Public Pensions and Firm Tax Avoidance

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Abstract
I examine the relation between public pension ownership and their investee firms' tax avoidance. Public pensions are influential investors that focus on broad governance issues, increasingly including environmental, social, and governance (ESG) concerns. Across a battery of tests, I fail to find consistent evidence that public pensions affect firm-level tax avoidance, or that public pensions allocate fund assets based on firms' ex-ante tax avoidance. Thus, I am unable to support academic and practitioner claims that taxes are a critical element of business' social contribution—part of the 'S' in ESG. Additionally, I am unable to confirm that pensions are meeting their public commitment to reduce corporate tax abuse (evasion and avoidance) under the United Nations Principles for Responsible Investment. Lastly, I do not find consistent evidence that public pensions pressure firms to reduce tax avoidance to increase local tax revenues, which differs from studies examining Chinese state-owned enterprises.

JEL Codes: G11, G23, G28, H26, H55, H75 M14

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Data Availability: Data used in this study are available from public sources identified in the paper.

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1. Introduction

Public pensions are significant institutional investors, holding $5.3 trillion in assets, including $2.3 trillion in equities.[1] Given this large ownership, public pensions are active in firm governance (Smith 1996; Gillan and Starks 2000; Barber 2009). Corresponding to this history of activism, public pensions are also at the forefront of the increasingly popular area of environmental, social, and governance (ESG) investing, demonstrating a willingness to forfeit investment returns in exchange for social impact (Barber, Morse, and Yasuda 2021). While climate change and diversity often headline ESG strategies, various other factors comprise ESG. Some parties view firms' willingness to pay their "fair share" of taxes as a component of the social aspect of ESG because corporate taxes can reduce inequality, finance public goods, and support social programs (Bird and Davis-Nozemack 2018; PwC 2020; Krieg and Li 2021). Given the focus on other aspects of ESG (e.g., environment), little is known about whether investors and firms consider taxes part of the broader ESG framework. In this paper, I examine whether public pensions, one of the strongest ESG-oriented institutional investors with a history of successful activism, affect or respond to firms' tax avoidance.

Numerous public pensions, including CalPERS, the largest and perhaps most influential U.S. public pension, are signatories to the United Nations Principles of Responsible Investment (UNPRI). Among other things, the UNPRI advocates for tax fairness and the reduction or elimination of "opportunities for corporate tax abuse (evasion and avoidance)..." (UNPRI 2021).[2] Consistent with pensions' role in firm governance, pensions may 1) encourage firms to reduce their tax avoidance so that investee firms pay their "fair share" of tax (i.e., use voice) or 2)

[1] The Center for Retirement Research at Boston College https://publicplansdata.org/quick-facts/national/
[2] A list of the UNPRI signatories can be found at: https://www.unpri.org/signatories/signatory-resources/signatory-directory

reduce their ownership of firms that excessively avoid taxes (i.e., divest). Therefore, to the extent that public pensions discourage tax avoidance or do not own excessively tax-avoiding firms, public pensions' preferences may help explain why firms do not maximize all tax avoidance opportunities, known as the undersheltering puzzle (Hanlon and Heitzman 2010).

Because prior research documents public pensions' ability to influence firms, and because pensions publicly support ESG frameworks that disfavor tax avoidance, understanding public pension behavior regarding tax avoidance may provide additional insight into the relation between institutional ownership and tax avoidance given the generally mixed prior results (Khurana and Moser 2013). Further, understanding public pensions' association with tax avoidance may clarify the mixed results in prior research on socially responsible investing and tax avoidance (Hoi, Wu, and Zhang 2013; Watson 2015; Davis et al. 2016).[3]

Although public pensions may have reputational, ethical, and political interests in reducing investees' tax avoidance, they also strive to increase fund returns (Del Guercio and Hawkins 1999) and may, therefore, ignore the social consequences of tax avoidance. Public pension boards of trustees operate under fiduciary obligations (Del Guercio 1996), which require trustees to focus on maximizing fund returns for a given level of risk. All else equal, greater tax avoidance leads to greater earnings and cash flows for investee firms, suggesting public pensions could favor more tax avoidance consistent with trustees' commitment to improving earnings and with the broader literature on institutional investors and tax avoidance (Khan, Srinivasan, and Tang 2017). Separately, while institutional investors and firms publicly commit to addressing environmental and social issues, they often ignore these commitments in practice (Gibson et al.

[3] Socially responsible investing (SRI) is synonymous with ESG and corporate social responsibility (CSR). In this paper, I use these three terms interchangeably. See Christensen, Hail, and Leuz (2021) for a detailed discussion on the terminology.

2022), suggesting public pension ownership will not affect tax avoidance. Thus, it is an empirical question whether public pensions 1) influence investee tax avoidance or 2) invest based on firms' tax avoidance.

State public pensions are quasi-governmental organizations with unique governance structures, with formal and informal stakeholders affecting investment decisions. Unlike most other funds, which are accountable to a limited number of investors, public pensions are influenced by multiple stakeholders, including beneficiaries (i.e., government employees and retirees), elected and appointed board members, and the broader public (i.e., voters) who are liable for any public pension funding shortfalls. About one-third of public pension boards of trustees are political officials or appointed by political officials (Andonov, Hochberg, and Rauh 2018), leading to political influence in public pension investments (Bradley, Pantzalis, and Yuan 2016). These stakeholders have competing and complementary interests in promoting tax avoidance, which makes understanding the relation between public pension investments and firm tax avoidance important and informative. Additionally, unlike *private pensions*, which have enforceable fiduciary standards established by the Employment Retirement Income Security Act of 1974 (ERISA), which may limit discretion to consider ESG, *public pensions* derive their fiduciary responsibilities from their respective jurisdiction's laws and regulations (Coggburn and Redick 2007; Barber et al. 2021), potentially providing public pensions greater discretion to fully consider the long-term risks associated with tax avoidance along with investment returns.

