Leverage	Ratio of long-term debt over book value of equity (dltt/ceq)	Compustat
Cash	Ratio of cash balance over total assets (ch/at)	Compustat
ROA	Ratio of earnings before interests and taxes over total assets (ebit/at)	Compustat
Q	Market value of assets divided by book value of assets ((csho*prcc_f + at –ceq)/at)	Compustat
Tang	Ratio of the net value of property, plant, and equipment over total assets (ppent/at)	Compustat
Retain	Ratio of retained earnings over book value of equity (re/ceq)	Compustat
R&D expenditure	Ratio of R&D expenditure to net assets (xrd/at, equals to zero if R&D is missing).	Compustat
State unemployment rate	The state-level GDP unemployment rate	U.S. Bureau of Labor Statistics
State GDP growth	The state-level GDP growth rate over the prior year	U.S. Bureau of Economic Analysis

3.3.3 Regression models

To investigate the relationship between PML and dividend payout, following Lim (2023), I use panel OLS regression with firm and year fixed effects:

$$Dividend_{i,t+1} = \beta_0 + \beta_1 Treat_i \times Post_{i,t} + \beta_2 Controls_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \qquad (1)$$

In model (1), *i* and *t* represent the firm and time, respectively, and *Dividend* is the dependent variable, representing the dividend payout ratio measures of the firm. *Treat* is an indicator determining if a firm's headquarters are in a treatment state; *Post* is an indicator determining if the state in which the firm is located has enacted the paid leave laws; and *Treat* × *Post* is the key variable of interest. *Controls* represents a set of firm- and state-level control variables. Finally, λ_i and μ_t represent firm and year fixed effects, respectively, and ε is the error term. The coefficient β_1 is crucial to hypothesis H1, with its significance and direction determining the empirical association between paid maternity leave policy and corporate dividend payment.

3.4 Empirical analysis

3.4.1 Descriptive statistics

Table 17 presents the summary statistics of the study variables. The mean and median of Dividend_mv for the sample firms are 0.0099 and 0.0000, respectively, underscoring that most firm-year observations do not have a distribution of cash dividends. For Tdividend_mv, the mean and median are 0.0217 and 0.0009, respectively. The mean of the variable *Treat* implies that around 41% of firm-year observations are in the treatment group. The mean of *Treat* × *Post* suggests that state-level PML policies affect 15% of firm-year observations. Table 18 displays the correlation matrix. This matrix draws a link between the introduction of paid maternity leave and the dividend payout ratios, Dividend_mv and Tdividend_mv, with a negative correlation emerging. Encouragingly, the relatively modest correlation coefficients

between other variables suggest the non-existence of multicollinearity issues. This initial assessment gains further weight with a thorough Variance Inflation Factor (VIF) test that probes deeply into any potential multicollinearity. It's heartening to note that all explanatory variables have VIF values under 6.29, well below the generally accepted cutoff value of 10, as recommended by Wooldridge (2002).

Table 17. The descriptive statistics of the analysis variables

Variable	Mean	SD	Min	Max	Median
Dividend_mv	0.0099	0.0215	0.0000	0.1645	0.0000
Tdividend_mv	0.0217	0.0410	0.0000	0.2664	0.0009
Treat	0.4137	0.4925	0.0000	1.0000	0.0000
Post	0.1468	0.3539	0.0000	1.0000	0.0000
Treat*Post	0.1468	0.3539	0.0000	1.0000	0.0000
Firm size	5.5050	2.6933	-3.4112	11.6839	5.8054
Leverage	0.5047	1.8316	-8.2113	11.5192	0.1741
Cash	0.1452	0.1906	0.0000	0.9741	0.0691
ROA	-0.2520	1.4999	-14.6333	0.3693	0.0288
Q	4.4798	17.0602	0.4299	180.4879	1.4465
Tang	0.2056	0.2280	0.0000	0.9601	0.1187
Retain	-0.3558	13.3056	-77.5990	83.1439	0.3335
R&D expenditure	0.0685	0.1843	0.0000	1.3948	0.0000
State unemployment rate	5.7404	1.9420	2.7000	11.7000	5.3000
State GDP growth	2.1794	2.4562	-5.0000	8.0000	2.2000

Note: This table presents descriptive statistics of the primary variables of the sample. The sample consists of 76,566 firm-year observations from 7,881 unique U.S. firms from 1999 to 2021. All continuous variables are winsorized at 1% and 99% of each variable's empirical distribution. All the variables are defined in Table 16.

Table 18. The correlation matrix of the variables

	Factor	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)	Dividend_mv	1.000												
(2)	Tdividend_mv	0.619	1.000											
(3)	Treat × Post	-0.031	-0.013	1.000										
(4)	Firm size	0.266	0.267	0.006	1.000									
(5)	Leverage	0.068	0.045	-0.026	0.169	1.000								
(6)	Cash	-0.150	-0.110	0.127	-0.361	-0.123	1.000							
(7)	ROA	0.100	0.110	-0.003	0.475	0.062	-0.208	1.000						
(8)	Q	-0.080	-0.084	-0.005	-0.415	-0.056	0.219	-0.766	1.000					
(9)	Tang	-0.074	-0.045	-0.122	0.059	0.060	-0.220	0.023	-0.027	1.000				
(10)	Retain	0.026	0.026	-0.031	0.001	-0.269	-0.071	-0.145	0.130	0.021	1.000			
(11)	R&D expenditure	-0.148	-0.144	0.113	-0.355	-0.093	0.360	-0.404	0.266	-0.120	0.001	1.000		
(12)	State unemployment rate	0.003	-0.004	0.231	0.066	0.006	0.050	-0.011	0.017	-0.043	-0.002	0.005	1.000	
(13)	State GDP growth	-0.067	-0.028	-0.036	-0.116	-0.028	0.012	-0.016	0.019	0.026	-0.004	0.030	-0.427	1.000

Note: This table presents the correlation matrix among the variables used in the regression.

3.4.2 Baseline results

Table 19, Panel A, shows the baseline model results with and without control variables. The results suggest that the enactment of PML is a significant driver in augmenting corporate dividend payments. Across all models, the interaction term (*Treat* × *Post*) coefficients are consistently positive and statistically significant at the 1% level. In columns 2 and 4, the *Treat* × *Post* coefficient values are 0.0012 and 0.0037, respectively. This suggests that state-level PML mandates increase firm dividend payout ratios by 12.12% and 17.05% of the mean compared with control groups in the post-policy period.

Central to the DID estimation is the foundation assumption of parallel trends between the treatment and control groups. To robustly validate this, I undertake t-tests to scrutinize the null hypothesis that posits equivalent mean growth rates of dividend payout ratios across both groups. Similarly, I use Wilcoxon t-tests to examine the null hypothesis that the two sampled groups originate from populations with the same median growth rate. These assessments use the 3-year continuously compounded growth rates of dividend payout ratios at the firm level during the staggered pre-PML period. Table 18, Panel B shows no significant differences in pre-trend growth for either dividend measure, thereby suggesting an unlikely breach of the parallel trend assumption.

