For Whom the Bell *Thole*? Employee Lawsuits and Corporate Pension Policies

Jared Jennings
Washington University in St. Louis
jaredjennings@wustl.edu

Hongpan Zhang
Washington University in St. Louis
hongpan@wustl.edu

February 2026

Abstract

This paper examines how employees' ability to monitor defined benefit (DB) pension plans through litigation affects corporate pension policies. While litigation is commonly viewed as an important mechanism for disciplining fiduciaries, it may also constrain efficient managerial discretion. We exploit the Eighth Circuit's decision in *Thole v. U.S. Bank*, which restricts employees' legal standing to sue employers for alleged breaches of fiduciary duty. Using a difference-in-differences design and granular pension plan-level data from Form 5500 filings, we find that reduction in litigation-based monitoring leads employers to shift pension portfolios toward equities and reduce reliance on external investment advisors. Cross-sectional tests indicate that the main effect is more pronounced when alternative monitoring mechanisms are weaker, the value-enhancing benefits of risk-taking behavior are greater, and employer–employee preference divergence is larger. Further analysis suggests that, after restricting litigation-based employee monitoring, employers experience welfare gains, with no evidence of adverse effects on employees. Overall, we highlight litigation as a costly and imperfect monitoring channel and suggest that, in some settings, a more permissive regulatory approach may improve pension efficiency without harming beneficiaries.

Keywords: Fiduciary Duty, Defined Benefit Pension Plans, Circuit Split, *Thole v. U.S. Bank*

JEL Codes: J32, K41, M41

We are grateful for constructive comments and suggestions from Edwige Cheynel, Richard Frankel, Yanling Guan, Vincent (Yongzhao) Lin, Xiumin Martin, MaryJane Rabier, Yuxuan Wang, and Sheryl Zhang. We also thank seminar participants at Washington University in St. Louis. All errors are our own.

1. Introduction

Corporate-sponsored defined benefit (DB) pension plans, where employers promise a fixed retirement benefit for employees, hold assets surpassing $3.67 trillion and serve over 3.1 million employees in the U.S. (Department of Labor, 2023). To protect employees, the Employee Retirement Income Security Act of 1974 (ERISA) mandates employers to act in the best interest of employees under the legal mechanism of fiduciary duty and allows employees to litigate fiduciary duty breaches (Little Jr. and Thrailkill, 1977; Easterbrook and Fischel, 1993). In practice, regulators with limited enforcement capacity, such as the Department of Labor (DOL), rely heavily on employee-initiated litigation to detect and deter fiduciary misconduct.[1] Despite the central role of employee lawsuits in the pension oversight framework, limited evidence exists on how this legal channel influences corporate pension policies.

We examine how litigation-based employee monitoring affects pension policies adopted by employers by exploiting the Eighth Circuit decision in *Thole v. U.S. Bank* (hereafter, *Thole*) as a plausibly exogenous reduction in employees' ability to enforce fiduciary duties through ERISA lawsuits. We find that employers respond by increasing pension risk exposure through higher allocations to equities and reduced reliance on external investment advisors. These changes coincide with gains for employers and entail no detectable costs for employees. Our findings characterize employee litigation as a costly and imperfect monitoring mechanism and indicate that, in certain settings, a permissive regulatory approach to delegated asset management (e.g., DB pension plans) could potentially be socially desirable.

In common-law systems, employees' ability to monitor employers through lawsuits is determined by statutory laws and judicial interpretations of those laws (e.g., Franke et al., 2024).

[1] The DOL has consistently emphasized, across different administrations, that employee-initiated lawsuits are crucial for enforcing ERISA because the agency lacks sufficient resources to monitor retirement plans on its own (e.g., *Thole v.U.S. Bank, N.A*., 2020).

Liberal legislators' commitment to the private pension system facilitated the enactment of ERISA, which enables employees to sue employers for fiduciary duty breaches and impose legal repercussions for mismanagement of DB pension plans (Klein, 2004). Yet, within the judicial system, liberal and conservative judges hold opposing views on employees' legal standing in ERISA claims. Liberal judges typically favor a broader interpretation of legal standing by allowing employee beneficiaries of DB pension plans to sue employers with relative ease, which lowers the bar required by employees to monitor the employer. However, conservative judges stiffen the requirements to bring an ERISA lawsuit by requiring plaintiffs to demonstrate personal harm, which allows the firm to reduce the direct costs associated with "exploratory" lawsuits and lowers potential litigation costs.[2]

Given statutory laws (e.g., ERISA) are relatively stable, one empirical challenge in studying how employees' legal ability to sue employers affects corporate pension policies is isolating plausibly exogenous variation in employees' standing to bring ERISA claims across judicial courts. The Eighth Circuit ruling in *Thole* in 2017 represents an exogenous shock to employees' ability to monitor their DB pension plans, which reflects a more conservative interpretation of ERISA.[3,4] This ruling ties ERISA lawsuits to Article III standing by requiring

[2] Appendix A provides examples of ERISA lawsuits, which often extend for multiple years and impose litigation costs that can reach millions of dollars for sponsoring firms. Garman and Kubick (2025) also confirm that employee-initiated ERISA litigation generates substantial costs for firms.

[3] Liberal judges emphasize the protection of beneficiaries' rights and view legal standing as essential for holding sponsors accountable for potential mismanagement or breaches of fiduciary duty. Four liberal justices dissent from the Supreme Court's decision in *Thole* and express that the Court's decision "conflicts with common sense and longstanding precedent." Conservative judges often require concrete evidence of direct harm before allowing ERISA lawsuits because they prioritize plan sponsor discretion and limiting judicial intervention to maintain pension plan stability. In *Thole*, the conservative majority in the Supreme Court requires "concrete, particularized, and actual or imminent" injury for the standing under Article III standing of Constitution.

[4] Figure 1 presents the timeline of *Thole*. Participants in a DB pension plan sponsored by U.S. Bank, brought lawsuits against the sponsor under ERISA, alleging fiduciary breaches by the sponsor for failing to diversify investments and hiring incapable investment companies. The district court dismissed the case after the U.S. Bank's contributions brought the plan's funding above the required level. The Eighth Circuit affirmed this decision from the perspective of constitutional standing, and the Supreme Court further articulated that plan participants could not seek injunctive relief and damages without showing individual financial loss or imminent risk. This series of court rulings establish a judicial precedent wherein DB pension plan beneficiaries are deemed ineligible to pursue ERISA lawsuits regarding breaches of fiduciary duties unless they can demonstrate concrete financial harm.

employee beneficiaries to demonstrate financial harm before obtaining injunctive relief. Hence, by constitutionalizing legal standing in this way, the court ruling is unprecedented and curtails the traditional use of ERISA litigation as a private enforcement tool for employees, leading to a reduction in expected litigation risk for employers that sponsor DB pension plans.[5]

The impact of *Thole* on the management and administration of DB pension plans is *ex ante* ambiguous. On one hand, reducing employees' ability to monitor through litigation may expand fiduciaries' discretion and lead to greater risk-taking in pension portfolios. Because employers integrate pension policies into overall capital structure and financing decisions to maximize shareholder value (Rauh, 2009; Shivdasani and Stefanescu, 2010), changes in the governance of pension decision-making can affect the management and administration of DB pension plans. Under the deferred compensation nature of DB plans, risk-averse rank-and-file employees, as providers of firm-specific human capital, have a direct financial stake in pension outcomes and bear downside exposure (Ippolito, 1985; Rauh, 2009). This feature creates potential incentive misalignments in pension plan management, particularly when bargaining power is asymmetric and employee preferences diverge from those of the employer (Petersen, 1992; Dambra, 2018). Moreover, litigation-based monitoring under ERISA can discipline fiduciaries because lawsuits impose direct legal costs, reputational costs, and regulatory scrutiny. These costs constrain employers' decisions in managing DB pension plans. By raising the legal standing threshold under ERISA, *Thole* reduces employees' ability to sue and lowers sponsors' expected litigation costs. This change alters sponsors' cost-benefit tradeoffs and can increase risk-taking in DB pension plan investment policies.

[5] Figure 2 shows the historical trends of ERISA lawsuits and supports that the judicial precedent set by *Thole* substantially reduces firms' exposure to ERISA lawsuits initiated by employees and retirees. After the Eighth Circuit ruling in 2017, the total number of ERISA lawsuits decreased by 15.9%, from 145 to 122. Notably, the number of legal disputes over investment and financial services in pension plans decreased by 46.7%, from 15 to 8.

On the other hand, reduced employee monitoring through lawsuits may not affect employers' pension policies because the costs of employee lawsuits related to DB pension plans can be relatively low. Even when employees have the legal standing to sue employers over the management and administration of DB pension plans without proving personal financial loss, these ERISA lawsuits are often dismissed (Appendix A lists our case collections). Hence, employers may rationally expect that many employee ERISA claims alleging fiduciary breaches face a high dismissal risk and are unlikely to survive judicial scrutiny. If sponsors view such claims as having a low probability of success, litigation may impose limited expected costs and does not constrain managerial discretion in DB pension plan management and administration. Under this view, the reduction in employee litigation capacity after *Thole* should have little effect on pension risk-taking.

The *Thole* ruling represents an exogenous shock to employer litigation risk in the Eighth Circuit Court that required employees to provide evidence of damage to survive dismissal. Before *Thole*, plan beneficiaries in the Eighth Circuit Court jurisdiction were not required to provide evidence of harm to survive the dismissal hurdle. Plaintiffs in *Thole* argue that this decision conflicts with previous rulings from the Second, Third, and Sixth Circuits.[6] This circuit split between the Eighth and other Circuits allow us to estimate a difference-in-differences (DiD) analysis to examine how the reduction in employee lawsuits affects corporate pension policies. We assemble granular plan-level pension data from the IRS Form 5500 series and construct a comprehensive panel dataset for DB pension plans, which spans two years before and two years after the *Thole* ruling in the Eighth Circuit. Our empirical analysis based on the circuit split indicates that employers located in the Eighth Circuit increase their equity asset allocation by 11.85% and reduce investment advisory fees by 16.12% relative to the

[6] Eighth Circuit adheres to Article III standing and holds "*(t)hat participants cannot seek injunctive relief absent individual financial injury squarely*," while plaintiffs claim that court decision "*(c)onflicts with decisions from the Second, Third, and Sixth Circuits*."

sample means compared to those in the Second, Third, and Sixth Circuits.[7] Our findings suggest that the reduction in employees' litigation-based monitoring relaxes constraints on DB pension plan administration and management, allowing employers to undertake greater risk in their corporate pension policies.

We conduct three additional analyses to affirm the internal validity of our identification strategy. First, we use circuit court judge ideology (Huang et al., 2019) to identify liberal courts in 2017 and construct an alternative control group for the Eighth Circuit, which is typically a conservative jurisdiction. Our main inferences remain unchanged. Second, since the *Thole* ruling pertains to DB pension plans, DC pension plans, which should not be affected by this ruling, serve as ideal placebos for robustness tests. We investigate how the *Thole* ruling affects DC pension plans and find no changes in pension policies within these retirement investment vehicles. Finally, all the DiD analyses satisfy the parallel trend assumption and indicate that there are no systematic differences between the treatment and control groups before the shock. Taken together, these tests further corroborate that employers engage in more pension risk-taking when the employees' litigation-based monitoring ability is weakened.

Next, we investigate the economic trade-offs for employers based on a set of cross-sectional tests. We exploit cross-sectional variation in the existence of alternative monitoring mechanisms, the expected gains from plan risk-taking, and the divergence in employer–employee preferences. First, our results are stronger in the absence of alternative monitoring mechanisms, such as a collective bargaining agreement and fidelity bond coverage. Second, our results are strengthened when the pension's investment performance is poor and when plan sponsors make more monetary contributions. Finally, we provide evidence that the main effect

[7] We focus on equity investment and investment advisory fees because they represent two important channels through which employers adjust pension policies in response to changes in employee lawsuits pressure. Greater equity exposure reflects changes in portfolio risk and expected returns, whereas advisory fees capture reliance on external advisors who justify investment decisions when litigation-based monitoring weakens.

is more evidence in states with older populations and Republican-leaning political environments, where the divergence in employer-employee preferences are likely larger. Overall, these findings empirically support our primary findings that reduced litigation risk increase employer risk-taking in pension plans.

Moreover, external monitoring of public and private firms may influence how pension policies change after the Eighth Circuit ruling in *Thole*. Unlike their private counterparts, public firms are subject to greater scrutiny from the media, regulators, and institutional investors because of their high-profile visibility (Liang et al., 2023). As a result, public firms face stronger monitoring by market participants, which limits the impact of *Thole* on their pension risk-taking. In contrast, private firms experience weaker external monitoring environment, leaving employees more reliant on ERISA lawsuits to monitor the management and administration of DB pension plans. Therefore, we expect and find empirical evidence that plan sponsors increase pension risk more in private firms than in public firms following the *Thole* ruling in the Eighth Circuit.

We further examine whether shareholders benefit from the Eighth Circuit ruling in *Thole*, which grants firms greater flexibility in optimizing corporate pension policy with the primary operations of the firm. We analyze three-day cumulative abnormal returns (CARs) of DB pension plan sponsors headquartered in the Eighth Circuit jurisdiction around the announcement of the court decision for *Thole* (October 12, 2017). Consistent with our conjecture, we find that average CARs are significantly higher for plan sponsors located within the Eighth Circuit, with stronger positive market reactions among firms that sponsor larger DB pension plans. These results suggest that firms in the Eighth Circuit can better manage their pension and operating assets after the *Thole* ruling.