I examine the effect of public pension investment on six common firm-level tax avoidance measures. My first two measures, GAAP effective tax rate (ETR) and Cash ETR, capture explicit taxes paid and the broad reputational effects of tax avoidance (Chen et al. 2019b). Because state public pensions may have varying incentives surrounding firms' payment

of federal versus state income taxes (Chen et al. 2021; Tang, Mao, and Chan 2017), I also study state and local tax (SALT) rate measures. My last two tax avoidance measures, uncertain tax benefit additions and tax haven usage, capture more aggressive tax avoidance strategies (Hanlon and Heitzman 2010; Rego and Wilson 2012). Public pensions may be particularly sensitive to tax avoidance that is viewed as more aggressive or "unfair."

Across multiple empirical tests and model specifications, I do not find consistent evidence that public pensions affect investees' tax avoidance, or that public pensions invest their assets based on firms' ex-ante tax avoidance. First, using a pooled dataset, I fail to find consistent evidence of an association between pension investment and firm-level tax avoidance across my six tax avoidance measures, contrary to views that pensions use their "voice" to influence firms' tax avoidance behavior. My analysis includes firm-fixed effects to alleviate concerns that potential results are driven by firm-level characteristics (Breuer and deHaan 2023) and controls for other determinants of tax avoidance (Davis et al. 2016; Dyreng et al. 2017). Additionally, the 90-percent confidence intervals for coefficient estimates of public pensions' association with tax avoidance are narrow and centered around zero, suggesting that any effects are economically small.

Next, I narrow my focus and examine how state public pensions affect the tax avoidance of firms headquartered in the same state. Despite failing to find evidence in a broad sample, public pensions may have a greater influence on local firms. For example, prior literature shows public pensions overweight investment in firms headquartered in the same state ("in-state bias"), leading to longer holding periods and inferior returns (Bradley, Pantzalis, and Yuan 2016). In my analysis, I fail to find consistent evidence of a significant association between public pension

investment in in-state firms and firm tax avoidance, again providing no evidence that public pensions influence firms' tax avoidance behavior.

My initial analysis could suffer from omitted variable bias because I do not control for public pensions' choice to invest in firms. To address potential omitted variable bias, I use gubernatorial elections as an exogenous shock to public pensions' ESG and, therefore, tax avoidance preferences.[4] Public pensions and other investors in Democratic states tilt their portfolios toward firms with higher ESG scores more than public pensions and investors in Republican states (Hong and Kotovetsky 2012; Hoepner and Schopohl 2020). Therefore, I use a stacked cohort difference-in-differences model to examine changes in firm tax avoidance for firms owned by in-state pensions following a switch from a Republican (Democratic) to a Democratic (Republican) governor. If tax avoidance is part of ESG investing, then I anticipate less tax avoidance following the election of a Democratic governor relative to a Republican governor. However, I do not find consistent evidence of a differential effect on tax avoidance between newly elected Democratic and Republican governors, providing no evidence that ESG-focused public pensions influence investees' tax avoidance behavior.

The lack of results in my prior tests suggests that public pensions may not influence firm behavior through shareholder activism (i.e., voice). However, it is still possible that public pensions address ESG concerns by purchasing and selling stocks based on firms' ex-ante tax avoidance characteristics (i.e., voting with their feet). If this occurs in my sample, ESG-focused pensions may sell tax-avoiding firms' stock rather than influence their behavior. I address this possibility by examining changes to public pension investment in firms with consistently low ETRs following an exogenous shift in the pension's ESG preferences (i.e., gubernatorial political

[4] As an alternative approach to deal with pensions' choice to invest in certain firms, I use simultaneous equations. I continue to find limited evidence that pensions affect tax avoidance.

party changes). I again fail to find consistent evidence that public pensions with newly elected ESG-focused Democratic oversight reduce investment in low ETR firms differently than pensions with newly elected Republican oversight.

My last primary empirical test examines how pension portfolios' weighted ETRs vary after gubernatorial elections. This test examines the possibility that pensions both influence firms and vote with their feet. I again fail to find consistent evidence that pensions affected by switches to newly elected Democratic governors invest differently than pensions affected by switches to newly elected Republican governors. Surprisingly, I find limited evidence that Democratic-led pensions *increase* tax avoidance, which is inconsistent with ESG-oriented investors advocating for higher ETRs (i.e., less tax avoidance), but may reflect these pensions seeking portfolio value maximization to provide greater payouts for beneficiaries (i.e., government employees).

Additional analyses also fail to find consistent evidence that pensions focus on tax avoidance. Of the nearly 2,500 proxy resolutions filed by public pensions between 2006-2021, only four (0.16%) mention taxes. I also address the concern that my lack of findings arises from the possibility that pension funds are "indexers" that cannot vote with their feet and, therefore, have no credible influence on firms. I find that public pensions that deviate from index investing, leading to more flexibility in allocating fund assets, do not avoid taxes differently than public pension funds that adhere to index investing. My results suggest that public pensions potentially being locked into indexing does not drive the lack of significant effects. I address concerns that low power drives my lack of results and find that my design can detect economically meaningful effects. Lastly, I conduct an ESG validity test by switching my dependent variable to Refinitiv ESG scores to confirm that my research design can detect changes to pensions' ESG preferences.

This study makes several contributions. First, my study has important implications for sustainable investing and tax avoidance. To my knowledge, this is the first study to examine public pensions and firm tax avoidance. Contrary to the UNPRI and the Big 4 accounting firms' belief that "[taxes are] a critical element of business' social contribution—part of the 'S' in ESG" (PwC 2021, p.1), my evidence suggests that taxes are not a significant determinant of fund investment or investor activism for public pensions—one of the most important ESG investor groups (Barber et al. 2021). More broadly, my evidence suggests that public pensions, as one type of institutional investor, do not significantly affect firms' tax avoidance overall. I also contribute to the literature on "greenwashing" (e.g., Gibson et al. 2022; Heath et al. 2023) by showing that public pensions' commitment to reduced tax avoidance under the UNPRI is not being met in practice.[5]

Second, my paper has important implications for public finance. To the extent that public pensions are not generating sufficient returns on plan assets to meet beneficiary payouts, state and local governments must meet the funding difference by allocating a greater share of tax revenue to public pensions, raising taxes, or adjusting benefits for future public pension retirees.[6] My evidence indicates that public pensions are not sacrificing returns in exchange for reduced tax avoidance, suggesting other ESG factors drive public pensions' lower returns (outlined in Barber et al. 2021).