Table 19. The effect of paid maternity leave on dividend payout

Panel A. Baseline regression results				
Factor	**(1)** **Dividend_mv** $_{i, t+1}$	**(2)** **Dividend_mv** $_{i, t+1}$	**(3)** **Tdividend_mv** $_{i, t+1}$	**(4)** **Tdividend_mv** $_{i, t+1}$
Treat $_i$ × Post $_{i, t}$	0.0011***	0.0012***	0.0034***	0.0037***
	(2.6233)	(2.9696)	(4.2171)	(4.6165)
Firm size $_{i, t}$		0.0010***		0.0040***
		(5.8764)		(12.5610)
Leverage $_{i, t}$		-0.0000		-0.0003***
		(-0.3216)		(-2.8389)
Cash $_{i, t}$		0.0029***		0.0091***
		(4.6483)		(6.4836)
ROA $_{i, t}$		-0.0001***		-0.0007***
		(-3.1814)		(-6.4758)
Q $_{i, t}$		0.0000		0.0000
		(0.1783)		(0.1053)
Tang $_{i, t}$		-0.0022***		-0.0096***
		(-2.5885)		(-5.1925)
Retain $_{i, t}$		0.0000		0.0000
		(1.0225)		(1.1462)
R&D expenditure $_{i, t}$		0.0006**		0.0007
		(2.1560)		(0.9044)
State unemployment rate $_{i, t}$		-0.0003**		-0.0004
		(-2.2625)		(-1.6233)
State GDP growth $_{i, t}$		-0.0000		-0.0002*
		(-1.1658)		(-1.8465)
Constant	0.0098***	0.0060***	0.0212***	0.0024
	(159.9914)	(4.7000)	(178.4680)	(0.9721)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	Firm	Firm
N	76,566	76,566	76,566	76,566
Adj-R^2	0.5766	0.5775	0.3646	0.3684

Panel B. The test of the parallel trend assumption				
Mean growth rate of cash holdings pre-PML			**Test results**	
Dividend_mv				
Control group	Treatment group	Difference (C-T)	*p*-value	Wilcoxon *p*-value
0.0712	0.0568	0.0144	0.3991	0.2276
Tdividend_mv				
Control group	Treatment group	Difference (C-T)	*p*-value	Wilcoxon *p*-value
0.0921	0.0852	0.0069	0.8328	0.7315

Note: This table presents the results for the baseline regressions and parallel trends assumption tests. Panel A reports the result of OLS panel regressions. The dependent variables are Dividend_mv (cash dividend/market value of equity) and Tdividend_mv ((cash dividend + share repurchase)/market value of equity) and the key variable of interest is Treat × Post. All the other variables are defined in Table 16. The t-statistics based on standard errors robust to clustering by firm are reported in brackets. Panel B reports the t-test and Wilcoxon t-test results for the test of the parallel trends assumption. The p-value shows the probability that the treatment and control firms have the same mean growth rates of dividend payout ratio. Wilcoxon p-value shows the probability that the treatment and control firms have same median growth rates of dividend payout ratio. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

3.4.3 Channel analysis

The initial findings from the baseline regression suggest that the enactment of PML policies might contribute to improved dividend payout ratios. This prompts the inevitable question: What drives the impact of PML on a firm's dividend policy? A plausible hypothesis is that PML boosts a company's labor productivity, leading to improved profitability; as firms experience enhanced cash inflows, there is the opprtunity to pay out more to their shareholders (Aivazian et al., 2003, Chang and Rhee, 1990, Ho, 2003). To test this hypothesis, I carry out a two-step analysis. In the first step, I examine whether the introduction of PML policies results in a notable increase in the 3-year average labor productivity of firms (measured as net income scaled by the number of employees). In the second step, I investigate if there is a correlation between changes in the 3-year average productivity and changes in the 3-year average dividend payout ratio in both the pre- and post-PML phases. I structure the estimations as:

$$\overline{Labor\ productivity}_{i,t+1} = \beta_0 + \beta_1 \times Treat_{i,t} \times \mathrm{Post}_{i,t} + \beta_2 \times \overline{Controls}_{i,t} + \mu_t + \varepsilon_{i,t} \quad (2)$$

$$\Delta\overline{Tdividend\_mv*1000}_i = \beta_0 + \beta_1 \times \Delta\overline{labor\ productivity}_i + \beta_2 \times \Delta\overline{Controls}_i + \mu_t + \varepsilon_{i,t} \quad (3)$$

In equation (2), $\overline{Labor\ productivity}$ is the 3-year average labor productivity of the firm whereas $\overline{Controls}$ denotes the three-year average of the control variables, *Firm size*, *Firm age*, *Market-to-book value,* and *R&D expenditure.* Equation (3) examines the relationship between the changes in $\overline{Labor\ productivity}$ and the change in dividend payout ratio (i.e., $\Delta\overline{Tdividend\_mv} * 1000$). To depict the effect of labor productivity changes more acutely on dividend payout ratios, I amplify the variable $\Delta\overline{Tdividend\_mv}$ by 1000 times. Control variables for equation (3) remain consistent with the control variables used in equation (1).

Table 20 presents the results of the channel analysis.[9] Column 1 shows that the *Treat* × *Post* coefficient is positive and significant, indicating labor productivity increases after PML. In column 2, the coefficient on $\Delta\overline{Labor\ productivity}$ is also positive and significant, implying a constructive association between productivity shift and change in the dividend payout ratio. This further consolidates the assertion that enhanced productivity, stemming from PML, aligns with increased dividend payout.

[9] As PML law enactment in the states of Connecticut, Oregon, and Colorado occurred at the end of our sample period, I do not have three years of post-PML observations and so these states are excluded from the analysis.