We further investigate whether the positive market reaction to the *Thole* ruling in the Eighth Circuit is related to the economic efficiency of pension assets after *Thole*. We

specifically find that firms under the Eighth Circuit jurisdiction experience higher size-adjusted returns on investments, lower employer contributions, and reduced probability of terminating DB pension plans. These findings suggest that DB pension plan sponsors allocate a smaller percentage of their assets to satisfy pension obligations, which frees up capital to fund other investments. Moreover, we provide descriptive evidence that the number of failed payments by plan sponsors to plan beneficiaries also decreases in the Eighth Circuit after the *Thole* ruling relative to other Circuits.[8] These findings illustrate that employers and employees experience economic welfare enhancements when employees do not constrain managerial discretion for the management and administration of DB pension plans through litigation-based private enforcement. This pattern is consistent with risk management incentives documented in prior studies (e.g., Rauh, 2009) and contrasts with the risk shifting view that shareholders benefit at the expense of employees through risky investments of pension plan assets.

To the best of our knowledge, this paper is the first to study employee lawsuits filed under ERISA. We contribute to the literature on private enforcement in the corporate economy. La Porta et al. (1998) demonstrate that the legal system shapes corporate economy outcomes, with common law countries providing stronger protection for corporate stakeholders. Subsequent research confirms that private enforcement in common law environments by shareholders and debtholders influences corporate policies (Esty and Megginson, 2003; Hutton et al., 2022). However, little evidence exists on whether and how litigation-based private enforcement by employees, who represent "the most crucial asset" for firms (Zingales, 2000), affects corporate outcomes. We address this gap by examining ERISA lawsuits as a legal

[8] Due to limited data on failed benefit payments from Schedule H, we could not conduct a valid regression analysis and instead present descriptive statistics. Our descriptive analysis suggests that the Eighth Circuit has not reported failed payments after 2017, while other circuit courts have recorded instances of failed payments. Specifically, in 2015-2016 the Eighth Circuit recorded three failed payments, compared with an average of ten per year in the Second, Third, and Sixth Circuits. However, during 2017-2019, the Eighth Circuit reported no failed payments, while the control Circuits averaged three per year.

channel through which employees influence corporate pension policies. Our findings inform the broader law and finance literature on the real effects of private enforcement, especially for labor-related issues.

Second, our research makes beneficial additions to the literature on delegated asset management (e.g., Bhattacharya et al. 2025; Cassella et al. 2026). We highlight that fiduciary duty rules, while designed to mitigate agency conflicts in delegation, may generate unintended distortions that reduce economic efficiency. Our findings also carry policy implications and inform ongoing policy discussions regarding DOL's efforts to expand fiduciary obligations under ERISA, particularly through the regulation of investment advice in retirement plans. Our results indicate that when judicial interpretations relax constraints imposed by employee litigation on managerial discretion, the economic efficiency of corporate-sponsored DB plans improves, suggesting that employee lawsuits may potentially impede employers' ability to implement optimal pension policies. Our findings also echo recent DOL's intentions to rely less on "regulation by litigation."[9] We suggest that a more flexible regulatory approach to corporate-sponsored pension plans may enhance welfare for both employers and employees.

Finally, our research contributes to the vast literature on retirement-related investment vehicles. Our study delineates the plan sponsors' economic tradeoffs when varying the risk of employee-initiated ERISA lawsuits. We provide evidence that sponsoring firms of DB pension plans take into consideration the expected costs of employee lawsuits when establishing pension policies. Our evidence adds to the long-standing debate over risk-shifting (e.g., Anantharaman and Lee, 2014; Guan and Lui, 2016) and risk-management (e.g., Rauh, 2009; Pedersen, 2019; Agrawal and Lim, 2022) incentives in corporate pension policy. Our findings

[9] U.S. Department of Labor Deputy Secretary Keith E. Sonderling, speaking during SIFMA's "Private Markets Roundtable Series Part 2: Liquidity and Transparency," a virtual event held on January 7, 2026, said that "*the most important thing we can do is lead with compliance assistance, lead with giving the information that you all need to ensure that your workers are protected and not have it done through enforcement, not have it done through litigation*."

align with prior studies that emphasize risk management incentives in corporate pension policies because we do not find evidence that greater pension risk-taking is detrimental to employees' interests.

2. Institutional Background and Hypothesis Development

2.1 Fiduciary Duty and *Thole v. U.S. Bank*

Liberal coalitions from the 1930s to the 1990s advocate the enactment of significant employee protection statutes, such as the influential ERISA (Brudney and Ditslear, 2008). ERISA enforcement regime sets forth employers' fiduciary responsibilities for pension plans, mandates that plan sponsors prioritize the best interests of plan participants, and gives plan participants the right to sue for fiduciary duty breaches.

Even though the DOL enforces the law by conducting investigations, informally resolving benefit disputes, and seeking correction of violations, it lacks the resources to uphold ERISA singlehandedly and relies on plan beneficiaries' private right of legal action to police fiduciary misconduct. The DOL has consistently emphasized that employee-initiated ERISA lawsuits are crucial for enforcing ERISA because the agency lacks sufficient resources to monitor retirement plans on its own.

However, *Thole* is the death knell of breach-of-fiduciary-duty claims against sponsors of DB pension plans. Figure 1 shows the chronological events in *Thole*. In 2014, two retirees, James *Thole* and Sherry Smith, initiated a putative class action against U.S. Bank, alleging fiduciary duty breaches in a DB pension plan, including imprudent investment, prohibited transactions with a subsidiary company, and severe pension underfunding during 2008. They sought injunctive relief and requested that the defendant repay the remaining losses and replace the pension plan manager.

Amid ongoing litigation, U.S. Bank contributed $311 million to the plan and argued that the plaintiffs had suffered no concrete financial loss. The district court granted the motion to dismiss because the post-filing contributions rendered the case moot. On appeal, the Eighth Circuit affirmed the dismissal on October 12, 2017, but relied on different grounds. The court held that the plaintiffs lacked Article III standing because they had not shown any 'actual or imminent injury' to their pension interests.

The plaintiffs then petitioned the Supreme Court and argued that the Eighth Circuit's ruling conflicts with other decisions from the Second, Third, and Sixth Circuits and "*severely undermines ERISA's protections and the rationale for authorizing injunctive relief*." However, in a 5-4 split, the conservative majority sided with the two lower courts on June 1, 2020, joining them in rejecting the plaintiffs' appeals to revive the ERISA lawsuit on fiduciary duty breach. The Supreme Court further articulated that a personal particularized injury is required to form the Article III standing for ERISA claims about fiduciary duty breaches and held that pension recipients lack standing to challenge fiduciaries' actions without any concrete financial harm.

Thole significantly reshapes the landscape of ERISA lawsuits against pension plan sponsors. Figure 2 depicts the historical trends of ERISA lawsuits and shows that the judicial precedents set by *Thole* significantly reduce plan sponsors' exposure to ERISA litigation initiated by employees and retirees. Following the Eighth Circuit Court's decision in 2017, the total number of ERISA lawsuits decreased by 23, from 145 to 122. Specifically, legal disputes over investment and financial services in pension plans fell by 7, from 15 to 8. The Supreme Court's decision in 2020 further contributed to the decline in ERISA lawsuits.

2.2 Defined Benefit Pension Plans

Private DB pension plans, structured as separate trust funds from the corporate sponsor, provide participants with prespecified benefit payments after retirement. As of 2023, such benefit schemes in the U.S. serve over 3.1 million employees and retirees with total pension

assets exceeding $3.67 trillion (Department of Labor, 2023). Participants have financial claims similar to debtholders due to the fixed nature of their benefits (Ippolito, 1985), yet they lack direct governance control over the plans. Senior corporate executives (e.g., CFO and CEO) collaborate with external investment consultants and the investment committee of the board of trustees to make significant decisions regarding the pension policy (Anantharaman and Lee, 2014). Consequently, the principal-agent relationship inherent in DB pension plans makes corporate pension policy a subject of sustained academic interest. Extant studies highlight two distinct incentives driving corporate pension policy in response to firm risks: risk shifting and risk management.

The risk-shifting hypothesis suggests that DB pension plan sponsors transfer risks to employees and predicts a positive relation between firm risk and pension risk-taking. This agency problem is similar to the shareholder-debtholder conflicts documented in prior literature (e.g., Jensen and Meckling, 1976). Shareholders of pension firms possess an implicit put option written on the plan assets that is exercisable in bankruptcy at a strike price equal to the value of the pension liabilities (Sharpe, 1976; Treynor, 1977). In the presence of firm risks (e.g., financial distress), shareholders are incentivized to maximize the put option values by shifting pension risks to employees, including underfunding pension plans and making risky investments. The establishment of PBGC further exacerbates this risk-shifting problem (Love et al., 2011).

Prior studies document the prevalence of risk-shifting incentives among firms that sponsor DB pension plans. Anantharaman and Lee (2014) show that distressed pension firms with underfunded pension plans tend to choose riskier pension investments, especially when their executives' wealth is highly sensitive to the company's risk. Guan and Lui (2016) find that, among DB pension plan sponsors under the coverage of PBGC insurance, those with more significant financial distress and severely underfunded pensions also opt for riskier pension

asset allocations, indicating the structural flaws of the U.S. pension system. Agrawal and Lim (2022) find that when pension firms are targeted by hedge fund activism, their DB pension plans experience underfunding and experience reductions in employer contributions. Recently, Garman and Kubick (2025) find that after the adoption of stakeholder constituency statutes, affected firms incorporated there significantly reduce pension risk-shifting, especially at firms with fewer investment opportunities.[10]

On the other hand, the risk management hypothesis suggests that DB pension plan sponsors will incorporate pension risks into the company's overall financial policies and plan sponsors tend to reduce risk-taking in DB pension plans in the face of heightened firm-level risks. According to Leland (1998), there is a tension between factors that enhance the value of risk management and the incentives for risk shifting. Poor investment outcomes in pension funds compel the firm to make cash contributions to the pension funds (Rauh, 2006). If the firm survives and must make significant statutory contributions to its pension plan, it will lose all benefits from effective risk management.

Consistent with this view, Rauh (2009) demonstrates that pension firms facing higher bankruptcy risks prefer safer asset allocations for their pension plans. Those findings indicate that, on average, the incentive to manage risk and avoid costly financial distress outweighs the temptation to shift risk. Similarly, Bartram (2018) suggests that firms manage their pension plans as part of their overall financial strategy. Moreover, Guan and Tang (2018) provide evidence that pension plan sponsors incorporate employees' risk attitudes and make investment decisions that are aligned with plan participants' preferences. Pedersen (2019) further supports

[10] Our research is distinct from Garman and Kubick (2024), which examines the effects of stakeholder constituency statutes at the state level on pension risk shifting. Rather than focusing on broad statutory changes with indirect implications for pension policy, in this paper, we exploit a sharp judicial shock to employee litigation standing under ERISA and use granular data at the plan-level to examine how litigation-based monitoring directly affects pension governance and efficiency. We find that limiting litigation-based private enforcement by employees could potentially improve pension efficiency without harming employees, which highlights litigation-based monitoring as a costly and imperfect governance mechanism.

the risk management hypothesis by showing that firms do not transfer risk to DB pension plan beneficiaries after the revelation a firm's employees have been exposed to a carcinogen, which will increase plan sponsors' long-term liability unexpectedly.

2.3 Form 5500 Series

Developed by the DOL, IRS, and PBGC, the Form 5500 Series helps employee benefit plan sponsors meet annual reporting requirements under ERISA and the Internal Revenue Code (IRC). Unlike most federal tax forms, Form 5500 must be filed not only with the IRS but also with the DOL (Cussatt and Demere, 2023). Every firm, public or private, that sponsors employee benefit plans covering more than one hundred employees under ERISA is required to submit a Form 5500 for each plan by the end of the seventh month after the plan year concludes, with the option for a two-and-a-half-month extension.

Form 5500s serve multiple purposes for various stakeholders and contain detailed plan-level information. This filing framework ensures compliance for the DOL and IRS, provides information for plan beneficiaries, and offers valuable granular data for government agencies, Congress, and businesses to assess employee benefits, taxes, and economic trends (e.g., Employee Benefits Security Administration, 2022; Cussatt and Demere, 2023). Hence, in meeting multiple information needs, Form 5500 Series incorporates significant details on plan characteristics (Form 5500 and 5500 SF), regulatory compliance (Schedule R), service provider (Schedule C), financial information (Schedule H), and actuarial assumptions (Schedule SB and MB).[11]

Compared to the Compustat pension database, Form 5500 has distinct advantages and is frequently used in pension research in economics (e.g., Bergstresser et al., 2006), finance (e.g., Rauh, 2006), and accounting (e.g., Cussatt and Demere, 2023). Form 5500 uses a 12-digit

[11] See more details in Instructions for Form 5500 Annual Return/Report of Employee Benefit Plan: https://www.dol.gov/sites/dolgov/files/ebsa/employers-and-advisers/plan-administration-and-compliance/reporting-and-filing/form-5500/2023-instructions.pdf

identifier comprising a 9-digit EIN (Employer Identification Number) coupled with a 3-digit plan number for individual benefit plans to deliver rich plan-level details, facilitating researchers to explore variations across plans. In contrast, Compustat relies on public companies' 10-K disclosures under SFAS 158 (Amir et al., 2010) and SFAS 132(R) (Chuk, 2013) to establish pension records, resulting in less granular pension information aggregated at the sponsor level.

2.4 Hypothesis Development

We hypothesize that a reduction in employees' ability to initiate ERISA lawsuits alters employers' pension policy choices and leads to greater risk exposure in DB pension plans. DB pension plans allocate investment authority to employers, who act as fiduciaries on behalf of employees. Litigation under ERISA provides a formal mechanism through which employees can monitor pension management and discipline fiduciary behavior. At the same time, litigation imposes legal costs, reputational concerns, and regulatory scrutiny, which may limit managerial discretion in pension policy choices. As a result, litigation-based monitoring shapes the tradeoff between fiduciary discipline and flexibility in pension investment decisions.