Third, examining public pensions' influence on U.S. firms' tax avoidance also provides greater insight into the role of state-owned enterprises (SOE) in mixed or market economies,

[5] Not all public pensions are UNPRI signatories, but results are robust to examining UNPRI signatories only.
[6] Jung and Rhee (2013) note that, on average, 26% of public pension revenues are sourced from employer contributions, 13% from employee contributions, and 61% from investment earnings. Thus, 39% percent of pension payouts (employer and employee contributions) are paid indirectly by taxpayers through tax revenues and compensation to government employees, though more would be required if investment earnings fail to meet expectations.

given that public pensions are quasi-governmental entities. Studies on state-owned enterprises and tax avoidance generally focus on Chinese and Russian companies, which operate in more command-centered economies, leading to external validity concerns relative to other developed countries (e.g., Chen et al. 2021; Desai, Dyck, and Zingales 2007). In contrast to evidence on government influence over tax avoidance in those economies, I do not find consistent evidence that U.S. public pensions influence firms' tax avoidance to generate greater tax revenues for state and local governments.

2. Literature Review and Hypothesis Development

2.1. Institutional Investors and Tax Avoidance

Institutional investors are active monitors who encourage firms to improve performance and increase cash flows (Schleifer and Vishny 1986; Cornett et al. 2007). Tax avoidance is one channel firms use to generate cash flows (e.g., Edwards, Schwab, and Shevlin 2016). Traditional theory holds that tax avoidance increases cash flows and firm value by transferring wealth away from taxing authorities to shareholders. However, tax avoidance also entails risks such as operational obfuscation (Desai et al. 2007; Desai and Dharmapala 2009; Atwood and Lewellen 2019), greater cost of debt (Hasan et al. 2014), and interest and penalties (Wilson 2009). Desai and Dharmapala (2009) explain that tax avoidance can require complicated and opaque organizational structures that facilitate managerial rent extraction. Despite potential cash flow benefits, shareholders and boards may oppose these tax avoidance strategies to maintain greater control and oversight of the firm. Thus, the relation between institutional ownership and tax avoidance is unclear.

Consistent with the unclear relation between overall institutional ownership and tax avoidance, prior results are mixed. One set of studies finds that institutional ownership is

positively associated with tax avoidance. Using the Russell 1000/2000 annual reconstitution discontinuity as a "shock" to institutional ownership, Khan et al. (2017) find that institutional ownership increases tax avoidance. Chen et al. (2019a) suggest that institutional investors do not focus on tax avoidance specifically. Instead, institutional investors pressure firms into governance structures that enable better performance and increased tax avoidance. Notably, Chen et al. (2019a) find little evidence of a direct influence of institutions on firm tax avoidance: the authors find that tax-related proxy proposals account for less than 1% of BlackRock and Vanguard's fund proposals. Additionally, BlackRock and Vanguard's proxy voting guidelines do not mention specific tax avoidance issues.

In contrast, Khurana and Moser (2013) find that long-term institutional ownership is negatively related to tax avoidance. Further, Wei and Young (2020), Glossner (2020), and Heath et al. (2022) point to several problems with using the Russell 1000/2000 discontinuity as a shock to institutional investment. Finally, Armstrong et al. (2015) find that tax avoidance varies with the level of corporate governance, with strong corporate governance encouraging tax avoidance when tax avoidance is otherwise low, but discouraging tax avoidance when tax avoidance is otherwise high.

Rather than influencing tax avoidance, it is also possible that institutional investors avoid investing in firms with low ETRs. While not their main focus, Rego et al. (2021) fail to find evidence that firms' ex-ante tax avoidance influences institutional investors' investment decisions. Overall, the relation between institutional ownership and tax avoidance is an empirical question. My study contributes to the literature on institutional investors and tax avoidance by focusing on one of the largest and most active institutional investor groups—public pensions.

2.2 Public Pensions and Governance

Public pensions, beyond institutional investors in general, are effective in attaining desired firm-level changes. Gillan and Starks (2000) examine governance efforts across different institutional investor types and note that proxy resolutions submitted by public pensions receive more votes in their favor. Smith (1996) examines 51 firms targeted by CalPERS via proxy resolutions from 1987 to 1993 and finds that the California public pension attained nearly all its desired changes. Smythe et al. (2013) note that firms experience positive cumulative abnormal returns surrounding news of targeting campaigns by CalPERS. Public pensions also influence firm behavior through private communications. Carleton, Nelson, and Weisbach (1998) examine TIAA-CREF's private correspondence with 45 investee firms from 1992 to 1996 and find that 95% of TIAA-CREF's requests were agreed to by the firms, with nearly 70% of private requests implemented without a shareholder vote.[7] However, it is not clear to what extent public pensions are interested in firms' tax avoidance, especially given the mixed results related to institutional investors overall and Chen et al.'s (2019a) inability to find evidence of tax proxy proposals submitted by institutional investors.