Table 20. Labor productivity channel analysis

Factor	(1) $\overline{\text{Labor productivity}}_{i,t+1}$	(2) $\Delta\overline{\text{Tdividend\_mv*100}}$
Treat × Post i, t	77.1094***	
	(5.9261)	
$\overline{\text{Firm age}}_{i,t}$	-0.0253	
	(-0.1514)	
$\overline{\text{Market-to-book value}}_{i,t}$	0.9460*	
	(1.6540)	
$\overline{\text{Firm size}}_{i,t}$	8.8478***	
	(7.2951)	
$\overline{\text{R\&D expenditure}}_{i,t}$	-421.5353***	
	(-14.5988)	
$\Delta\overline{\text{Labor productivity}}_{i}$		0.0449***
		(6.8048)
$\Delta\overline{\text{Firm size}}_{i}$		0.5632
		(0.3824)
$\Delta\overline{\text{Leverage}}_{i}$		0.2970
		(0.5860)
$\Delta\overline{\text{Cash}}_{i}$		-5.1198
		(-0.6742)
$\Delta\overline{\text{ROA}}_{i}$		-23.7612***
		(-2.8092)
$\Delta\overline{\text{Q}}_{i}$		-1.5427***
		(-4.1786)
$\Delta\overline{\text{Tang}}_{i}$		-44.1516***
		(-3.9715)
$\Delta\overline{\text{Retain}}_{i}$		-0.4064***
		(-4.2852)
$\Delta\overline{\text{R\&D expenditure}}_{i}$		68.8707***
		(3.9122)
$\Delta\overline{\text{State unemployment rate}}_{i}$		0.8831**
		(2.2424)
$\Delta\overline{\text{State GDP growth}}_{i}$		0.0321
		(0.0636)
Constant	-35.4743***	-0.3716
	(-3.2114)	(-0.4387)
N	2,512	2,176
Adj-R^2	0.2241	0.0713
Year FE	Yes	Yes

Note: This table presents the results of channel analysis. Column (1) shows panel OLS regression results where the dependent variable is the 3-year average labor productivity (net income/number of employees). The key variable of interest is Treat × Post. Column (2) shows the results of the second step in the channel analysis: the dependent variable is change in the 3-year average total dividend payout ratio before and after PML. The key variable of interest is change in the 3-year average labor productivity before and after PML. All the other variables are defined in Table 16. The t-statistics are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

3.4.4 Cross-sectional analysis

The initial findings highlight the positive correlation between the introduction of PML and an increased dividend payout ratio. To further elucidate this correlation, I conduct a cross-sectional analysis. The hypothesis guiding this inquiry is that firms with labor-intensive operations would demonstrate a more robust relationship between PML and the dividend payout ratio. For the empirical analysis, I divide the sample based on labor intensity at the firm level, measured as the ratio of R&D expenditure to total assets. Following Ghaly et al. (2015), this distinction is grounded in the observation that firms with greater R&D intensity typically employ a higher proportion of skilled labor, thereby being more labor-intensive,.

Table 21 presents results of regressions on these subsamples. Notably, the interaction coefficients are more significant for firms exhibiting a higher labor intensity, though using *Tdividend_mv* as the dependent variable provides limited evidence. These results emphasize that the influence of PML on corporate cash holdings is more pronounced in firms with elevated labor intensity. Such a conclusion is consistent with the initial hypothesis, underscoring the impact of PML on firms where labor intensity is a defining feature. The rationale for this is straightforward: PML has direct implications for the workforce, making its effect more prominent in firms where labor plays a crucial role.

Table 21. Cross-sectional analysis regarding labor intensity

	Low	High	Low	High
Factor	**(1) Dividend_mv** $_{i, t+1}$	**(2) Dividend_mv** $_{i, t+1}$	**(3) Tdividend_mv** $_{i, t+1}$	**(4) Tdividend_mv** $_{i, t+1}$
Treat $_i$ × Post $_{i, t}$	0.0015*	0.0012***	0.0034**	0.0039***
	(1.9159)	(3.0940)	(2.3387)	(4.4311)
Firm size $_{i, t}$	0.0015***	0.0008***	0.0049***	0.0038***
	(5.4424)	(4.3221)	(8.9439)	(9.7581)
Leverage $_{i, t}$	0.0000	-0.0001	-0.0003*	-0.0003**
	(0.3695)	(-1.2746)	(-1.7262)	(-2.2604)
Cash $_{i, t}$	0.0049***	0.0019***	0.0134***	0.0074***
	(3.2868)	(3.2545)	(4.3787)	(4.8128)
ROA $_{i, t}$	-0.0002**	-0.0002***	-0.0007***	-0.0008***
	(-2.2768)	(-3.3557)	(-4.0559)	(-4.7836)
Q $_{i, t}$	0.0000	-0.0000	0.0000	0.0000
	(0.2778)	(-0.2021)	(0.2978)	(0.6722)
Tang $_{i, t}$	-0.0030**	-0.0016	-0.0123***	-0.0062***
	(-2.2790)	(-1.5653)	(-4.2013)	(-2.6166)
Retain $_{i, t}$	0.0000	-0.0000	-0.0000	0.0000
	(1.1081)	(-0.5422)	(-0.5477)	(1.2173)
R&D expenditure $_{i, t}$	0.0009	0.0003	0.0004	0.0000
	(0.8668)	(0.8304)	(0.1730)	(0.0006)
State unemployment rate $_{i, t}$	-0.0005***	-0.0001	-0.0010***	0.0000
	(-2.6271)	(-0.8089)	(-2.6495)	(0.0750)
State GDP growth $_{i, t}$	-0.0000	-0.0001	-0.0001	-0.0002**
	(-0.3108)	(-1.3060)	(-0.5219)	(-2.0042)
Constant	0.0077***	0.0030**	0.0052	-0.0037
	(3.6462)	(2.2457)	(1.2366)	(-1.2160)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	36,889	36,890	36,889	36,890
Adj-R^2	0.0386	0.0158	0.0465	0.0402

Note: This table presents the cross-sectional analysis. The sample is split into two groups: those with a higher labor intensity ratio and those with a lower labor intensity ratio, where labor intensity is measured as R&D expenditure/total assets. The t-statistics are based on standard errors robust to clustering by firm and are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

In addition, I conduct cross-sectional analysis based on agency problems, measured as the ratio of SG&A expense to total sales. This ratio is an indicator of managerial discretion over the allocation of firm resources on expenses such as advertising, selling, rent, utilities, and lease payments. Several studies use this measure to proxy managerial agency problems, e.g., Florackis and Ozkan (2009) and Singh and Davidson Iii (2003). To explore the potential impact of agency problems on the correlation between the enactment of PML and dividend payout ratio, I categorize the sample based on the median value of the SG&A expense to total sales ratio. I then divide the sample into two groups: those firms exhibiting a higher agency problem and those with a lower agency problem.

Table 22 presents the results from the cross-sectional analysis centered on the agency problem. When *Dividend_mv* is the dependent variable, the coefficient of the interaction term is especially significant for firms that have fewer conflicts between management and shareholders. This indicates that, in these firms, enactment of PML has a more pronounced influence on the dividend payout ratio. A potential rationale for this observation is that managers in these firms are less likely to use company funds for personal objectives, thereby leaving a greater proportion of internal funds available for dividend payout. Conversely, when *Tdividend_mv* is chosen as the dependent variable, the results are less straightforward.