The institutional structure of DB pension plans links pension policies to firm-level financial incentives. Employers promise deferred pension benefits and fund these obligations through a legally separate trust. Because plan sponsors face limited liability in bankruptcy, pension obligations resemble fixed claims, and sponsors do not need to satisfy pension shortfalls with non-corporate assets (Ippolito, 1985). In this setting, pension liabilities create convex payoffs to sponsors with respect to pension asset values, and higher volatility of pension assets increases the expected value of these payoffs (Sharpe, 1976; Treynor, 1977). Hence, this structure effectively links pension investment choices to broader firm-level risk and financing considerations.

Prior research shows that firms integrate pension policies into capital structure and risk management decisions. Firms may select pension asset allocations that reduce required contributions (Rauh, 2006), hedge growth in pension obligations (Sundaresan and Zapatero, 1997), or allow exposure to higher expected returns consistent with firm-wide investment strategies (Froot et al., 1993; Peterson, 1994). Empirical studies further indicate that firms treat DB pension plans as part of consolidated balance sheets when they optimize financial policies (Rauh, 2009; Shivdasani and Stefanescu, 2010). These findings suggest that plan sponsors actively evaluate pension investment and administrative choices as an integral part of overall firm value maximization.

ERISA litigation could affect managerial decisions by increasing the expected cost of pension policy choices that deviate from beneficiaries' preferences. Risk-averse employees may initiate lawsuits even when plans remain fully funded, which may discourage firms from selecting pension policies that involve higher portfolio risk or reduced external oversight. Hence, the anticipation of litigation may therefore constrain managerial discretion in pension management and affect both investment allocations and administrative decisions.

The Eighth Circuit's decision in *Thole v. U.S. Bank* restricts employees' legal standing to sue for alleged fiduciary breaches absent concrete financial loss. This ruling reduces the scope of litigation-based monitoring and lowers expected litigation risk for corporate sponsors. By altering the cost-benefit tradeoff associated with optimal pension policy choices, *Thole* may lead firms to reassess pension plan management strategies. Lower legal exposure to employee lawsuits may allow for greater allocations to riskier assets by reducing concerns about ex-post scrutiny of investment outcomes. Moreover, reduced ERISA litigation risk may reduce reliance on external pension advisers by weakening incentives to demonstrate procedural prudence and monitoring.

At the same time, weaker litigation-based monitoring of employees may have little effect on pension policies adopted by employers if ERISA lawsuits rarely constrain plan sponsors in practice. Courts dismiss many claims at early stages, so firms may already view employee litigation as imposing low expected costs even before *Thole*. Additionally, employees may also influence pension decisions through non-judicial channels, such as labor unions. Consistent with this view, Guan and Tang (2018) show that firms account for employee risk preferences in pension portfolio choices. When these alternative channels exist, additional limits on litigation rights may not lead to observable changes in pension policies.

Hypothesis: *Following the court ruling in Thole, employers subject to reduced litigation-based monitoring by employees adjust DB pension policies toward higher-risk investment allocations and lower reliance on external investment advisors.*

3. Research Design and Sample Construction

3.1 Identification Strategy: Difference-in-Differences Estimation

We use the Eighth Circuit's ruling in *Thole* as the exogenous shock to the judicial interpretation of fiduciary duty for DB pension plans because it provides a cleaner quasi-natural experiment than the subsequent Supreme Court decision. First, the Supreme Court issued its decision in *Thole* on June 1, 2020, during the outbreak and escalation of the COVID-19 pandemic. This turbulent period introduces unobservable confounding factors that complicate time-series identification. Second, the Supreme Court's nationwide ruling affected all DB pension plan sponsors simultaneously, eliminating the possibility of identifying comparable control groups to infer cross-sectional differences. Thus, the Supreme Court decision in *Thole* does not provide an ideal empirical setting for our DiD identification strategy.

In comparison, the Eighth Circuit Court decision was announced on October 12, 2017, a more tranquil period. Moreover, plaintiffs argue that the Eighth Circuit Court's holding "*that*

participants cannot seek injunctive relief absent individual financial injury squarely conflicts with decisions from the Second, Third, and Sixth Circuits," where "no individual financial loss is necessary; violation of petitioners' rights under ERISA is enough to show standing." Leveraging this circuit split, we use DB pension plan sponsors in the Second, Third, and Sixth Circuits as the control group for our DiD analysis. Our empirical specification is constructed as below:

$$Outcome\ Variables_{i,j,t}=\alpha+\beta\times Treat_{i,j}\times Post_t+\Gamma X_{i,j,t}+\theta_{i,j}+\gamma_t+\varepsilon_{i,j,t} \quad (1)$$

We use two pension plan-level outcomes to measure the corporate pension policy. First, *Equity Investment* is the proportion of total plan assets allocated to equities (i.e., the sum of lines 1c(4)(A), 1c(4)(B), and 1(d)(1) in Schedule H scaled by total pension assets) for plan i of firm j in plan year t and measures plan sponsors' risk-taking in pension investment strategy (e.g., Amir et al., 2010; Anantharaman and Lee, 2014). Second, *Advisory Fee* is defined as the investment advisory and management fees (i.e., line 2i(3) in Schedule H) scaled by total pension assets and captures the amount of financial resources the plan sponsor devoted to sophisticated investment decisions. Employers rely on external investment advisors to demonstrate procedural prudence for the management and administration of DB pension plans.

We further include a series of time-varying pension plan-level characteristics, which include the natural logarithm of net pension assets (*Pension Size*), whether this plan is subject to funding requirement (*Funding Requirement*), and whether this plan is audited by big four accounting firms (*Big 4*). Following Munnell et al. (2015), we calculate plan-level investment returns and include the investment return in year *t* (*Return*) and year *t-1* (*Lag Return*) as control variables. We also control for the investment return volatility in Equation (1), the standard deviation of investment returns in the past four years at the plan level (*Return Volatility*).

The coefficient for $Treated_{i,j}\times Post_t$ is effectively a DiD estimate of the average treatment effect of the Eighth Circuit ruling in *Thole* on the outcome variables of interest. In

this DiD framework, any DB pension plan sponsored by employer located in a state within the Eighth Circuit is considered a treated plan.[12] In contrast, any DB pension plan sponsored by employer located in a state within the Second, Third, and Sixth Circuit is considered a control plan. Firm-plan fixed effects are included to ensure that static differences across DB pension plans do not account for observed patterns in the management and administration of pension plans. Year fixed effects control for time period-specific changes in the outcome variables. We cluster standard errors by state to address any residual correlations among error terms across firms within each state because our independent variable of interest varies at the state level (Bertrand et al., 2004).[13]

3.2 Internal Validity of Difference-in-Difference Estimation

We conduct the following falsification tests to corroborate the internal validity of our identification strategy. First, we use an alternative control group for our DiD estimations. Historically, democrats have supported labor rights and advocated for employee protections that concern employees' status (Klein, 2004), and liberal judges usually favor employees in ERISA lawsuits. However, conservative judges tend to make pro-employer decisions. In the Supreme Court decision in *Thole*, all five conservative justices held that employees do not have the standing to bring ERISA lawsuits if their benefits were not harmed, diverging from four liberal justices' pro-employee interpretation, which supported employees' legal standing to sue even without direct injury to their benefits. Hence, we rely on the median of circuit judge ideology (Huang et al., 2019) in 2017 to distinguish conservative and liberal circuits. As the Eighth Circuit is considered one of the most conservative circuit courts, we use employers that sponsor DB pension plans in liberal circuits as the control group to re-estimate our DiD

[12] We retrieve the employers' state from the sponsor address reported on IRS Form 5500. We do not use the firm's headquarters location. The Form 5500 sponsor address reflects the legal and administrative location of the pension plan sponsor, which is more directly relevant for plan governance and regulatory oversight than the firm's corporate headquarters.

[13] Our empirical results are robust to clustering standard errors at the firm or the circuit level.

estimations. These liberal circuits include the Second, Third, Fourth, Ninth, and Eleventh Circuits. Our main inferences remain unchanged under this alternative control group.

Second, we study the impact of the Eighth Circuit ruling in *Thole* on DC pension plans. For DC pension plans, employers and employees contribute regularly to individual accounts. However, employees submit investment instructions directly to the trustee and bear all associated risks. Two reasons make DC pension plans ideal for our placebo test. First, *Thole* primarily addresses the legal standing of DB pension plan beneficiaries; hence, DC pension plans remain relatively unaffected by the judicial interpretations set forth in that case. Second, despite *Thole*, federal courts demonstrate that the injury-in-fact requirement of Article III is not "Mount Everest" in the context of DC pension plans because DC pension plan beneficiaries have a concrete stake in the lawsuits over the management and fees associated with their plans.[14] Consistent with our expectations, we do not find any observable changes in the equity investment and advisory fees in DB pension plans after the Eighth Circuit Court decision.

Third, parallel trend assumption is the cornerstone of the DiD identification strategy. Using Equation (2), we estimate the dynamic effects and find no significant pre-*Thole* trends between the treated and control groups. However, all the point estimations are statistically significant from zero in the DB pension plan analysis, whereas none show distinction from zero in the DC pension plan analysis, lending support to our identification strategy.

$$Outcome\ Variable_{i,j,t}=\alpha+\beta_1\times Treat_{i,j}\times D_{t=2015}+\beta_2\times Treat_{i,j}\times D_{t=2016}+$$

$$\beta_3\times Treat_{i,j}\times D_{t=2017}+\beta_4\times Treat_{i,j}\times D_{t=2018}+\beta_5\times Treat_{i,j}\times D_{t=2019}+\Gamma X_{i,j,t}+\theta_{i,j}+\gamma_t+\varepsilon_{i,j,t} \quad (2)$$

3.3 Sample Construction and Distributional Properties

[14] For example, the Third Circuit court ruling for *Boley v. Universal Health Services* in 2022 concluded that plaintiffs had standing to challenge the allegedly excessive record-keeping and administrative fees because these fees allegedly injured them and affected all plan participants in the same way.

Our initial sample comes from the IRS Form 5500 series. First, we focus on plans with DB pension features, identifiable by a specific plan characteristics code commencing with 1 for lines 8a and 8b in Form 5500. Second, when a company submits multiple filings for the same plan within a single year, we retain only the most recent record. Third, since more than 85% of plans have plan years that coincide with calendar years, we include only these plans to ensure consistency. Fourth, we consider only pension plans with more than 100 participants, as only these plans are required to file detailed plan-level financial information in Schedule H. Fourth, each Form 5500 submission and its schedules are identified by a unique acknowledgment ID (ACK ID), which we use to merge different plan-level tables.[15] Finally, to avoid any potential impact from the Supreme Court's ruling for *Thole* on June 1, 2020, which coincides with the COVID-19 pandemic, we set the sample period for the empirical analysis to be from 2015 to 2019.[16]

We further refine our initial sample for empirical analysis. First, we select only plans with positive net assets, as beneficiaries can still sue sponsors if the plans lack sufficient assets to cover current pension obligations in the new judicial regime. Second, we exclude plans with over 20% of assets invested in mutual funds and opaque assets (Rauh, 2009; Anantharaman and Chuk, 2018). We also remove plans with assets whose current value was neither readily determinable on an established market nor set by an independent third-party appraiser (i.e., line 4g in Schedule H). Third, we treat plan investment returns above 500% or below -80% as data errors and exclude them from our sample (Rauh, 2009). Finally, we remove observations with missing control variables and require each plan to have consecutive observations during the sample period. These filters yield 14,240 firm-plan-year observations, comprising 2,848 unique

[15] See more details about Form 5500 Datasets Guide: https://www.dol.gov/sites/dolgov/files/EBSA/about-ebsa/our-activities/public-disclosure/foia/form-5500-datasets-guide.pdf.

[16] Untabulated results suggest that our findings remain unchanged if we include the observations of 2020 in our sample.

plans sponsored by 1,612 unique employers located in the Second, Third, Sixth, and Eighth Circuit Courts during 2017.

Table 1 presents the distributional characteristics of the sample. We winsorize all continuous variables at the 1st and 99th percentiles. The sample covers 2015–2019, including two years after the *Thole* ruling in the Eighth Circuit; approximately 37.7% of observations come from the Eighth Circuit and were affected by *Thole*. Within the sampled DB pension plans, the average allocation to equity investments is 14.14% of plan assets, and investment advisory fees constitute approximately 0.26% of total assets. The average pension investment return is 4.7%. Panel B presents correlations among the dependent and control variables. Overall, the summary statistics are consistent with prior literature (e.g., Rauh, 2006, 2009).

4. Sample Construction and Descriptive Statistics

4.1 *Thole* and Defined Benefit Pension Plans

Table 2 presents our DiD estimation results from Equation (1).[17] All estimated coefficients on *Treated* × *Post* reach statistical significance at the 5% level or better. Those findings suggest that, following the Eighth Circuit ruling in *Thole*, employers located in the Eighth Circuit increase equity investments and reduce advisory fees in their DB pension plans, relative to their counterparts in the Second, Third, and Sixth Circuits. On average, treated plan sponsors will allocate an additional 1.68% of plan assets to equities and will decrease investment advisory fees by approximately 0.04% of plan assets.

We further examine the evolution of the treatment effects. Figure 3 reports the dynamic estimates from Equation (2) with 2017 as the benchmark year. The coefficients before the 2017

[17] We include firm-plan and year fixed effects in our DiD specification. Following the approach of Jennings et al. (2024), we run a regression of the independent variable of interest on the fixed effects structure. Our fixed effects account for only about 55% of the variation in our independent variable of interest, *Treated* × *Post*.

judicial ruling do not differ statistically from zero, supporting the parallel trends assumption. After the ruling, all coefficients differ significantly from zero. This pattern provides evidence for the validity of our identification strategy and empirical approach. Our main specification indicates that reduced constraint from employee lawsuits under ERISA leads employers to adjust corporate pension policies by allocating more assets in equities and scaling back reliance on external investment advisory services.