On the one hand, pensions may dislike tax avoidance to the extent that avoidance is deemed socially irresponsible or detrimental to society (e.g., Watson 2015; Davis et al. 2016). Socially responsible investing (SRI) is on the rise, with 4,000 organizations with $120 trillion in assets under management signing on to the UNPRI by 2021 (Gibson et al. 2022). Public pensions are at the forefront of SRI and appear willing to accept a 2.5-3.7 percentage point lower rate of return on private equity investments in exchange for social impact (Barber et al. 2021). Although

[7] TIAA-CREF is an abbreviation for Teachers Insurance and Annuity Association of America-College Retirement Equities Fund. Although TIAA-CREF is not a state public pension, it manages pensions for public and private universities. I exclude TIAA-CREF from my sample of public pensions due to the inability to associate it with a particular U.S. state.

certain states have recently criticized ESG investing and banned state pensions from investing in certain ESG-focused mutual funds, these states' pension assets continue to be invested similarly to the banned funds, suggesting that this ESG criticism does not lead to material changes to investment strategies (Rajgopal, Srivastava, and Zhao 2023). Additionally, unlike *private pensions,* which have fiduciary standards set by the Employment Retirement Income Security Act of 1974 (ERISA), *public pensions* derive their fiduciary responsibilities from their respective jurisdiction's laws and regulations (Coggburn and Redick 2007). These state laws potentially provide public pensions with greater discretion to consider the long-term risks associated with tax avoidance and investment returns.[8]

Consistent with the growing importance of ESG, corporations are increasingly viewed as having responsibilities to all stakeholders, rather than just shareholders. Carroll (1991) provides a theoretical framework suggesting that corporations have a duty to generate profits, but also ethical and philanthropic responsibilities to contribute resources to the community. Corporations, like individuals, benefit from various resources offered by the state and thus have a duty to contribute resources back to the state through tax payments (Krieg and Li 2021). Because a substantial portion of U.S. government spending is designed to support impoverished members of society (Krieg and Li 2021), stakeholders (e.g., public pension trustees and voters) may view corporate tax avoidance as diverting resources away from vulnerable members of society. Thus, minimizing tax avoidance may be an important ESG consideration.

On the other hand, it is not clear that pensions consider taxes in their ESG evaluations. While environmental concerns and diversity are focal points for socially responsible investors (Barber et al. 2021), most existing studies do not consider whether tax avoidance falls under the

[8] Public pensions are exempt from ERISA, but many states model their fiduciary standards after the federal law. Webber (2014) details which states model their public pension fiduciary standards after ERISA.

ESG framework, presumably under the "S" or social pillar of ESG. The few tax studies examining taxes and ESG find mixed evidence of whether paying taxes is considered socially responsible (Hoi et al. 2013; Davis et al. 2016; Watson 2015).

2.3 Public Pensions and Tax Collection

Consistent with the broad importance of public pensions, it is important to consider that public pension ownership reflects government ownership, which affects tax avoidance through other channels. State and local governments serve as both residual owners of investee firms and income tax collectors, creating varying incentives for state public pensions to increase or decrease investee firms' tax avoidance. On the one hand, state and local governments benefit from greater taxes to help fund governmental programs. Conversely, state and local governments benefit from pension fund returns (e.g., better-funded pension plans), so pensions may prefer that investees pay less tax to increase cash flows. Tang, Mo, and Chan (2017) examine this dynamic for Chinese state-owned enterprises (SOEs). When the Chinese central government increased its share of tax collections, locally-owned SOEs increased tax avoidance to retain a larger portion of firm wealth. However, Tang et al.'s (2017) findings may not extend to the U.S. since the U.S. federal government (i.e., central government) does not hold an investment interest in firms.

For U.S. firms, income taxes paid to headquarter states are a significant firm expense, creating incentives for state public pensions to pressure in-state firms to reduce tax avoidance and consequently increase state tax collections. Highlighting the importance of state taxes, firms are more likely to move their headquarters out of a state or increase their leverage (as a tax shield) following an increase in a headquarter state's statutory income tax rate (Chow et al. 2022; Heider and Ljungqvist 2015). Thus, public pensions can generate greater tax revenue for their jurisdiction by influencing firms' state and local income tax avoidance.

2.4 Public Pension Setting and ESG Considerations

Although public pensions are broadly interested in ESG, public pensions in Democratic states focus more on ESG issues than public pensions in Republican states. Hoepner and Schopohl (2020) find that public pensions in Democratic states tilt their portfolios toward companies with higher ESG scores more than public pensions in Republican states. Prior research also finds that mutual fund managers who donate to Democratic campaigns hold firms with high ESG scores in their portfolios more than mutual fund managers who donate to Republican candidates (Hong and Kotovetsky 2012). The literature consistently finds that funds and investors associated with Democratic politicians align more with ESG initiatives than those with Republican politicians. I exploit this ESG preference in my research design through a difference-in-differences analysis.

It is also important to note that public pensions differ from other institutional investors in ways that may influence their preference for tax avoidance. First, unlike private equity and hedge funds, which have few managers and investors, public pensions are quasi-governmental bodies that adjust investment decisions based on political priorities and public sentiment. After mass school shootings, several public pensions shed holdings in gun manufacturers (Aubry et al. 2020) in response to public outrage over these incidents. In 2000, the CalPERS and CalSTRS boards of trustees divested from tobacco stocks for moral reasons, even though the pension fund investment staff opposed the divestiture (Barber 2009). If the broader public is concerned about corporations not paying their fair share in taxes, these concerns may be reflected in how public pensions engage with firms and allocate fund assets.

Second, state and local laws allow governors and other elected officials to influence public pension investments through appointments to pension board trustees or allow governors to

serve as trustees by virtue of their office. For example, the Florida governor serves on the three-member State Board of Administration of Florida, which oversees the state's largest public pensions. In Oregon, the governor appoints all eight trustees of the Oregon Public Employees Retirement System. On average, one-third of public pension trustees are political officials. The remaining two-thirds of trustees are employed beneficiaries (i.e., current government employees), retired beneficiaries, or trustees who are not pension beneficiaries but serve as professional investment advisors.