Table 22. Cross-sectional analysis of firms after paid maternity leave regarding agency problem

Factor	Low	High	Low	High
	(1) Dividend_mv $_{i,t+1}$	(2) Dividend_mv $_{i,t+1}$	(3) Tdividend_mv $_{i,t+1}$	(4) Tdividend_mv $_{i,t+1}$
Treat $_i$ × Post $_{i,t}$	0.0022***	0.0001	0.0045***	0.0023**
	(2.6571)	(0.1452)	(2.9409)	(2.2520)
Firm size $_{i,t}$	0.0014***	0.0009***	0.0052***	0.0048***
	(4.0190)	(5.2582)	(7.4055)	(10.6832)
Leverage $_{i,t}$	-0.0000	-0.0001	-0.0003**	-0.0004***
	(-0.0326)	(-0.8367)	(-2.1132)	(-2.8758)
Cash $_{i,t}$	0.0052**	0.0026***	0.0267***	0.0085***
	(2.2726)	(3.5458)	(5.6455)	(4.5307)
ROA $_{i,t}$	0.0010	-0.0002***	0.0042**	-0.0010***
	(1.3607)	(-3.4290)	(2.1045)	(-4.0951)
Q $_{i,t}$	-0.0001	0.0000	-0.0001	0.0000
	(-1.3563)	(0.4060)	(-1.1513)	(0.1473)
Tang $_{i,t}$	-0.0030	-0.0015	-0.0121***	-0.0084***
	(-1.4244)	(-1.4528)	(-2.7544)	(-3.1154)
Retain $_{i,t}$	-0.0000	-0.0000	-0.0000	0.0000
	(-0.2144)	(-0.2708)	(-0.6794)	(0.2347)
R&D expenditure $_{i,t}$	0.0124	0.0001	0.0019	-0.0008
	(0.9459)	(0.3359)	(0.0805)	(-0.5101)
State unemployment rate $_{i,t}$	-0.0003	-0.0002	-0.0005	-0.0004
	(-1.4350)	(-1.3221)	(-1.2162)	(-1.1276)
State GDP growth $_{i,t}$	-0.0000	0.0000	-0.0001	-0.0001
	(-0.5155)	(0.7437)	(-0.4908)	(-1.0384)
Constant	0.0049*	0.0040***	-0.0031	-0.0042
	(1.7408)	(2.8474)	(-0.5453)	(-1.2493)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	33,583	33,343	33,583	33,343
Adj-R^2	0.5347	0.5327	0.3588	0.3569

Note: This table presents cross-sectional analysis regarding the agency problem. The sample is split into two groups: those with a larger agency problem and those with a smaller agency problem, where the agency problem is measured as SG&A expense to total sales. The t-statistics are based on standard errors robust to clustering by firm and are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

3.4.5 Robustness tests

To ensure the robustness of the conclusions drawn from the baseline regressions, I conduct several robustness checks. I explore different ways to measure the dividend payout ratio and conduct a placebo test to rule out other potential explanations of the findings. I carry out sensitivity analyses to check if the results hold using Industry x Year fixed effects. Additionally, I exclude observations with negative net income to test the relationship in specific scenarios. Another robustness check involves applying an alternative DID approach. Fianlly, I use entropy balancing to ensure the treatment and control groups are comparable.

3.4.5.1 Alternative measures of the dividend payout ratio

In the baseline regression, I measure the dividend payout ratio as cash dividends scaled by the market value of equity (*Dividend_mv*) or cash dividends plus share repurchases scaled by the market value of equity (*Tdividend_mv*). To fortify the robustness of the initial results, I explore the effects of PML enactment using three alternative measures of the dividend payout ratio: *Tdividend_at* (cash dividend plus share repurchases scaled by total assets), *Tdividend_ni* (cash dividend plus share repurchases scaled by net income), and *Dividend_payer* (a dummy variable equal to 1 if the company pays a dividend, 0 otherwise). As shown in Table 23, the coefficients of *Tdividend_at* and *Dividend_payer* are significant at the 1% level, highlighting a profound influence of PML enactment on these specific dividend payout measures. In addition, *Tdividend_ni* is significant at the 5% level, adding weight to the influence of the PML policy. Such a comprehensive examination affirms the initial findings, solidifying the observed relationship as inherent to the policy enactment rather than merely an artefact of the selected measurement technique.

Table 23. Regression results of alternative measures of dividend payout

Factor	(1) Tdividend_at $_{i,t+1}$	(2) Tdividend_ni $_{i,t+1}$	(3) Dividend_payer $_{i,t+1}$
Treat $_i$ × Post $_{i,t}$	0.0027***	0.0714**	0.3147***
	(2.6760)	(2.1428)	(3.3005)
Firm size $_{i,t}$	0.0028***	0.1775***	1.2328***
	(6.7166)	(11.0969)	(26.8572)
Leverage $_{i,t}$	-0.0004***	-0.0019	-0.0245**
	(-3.2845)	(-0.4080)	(-2.2670)
Cash $_{i,t}$	0.0156***	0.5683***	1.8218***
	(8.0817)	(5.8958)	(7.7085)
ROA $_{i,t}$	0.0002	-0.1360***	3.5797***
	(0.8816)	(-5.0743)	(13.5418)
Q $_{i,t}$	0.0001***	-0.0100***	0.0361***
	(4.0805)	(-4.6197)	(3.6152)
Tang $_{i,t}$	-0.0115***	-0.2390**	-0.4976
	(-4.9643)	(-1.9883)	(-1.6375)
Retain $_{i,t}$	0.0000	0.0017***	0.0100***
	(1.4625)	(2.5935)	(2.7957)
R&D expenditure $_{i,t}$	-0.0008	-0.1886	1.4178
	(-0.6603)	(-1.4401)	(1.6195)
State unemployment rate $_{i,t}$	-0.0001	-0.0073	-0.1542***
	(-0.2838)	(-0.7340)	(-5.4028)
State GDP growth $_{i,t}$	0.0001	-0.0084**	0.0173
	(0.5769)	(-2.2853)	(1.4510)
Constant	0.0044	-0.4488***	
	(1.3939)	(-3.5485)	
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	76,445	46,129	21,915
Adj-R^2	0.4512	0.5296	0.2801

Note: This table presents the results of regressions using alternative measures of the dividend payout ratio. The dependent variables are Tdividend_at ((cash dividend + share repurchase)/total assets), Tdividend_sale ((cash dividend + share repurchase)/sales), Tdividend_ni ((cash dividend + share repurchase)/net income) and Dividend_payer (dummy variable equal to one if the company pays a cash dividend). The key variable of interest is Treat × Post. All the other variables are defined in Table 12. The t-statistics are based on standard errors robust to clustering by firm are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

3.4.5.2 An alternative method for the difference-in-differences setting

Recent literature highlights a prevalent concern in the two-way fixed effect (TWFE) DID regressions, i.e., “forbidden comparisons”. These inappropriate comparisons often arise when later-treated groups are compared with earlier-treated ones, leading to potential pitfalls. One such pitfall is the coefficient flipping signs because of the “negative weighting” issue (Roth et al., 2023). Such inconsistencies can affect the trustworthiness of regression results and may lead to incorrect conclusions. In response to the “forbidden comparisons” problem, I use an innovative estimator introduced by Borusyak et al. (2021). Their innovative approach strategically addresses the problem by creating hypothetical scenarios and measuring the effects using only unchanged observations. This method avoids the biases that come from inappropriate comparisons.