4.2 *Thole* and Defined Contribution Pension Plans: Placebo Test

In this section, we use Equation (1) to examine how *Thole* affects DC pension plans as a placebo test. Under these benefit arrangements, employers and employees make regular contributions to individual accounts. Unlike DB pension plans, employees make all investment decisions for their accounts and bear the associated investment risks. Retirement benefits depend on both contributions and investment returns. *Thole* concerns corporate pension policy in DB pension plans; therefore, employee litigation for DC pension plans should remain unaffected by the court ruling, making such plans an ideal placebo for our DiD estimations.

We obtain DC pension plan records from Form 5500 Series using the same procedures described in Section 3.3. We select plans with plan characteristics codes beginning with 2 for lines 8a and 8b in Form 5500. Our sample indicates that approximately 92% of firm-plan-year observations do not have funding requirements, because only money purchase DC plans are subject to such standards.[18]

Table 3 reports DiD regression results based on DC pension plans, using the Second, Third, and Sixth Circuit courts as the control group. Consistent with expectations, the estimated coefficients on *Treated* × *Post* are not statistically different from zero, indicating that *Thole* does not affect the management or administration of DC pension plans. We further examine

[18] As per Internal Revenue Code § 412, a plan meets the minimum funding standard for a given year if, for a money purchase plan (excluding multi-employer plans), the employer contributes to the plan for that year as required by the plan's terms.

the dynamic estimates from Equation (2) in DC pension plans. Figure 4 shows that all estimated coefficients are indistinguishable from zero. Collectively, this evidence suggests that the *Thole* ruling does not affect DC pension plans and supports the internal validity of our DiD estimations.

4.3 Robustness Test: Using Liberal Circuit Courts as the Control Group

In this section, we replace the control group with circuit courts characterized by liberal judge ideology to re-estimate Equation (1). The classification of liberal circuit courts follows the judge ideology measure developed by Huang et al. (2019). Circuits with ideology scores above the median in 2017 constitute the control group of liberal circuit courts, which includes the Second, Third, Fourth, Ninth, and Eleventh Circuits.

Panel A of Table 4 reports the results of the DiD estimation for DB pension plans based on this specification of the control group. The estimates remain consistent with the baseline results, with coefficients for *Treated* × *Post* of similar economic magnitude to those presented in Table 2. Panel B presents the corresponding results for DC pension plans. The estimates fail to reject the null of no effect of *Thole* on investment strategy or on the use of investment services in DC pension plans. Taken together, the estimations based on the alternative control group reinforce the main finding that a reduction in litigation risk from employee lawsuits induces firms to increase equity investment and to reduce reliance on external financial advisory services.

4.4 Cross-sectional Evidence

Our economic story relies on how companies evaluate the cost and benefit of pension risk-taking. Pension firms incorporate employees' risk preferences and potential legal actions into their optimal decision of corporate pension policies. Before court ruling, firms rationally manage and administer DB pension plans with the marginal benefit of pension risk-taking equal to the marginal cost of such pension policies (i.e., ERISA lawsuits-related costs). The judicial

decision in *Thole* disrupts firms' cost consideration of employee litigation under ERISA. We argue that the changes in risk-taking will be more pronounced for plan firms with more substantial incentives for risk-taking but are relatively more constrained by plan beneficiaries' lawsuits. Hence, we conduct three sets of cross-sectional tests to delineate plan sponsors' economic tradeoffs.

External Monitoring Environment

We investigate the extent to which heterogeneous costs of pension risk-taking shape how the judicial ruling in *Thole* affects the management and administration of DB pension plans. Plan sponsors face multiple monitoring mechanisms for their pension policies. When employees possess alternative means to discipline corporate pension decisions, ERISA lawsuits play a less critical role in influencing pension policy. In such cases, limiting plan beneficiaries' legal standing may not reduce the costs of risk-taking in DB pension plans because external scrutiny remains. Hence, we predict that the effect of *Thole* is more pronounced for pension firms without strong external monitoring.

We operationalize this cross-sectional prediction through two governance mechanisms in pension plans: collective bargaining and fidelity bond coverage. Collective bargaining in DB plans refers to negotiations between employers and employee representatives over the management and administration of the pension plan. Fidelity bond coverage insures the plan against losses caused by fraud or dishonesty by plan fiduciaries. These governance structures enhance beneficiaries' ability to influence pension policies. Without those two governance mechanisms, ERISA lawsuits become more important for beneficiaries to constrain sponsors' risk-taking behavior.

Panel A of Table 5 reports cross-sectional evidence consistent with these predictions. We define two indicator variables equal to one if a DB plan lacks collective bargaining arrangements and fidelity bond coverage in 2017. We interact this variable with *Treated* × *Post*

to construct a triple-interaction term. Estimated coefficients on this term are significant across all four specifications, indicating that the effect of the Eighth Circuit's *Thole* ruling is stronger when external monitoring of employees is weaker. Overall, the cross-sectional evidence confirms that plan sponsors consider the costs of external scrutiny when determining pension risk-taking.

Incentives of Risk-Taking

We further examine how plan sponsors' incentives for pension risk-taking affect the impact of the judicial ruling in *Thole* on the management and administration of DB pension plans. Based on our economic analysis, pension firms' incentives are driven by the potential benefits of risk-taking in DB pension plans. Plan sponsors aim to fulfill pension obligations with minimal costs; hence, they intend to minimize employer contributions and pursue higher returns on pension investments. Consequently, we predict that the effect of the Eighth Circuit ruling in *Thole* will be stronger among plans with higher pension contributions and poorer investment performance.

We create two partition variables based on plan-level investment returns and employer contributions in 2017. The first partition variable equals one if a plan's investment returns fall in the bottom quartile among DB pension plans in the same state in that year. The second partition variable equals one if a plan's employer contributions fall in the top quartile among DB pension plans in the same state in that year. We then interact these partition variables with *Treated* × *Post* to estimate the coefficient on the triple-interaction term in our cross-sectional analysis.

Panel B of Table 5 presents our cross-sectional analysis based on the plan-level investment performances and employer contributions. Consistent with our predictions, the effect of the judicial ruling in *Thole* on the management and administration of DB pension plans is more pronounced for pension plans with poorer investment performances and more

employer contributions. Those results corroborate the economic benefits of employers' risk-taking behavior in DB pension plans.

Employer-Employee Risk Preference Divergence

In this section, we examine how divergence in risk preferences between employers and employees shapes pension policy responses. Congress and regulators impose fiduciary duty on plan sponsors to address differences in preferences across stakeholders. Within this legal framework, plan beneficiaries may initiate litigation if they object to the management or administration of DB pension plans. Because employee beneficiaries typically favor more conservative pension policies, greater divergence between beneficiary preferences and fiduciary decisions may increase the likelihood of legal challenges. As a result, variation in employer–employee risk preferences influences the intensity of litigation-based monitoring faced by plan sponsors. We proxy for employer–employee risk preference divergence using two measures. First, we exploit geographic variation in political ideology at the plan sponsor's locations. Employers located in Democratic-leaning states exhibit greater sensitivity to employee attitudes than those located in Republican-leaning states (Di Giuli and Kostovetsky, 2014). We argue that divergence in risk preferences between plan sponsors and beneficiaries is more pronounced among DB pension plans whose sponsors operate in Republican-leaning states. To capture this variation, we collect presidential voting outcomes by state and construct an indicator based on whether the sponsor's location state voted Republican in the 2016 election.

Second, plan sponsors and beneficiaries may differ in investment horizons. Senior employees and retirees typically place greater weight on the near-term security of pension benefits. As a result, plans with an older beneficiary base may exhibit stronger preferences for conservative pension policies. We measure beneficiaries' investment horizons using the state-

level fraction of residents aged 65 or older (Becker et al., 2011) and construct an indicator based on whether this measure exceeds the median across states.

Panel C of Table 5 presents cross-sectional analyses based on employer–employee risk preference divergence. Consistent with our predictions, the effect of the Eighth Circuit's ruling in *Thole* is more pronounced for DB pension plans whose sponsors are located in Republican-leaning states and in states with a larger senior population. These results indicate that the effect of *Thole* on the management and administration of DB pension plans is larger when there exists greater employer–employee risk preference divergence.

4.5 Does *Thole* Influence Public and Private Firms Differently?

In this section, we further investigate whether public and private sponsors of DB pension plans respond differently to the judicial ruling in *Thole*. Unlike their private counterparts, public firms are subject to greater public scrutiny from the media, regulators, and institutional investors. Such public scrutiny matters for two reasons. First, labor market forces do not fully resolve divergence in objectives between employers and employees, as employees typically lack sufficient bargaining power to influence corporate pension policies (Johnson, 2020). Second, limited regulatory resources constrain the enforcement of ERISA, which leads the DOL to concentrate oversight on more visible entities, particularly public firms.

Prior research highlights the importance of public scrutiny in protecting employee welfare (e.g., Christensen et al., 2017; Dube and Zhu, 2021). Employees and retirees of public firms benefit from external mechanisms beyond ERISA litigation to influence pension policies. Private firms face fewer external pressures, we therefore expect the effect of the Eighth Circuit ruling in *Thole* to appear more strongly in DB pension plans sponsored by private entities.

Table 6 reports subsample regressions for private and public DB pension plan sponsors. We identify public sponsors by matching EINs from the Form 5500 series with the Compustat database and classify sponsors as public if they were listed in 2017. Consistent with our

expectations, the coefficients on *Treated* × *Post* are not statistically significant for pension plans sponsored by public firms, though they are marginally significant. In contrast, the main effects appear in DB pension plans sponsored by private firms. These results suggest that the impact of the *Thole* ruling is concentrated among private DB pension plan sponsors, who face fewer external oversight mechanisms and whose employees must rely more heavily on private enforcement to influence corporate pension policy. By limiting employees' ability to bring litigation, the ruling increases the incentives for private firms to redesign the management and administration of DB pension plans.

4.6 Stock Market Reactions to *Thole*

As DB pension plan sponsors benefit from reduced employee litigation risk, it is natural to ask whether shareholders recognize these benefits and adjust firm valuations accordingly. To address this question, we examine market reactions to the announcement of the Eighth Circuit ruling in *Thole*. Our empirical analyses in this section focus on publicly traded firms. In this section, we use public firms that sponsor DB pension plans to examine stock market reactions, and our data are gathered from Compustat, CRSP, and EDGAR.

We employ Equation (3) to study whether the stock market reacts positively to the announcement of Eighth Circuit ruling in *Thole*. The dependent variable is the cumulative abnormal return (CAR) within a three-trading-day window around the announcement date (October 12, 2017). CARs are estimated using the Fama-French three-factor and Carhart models. We implement an estimation window of 250 trading days with a 20-day gap prior to the ruling announcement.

Our variable of interest (i.e., *C8*) is an indicator for whether a firm's headquarters is located within the jurisdiction of the Eighth Circuit Court. Headquarters states are obtained from 10-K filings. We estimate Equation (3) to assess how capital markets respond to the reduction in ERISA litigation risk for DB pension sponsors. We control for firm characteristics

and DB pension plan attributes. Consistent with our main specification, we cluster standard errors at the headquarters state level. We expect estimated coefficient on *C8* to be positively significant.

$$CAR_i = \alpha + \beta \times C8_i + \Gamma X_i + \varepsilon_i \quad (3)$$

Table 7 presents the results of our market reaction tests. Panel A reports summary statistics for CARs, independent variables, and firm- and plan-level controls. On average, pension firms earn CARs of 39.6 and 42.8 basis points, as measured by the Fama-French three-factor and Carhart models, respectively. For our variable of interest, approximately 6.3% of sample pension firms are headquartered within the Eighth Circuit's jurisdiction.

Panel B reports the estimation results of Equation (3). Public pension firms directly affected by the Eighth Circuit ruling in *Thole* experience three-day CARs of 27.7 basis points under the Fama-French three-factor model and 35.2 basis points under the Carhart model. The significantly positive coefficients on *C8* × *Large Pension Plan* indicate that the valuation effect is stronger for firms sponsoring larger DB pension plans. Here, *Large Pension Plan* is an indicator equal to one if the firm's pension plan size is above the median among plans sponsored by firms in the Eighth Circuit. Overall, the evidence suggests that investors recognize the benefits of diminished employee standing in ERISA lawsuits and reward pension firms for the associated reduction in litigation risk from employee lawsuits.

4.7 Economic Efficiency Implications of *Thole*

As discussed in Section 2.2, the existing literature debates whether risk taking in DB pension plans reflects risk shifting or risk management. Consistent with prior studies, we distinguish between these incentives by characterizing risk shifting as behavior that benefits corporations at the expense of employees, while risk management improves overall welfare without harming employees. In this section, we investigate how the Eighth Circuit ruling in *Thole* affects the welfare of employers and employees. Specifically, we evaluate the economic

efficiency implications of the Eighth Circuit decision in *Thole* by analyzing its effects on investment performance, employer contributions, and the likelihood of defined benefit pension plan termination.

First, DB pension plan investment performance improves for employers under the jurisdiction of the Eighth Circuit Court. We measure future investment performance as the raw return in the next calendar year minus the average return of DB pension plans within the same size decile in the current year. The model specification remains the same as in Equation (1). The empirical results in Panel A of Table 8 show that the estimated coefficients for *Treated* × *Post* are significantly positive, indicating that future size-adjusted investment returns increase by approximately 3% on average. This increase in investment performance suggests that firms make more profitable investments, which benefits pension beneficiaries.