The literature provides consistent evidence that elected officials use public pensions for their self-interest. Wang and Mao (2015) find that the number of politically affiliated board members is positively associated with the number of ESG and governance proposals submitted by public pensions, suggesting politicians use public pensions to improve their appeal to voters concerned with ESG issues. Andonov et al. (2018) find that political board members make suboptimal investment decisions to generate greater political support, pursue specific legislation, favor a particular interest group (e.g., voters, unions), and generate direct personal benefits (e.g., quid pro quo arrangements, bribes, kickbacks). Thus, if voters are concerned about corporate tax avoidance, political officials may push public pension trustees to pressure firms to reduce tax avoidance or divest from tax-avoiding firms altogether.

In addition to influence from political trustees and voters, public pensions face pressure from rank-and-file members to focus on issues of fairness, potentially including tax fairness. Dyck et al. (2022) find that public pension boards with a greater proportion of government employees with no financial experience, a proxy for low investor sophistication, are more likely to avoid hiring highly compensated investment advisors, even if these advisors help generate greater fund returns. This suggests that unsophisticated rank-and-file participants' "outrage"

about investment advisor compensation, while ignoring the potential benefits of highly compensated advisors, results in significantly lower pension fund returns. If public pension trustees forfeit pension returns for perceived compensation fairness, pension trustees may also forfeit fund returns for perceived tax fairness, leading pension funds to invest in firms with higher ETRs at the expense of pension fund returns.

2.5 Hypotheses Development

Based on the above discussion, pensions may prefer or dislike firm tax avoidance. On the one hand, tax avoidance improves earnings and generates greater cash flows. On the other hand, tax avoidance is also associated with greater operational obfuscation, reputational concerns, and penalties. Further, public pensions have unique attributes that can impact their preference for tax avoidance. First, pensions have heightened interest in ESG, but it is unclear if public pensions consider taxes in their socially responsible investing decisions. Second, public pensions have unique governance structures subject to political influence. Lastly, public pension investment may affect both government revenues (through tax collections) and government expenditures (through government payments to fund public pensions).

Given the overall mixed literature on institutional investors and tax avoidance, along with public pensions varying incentives to prefer or dislike tax avoidance, the relation between public pensions and tax avoidance is an empirical question. I state my two hypotheses in the null:

Hypothesis 1: Public pension investment is not associated with investee tax avoidance.

Hypothesis 2: Public pension investment decisions are not associated with firms' ex-ante tax avoidance.

3. Data and Research Design

3.1. Sample Selection

I obtain firm-level financial information from Compustat and stock information from CRSP for firm-years from 1993-2021. I exclude observations with less than $10 million in total assets, firms incorporated or headquartered outside the U.S., and firms missing required control variables. Following prior research, I exclude firms with negative pretax income because negative ETRs are difficult to interpret for these firms. I also drop financial firms and utilities because they have distinct regulatory and asset structures that make comparisons with other firms difficult. My sample starts in 1993 after FASB enacted FAS 109 (now ASC 740), which revised the financial reporting of income taxes. My sample ends in 2021, the last full year with available data. Table 1 describes my sample selection criteria.

Thomson/Refinitiv provides institutional investor ownership data that I merge with state public pension identifying information from Brian Bushee.[9] My sample contains the largest state public pensions, including the California Public Employee Retirement System (CalPERS), the Teacher Retirement System of Texas, the New York State Common Retirement Fund, and the Florida Retirement System. Appendix B provides a detailed list of the 41 public pensions included in my sample. Lastly, governors and political party information comes from the Inter-university Consortium for Political and Social Research (ICPSR). I obtain a maximum of 57,570 firm-year observations and 7,383 unique firms, though the sample size varies across my tests.

[9] Brian Bushee provides institutional owner classification data for eight types of institutional investors, including public pensions, from 1981-2018. https://accounting-faculty.wharton.upenn.edu/bushee/. I use pensions' 2018 classifications to extend my sample through 2021.

3.2. Firm-Level Analysis

My primary analysis uses an ordinary least squares (OLS) regression to examine the effect of public pension ownership on firm tax avoidance as follows:

$$TAX\_AVOIDANCE_{i,t} = \beta_0 + \beta_1 PCT\_PENSIONS_{i,t-1} + \sum \beta_k TAX\_CONTROLS_{i,t} + \delta_1 FIRM\_FE + \delta_2 YEAR\_FE + \epsilon_{i,t} \quad (1)$$

Where $TAX\_AVOIDANCE_{i,t,}$ represents one of six annual tax avoidance measures: GAAP ETR (*GAAP_ETR*), cash ETR (*CASH_ETR*), state and local ETR (*SALT_ETR*), state and local cash ETR (*SALT_CASH_ETR*), current year additions to UTBs (*UTBADD*), and subsidiaries in tax havens (*LN_HAVENS)*. My primary variable of interest is the coefficient estimate on lagged public pension ownership (*PCT_PENSIONS*). I use lagged ownership to provide sufficient time for public pensions to implement desired changes within firms.

GAAP_ETR and *CASH_ETR* are highly publicized tax avoidance measures that carry significant reputational concerns and are frequently used by interest groups and the media to raise concern over excessive corporate tax avoidance (Gupta and Newberry 1997; Chen, Schuchard, and Stomberg 2019b). *GAAP_ETR* includes tax accruals and reflects permanent tax avoidance strategies, whereas *CASH_ETR* measures taxes paid and incorporates both temporary and permanent tax avoidance methods (Hanlon and Heitzman 2010). I include two measures of state-level income taxes, *SALT_ETR* and *SALT_CASH_ETR*, to examine the effect of tax avoidance on state revenues (Atanassov and Liu 2020). My last dependent variable measures, additions to uncertain tax benefits from current year tax positions (*UTBADD*) and tax shelters used (*LN_HAVENS*), consider firms' tax aggressiveness beyond explicit taxes paid. Rego and Wilson (2012) explain that explicit taxes paid (i.e., *GAAP_ETR* and *CASH_ETR*) do not reflect firms' aggressive tax strategies. Two firms with the same *GAAP_ETR* or *CASH_ETR* can differ

in their tax aggressiveness (e.g., Guenther et al. 2019).[10] *UTBADD* and *LN_HAVENS* capture aggressive tax strategies and intentional tax avoidance through income shifting (Dyreng and Lindsey 2009), though these strategies expose the firm to riskier operating environments (e.g., Guenther et al. 2019; Lewellen et al. 2021) and negative media attention (Chen et al. 2019b).