Table 24 presents the results using this alternative methodology. The coefficients of the interaction term, *Treat* × *Post*, remain positive and are consistently significant at 1% across all columns. This consistency aligns well with the initial regression results, confirming the strength and accuracy of the initial findings. Additionally, the integration of firm and year fixed effects, coupled with the control variables, adds the overall rigor to and confidence in the results, buttressing the validity of the conclusions.

Table 24. Regression results of an alternative difference-in difference estimator

Factor	(1) Dividend_mv $_{i, t+1}$	(2) Dividend_mv $_{i, t+1}$	(3) Tdividend_mv $_{i, t+1}$	(4) Tdividend_mv $_{i, t+1}$
Treat $_i$ × Post $_{i, t}$	0.0015***	0.0015***	0.0065***	0.0065***
	(3.9489)	(4.3676)	(7.0654)	(7.7593)
Firm size $_{i, t}$		0.0011***		0.0040***
		(5.8745)		(10.8713)
Leverage $_{i, t}$		0.0000		-0.0002
		(0.6323)		(-1.3817)
Cash $_{i, t}$		0.0025***		0.0088***
		(3.5817)		(5.6802)
ROA $_{i, t}$		-0.0002***		-0.0006***
		(-3.7121)		(-4.8209)
Q $_{i, t}$		0.0000		0.0000
		(0.4746)		(1.0173)
Tang $_{i, t}$		-0.0020**		-0.0100***
		(-2.1317)		(-4.7736)
Retain $_{i, t}$		0.0000		0.0000
		(0.9760)		(0.7274)
R&D expenditure $_{i, t}$		0.0006*		0.0009
		(1.8066)		(0.9413)
State unemployment rate $_{i, t}$		-0.0005***		-0.0007**
		(-3.0548)		(-2.3054)
State GDP growth $_{i, t}$		-0.0001		-0.0001
		(-1.4198)		(-1.0142)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	Firm	Firm
N	74,780	74,780	74,780	74,780

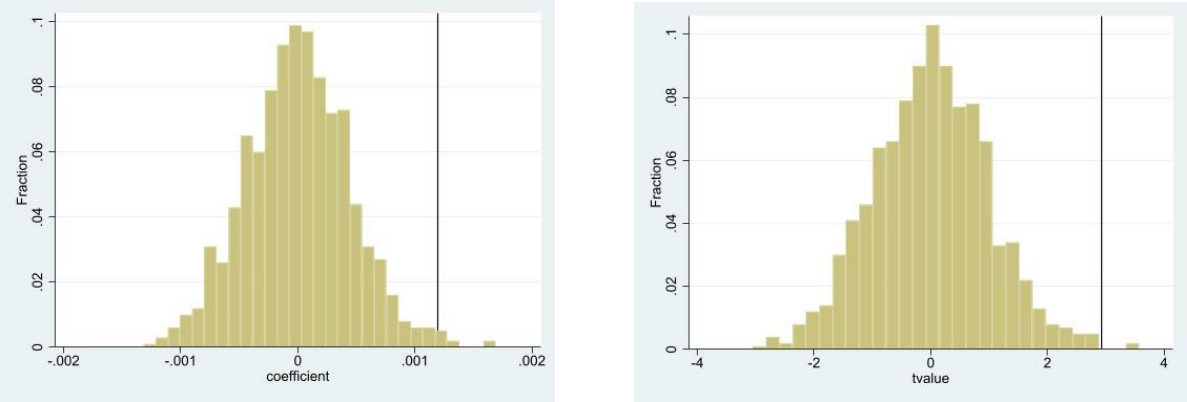
Note: This table presents the results of panel OLS regressions using an alternative DID estimator suggested by Borusyak et al. (2021). The dependent variables are Dividend_mv (cash dividend/market value of equity) and Tdividend_mv ((cash dividend + share repurchase)/market value of equity). The key variable of interest is *Treat* × *Post*. Control variables are the same as in baseline regression, as defined in Table 16. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

3.4.5.3 Placebo tests

To safeguard the findings from potential biases or confounders because of other state-level events, I conduct a placebo test. In this test, I do not use the actual grouping of firms into treatment and control groups, instead, I randomly assign firms in states, without considering their actual location. With this placebo sample in place, I re-estimate the baseline model. To ensure thoroughness in this validation method, the two-step procedure—comprising random assignment followed by regression analysis—is executed 1,000 times.

The outcomes of the 1000 iterations yield a rich dataset teeming with varied coefficient estimates and t-statistics, as visualized in Figure 2. The displayed distributions show that both the coefficients and t-values predominantly converge around zero. The vertical markers in the visual representations represent the coefficient and t-statistic derived from the original regression, using the correct firm headquarter location. The graph suggests that the primary findings are not mere products of chance but rather testify to the robustness and credibility of the conclusions formulated from the baseline model.

Figure 2. A placebo test of the effect of paid maternity ;leave on dividend payout ratio



(a) Pseudo *vs* true coefficient (b) Pseudo *vs* true *t*-value

Note: The histograms show the results of a placebo test where (a) and (b) plot the coefficients and t-values of 1,000 estimates of Treat × Post, respectively, constructed by random assignment of the Treat × Post variable across firms. The true coefficient and t-value from the baseline regression using Dividend_mv as the dependent variable are 0.0012 and 2.9696, respectively.

3.4.5.4 Sensitivity Analysis

To ensure the robustness of the findings, I conduct a comprehensive sensitivity analysis. In this analysis, I replace the year fixed effects in the baseline regression with industry × year fixed effects, categorizing industries by their 2-digit SIC code. Table 25 presents the outcomes of this modification. Throughout these multiple models, the interaction term coefficients consistently retain their significance. This persistent significance bolsters the main conclusion: the introduction of PML has a pronounced impact on corporate dividend payout ratios. This thorough exploration underscores the pivotal role of PML in shaping corporate financial strategies.