Second, we provide evidence that firms within the jurisdiction of the Eighth Circuit Court contribute less to DB pension plans, indicating that sponsoring such plans imposes lower costs on them. We measure employer contributions using the natural logarithm of one plus the contribution amount. Additionally, we control for the number of active participants in the DB pension plan. The model specification is consistent with Equation (1). Panel B of Table 8 reports the empirical results, where the estimated coefficients for *Treated* × *Post* are positive. This result indicates that, on average, employers' monetary contributions to pension plans decline by 1.05%. The reduction in employer contributions indicates that firms benefit from risk-taking behavior in DB pension plans.

Third, we find that firms are less inclined to terminate DB pension plans after Eighth Circuit ruling in *Thole*. In recent years, companies have increasingly discontinued DB pension plans in favor of DC plans (e.g., Rauh et al., 2020). Specifically, the number of DB pension plans declined by 24.9%, from 41,613 in 2000 to 31,235 in 2021 (Department of Labor, 2023). Prior research indicates that eliminating DB pension plans may adversely affect the financial

well-being of employees and retirees (e.g., Anantharaman et al., 2022).[19] We examine whether a reduced likelihood of employee lawsuits related to DB pension plans affects employers' decisions to terminate these plans. We gather pension plan termination records from Schedule H and exclude any DB pension plans terminated before 2015. Panel C of Table 8 reports our empirical analysis. The negative coefficients on *Treated* × *Post* indicates that reduced employee monitoring makes firms less likely to terminate DB pension plans. The continued sponsorship of DB pension plans is therefore expected to benefit employees and retirees.

In summary, our empirical findings suggest that both employers and employees benefit when employees have reduced legal standing to monitor defined benefit pension plans through ERISA lawsuits. Following the Eighth Circuit ruling in *Thole*, affected employers experience improved investment performance, lower pension contributions, and a reduced likelihood of defined benefit pension plan termination. Moreover, employees do not experience adverse outcomes from increased risk taking in defined benefit pension plans. Accordingly, we interpret the additional risk taking as reflecting risk management incentives (Rauh 2009). An important caveat is that our analysis focuses on a partial equilibrium framework and does not account for broader welfare effects of limiting plan beneficiaries' ability to monitor corporate pension policies through ERISA litigation.

5. Conclusion

Fiduciary duties in DB pension plans require plan sponsors and administrators to act in the best interests of plan beneficiaries (Bhattacharya et al., 2025). Lawmakers and regulators often view ERISA lawsuits as a tool that can discipline fiduciaries, yet courts continue to debate a more basic question: when do plan beneficiaries have a right to sue plan sponsors for alleged

[19] Anantharaman et al. (2022) survey the existing literature and argue that employees are worse off when DB pension plans are terminated.

fiduciary breaches. Conservative courts anchor this question in constitutional limits, whereas liberal courts place greater weight on statutory text. Despite this debate, prior studies offers limited evidence on whether ERISA lawsuits affect the management and administration of DB pension. *Thole* holds that, under Article III constitutional standing doctrine, beneficiaries of defined benefit plans must allege a concrete personal injury to bring suit. By limiting standing in the absence of individual harm, this court ruling reduces expected litigation exposure for DB plan sponsors. This precedent therefore provides a research setting to study how litigation-based private enforcement of employees influences DB pension plan management adopted by their employers.

We use the Eighth Circuit decision in *Thole* to implement a DiD analysis using granular pension plan-level data from IRS Form 5500. After *Thole*, DB pension plan sponsors located within the jurisdiction of the Eighth Circuit increase equity allocations and reduce investment advisory fees. Cross-sectional analyses indicate that these effects are stronger when alternative external oversight is weaker, when the expected benefits of risk-taking are higher, and when differences in risk preferences between employers and employees are larger. Private firms exhibit little change in DB pension plan management, consistent with litigation-based private enforcement playing a more important role for these firms due to the absence of other external discipline. Moreover, the stock market responds positively to the announcement of the Eighth Circuit ruling in *Thole*. Further analysis suggests welfare gains for DB pension plan sponsors, with no evidence of adverse effects on plan beneficiaries. Collectively, these results align with risk management incentives in the prior literature (Rauh 2009).

Our research contributes to literature and informs policy discussions. First, we provide new evidence on employee-initiated ERISA lawsuits and their role as an oversight channel for DB plan sponsors. To our knowledge, this paper is the first to study employee lawsuits brought under ERISA. Second, our results offer new insight into the debate between risk management

and risk shifting in the management and administration of DB pension plans. The evidence aligns more closely with risk management incentives (Rauh, 2009). Finally, our findings indicate that the judicial environment plays a meaningful role in shaping how the fiduciary duty framework operates in practice. We argue that a more permissive regulatory approach to delegated asset management (e.g., DB pension plans) may be socially desirable. Moreover, we caution against expanding fiduciary obligations to additional investment vehicles, as market participants may face constraints from the fiduciary duty framework, particularly through ERISA lawsuits as a form of private enforcement by beneficiaries.

Reference

Agrawal, A. and Lim, Y. (2022). Where do shareholder gains in hedge fund activism come from? evidence from employee pension plans. *Journal of Financial and Quantitative Analysis*, 57(6):2140–2176.

Amir, E., Guan, Y., and Oswald, D. (2010). The effect of pension accounting on corporate pension asset allocation. *Review of Accounting Studies*, 15(2):345–366.

Anantharaman, D. and Chuk, E. C. (2018). The Economic Consequences of Accounting Standards: Evidence from Risk-taking in Pension Plans. *The Accounting Review*, 93(4):23-51.

Anantharaman, D., Gao, F., and Manchiraju, H. (2022). Does social responsibility begin at home? the relation between firms' pension policies and corporate social responsibility (csr) activities. *Review of Accounting Studies*, 27(1):76-121.

Anantharaman, D. and Lee, Y. G. (2014). Managerial risk taking incentives and corporate pension policy. *Journal of Financial Economics*, 111(2):328-351.

Bartram, S. M. (2018). In good times and in bad: Defined-benefit pensions and corporate financial policy. *Journal of Corporate Finance*, 48:331-351.

Becker, B., Ivkovi´c, Z., and Weisbenner, S. (2011). Local dividend clienteles. *The Journal of Finance*, 66(2):655-683.

Bergstresser, D., Desai, M., and Rauh, J. (2006). Earnings manipulation, pension assumptions, and managerial investment decisions. *The Quarterly Journal of Economics*, 121(1):157-195.

Bertrand, M., Duflo, E., and Mullainathan, S. (2004). How much should we trust differences-indifferences estimates? *The Quarterly Journal of Economics*, 119(1):249-275.

Bhattacharya, V., Illanes, G., and Padi, M. (2025). Fiduciary duty and the market for financial advice. *Econometrica*, 93(4):1449-1480.

Brudney, J. J. and Ditslear, C. (2008). Liberal justices' reliance on legislative history: Principle, strategy, and the scalia effect. *Berkeley Journal of Employment and Labor Law*, 29:117.

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, 52(1):57-82.

Cassella, S., Rizzo, A. E., Spalt, O. G., & Zimmerer, L. (2026). Constrained by law: The impact of fiduciary duties on portfolios and prices in US equity markets. *Journal of Financial Economics*, *177*, 104227.

Chen, J. H. (2024). When employees go to court: Employee lawsuits and talent acquisition in audit offices. *Journal of Accounting Research*.

Christensen, H. B., Floyd, E., Liu, L. Y., and Maffett, M. (2017). The real effects of mandated information on social responsibility in financial reports: Evidence from mine-safety records. *Journal of Accounting and Economics*, 64(2-3):284-304.

Chuk, E. C. (2013). Economic consequences of mandated accounting disclosures: Evidence from pension accounting standards. *The Accounting Review*, 88(2):395-427.

Cussatt, M. and Demere, P. (2023). The usefulness of corporate income tax accounting: Evidence from pension returns. *The Accounting Review*, 98(1):163-190.

Dambra, M. J. (2018). Stakeholder conflicts and cash flow shocks: Evidence from changes in erisa pension funding rules. *The Accounting Review*, 93(1):131-159.

Department of Labor (2023). Private pension plan bulletin. Technical report, U.S. Department of Labor.

Di Giuli, A. and Kostovetsky, L. (2014). Are red or blue companies more likely to go green? politics and corporate social responsibility. *Journal of Financial Economics*, 111(1):158-180.

Dube, S. and Zhu, C. (2021). The disciplinary effect of social media: Evidence from firms' responses to glassdoor reviews. *Journal of Accounting Research*, 59(5):1783-1825.

Easterbrook, F. H. and Fischel, D. R. (1993). Contract and fiduciary duty. *The Journal of Law and Economics*, 36(1, Part 2):425-446.

Esty, B. C., & Megginson, W. L. (2003). Creditor rights, enforcement, and debt ownership structure: Evidence from the global syndicated loan market. *Journal of Financial and Quantitative Analysis*, *38*(1), 37-60.

Egan, M. (2019). Brokers versus retail investors: Conflicting interests and dominated products. *The Journal of Finance*, 74(3):1217-1260.

Egan, M., Ge, S., and Tang, J. (2022). Conflicting interests and the effect of fiduciary duty: Evidence from variable annuities. *The Review of Financial Studies*, 35(12):5334-5386.

Employee Benefits Security Administration (2022). Reporting and disclosure guide for employee benefit plans. Technical report, U.S. Department of Labor.

Franke, B., Huang, A. H., Li, R. Z., and Wang, H. (2024). Securities law precedents, legal liability, and financial reporting quality. *Review of Finance*, 28(2):413-445.

Froot, K. A., Scharfstein, D. S., and Stein, J. C. (1993). Risk management: Coordinating corporate investment and financing policies. *The Journal of Finance,*48(5):1629-1658.

Garman, A. D., & Kubick, T. R. (2025). Mitigating risk-shifting in corporate pension plans: Evidence from stakeholder constituency statutes. *Journal of Accounting and Economics*, 79(1), 101704.

Guan, Y. and Lui, D. (2016). The Effect of Regulations on Pension Risk Shifting: Evidence from the US and Europe. *Journal of Business Finance & Accounting*, 43(5-6):765-799.

Guan, Y. and Tang, D. Y. (2018). Employees' risk attitude and corporate risk taking: Evidence from pension asset allocations. *Journal of Corporate Finance*, 48:261-274.

Huang, A., Hui, K. W., and Li, R. Z. (2019). Federal Judge Ideology: A New Measure of Ex Ante Litigation Risk. *Journal of Accounting Research*, 57(2):431-489.

Hutton, A., Shu, S., & Zheng, X. (2022). Regulatory transparency and the alignment of private and public enforcement: Evidence from the public disclosure of SEC comment letters. *Journal of Financial Economics*, *145*(1), 297-321.

Ippolito, R. A. (1985). The labor contract and true economic pension liabilities. *The American Economic Review*, 75(5):1031-1043.

Jennings, J., Kim, J. M., Lee, J., and Taylor, D. (2024). Measurement error, fixed effects, and false positives in accounting research. *Review of Accounting Studies*, 29(2):959-995.

Jensen, M. C. and Meckling, W. H. (1976). Theory of the firm: Agency costs, managerial behavior and ownership structure. *Journal of Financial Economics*, 3(4):305-360.

Johnson, M. S. (2020). Regulation by shaming: Deterrence effects of publicizing violations of workplace safety and health laws. *American Economic Review*, 110(6):1866-1904.

Klein, J. (2004). The politics of economic security: employee benefits and the privatization of new deal liberalism. *Journal of Policy History*, 16(1):34-65.

Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, *106*(6), 1113-1155.

Leland, H. E. (1998). Agency costs, risk management, and capital structure. *The Journal of Finance*, 53(4):1213-1243.

Liang, C. Y., Qi, Y., Zhang, R. A., and Zhu, H. (2023). Does sunlight kill germs? stock market listing and workplace safety. *Journal of Financial and Quantitative Analysis*, 58(4):1645-1674.

Little Jr., H. S. and Thrailkill, L. T. (1977). Fiduciaries under erisa: A narrow path to tread. *Vanderbilt Law Review*, 30(1):1-38.

Love, D. A., Smith, P. A., and Wilcox, D. W. (2011). The effect of regulation on optimal corporate pension risk. *Journal of Financial Economics*, 101(1):18-35.

Munnell, A. H., Aubry, J.-P., Crawford, C. V., et al. (2015). Investment returns: Defined benefit vs. defined contribution plans. Technical report, Center for Retirement Research at Boston College (CRR).

Pedersen, D. J. (2019). Risk shifting and corporate pension plans: Evidence from a natural

experiment. *Journal of Financial and Quantitative Analysis*, 54(2):907-923.

Petersen, M. A. (1992). Pension reversions and worker-stockholder wealth transfers. *The Quarterly Journal of Economics*, 107(3):1033-1056.

Peterson, M. A. (1994). Cash flow variability and firm's pension choice: A role for operating leverage. *Journal of Financial Economics*, 36(3):361-383.

Rauh, J. D. (2006). Investment and financing constraints: Evidence from the funding of corporate pension plans. *The Journal of Finance*, 61(1):33-71.

Rauh, J. D. (2009). Risk Shifting versus Risk Management: Investment Policy in Corporate Pension Plans. *The Review of Financial Studies*, 22(7):2687-2733.

Rauh, J. D., Stefanescu, I., and Zeldes, S. P. (2020). Cost saving and the freezing of corporate pension plans. *Journal of Public Economics*, 188:104211.

Sharpe, W. F. (1976). Corporate pension funding policy. *Journal of Financial Economics*, 3(3):183-193.

Shivdasani, A. and Stefanescu, I. (2010). How do pensions affect corporate capital structure decisions? *The Review of Financial Studies*, 23(3):1287-1323.

Sundaresan, S. and Zapatero, F. (1997). Valuation, optimal asset allocation and retirement incentives of pension plans. *The Review of Financial Studies*, 10(3):631-660.