Equation (1) includes controls for several factors associated with tax avoidance, following prior literature (e.g., Dyreng et al. 2017). For example, *TAX_CONTROLS* includes the natural log of total assets (*LN_ASSETS*), research and development expense (*RD_EXPENSE)*, and net operating losses (*NOL_DUMMY*). Equation (1) also controls for pretax profitability (*PTROA*) and the proportion of shares held by other institutional investors (*PCT_OTHINST*) to ensure results are not driven by profitability or governance demands from other institutional investors. I use firm-fixed effects to control for unobservable firm-level characteristics and year-fixed effects to control for unobservable characteristics that are the same for all firms within a given year (Breuer and deHaan 2023). All variables are defined in Appendix A.

I also modify my main model to focus on firms with investment by pensions from the same state (e.g., CalPERS investment in Apple Inc., a California headquartered company). I anticipate public pensions have greater influence over firms' tax avoidance when the firm is headquartered in the same state, consistent with political connections influencing investment behavior (Bradley et al. 2016). Thus, I replace *PCT_PENSIONS* with *PCT_INSTATE_TOT* for this analysis.

[10] ASC 740 requires firms to record the benefit of a tax position only after it determines that it is more likely than not to be sustained upon audit by relevant taxing authorities. The benefit recognized is the largest tax benefit that has a greater than 50 percent chance of being realized upon post-audit settlement with relevant taxing authorities. The portion that does not have a more than 50 percent chance of being realized is recorded as an uncertain tax benefit (UTB) and represents a contingent liability, which proxies for tax aggressiveness (Gallemore and Labro 2015; Rego and Wilson 2012).

3.2.1 Exogenous Shock to Public Pensions' ESG Preferences

In equation (2), I examine the cross-sectional effect of ESG-focused investors. Specifically, I examine how exogenous changes to the governor's political party affect tax avoidance for firms held by the public pension fund. I continue to focus on in-state pension ownership. Prior research finds that pension boards affiliated with or appointed by Democratic politicians invest in ESG funds and are willing to give up financial gains in exchange for social impact (Hong and Kostovetsky 2012; Hoepner and Schopohl 2020). To the extent that ESG-focused investors are negatively associated with tax avoidance, I anticipate ETR increases (decreases) for firms owned by pensions in states that switch from a Republican to a Democratic (Democratic to Republican) governor, conditional on in-state pension ownership.

$$TAX\_AVOIDANCE_{i,t,c} = \beta_0 + \beta_1 RTD*POST*INSTATE_{i,t,c} + \beta_2 DTR*POST*INSTATE_{i,t,c} + \beta_3 POST_{i,t,c} + \beta_4 RTD_{i,t,c} + \beta_5 DTR_{i,t,c} + \sum \beta_k TAX\_CONTROLS_{i,t,c} + \delta_1 FIRM\_FE + \delta_2 COHORT\_YEAR\_FE + \epsilon_{i,t,c} \quad (2)$$

The stacked cohort difference-in-differences model uses changes to governors' political parties as an exogenous shock to public pensions' focus on socially responsible investing. Specifically, I capture instances where the governor switches from a Democratic to a Republican governor (*DTR*), or a Republican governor to a Democratic governor (*RTD*). Control observations are instances where there is a change in governors but no change to the political party (i.e., Republican to Republican and Democratic to Democratic). For example, in 2011, California transitioned from a Republican governor (Arnold Schwarzenegger) to a newly elected Democratic governor (Jerry Brown), so all corporate shares held by CalPERS and CalSTRS are classified as *RTD* (i.e., "treated" firm) for the last three years of the incumbent's term (i.e., 2008-2010) and years 2-4 of the new governor's term (i.e., 2012-2014). I exclude the transition year

(i.e., 2011) to avoid noise associated with partial governorship years. *POST* = 0 for the last three years of the incumbent's term (i.e., 2008-2010) and *POST* = 1 for years 2-4 of the new governor's term (i.e., 2012-2014). Thus, I focus on the interaction term between the treated firms (*DTR* or *RTD*) and *POST*.

To mitigate bias associated with comparing later-treated firms with earlier-treated firms in a difference-in-differences analysis, and having states classified as *RTD* in one election cycle and *DTR* in another election cycle, I follow Baker et al. (2022) and implement a stacked cohort regression design. This stacked cohort regression design creates a separate analysis for each cohort year *c* (i.e., election year). In equation (2), my sample also restricts treatment and control firms based on firms' headquarters state. For example, Apple Inc. (headquartered in California) is treated following the *RTD* governor change in California in 2011. Control firms are from states that transitioned from *RTR* and *DTD* during 2011 (e.g., Nike Inc., headquartered in Oregon, which transitioned from a Democratic governor to another Democratic governor in 2011).[11]

3.3. Portfolio Analysis

My next set of tests examines investment in low ETR firms and pension portfolios' weighted ETRs following gubernatorial elections. While the firm-level analyses focus on public pensions' ability to influence firms (i.e., "voice"), the pension fund-level analysis focuses on pensions' investment decisions (i.e., "voting with feet"). Specifically, in equation (3), I examine whether pensions change the proportion of their portfolio's assets invested in firms with below industry-median (Fama-French 30) ETRs after states elect a governor from the opposing political party.[12] In equation (3), the dependent variable is the proportion of the pension fund *j*'s portfolio invested in firm *i* in year *t*.