Table 25. Sensitivity analysis of the effect of paid maternity leave on the dividend payout ratio

Factor	(1) Dividend_mv $_{i, t+1}$	(2) Dividend_mv $_{i, t+1}$	(3) Tdividend_mv $_{i, t+1}$	(4) Tdividend_mv $_{i, t+1}$
Treat $_i$ × Post $_{i, t}$	0.0012***	0.0014***	0.0035***	0.0038***
	(2.9820)	(3.4064)	(4.3474)	(4.7678)
Firm size $_{i, t}$		0.0012***		0.0044***
		(6.5333)		(13.3918)
Leverage $_{i, t}$		-0.0000		-0.0003***
		(-0.9176)		(-3.0480)
Cash $_{i, t}$		0.0030***		0.0093***
		(4.7827)		(6.6458)
ROA $_{i, t}$		-0.0001***		-0.0008***
		(-3.0384)		(-6.2751)
Q $_{i, t}$		0.0000		0.0000
		(1.6067)		(0.8253)
Tang $_{i, t}$		-0.0022***		-0.0096***
		(-2.6715)		(-5.2731)
Retain $_{i, t}$		0.0000		0.0000
		(0.1697)		(0.8755)
R&D expenditure $_{i, t}$		0.0008***		0.0008
		(2.6162)		(0.9249)
State unemployment rate $_{i, t}$		-0.0004***		-0.0005*
		(-2.9324)		(-1.7485)
State GDP growth $_{i, t}$		-0.0000		-0.0000
		(-0.0045)		(-0.4670)
Constant	0.0098***	0.0054***	0.0212***	-0.0000
	(156.8180)	(4.1250)	(177.5528)	(-0.0108)
Firm FE	Yes	Yes	Yes	Yes
Year FE	No	No	No	No
Industry × year FE	Yes	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	Firm	Firm
N	76,492	76,492	76,492	76,492
Adj-R^2	0.6008	0.6019	0.3933	0.3975

Note: This table reports panel OLS regressions results where industry x year fixed effects are used. The dependent variables are Dividend_mv (cash dividend/market value of equity) and

Tdividend_mv ((cash dividend + share repurchase)/market value of equity). The key variable of interest is Treat × Post. Control variables are the same as in baseline regression, as defined in Table 16. The t-statistics based on standard errors robust to clustering by firm are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

3.4.5.5 The exclusion of firms reporting a negative income

Prior research, such as that by Saeed and Sameer (2017), indicates that firms experiencing losses tend to have lower dividend payouts. Given this, it is imperative to consider and neutralize the impact of firms with negative or zero reported income. To mitigate potential bias stemming from such firms, they have been systematically excluded from the sample for the following analysis.

Table 26 presents the findings derived after implementing this refined methodology. Notably, the coefficients associated with the interaction term, *Treat* × *Post*, are consistently positive and maintain their significance at 1% level across all columns. This aligns with the original baseline regression, reinforcing the robustness of the primary findings. The inclusion of firm and year fixed effects, supplemented by the control variables, enhances the analytical depth of the study, reinforcing the credibility of the conclusions drawn.

Table 26. Regression results after excluding negative net income observations

Factor	(1) Dividend_mv $_{i, t+1}$	(2) Dividend_mv $_{i, t+1}$	(3) Tdividend_mv $_{i, t+1}$	(4) Tdividend_mv $_{i, t+1}$
Treat $_i$ × Post $_{i, t}$	0.0023***	0.0024***	0.0056***	0.0054***
	(3.8023)	(3.8489)	(4.6806)	(4.4238)
Firm size $_{i, t}$		0.0014***		0.0061***
		(3.7473)		(9.7477)
Leverage $_{i, t}$		-0.0001		-0.0005***
		(-1.3843)		(-3.5233)
Cash $_{i, t}$		0.0093***		0.0284***
		(5.0823)		(7.5472)
ROA $_{i, t}$		-0.0002		-0.0014*
		(-0.8022)		(-1.7515)
Q $_{i, t}$		-0.0001***		-0.0002***
		(-2.8584)		(-3.4553)
Tang $_{i, t}$		-0.0051**		-0.0126***
		(-2.5074)		(-2.9438)
Retain $_{i, t}$		-0.0000		0.0000
		(-0.3122)		(1.0371)
R&D expenditure $_{i, t}$		0.0006		-0.0068
		(0.2316)		(-1.1210)
State unemployment rate $_{i, t}$		-0.0004**		-0.0006*
		(-2.3987)		(-1.7239)
State GDP growth $_{i, t}$		-0.0000		-0.0001
		(-0.6488)		(-0.6397)
Constant	0.0134***	0.0071***	0.0283***	-0.0072
	(158.9119)	(2.6783)	(171.6149)	(-1.4753)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	Firm	Firm
N	45,780	45,780	45,780	45,780
Adj-R^2	0.6021	0.6039	0.3552	0.3616

Note: This table reports panel OLS regression results using sample excluding observations with negative net income. The dependent variables are Dividend_mv (cash dividend/market value of equity) and Tdividend_mv ((cash dividend + share repurchase)/market value of equity). The key variable of interest is Treat × Post. Control variables are the same as in the baseline regression, as defined in Table 16. The t-statistics are based on standard errors robust to clustering by firm are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

3.4.5.6 Entropy balancing

There is a potential concern that the inherent differences in the characteristics of firms in the treatment and control groups might influence baseline results. To mitigate that influence, I implement an entropy balancing method as proposed by Hainmueller and Xu (2013). This method adjusts the weights of the covariates in the control group, ensuring that the distributions of the covariates between the two groups are balanced in terms of their moments. Table 27 presents the results of this balancing. It shows the adjusted weights for the first-order moments (Panel A), combined first and second-order moments (Panel B), and all three moments (Panel C). These results demonstrate the efficacy of entropy balancing procedure, as is evident from the adjusted means, variances, and skewness of the covariates of the control firms. This ensures that a truly balanced sample is available to assess the effects of PML.

Subsequently, Table 28 presents the DID results derived from the entropy-balanced sample. Here, *Dividend_mv* and *Tdividend_mv* serve as the dependent variables in Panel A and Panel B, respectively. Notably, these results echo the findings from the unbalanced sample in terms of significance and magnitude, underscoring the robustness of the original analysis.