Treynor, J. L. (1977). The Principles of Corporate Pension Finance. *The Journal of Finance*, 32(2):627-638.

Appendix

Appendix A: ERISA Lawsuits over Defined Benefit Pension Plan Management

1) ***Harley v. Minnesota Mining and Mfg. Co.***
   a) **Court: United States District Court District of Minnesota**
      i) Date: March 31, 1999
      ii) Main Allegations: Plaintiffs alleged that Minnesota Mining and Manufacturing, Co. ("3M") breached its fiduciary duty under ERISA by failing to invest prudently the assets (e.g., hedge fund) of the 3M Employee Retirement Income Plan.
      iii) Outcome: The district court denied the motion for relief from judgment. District judges concluded that the Plan has a sufficient surplus and dismissed the failure to investigate and monitor claims because the Granite investment caused no "losses to the plan".
   b) **Court: United States Court of Appeals, Eighth Circuit**
      i) Date: March 26, 2002
      ii) Outcome: The Eighth Circuit affirmed the district court's judgment. James Loken (Republican), Circuit Judge, held that beneficiaries lacked standing to bring investigation and monitoring claims since the plan's surplus was sufficiently large that investment loss did not cause actual injury to beneficiaries. However, Bye (Democratic), Circuit Judge, disagreed that the plaintiffs lack standing to bring a breach of fiduciary duty claims.
2) ***McCullough v. Aegon USA***
   a) **Court: United States District Court, N.D. Iowa, Cedar Rapids Division**
      i) Date: October 30, 2007
      ii) Main Allegations: Plaintiffs allege that Defendant invested in investment funds of AEGON USA subsidiaries and affiliates, breaching fiduciary duty.
      iii) Outcome: The case was dismissed by the district court the defendant's motion was granted. The District Court, Linda R. Reade (Republican), Chief Judge, held that the beneficiary lacked standing to sue under ERISA.
   b) **Court: United States Court of Appeals, Eighth Circuit**
      i) Date: November 3, 2009
      ii) Outcome: Colloton (Republican), Circuit Judge, held that the participant lacked standing to bring the lawsuit. Thus, they affirmed the district court's decision.

3) ***David v. Alphin***

   a) **Court: United States District Court, W.D. North Carolina, Charlotte Division**

      i) Date: March 30, 2010

      ii) Main Allegations: Plaintiffs alleged that Alphin breached their fiduciary duties by selecting and retaining bank-affiliated mutual funds as part of the investment mix for the pension plans without prudence, which caused huge losses to those plans.

      iii) Outcome: The district court dismissed their allegation due to a lack of Article III standing, and dismissed the claims asserted by the participants in the defined benefits plan.

   b) **Court: United States Court of Appeals, Fourth Circuit**

      i) Date: January 14, 2013

      ii) Outcome: Fourth Circuit affirmed the decision of the district court and held that participants in the defined benefit pension plan failed to show an injury in fact, as required to confer constitutional standing.

4) ***Palmason v. Weyerhaeuser Co.***

   a) **Court: United States District Court, W.D. Washington, at Seattle**

      i) Date: January 31, 2013

      ii) Main Allegations: Plaintiffs allege that sponsors' risky investments make their pension plans suffer a huge loss.

      iii) Outcome: Robert S. Lasnik (Democratic), the judge, ruled that there was no direct injury to the plaintiffs because they had no standing to sue for money damages. Immediately after the decision, the parties engaged in settlement discussions, including a $5 million payment to the plaintiffs' counsel. Notably, the court held that under ERISA, a participant in or beneficiary of a benefit plan is authorized to bring a civil action on behalf of the plan seeking equitable relief and/or recovery of any losses the plan suffered as a result of a breach of fiduciary duties.

5) ***Adedipe v. U.S. Bank***

   a) **Court: United States District Court District of Minnesota**

      i) Date: November 21, 2014

      ii) Main Allegations: Participants sued, alleging that plan fiduciaries had failed to act prudently or reasonably when they invested 100% of the plan's assets in equity securities.

iii) Outcome: The plaintiff's motion was denied by the district court. The District Court, Joan N. Ericksen, J. (Republican), held that participants made a sufficient showing of personal injury in fact to support constitutional standing, but they failed to state ERISA claim based on failure to reallocate the plan's investment portfolio. Although the plaintiffs' motion was denied, the district court concluded that participants had been injured solely by the "increased risk of default" arising from the substantial change in the plan's funding status, even though there was no actual or imminent financial loss to any individual participant.

6) *Thole v. U.S. Bank, N.A.*

a) Court: United States District Court District of Minnesota

i) Date: April 9, 2015

ii) Main Allegations: Plaintiffs alleged that fiduciaries violated their ERISA duties by making risky investment decisions, including investing plan assets in U.S. Bank's proprietary mutual funds, which caused the plan to suffer approximately $750 million in losses.

iii) Outcome: U.S. Bank voluntarily contributed $311 million to the plan during the district court proceedings and caused the pension assets to exceed the statutory minimum funding target attainment percentage. The district court dismissed the case, not for lack of standing but for lack of Article III jurisdiction, finding the case was moot.

b) Court: United States Court of Appeals, Eighth Circuit

i) Date: October 12, 2017

ii) Outcome: The Eighth Circuit affirmed the district court's ruling. Although all three judges affirmed the dismissal decision, Judge Kelly (Democratic) dissented in part. She thought the majority was wrong to require individual monetary harm to seek injunctive relief.

c) Court: The Supreme Court

i) Date: June 1, 2020

ii) Outcome: In a 5-4 opinion, the conservative majority affirmed the judgment of the 8th U.S. Circuit Court of Appeals. The Supreme Court holds that the plaintiffs did not have Article III standing and would still receive the same amount of predetermined benefits regardless of the case's outcome. The other four liberal justices dissented. Justice Sotomayor wrote: "The Constitution, the common law,

and the Court's cases confirm what common sense tells us: People may protect their pensions. "Courts," the majority surmises, "sometimes make standing law more complicated than it needs to be."

7) ***Snitzer v. Stoner***

a) Court: United States Court of Appeals, Second Circuit

i) Date: October 26, 2020

ii) Main Allegations: Defendants invested approximately $243.5 million of the fund's assets over the period since 2010 in high-risk, high-cost international emerging markets equities. Plaintiffs argue that the defendants' continuing and increasingly risky gamble exposed the fund to imprudent and excessive risk when the fund's *r*eturns were vital to recovery.

iii) Outcome: After negotiation, the plaintiffs withdrew the appeal and entered into a settlement agreement, including payment of the $26.85 million gross settlement amount.

Appendix B: Variable Definitions

Variable	Definition	Source
Dependent and Independent Variables		
Equity Investment	Share of total plan assets invested in equities, expressed as a percentage.	Schedule H
Advisory Fees	Investment advisory fees scaled by total pension assets, expressed as a percentage.	Schedule H
Treated	Indicator variable equal to one if the pension plan sponsor is located within the jurisdiction of the Eighth Circuit Court of Appeals in 2017, and zero otherwise	IRS Form 5500
Post	Indicator variable equal to one if the plan year is after 2018, and zero otherwise.	
Control Variables		
Pension Size	Natural logarithm of total pension assets (in U.S. dollars).	Schedule H
Funding Requirement	Indicator variable equal to one if the pension plan is subject to a funding requirement, and zero otherwise.	Schedule R
Big 4	Indicator variable equal to one if the pension plan is audited by a Big 4 accounting firm, and zero otherwise.	Schedule H
Return	Plan-level investment returns, calculated following Munnell et al. (2015). In line with Rauh (2009), returns above 500% or below -80% are coded as missing values.	Schedule H
Return Volatility	Four-year rolling standard deviation of plan-level investment returns, requiring no missing values within the three-year window. The standard deviation is multiplied by 100 for interpretability.	Schedule H
Lag Return	Investment return for the plan from the previous year.	Schedule H
Partition Variables		
Collective Bargain	Indicator variable equal to one if the plan is not established under a collective bargaining agreement. A collective bargaining agreement refers to a contract negotiated between an employer and a labor union representing employees.	IRS Form 5500
Fidelity Bond	Indicator variable equal to one if the plan is not covered by a pension fidelity bond, which insures against losses from fraudulent or dishonest acts by plan officials.	Schedule H
Investment Performance	Indicator variable equal to one if the plan's investment performance falls below the 25th percentile within its state.	Schedule H
Employer Contribution	Indicator variable equal to one if the employer contribution, scaled by plan assets, is above the 75th percentile within its state.	Schedule H
Republican State	Indicator variable equal to one if the state voted for the Republican candidate in the 2016 U.S. presidential election.	Hand Collection
Senior Population	Percentage of the state population aged 65 years and older.	Census Bureau
Market Reaction Variables		
$CAR^{FF3}_{[-1,1]}$	Cumulative abnormal return based on the Fama–French three-factor model over the [-1, 1] event window relative to the ruling announcement date. The model is estimated over a 250-trading-day window ending 10 trading days prior to the event.	CRSP
$CAR^{Carhart}_{[-1,1]}$	Cumulative abnormal return based on the Carhart (1997) four-factor model over the [-1, 1] event window relative to the ruling announcement date. The estimation window consists of 250 trading days ending 10 trading days prior to the event.	CRSP
C8	Indicator variable equal to one if the firm's headquarters is located within the Eighth Circuit, and zero otherwise.	EDGAR
Size	Natural logarithm of quarterly total assets (atq).	
Book-to-Market	Ratio of book value of equity to market value of equity, computed as ceqq / (prccq*cshoq) in the event quarter.	Compustat
Leverage	Ratio of total debt to total assets, defined as ltq / atq.	Compustat
ROA	Return on assets, defined as income before extraordinary items (ibq) scaled by lagged total assets (atq) and multiplied by 100.	Compustat
Stock Return Volatility	Standard deviation of daily stock returns in October 2017, multiplied by 100 for coefficient interpretation.	CRSP
Pension Size	Natural logarithm of pension assets (pplao).	Compustat
Funding	Ratio of projected pension obligations to pension assets, defined as pbpro / pplao.	Compustat
Variables used in Table 8		
Size-adjusted Return	Raw return in year *t + 1* minus the average return of defined-benefit pension plans in	Schedule H

	the same size decile in year $t + 1$, where deciles are formed in year t.	
Termination	Indicator variable equal to one if a resolution to terminate the plan is adopted during the plan year, and zero otherwise.	Schedule H
Log(Contribution)	Natural logarithm of one plus employer contributions (in dollars).	Schedule H
GDP Growth	Annualized state-level GDP growth rate calculated on a year-over-year basis in percentage.	BEA
Population	Natural logarithm of the total state population.	BEA
Personal Income	Natural logarithm of state-level personal disposable income (in dollars).	BEA
Employment	Natural logarithm of state-level employment.	BEA
Log(Participant)	Natural logarithm of one plus the number of active plan participants.	IRS Form 5500

Tables

Table 1: Summary Statistics and Correlation Matrix

We winsorize all continuous variables at the 1% and 99% levels. Panel A presents summary statistics for the variables used in main specifications. Panel B tabulates the correlation matrix for outcome variables and control variables. Lower-triangular cells present Pearson's correlation coefficients and upper-triangular cells are Bonferroni-adjusted Spearman's rank correlation. We tabulate correlations significant at the 5% level in boldface. See Appendix B for variable definitions and data sources.

Panel A: Summary Statistics

Variable	N	Mean	SD	P10	P25	P50	P75	P90
Treated	14240	0.377	0.485	0	0	0	1	1
Post	14240	0.400	0.490	0	0	0	1	1
Treated × Post	14240	0.151	0.358	0	0	0	0	1
Equity Investment	14240	14.140	28.760	0	0	0	9.497	62.75
Advisory Fee	14240	0.258	0.339	0	0	0.102	0.437	0.724
Pension Size (in logarithm)	14240	16.710	2.313	13.700	15.270	16.690	18.220	19.730
Pension Size (in USD million)	14240	294	1839	1	4	18	82	370
Funding Requirement	14240	0.300	0.458	0	0	0	1	1
BIG 4	14240	0.059	0.236	0	0	0	0	0
Return	14240	0.047	0.130	-0.083	-0.033	0.029	0.134	0.217
Lag Return	14240	0.021	0.108	-0.086	-0.037	0.018	0.080	0.146
Return Volatility	14240	0.091	0.056	0.025	0.054	0.082	0.123	0.167

Panel B: Correlation Matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Equity Investment	(1)		**0.28**	**0.37**	**0.17**	**0.12**	**0.08**	**0.08**
Advisory Fee	(2)	**0.24**		**0.16**	**0.1**	**-0.06**	0.01	0.02
Pension Size	(3)	**0.33**	**0.06**		**0.14**	**0.18**	**0.18**	**0.19**
Funding Requirement	(4)	**0.03**	0.01	**0.13**		**0.08**	**0.06**	**0.09**
BIG 4	(5)	**0.11**	**-0.06**	**0.17**	**0.08**		0	0
Return	(6)	**0.12**	0	**0.18**	**0.05**	-0.01		**-0.25**
Lag Return	(7)	**0.11**	**0.04**	**0.2**	**0.08**	0	**-0.04**	

Table 2: Eighth Circuit Ruling in *Thole* and Corporate Pension Policy

This table reports the results of how the Eighth Circuit court ruling in *Thole* impacts corporate pension policy for DB pension plans. The control group is DB pension plans sponsored by employers located in the Second, Third, and Sixth Circuit courts. All regression models include firm-plan and year fixed effects. T-values, reported in parentheses, are based on robust standard errors clustered at the state level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels using two-tail tests, respectively. See Appendix B for variable definitions and data sources.