[11] Results are robust to isolating control firms to RTR only or DTD only.
[12] Results are robust to using Fama-French 12 and 48-industry medians.

$$WEIGHT_{i,j,t,c} = \beta_0 + \beta_1 RTD_{j,t,c} * POST_{j,t,c} * LOWETR_{i,t} + \beta_2 DTR_{j,t} * POST_{j,t} * LOWETR_{i,t} + \beta_3 LOWETR_{i,t} + \beta_3 POST_{j,t} + \beta_4 RTD_{j,t} + \beta_5 DTR_{j,t} + \sum \beta_k FUND\_TAX\_CONTROLS_{j,t} + \delta_1 FUND\ FE + \delta_2 COHORT\_YEAR\_FE + \epsilon_{i,j,t} \quad (3)$$

Pension portfolio *j* is treated as *RTD* or *DTR* following a switch in the home state governor's political party (e.g., CalPERS is treated as *RTD* following a switch from a Republican governor to a Democratic governor in California in 2011). The dependent variable, $WEIGHT_{i,j,t,c,}$ is the proportion of pension portfolio *j*'s assets invested in firm *i* in year *t* for election cohort *c*. Control portfolios are public pensions in states that switch governors but where the political party stays the same (i.e., *RTR* and *DTD*). *LOWETR* firm *i* is any firm that pays below industry median (Fama-French 30) ETRs for each of the three years before an election. *FUND_TAX_CONTROLS* includes portfolio-level controls from Hoepner and Schopohl (2020), including the portfolio's weighted book-to-market ratio, the portfolio's weighted dividend yield, and the portfolio's weighted return on assets.

In equation (4), I examine changes to *portfolio-weighted* ETRs following gubernatorial elections. I anticipate that switching from Republican to Democratic (Democratic to Republican) governors is associated with higher (lower) overall portfolio-weighted ETRs consistent with Democratic-affiliated funds and investors focusing on ESG investing (Hoepner and Schopohl 2020). The dependent variable is portfolio *j*'s weighted ETR, calculated by multiplying the proportion of assets invested in firm *i* by firm *i's* ETR and then summed across all firms held by pension *j* in year *t*. $FUND\_TAX\_CONTROLS_{j,t}$ follows the same controls from equation (3) (i.e., Hoepner and Schopohl 2020).

$$WEIGHTED\_ETR_{j,t} = \beta_0 + \beta_1 RTD * POST_{j,t} + \beta_2 DTR * POST_{j,t} + \beta_3 POST_{j,t} + \beta_4 RTD_{j,t} + \beta_5 DTR_{j,t} + \sum \beta_k FUND\_TAX\_CONTROLS_{j,t} + \delta_1 FUND\ FE + \delta_2 COHORT\_YEAR\ FE + \epsilon_{j,t} \quad (4)$$

4. Empirical Results

4.1 Descriptive Statistics

Table 2, Panel A presents summary statistics for the firm-level analysis. 80.0% of firm-years in my sample have at least one public pension investor. The 41 public pension funds in my sample hold a combined average of 1.6% of each firm's common shares outstanding and account for a maximum of 8.2% ownership in a single firm-year. Firm-level *GAAP_ETR* and *CASH_ETR* average 31.4% and 26.9%, respectively, which is consistent with prior research (e.g., Dyreng et al. 2017). For my *UTBADD* analysis, the sample includes only 19,457 observations because UTB disclosures became effective after the last quarter of 2006, and even then, is not fully populated in all subsequent years. Similarly, my tax havens (*LN_HAVENS*) analysis has 25,341 observations, smaller than the *GAAP_ETR* and *CASH_ETR* samples, due to the limited number of years and firms covered by Scott Dyreng's tax haven dataset.

Table 2, Panel B presents pension-firm level summary statistics. The sample size increases to 260,807 observations because my tests examine pension-firm-year combinations versus firms-years only in Panel A. For example, while Apple, Inc. has only one observation per year in Panel A, Apple has multiple pension-firm observations each year in Panel B, given that multiple pensions hold an ownership interest in Apple each year. Public pension portfolios hold an average of 1,908 firms, and the average pension portfolio holds $22.09 billion in equity investments. 40.2% (41.4%) of firms pay below industry-median *CASH_ETR* (*GAAP_ETR*) for the three years before an election (i.e., *LOWCASHETR* and *LOWGAAPETR*). 39.1% to 54.0% report below industry-median *SALT_ETR*, *SALT_CASH_ETR*, *UTBADD*, and *LN_HAVENS* for the three years prior to an election. The *LOWETR* statistics differ from 50% because pensions may own more or less of firms above or below the industry median, leading to pension-firm pair

ownership averages deviating from 50%. The *UTBADD* and *LN_HAVENS* pension-firm analyses have fewer observations due to the limited data availability explained in Panel A.

Table 2, Panel C, reports descriptive statistics for the portfolio-level sub-sample. The 383 observations in this sample reflect pension-year observations. The *WEIGHTED_GAAPETR* and *WEIGHTED_CASHETR* are 25.1% and 20.6%, respectively, which is below the average firm-level *GAAP_ETR* of 31.4% and *CASH_ETR* of 26.9%, suggesting that public pensions hold a greater portion of assets in firms with below industry-median ETRs. This is consistent with large multinationals, which represent a large share of the stock market capitalization, paying lower ETRs relative to domestic-only firms (Rego 2003). 28.2% (38.1%) of gubernatorial elections result in a state switching from a Republican to a Democratic (Democratic to a Republican) (i.e., *RTD* and *DTR*) governor, indicating that states switched to Republican governors more often than Democratic governors during the sample period.

Table 3 presents the pairwise correlation matrix between the dependent and independent variables of interest. I note a positive association between the percent of shares held by public pensions (*PCT_PENSIONS*) and the six tax avoidance measures, indicating pension ownership correlates with lower avoidance. However, additional analysis is needed since these are bi-variate correlations that do not control for important firm characteristics associated with pension ownership and tax avoidance (e.g., firm size). The correlation coefficient between the percent of shares held by other institutional investors (*PCT_OTHINST*) and firm size (*LN_ASSETS*) of 0.61 is consistent with prior literature (e.g., Gompers and Metrick 2001) examining the relation between institutional investors and firm governance.