Table 27. Entropy balancing results

Panel A: Only the first moments are adjusted

Pre balancing:	**Treat**			**Control**		
	mean	variance	skewness	mean	variance	skewness
Firm size	5.1480	7.2120	-0.2602	5.7180	7.2060	-0.7060
Leverage	0.3901	2.9520	1.8270	0.5856	3.6600	1.4950
Cash	0.1883	0.0454	1.7300	0.1155	0.0284	2.7080
ROA	-0.2846	2.0840	-7.7490	-0.2394	2.4440	-7.6420
Q	4.5270	243.6000	9.1690	4.6060	344.2000	8.2550
Tang	0.1635	0.0377	1.8520	0.2354	0.0601	1.1730
Retain	-1.0480	225.7000	-0.1075	0.1364	142.8000	0.3103
R&D expenditure	0.1012	0.0430	3.8400	0.0457	0.0268	6.0810
State unemployment rate	5.9770	3.9400	1.0050	5.5570	3.5680	1.0610
State GDP growth	2.4280	6.4370	-0.1082	2.0370	5.7990	-0.5413
After balancing	**Treat**			**Control**		
	mean	variance	skewness	mean	variance	skewness
Firm size	5.1480	7.2120	-0.2602	5.1480	7.4990	-0.4304
Leverage	0.3901	2.9520	1.8270	0.3901	2.8280	1.0040
Cash	0.1883	0.0454	1.7300	0.1883	0.0590	1.7260
ROA	-0.2846	2.0840	-7.7490	-0.2846	1.7030	-7.2680
Q	4.5270	243.6000	9.1690	4.5270	215.3000	9.1450
Tang	0.1635	0.0377	1.8520	0.1635	0.0373	1.7540
Retain	-1.0480	225.7000	-0.1075	-1.0480	238.9000	-0.6153
R&D expenditure	0.1012	0.0430	3.8400	0.1012	0.0694	3.5750
State unemployment rate	5.9770	3.9400	1.0050	5.9770	4.4950	0.8678
State GDP growth	2.4280	6.4370	-0.1082	2.4280	5.7250	-0.4652

Panel B: The first and second moments are adjusted

Post balancing	Treat			Control		
	mean	variance	skewness	mean	variance	skewness
Firm size	5.1480	7.2120	-0.2602	5.1480	7.2120	-0.3560
Leverage	0.3901	2.9520	1.8270	0.3901	2.9530	1.4120
Cash	0.1883	0.0454	1.7300	0.1883	0.0454	1.5850
ROA	-0.2846	2.0840	-7.7490	-0.2846	2.0840	-7.8970
Q	4.5270	243.6000	9.1690	4.5270	243.6000	9.2920
Tang	0.1635	0.0377	1.8520	0.1635	0.0377	1.8410
Retain	-1.0480	225.7000	-0.1075	-1.0480	225.7000	-0.4212
R&D expenditure	0.1012	0.0430	3.8400	0.1012	0.0430	3.0610
State unemployment rate	2.4280	6.4370	-0.1082	2.4280	6.4370	-0.4577
State GDP growth	3.0410	111.1000	0.5562	3.0410	111.1000	0.7293

Panel C: All moments are adjusted

After balancing	Treat			Control		
	mean	variance	skewness	mean	variance	skewness
Firm size	5.1480	7.2120	-0.2602	5.1480	7.2120	-0.2603
Leverage	0.3901	2.9520	1.8270	0.3901	2.9530	1.8270
Cash	0.1883	0.0454	1.7300	0.1883	0.0454	1.7300
ROA	-0.2846	2.0840	-7.7490	-0.2846	2.0840	-7.7490
Q	4.5270	243.6000	9.1690	4.5270	243.6000	9.1680
Tang	0.1635	0.0377	1.8520	0.1635	0.0377	1.8520
Retain	-1.0480	225.7000	-0.1075	-1.0480	225.7000	-0.1075
R&D expenditure	0.1012	0.0430	3.8400	0.1012	0.0429	3.8400
State unemployment rate	5.9770	3.9400	1.0050	5.9770	3.9400	1.0050
State GDP growth	2.4280	6.4370	-0.1082	2.4280	6.4370	-0.1082

Note: This table presents entropy balancing results. Panel A reports the results where only the first moments of the variables of control firms are adjusted. Panel B reports the results where the first and second moments of the variables of control firms are adjusted. Panel C reports the results where all three moments of the variables of control firms are adjusted.

Table 28. The effect of PML on dividend payout ratio with a balanced sample

Panel A: the results of regressions using Dividend_mv as the dependent variable

Factor	**(1)**	**(2)**	**(3)**
	Dividend_mv $_{i, t+1}$	**Dividend_mv $_{i, t+1}$**	**Dividend_mv $_{i, t+1}$**
Treat $_i$ × Post $_{i, t}$	0.0012***	0.0012***	0.0012***
	(2.9509)	(2.9509)	(2.9509)
Firm size $_{i, t}$	0.0009***	0.0009***	0.0009***
	(5.2248)	(5.2248)	(5.2248)
Leverage $_{i, t}$	-0.0000	-0.0000	-0.0000
	(-0.8711)	(-0.8711)	(-0.8711)
Cash $_{i, t}$	0.0028***	0.0028***	0.0028***
	(4.3698)	(4.3698)	(4.3698)
ROA $_{i, t}$	-0.0001**	-0.0001**	-0.0001**
	(-2.3032)	(-2.3032)	(-2.3032)
Q $_{i, t}$	-0.0000	-0.0000	-0.0000
	(-0.0991)	(-0.0991)	(-0.0991)
Tang $_{i, t}$	-0.0024***	-0.0024***	-0.0024***
	(-2.8164)	(-2.8164)	(-2.8164)
Retain $_{i, t}$	0.0000	0.0000	0.0000
	(0.4845)	(0.4845)	(0.4845)
R&D expenditure $_{i, t}$	0.0006*	0.0006*	0.0006*
	(1.8259)	(1.8259)	(1.8259)
State unemployment rate $_{i, t}$	-0.0004***	-0.0004***	-0.0004***
	(-2.7101)	(-2.7101)	(-2.7101)
State GDP growth $_{i, t}$	-0.0001**	-0.0001**	-0.0001**
	(-2.2938)	(-2.2938)	(-2.2938)
Constant	0.0063***	0.0063***	0.0063***
	(5.1149)	(5.1149)	(5.1149)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	State
N	76,566	76,566	76,566
Adj-R^2	0.5875	0.5874	0.5884

Panel B: the results of regressions using Tdividend_mv as the dependent variable

	(1)	(2)	(3)
	Tdividend_mv $_{i, t+1}$	Tdividend_mv $_{i, t+1}$	Tdividend_mv $_{i, t+1}$
Treat $_i$ × Post $_{i, t}$	0.0039***	0.0036***	0.0034***
	(4.8204)	(4.5236)	(4.3033)
Firm size $_{i, t}$	0.0041***	0.0040***	0.0039***

	(12.5653)	(12.1117)	(11.8575)
Leverage $_{i, t}$	-0.0003***	-0.0003***	-0.0004***
	(-3.0644)	(-3.0304)	(-3.0902)
Cash $_{i, t}$	0.0082***	0.0086***	0.0082***
	(5.6907)	(5.9856)	(5.9701)
ROA $_{i, t}$	-0.0009***	-0.0009***	-0.0009***
	(-7.0550)	(-6.5563)	(-6.7291)
Q $_{i, t}$	0.0000	-0.0000	-0.0000
	(0.0796)	(-0.4541)	(-0.6459)
Tang $_{i, t}$	-0.0100***	-0.0104***	-0.0105***
	(-5.0660)	(-5.2827)	(-5.2459)
Retain $_{i, t}$	0.0000	0.0000	0.0000
	(0.9394)	(1.0441)	(1.1180)
R&D expenditure $_{i, t}$	0.0007	0.0003	-0.0004
	(0.8021)	(0.3047)	(-0.3876)
State unemployment rate $_{i, t}$	-0.0004	-0.0003	-0.0003
	(-1.4179)	(-1.1739)	(-1.0512)
State GDP growth $_{i, t}$	-0.0002**	-0.0001	-0.0001
	(-2.1973)	(-1.3089)	(-1.2394)
Constant	0.0014	0.0008	0.0010
	(0.5343)	(0.3228)	(0.3742)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Cluster s.e.	Firm	Firm	State
N	76,566	76,566	76,566
Adj-R^2	0.3786	0.3798	0.3818