	(1)	(2)	(3)	(4)
Dependent Variable	*Equity Investment*		*Advisory Fees*	
Treated* × *Post	**1.5034*** **	**1.6758*** **	**-0.0248** **	**-0.0416** **
	(5.02)	**(4.83)**	**(-2.22)**	**(-2.79)**
Pension Size		0.6814*		-0.0657***
		(2.01)		(-5.84)
Funding Requirement		4.2740		-0.0656*
		(0.95)		(-1.95)
BIG 4		-1.1273**		0.0741**
		(-2.41)		(2.14)
Return		0.8833		-0.0738***
		(1.52)		(-2.98)
Lag Return		0.8195*		0.0125
		(1.79)		(0.44)
Return Volatility		0.9807		0.1106
		(0.38)		(1.31)
Constant	13.9112***	1.1365	0.2617***	1.3710***
	(223.97)	(0.19)	(111.02)	(6.92)
Firm-Plan FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	14,240	14,240	14,240	14,240
Adjusted R-squared	0.9672	0.9673	0.8584	0.8629

Table 3: Eighth Circuit Ruling in *Thole* and Corporate Pension Policy: Placebo Test

This table reports the results of how the Eighth Circuit court ruling in Thole impacts corporate pension policy for DC pension plans. The control group is DB pension plans sponsored by employers located in the Second, Third, and Sixth Circuit courts. All regression models include firm-plan and year fixed effects. T-values, reported in parentheses, are based on robust standard errors clustered at the state level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels using two-tail tests, respectively. See Appendix B for variable definitions and data sources.

	(1)	(2)	(3)	(4)
Dependent Variable	*Equity Investment*		*Advisory Fees*	
Treated* × *Post	**-0.0427**	**-0.0371**	**0.0022**	**0.0022**
	(-0.57)	**(-0.48)**	**(0.82)**	**(0.83)**
Pension Size		0.9175***		-0.0152**
		(3.29)		(-2.50)
Funding Requirement		0.1403		-0.0027
		(0.97)		(-0.42)
BIG 4		0.1574		-0.0020
		(0.93)		(-0.77)
Return		1.2043		-0.0150*
		(0.75)		(-1.92)
Lag Return		-1.2244		-0.0115
		(-0.58)		(-0.63)
Return Volatility		0.4800		0.0686
		(0.10)		(1.47)
Constant	4.3504***	-10.9909**	0.0533***	0.3018***
	(730.67)	(-2.48)	(241.08)	(3.05)
Firm-Plan FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	46,050	46,050	46,050	46,050
Adjusted R-squared	0.9808	0.9808	0.7152	0.7155

Table 4: Eighth Circuit Ruling in *Thole* and Corporate Pension Policy: Alterative Control Group

This table reports the results of how the Eighth Circuit court ruling in *Thole* impacts corporate pension policy for DB and DC pension plans using all liberal circuit courts as the control group. The control group is DB pension plans sponsored by employers located in the Second, Third, Fourth, Ninth, and Eleventh Circuits. All regression models include firm-plan and year fixed effects. T-values, reported in parentheses, are based on robust standard errors clustered at the state level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels using two-tail tests, respectively. See Appendix B for variable definitions and data sources.

Panel A: Eighth Circuit Ruling in Thole and Corporate Pension Policy of DB Plans

	(1)	(2)	(3)	(4)
Dependent Variable	*Equity Investment*		*Advisory Fees*	
Treated* × *Post	**1.2572*** **	**1.6903*** **	**-0.0238** **	**-0.0397*** **
	(4.34)	**(4.95)**	**(-2.61)**	**(-3.15)**
Pension Size		1.7789*		-0.0630***
		(1.85)		(-7.49)
Funding Requirement		5.1524		-0.0310
		(1.20)		(-1.39)
BIG 4		0.5763		0.0663**
		(0.45)		(2.39)
Return		0.8752		-0.0721***
		(1.32)		(-3.09)
Lag Return		0.7761		0.0112
		(1.65)		(0.50)
Return Volatility		0.7853		0.0954
		(0.25)		(1.40)
Constant	17.4623***	-14.5125	0.2314***	1.3048***
	(454.16)	(-0.89)	(150.68)	(8.64)
Firm-Plan FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	17,750	17,750	17,750	17,750
Adjusted R-squared	0.9738	0.9741	0.8703	0.8752

Panel B: Eighth Circuit Ruling in Thole and Corporate Pension Policy of DC Plans

	(1)	(2)	(3)	(4)
Dependent Variable	*Equity Investment*		*Advisory Fees*	
Treated* × *Post	**-0.0388**	**0.0023**	**0.0009**	**0.0006**
	(-0.54)	**(0.03)**	**(0.39)**	**(0.26)**
Pension Size		1.6999***		-0.0181***
		(4.52)		(-3.96)
Funding Requirement		0.1713		0.0052
		(1.41)		(0.74)
BIG 4		0.8944		0.0035
		(1.24)		(1.23)
Return		3.1566**		-0.0200**
		(2.11)		(-2.03)

Lag Return		-0.8383		-0.0139
		(-0.53)		(-1.22)
Return Volatility		3.1894		0.0432
		(0.81)		(0.98)
Constant	3.9747***	-24.7709***	0.0520***	0.3511***
	(873.37)	(-4.00)	(418.09)	(4.73)
Firm-Plan FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	71,045	71,045	71,045	71,045
Adjusted R-squared	0.9758	0.9761	0.7189	0.7194

Table 5: Eighth Circuit Ruling in *Thole* and Corporate Pension Policy: Cross-sectional Analysis

This table reports the cross-sectional analyses results of how the Eighth Circuit court ruling in *Thole* impacts corporate pension policy for DB pension plans. The partition is subsumed by firm–plan fixed effects because we only partition the sample within treated pension plans. All regression models include firm-plan and year fixed effects. T-values, reported in parentheses, are based on robust standard errors clustered at the state level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels using two-tail tests, respectively. See Appendix B for variable definitions and data sources.

Panel A: External Monitoring

	(1)	(2)	(3)	(4)
Partition Variable	Collective Bargain		Fidelity Bond	
Dependent Variable	*Equity Investment*	*Advisory Fees*	*Equity Investment*	*Advisory Fees*
Treated × Post	-0.4022	0.0059	-0.0110	-0.0063
	(-0.50)	(0.56)	(-0.02)	(-0.72)
Treated × Post × Partition	**2.2309****	**-0.0509*****	**2.0487*****	**-0.0428*****
	(2.64)	**(-5.91)**	**(3.28)**	**(-4.83)**
Control Variables	Y	Y	Y	Y
Firm-Plan FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	14,240	14,240	14,240	14,240
Adjusted R-squared	0.9674	0.8630	0.9674	0.8631

Panel B: Incentives for Pension Risk-Taking

	(1)	(2)	(3)	(4)
Partition Variable	Investment Performance		Employer Contribution	
Dependent Variable	*Equity Investment*	*Advisory Fees*	*Equity Investment*	*Advisory Fees*
Treated × Post	1.4345***	-0.0355**	0.6484	-0.0168*
	(3.99)	(-2.56)	(0.95)	(-1.88)
Treated × Post × Partition	**0.9530*****	**-0.0240*****	**1.2451***	**-0.0300****
	(5.68)	**(-4.07)**	**(1.87)**	**(-2.55)**
Control Variables	Y	Y	Y	Y
Firm-Plan FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	14,240	14,240	14,240	14,240
Adjusted R-squared	0.9673	0.8629	0.9674	0.8630

Panel C: Employer-Employee Conflicts

	(1)	(2)	(3)	(4)
Partition Variable	Republican State		Aged Population	
Dependent Variable	*Equity Investment*	*Advisory Fees*	*Equity Investment*	*Advisory Fees*
Treated × Post	0.6575**	-0.0106	0.7822	-0.0087
	(2.65)	(-1.54)	(1.44)	(-1.07)

Treated* × *Post* × *Partition	**1.1139*** **	**-0.0339*** **	**1.1717** **	**-0.0431*** **
	(7.07)	**(-3.14)**	**(2.26)**	**(-5.29)**
Control Variables	Y	Y	Y	Y
Firm-Plan FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	14,240	14,240	14,240	14,240
Adjusted R-squared	0.9673	0.8629	0.9674	0.8632

Table 6: Eighth Circuit Ruling in *Thole* and Corporate Pension Policy: Public and Private Firms

This table reports the results of how the Eighth Circuit court ruling in *Thole* impacts corporate pension policy for DB pension plans in public and private firms. All regression models include firm-plan and year fixed effects. T-values, reported in parentheses, are based on robust standard errors clustered at the state level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels using two-tail tests, respectively. See Appendix B for variable definitions and data sources.

	(1)	(2)	(3)	(4)
	Public Firms	Public Firms	Public Firms	Public Firms
Dependent Variable	*Equity Investment*		*Advisory Fees*	
Treated* × *Post	**1.8820**	**1.6107*** **	**-0.0249**	**-0.0427** **
	(1.43)	**(4.49)**	**(-1.59)**	**(-2.78)**
Pension Size	-0.5943	0.7239*	-0.0448	-0.0673***
	(-0.81)	(1.96)	(-0.92)	(-5.50)
Funding Requirement	-1.4663***	4.5188	-0.0171***	-0.0685*
	(-5.79)	(0.98)	(-3.02)	(-1.98)
BIG 4	-3.0952***	-0.9922*	-0.0577*	0.0918**
	(-3.21)	(-1.86)	(-1.89)	(2.39)
Return	-2.7756	0.9387	0.1785	-0.0818***
	(-0.51)	(1.42)	(1.10)	(-3.10)
Lag Return	-1.1216	0.8175	0.0996	0.0107
	(-0.24)	(1.57)	(1.11)	(0.36)
Return Volatility	2.5531	0.9714	0.8167**	0.0922
	(0.10)	(0.38)	(2.34)	(1.21)
Constant	26.9093*	0.3635	0.8851	1.4009***
	(1.96)	(0.06)	(1.03)	(6.53)
Firm-Plan FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	615	13,625	615	13,625
Adjusted R-squared	0.9614	0.9676	0.7321	0.8648

Table 7: Market Reactions for The Eighth Circuit Ruling in *Thole*

This table reports the results of how the stock market reacts to the Eighth Circuit court ruling in *Thole*. Panel A shows the descriptive statistics used in this event study. Panel B shows the regression results of market reactions. T-values, reported in parentheses, are based on robust standard errors clustered at the state level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels using two-tail tests, respectively. See Appendix B for variable definitions and data sources.

Panel A: Summary Statistics

Variable	N	Mean	SD	p10	p25	p50	p75	p90
$CAR^{FF3}_{[-1,1]}$	963	0.004	0.021	-0.019	-0.006	0.003	0.013	0.026
$CAR^{Carhart}_{[-1,1]}$	963	0.004	0.021	-0.018	-0.006	0.003	0.013	0.027
C8	963	0.063	0.244	0	0	0	0	0
Size	963	8.519	1.744	6.418	7.348	8.463	9.68	10.82
Leverage	963	0.676	0.215	0.386	0.54	0.672	0.846	0.912
Book-to-Market	963	0.449	0.38	0.094	0.238	0.412	0.657	0.862
ROA	963	0.801	2.988	-2.164	-0.263	0.569	2.145	4.187
Stock Return Volatility	963	1.494	0.837	0.694	0.948	1.262	1.772	2.584
Pension Size	963	5.485	2.225	2.528	3.88	5.555	7.01	8.311
Funding	963	1.349	0.62	0.972	1.08	1.21	1.398	1.676

Panel B: Stock Market Reactions to Thole Ruling in The Eighth Circuit Court

	(1)	(2)	(3)	(4)
Dependent Variable	$CAR^{FF3}_{[-1,1]}$		$CAR^{Carhart}_{[-1,1]}$	
C8	**0.0028***	-0.0004	**0.0034***	0.0001
	(1.74)	(-0.20)	**(1.84)**	(0.04)
C8 × Large Pension Plan		**0.0062****		**0.0067****
		(2.30)		**(2.22)**
Size	-0.0023***	-0.0024***	-0.0023***	-0.0023***
	(-2.95)	(-2.99)	(-3.00)	(-3.05)
Leverage	-0.0001	0.0001	0.0002	0.0003
	(-0.02)	(0.02)	(0.06)	(0.10)
Book-to-Market	-0.0013	-0.0013	-0.0008	-0.0008
	(-0.48)	(-0.47)	(-0.30)	(-0.29)
ROA	-0.0007**	-0.0007**	-0.0007***	-0.0007***
	(-2.59)	(-2.55)	(-2.73)	(-2.69)
Stock Return Volatility	-0.0015	-0.0015	-0.0004	-0.0004
	(-1.07)	(-1.05)	(-0.30)	(-0.29)
Pension Size	0.0015**	0.0014**	0.0018***	0.0017**
	(2.18)	(2.07)	(2.71)	(2.58)
Funding	0.0026	0.0026	0.0026	0.0025
	(1.52)	(1.50)	(1.51)	(1.49)
Constant	0.0151***	0.0155***	0.0114**	0.0118**
	(2.71)	(2.81)	(2.17)	(2.28)
Observations	963	963	963	963
Adjusted R-squared	0.0267	0.0271	0.0269	0.0274

Table 8: Economic Efficiency Implications of Eighth Circuit Ruling in *Thole*

This table reports the economic efficiency implications of the Eighth Circuit court ruling in *Thole*. Panel A presents how the Eighth Court ruling future size-adjusted investment performance. Panel B reports how this court ruling affects employer contributions. Panel C provides evidence on how the Eighth Court ruling in Thole affects firms' decisions to terminate DB pension plans. All regression models include firm-plan and year fixed effects. T-values, reported in parentheses, are based on robust standard errors clustered at the state level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels using two-tail tests, respectively. See Appendix B for variable definitions and data sources.\