Note: This table presents the baseline DID results with the balanced sample. The dependent variables are Dividend_mv (cash dividend/market value of equity) in Panel A and Tdividend_mv ((cash dividend + share repurchase)/market value of equity) in Panel B. The key variable of interest is Treat × Post. All the other variables are defined in Table 16. The t-statistics are based on standard errors robust to clustering by firm are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively, based on two-tailed tests.

3.5 Conclusion

In this chapter, I investigate the impact of mandatory state-level PML on the corporate dividend payout ratio. Using a sample of 76,566 firm-year observations from 7,881 unique firms, this study shows the profound impact of state-mandated PML policies on the corporate dividend payout ratio. Firms with higher labor-intensity and larger agency problems show this influence more markedly. The study confirms the pivotal role of the employee productivity channel in this relationship. The adoption of PML policies seems to enhance workforce efficiency thus, with heightened employee output, firms pay larger dividends.

To validate the robustness of the findings, I conducted multiple tests. The analysis begins by assessing the impact of PML enactment on three distinct dividend payout measures. To address the "forbidden comparisons" issue, I use an alternative staggered DID estimator, in line with Borusyak et al. (2021). I then conduct a placebo test where firms are randomly assigned to states that don't match their actual location and I repeat the baseline regressions a thousand times. I further enhance the sensitivity by including industry × year fixed effects. For a robustness check, I systematically remove firms with a negative income from the sample because they could influence the results. Finally, I adjust the covariate weights in the control group using entropy balancing to account for potential variations between the treatment and control group firms and rerun the main regression.

This study makes several contributions. First, it investigates the underexplored relationship between PML policies and the dividend payout ratio, an area not previously widely studied. Second, the study merges the often-separated fields of finance and management. It highlights how PML policies can influence dividend payout, mainly by boosting labor productivity, bridging a vital gap between management practice and financial outcome. Finally, this study is not just for academics; it provides practical data for firms and policymakers on

dividend strategies. For investors and others in the business world, it offers a clear view of how firms might change their dividend behavior when introducing PML policies.

Chapter 4. Conclusion

4.1 A summary of the findings

This thesis reports investigations into the effects of state-level PML policies on two key components of corporate financial decisions: cash holdings and the dividend payout ratio. Chapter 2, using a sample of 78,436 firm-year observations from 8,059 distinct firms, sheds light on how PML influences corporate cash holdings. The regression results indicate that mandatory PML policies lead to a significant reduction in corporate cash holdings. This effect is particularly pronounced in labor-intensive firms and industries. A potential channel behind this relationship appears to be an increase in employee productivity following PML enactment. As labor productivity improves, firms can reduce their cash holdings, given the diminished need for precautionary cash holdings.

Chapter 3, using a sample of 76,566 firm-year observations from 7,881 unique firms, investigates the influence of PML on the dividend payout ratio. The study demonstrates that mandatory PML increases the dividend payout ratio, especially of firms with higher labor-intensity or larger agency problems. Like to the previous chapter that highlights the link between increased labor productivity and reduced post-PML cash reserves, the study's results suggest that, with improved labor productivity, firms are more inclined to increase their dividend distribution, reflecting greater operational efficiency. Hence, as firms recognize better workforce output, they show a greater tendency to distribute higher dividends to shareholders.

4.2 Contributions

The study makes several contributions to knowledge. First, the study investigates a previously underexplored realm: the impact of mandatory PML policies on corporate financial decisions. There is compelling evidence that, with the introduction of state-level PML policies,

firms adjust by reducing their cash holdings and increasing their dividend payout. This study offers a nuanced perspective on the intricate ways through which PML influences firms' financial strategies.

Second, the study bridges two traditionally separate fields: finance and management. Management research often focuses on the outcomes of policies related to employees, such as employee satisfaction (Shruti et al., 2014), loyalty (Roehling et al., 2001), and turnover intention (Batt, 2002), and financial studies evaluate the broader economic implications of these policies, including productivity (Darrough et al., 2019), performance (Gupta and Krishnamurti, 2020), innovation efficiency (Mao and Weathers, 2019) and firm value (Fauver et al., 2018). This study uniquely integrates these discussions and suggests that PML policies can drive corporate financial changes largely because of enhanced workforce productivity.

Third, the practical implications of this study extend beyond academia. By understanding the financial repercussions of implementing employee welfare measures, like PML policies, businesses can make more informed decisions. Policymakers can also better anticipate the broader economic effects of such policies. For investors and stakeholders, the findings offer a clearer lens through which they can evaluate potential changes in a firm's financial posture following the introduction of welfare policies. This deeper insight is vital because it helps to anticipate market shifts and in making more informed investment decisions.

4.3 Limitation

This study, though offering pivotal insights, has certain limitations that provide space for future research. One notable constraint is the focus on a single channel – employee productivity – to shed light on the mechanism of how PML policies can potentially affect corporate financial decisions. However, there may be other possible channels such as fluctuations in R&D investment and changes of employee turnover rate, that might play a

substantial role in shaping the relationship. Subsequent research may investigate these potential channels.

In the cross-sectional analysis, though labor intensity is a critical factor, the gender distribution of the workforce is arguably even more pivotal in determining the extent of the policy impact. Ideally, assessing the impact based on the proportion of female employees in firms could offer clearer insights. However, because many firms do not disclose firm-specific gender ratios, the analysis is limited, preventing a more detailed cross-sectional analysis.

Additionally, the analysis is limited because of the lack of access to firm-level data of PML policies that could otherwise offer a more precise insight into the relationship between these policies and corporate financial decisions. Considering the possibility that certain firms might have implemented PML policies before state-level mandates, an analysis using firm-specific data could yield a more comprehensive result. Though I am confident that this constraint does not undermine the significance of state-level PML's impact, there is an avenue for future research to investigate firm-specific PML data when available.

PML policies exhibit a variety of features, such as the leave duration, compensation during the leave period, and the source of insurance funds. Each of these characteristics might uniquely influence corporate financial decisions, adding layers of complexity to the relationship. It would be instructive for future research to investigate the interactions between specific PML policies and corporate financial strategies.

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