Panel A: Future Investment Performance

	(1)		(2)	
Dependent Variable	*Size Adjusted Return*			
Treated × Post	**0.0277*** **	**(3.22)**	**0.0299*** **	**(3.81)**
Pension Size			0.0005	(0.06)
Funding Requirement			0.0077	(0.54)
Big 4			-0.0070	(-0.82)
Return			-0.4045***	(-10.79)
Lag Return			-0.1077***	(-2.99)
Return Volatility			0.3504***	(5.79)
Constant	-0.0029**	(-2.10)	-0.0244	(-0.16)
Firm-Plan FE	Y		Y	
Year FE	Y		Y	
Observations	13,870		13,870	
Adjusted R-squared	0.4695		0.5353	

Panel B: Employer Contributions

	(1)		(2)	
Dependent Variable	*Log(Contribution)*			
Treated × Post	**-1.0491***	**(-1.78)**	**-1.0573***	**(-1.77)**
Pension Size			0.7356**	(2.20)
Funding Requirement			0.3496	(1.23)
Big 4			1.6113**	(2.07)
Return			-0.9504	(-0.97)
Lag Return			-1.3468	(-1.38)
Return Volatility			0.5437	(0.29)
Log(Participants)			0.0462	(0.32)
Constant	11.9696***	(404.56)	-0.7158	(-0.13)
Firm-Plan FE	Y		Y	
Year FE	Y		Y	
Observations	7,050		7,050	
Adjusted R-squared	0.6520		0.6531	

Panel C: DB Pension Plan Termination Decision

	(1)		(2)	
Dependent Variable	*Termination*			
Treated × Post	**-0.0382***	**(-1.73)**	**-0.0358** **	**(-2.46)**

GDP Growth			-0.0079	(-1.29)
Population			0.8697*	(1.75)
Personal Income			0.4259***	(3.51)
Employment			-0.9039*	(-1.74)
Constant	0.1205***	(23.38)	-4.6104***	(-3.68)
Firm-Plan FE	Y		Y	
Year FE	Y		Y	
Observations	40,625		40,625	
Adjusted R-squared	0.5065		0.5093	

Figures

Figure 1: Timeline of *Thole. v. U.S. Bank*

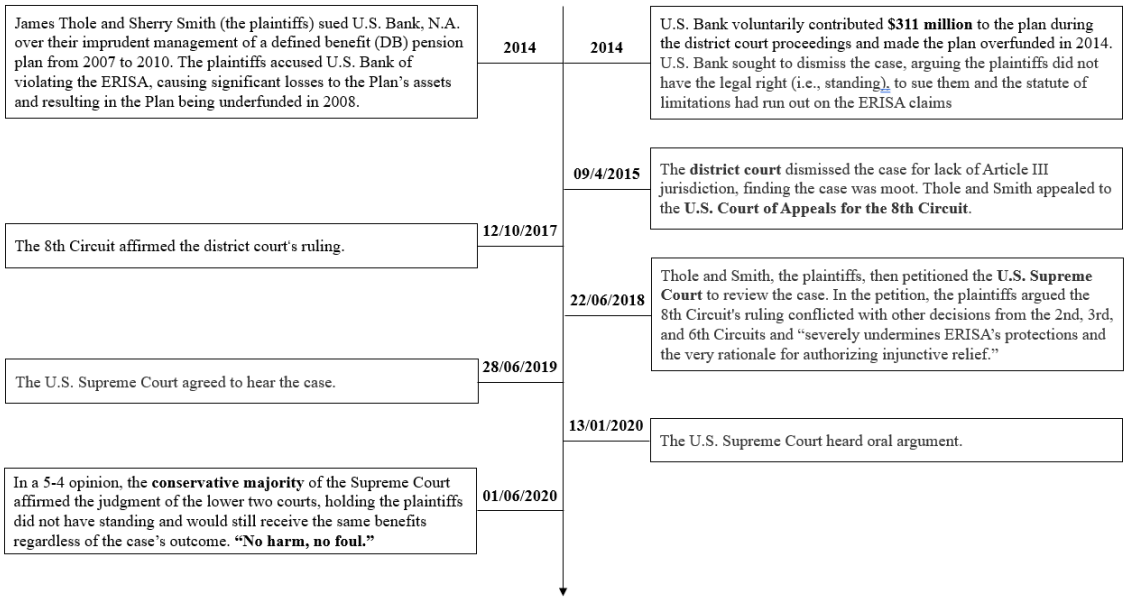


Figure 2: Historical Records of ERISA Lawsuits: 2017 - 2020

This figure shows the number of ERISA lawsuits from 2017 to 2020. We manually collect the litigation information from the report *ERISA Litigation and Significant Issues in Litigation* published on the DOL website. This report includes details on DOL participation in ERISA litigation and significant issues in litigation. The black bar represents the total number of ERISA lawsuits, with the corresponding numbers indicated on the left-side axis. Additionally, we count the number of ERISA lawsuits in Section D (Prudence of Investments) and Section J (Financial Institution and Service Provider Cases). The gray bar represents the total number of lawsuits in these two categories, with the corresponding numbers indicated on the right-side axis.

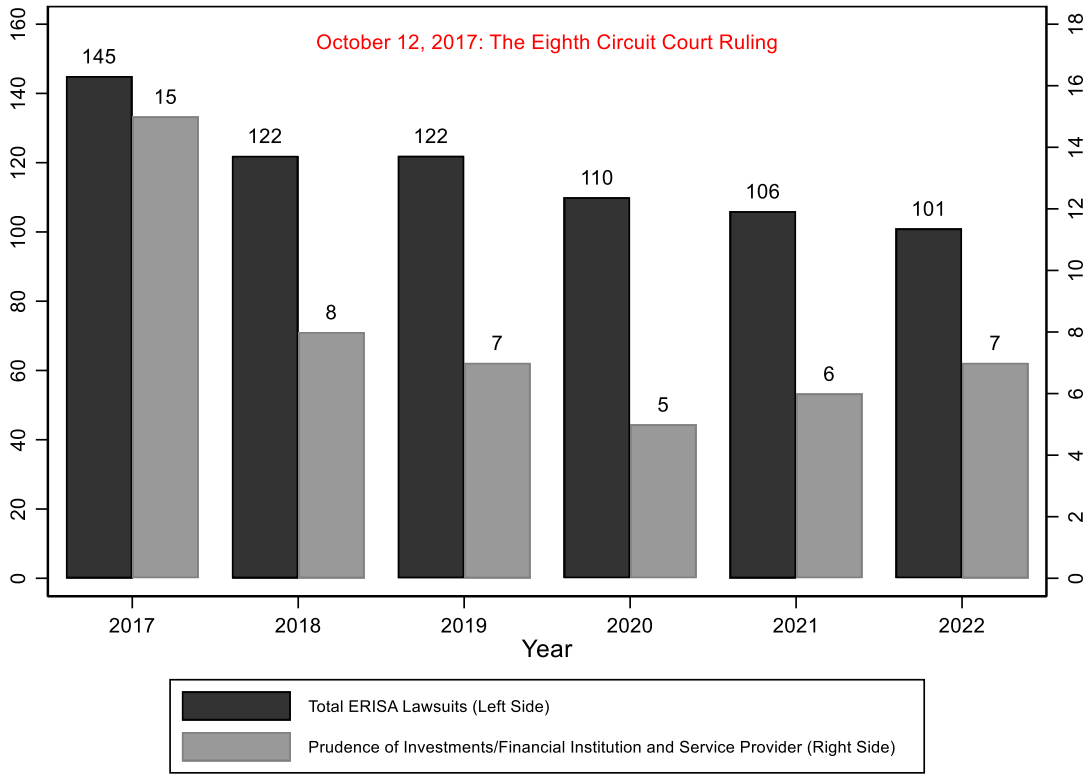
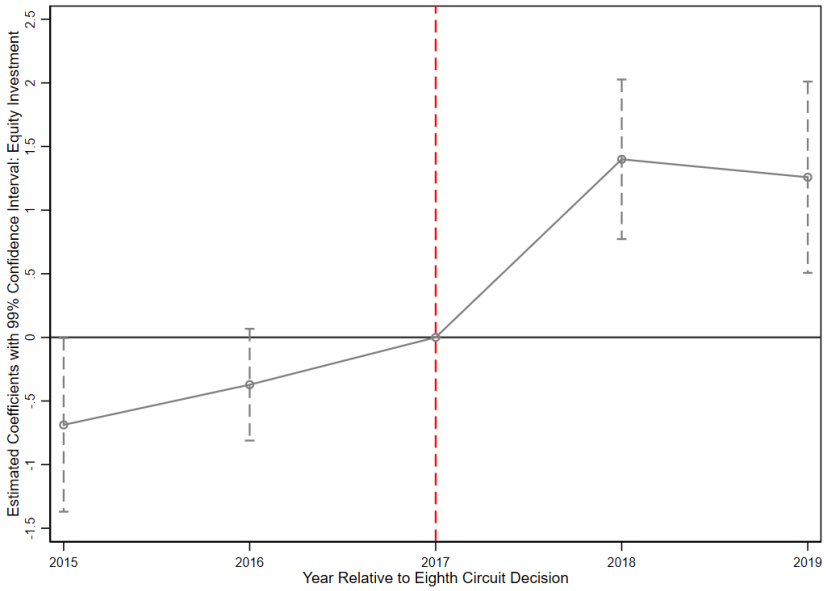


Figure 3: Eighth Circuit Ruling in *Thole* and Corporate Pension Policy: Dynamic Effects

This figure presents the estimated coefficients from the specification in Equation (2) for DB pension plans, in which the treatment indicator is interacted with period dummies. Panel A reports results for the dependent variable *Equity Investment*, while Panel B reports results for *Advisory Fees*. The regressions include firm-plan and year fixed effects. The benchmark year is 2017, corresponding to the year the Eighth Circuit issued its decision in *Thole*. Standard errors are clustered at the state level, and vertical dashed lines indicate 95% confidence intervals.

Panel A: Equity Investment



Panel B: Investment Fee

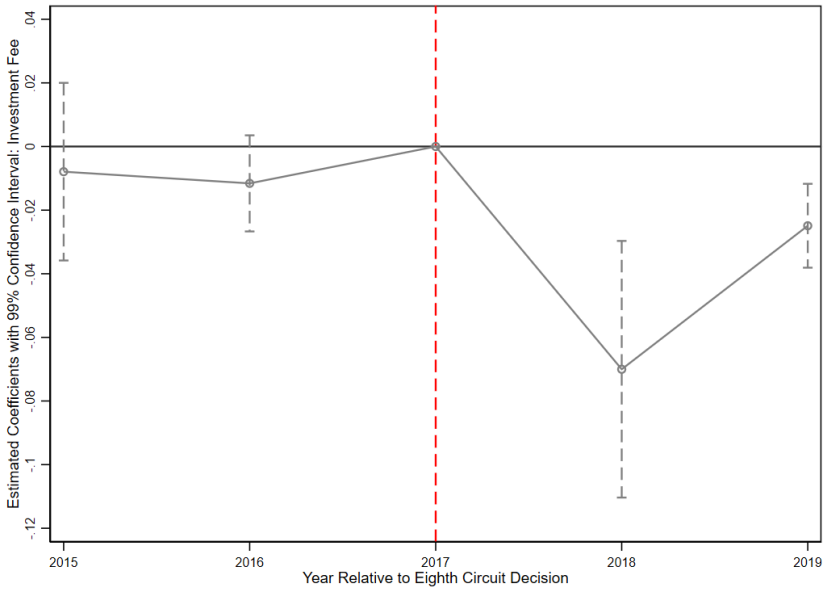
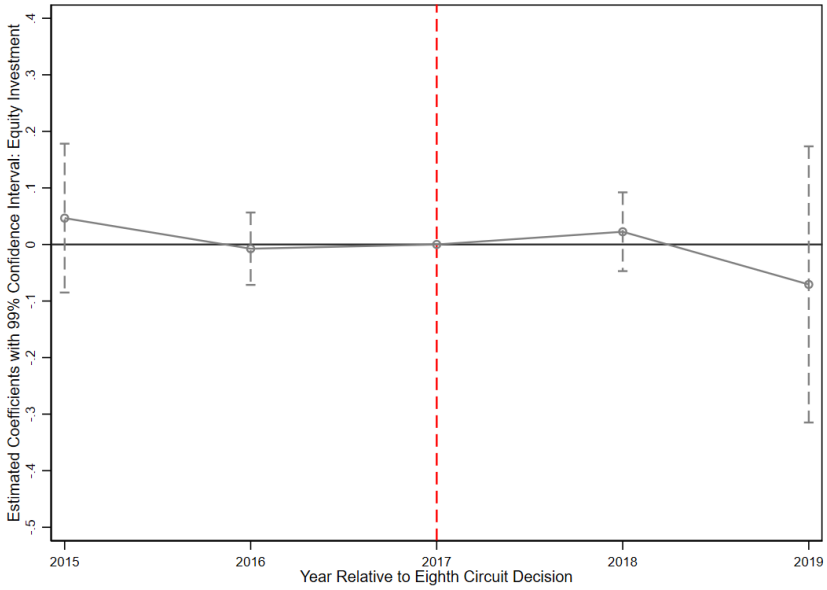


Figure 4: Eighth Circuit Ruling in *Thole* and Corporate Pension Policy: Placebo Test

This figure presents the estimated coefficients from the specification in Equation (2) for DC pension plans, in which the treatment indicator is interacted with period dummies. Panel A reports results for the dependent variable *Equity Investment*, while Panel B reports results for *Advisory Fees*. The regressions include firm-plan and year fixed effects. The benchmark year is 2017, corresponding to the year the Eighth Circuit issued its decision in Thole. Standard errors are clustered at the state level, and vertical dashed lines indicate 95% confidence intervals.

Panel A: Equity Investment



Panel B: Investment Fee