4.2 Firm-Level Empirical Results

Table 4 presents the baseline results of the effect of public pension ownership on firm-level tax avoidance after controlling for other determinants of tax avoidance and firm fixed effects. In column (2), the coefficient on *PCT_PENSIONS* is positive and approaching significant (0.106, t-statistic 1.55). In economic terms, a one standard deviation increase in the proportion of shares held by public pensions is associated with a 0.17 percentage-point increase in *GAAP_ETR*.[13] This represents a 0.54% increase in *GAAP_ETR* versus the mean.[14] For reference, at the mean pre-tax income in my sample of $422 million, a 0.17 percentage-point increase (decrease) in ETR results in additional tax payments (savings) of $717,400, an economically small effect relative to income. The 90 percent confidence interval ranges from -0.03% to 1.11% changes in the mean *GAAP_ETR* value. Across columns (1) and (3)-(6), I fail to find a significant association between the percent of shares held by public pensions (*PCT_PENSIONS*) and the other tax avoidance variables, with similarly small confidence intervals. In sum, I do not find consistent evidence that public pension investment is associated with firm tax avoidance.

One concern is that the limited results in Table 4 arise from low power in my analysis. To ensure my sample is sufficiently large to detect a statistically significant effect, I conduct an ex-post power analysis using STATA's POWERREG function, which considers the incremental R-squared provided by my variable of interest, *PCT_PENSIONS* in the full regression model. The power analysis suggests I need 4,080 observations to have an 80% chance of detecting a result at the 5% significance level. My sample of 57,570 observations provides a nearly 100% chance of

[13] To calculate the economic significance on *GAAP_ETR*, I multiply the coefficient estimate (0.106) by the standard deviation of the variable of interest (0.016 for *PCT_PENSIONS*) to get 0.0017.
[14] 0.0054 = 0.0017/0.314.

detecting a result at the 5% significance level. I also conduct an *a priori* analysis using G*Power 3.1 (Faul et al. 2009) and confirm that my sample is sufficiently large to detect an economic effect of 1% of the unconditional mean.[15] That is, my tests can detect economically meaningful effects.[16] Thus, my power analysis helps alleviate concerns that the lack of statistical significance in Table 4 is due to a small sample.

Table 5 focuses on the impact of in-state public pension ownership (*PCT_INSTATE_TOT*) on the six tax avoidance measures. In column (2), the significant coefficient on *PCT_INSTATE_TOT* suggests that a one standard deviation increase in in-state public pension ownership is associated with a 0.186 percentage-point increase in *GAAP_ETR* or a 0.59% increase in *GAAP_ETR* versus the mean.[17] The coefficient estimates for the other columns are insignificant. In columns (1) and (3)-(6), the 90 percent confidence intervals range from -2.26% to 3.55% changes in the mean *GAAP_ETR*. The narrow confidence intervals suggest that the magnitude of a possible economic effect would be economically small. Table 5 provides little evidence that in-state public pensions use their ownership interest to increase local government revenues by affecting firms' state and local income tax payments.

Table 6 presents a similar analysis to Tables 4 and 5, except using Fama-French 30 industry fixed effects instead of firm fixed effects. I present analyses using industry fixed effects for two reasons. First, I provide these results for comparison to prior tax avoidance literature,

[15] Assuming a one-standard deviation increase in public pension ownership results in a 1% increase in the unconditional mean CASH_ETR, I would need a sample of 45,246 observations to have an 80% chance of detecting a result at the 5% significance level.

[16] For reference, the SEC's guidelines (Regulation S-X §210.4-08(h)(1)) define material items affecting a firm's ETR reconciliation disclosed in its tax footnote as those equal to 5% of the statutory rate, or 1.75% (35%*5%) for most of my sample.

[17] To calculate the economic significance on *GAAP_ETR*, I multiply the coefficient estimate (0.069) by the standard deviation of the variable of interest (0.027 for *PCT_INSTATE_TOT*) to get 0.00186. 0.00186/0.314 = 0.0059.

which is primarily conducted across rather than within firms. Second, this allows me to evaluate the variation driven by including different levels of fixed effects (Breuer and deHann 2023).

The results in Table 6, Panel A, provide evidence that public pension ownership is positively associated with firms' *CASH_ETR*, *GAAP_ETR*, and reduces *UTB_ADD*. However, the magnitude of the effects remains relatively small. In Panel A column (2), the coefficient estimate on *PCT_PENSIONS* suggests that a one standard deviation increase in public pension ownership results in a 0.76% increase in the *GAAP_ETR*.[18] In Panel B, in-state pension ownership is associated with higher *SALT_ETR* and *SALT_CASH_ETR*. The positive and significant coefficients in Columns (5) and (6) provide different inferences than the ETR measures; public pensions are positively associated with tax position uncertainty (i.e., positive *UTB_ADD*) and tax haven usage (i.e., positive *LN_HAVENS*). However, the results in Table 6 should be interpreted with caution because industry fixed effects do not control for public pensions' choice to invest in firms. Notably, other time-invariant firm attributes that drive public pension investment may be associated with lower tax avoidance. This may permit public pensions to appear —to the public—to invest in firms that avoid less taxes without taking direct action (voice or exit) related to tax avoidance, which may be viewed as a form of "greenwashing." My analyses in Tables 4 and 5 using firm fixed effects better controls for public pensions decision to invest in firms.

To address potential omitted variable bias in the prior analysis, I use gubernatorial elections as an exogenous shock to public pension ESG preferences, which may affect public pension preference for tax avoidance. Specifically, in Table 7, I test whether firms headquartered in states that switch from a Republican to a Democratic (*RTD*) governor increase tax avoidance

[18] To calculate the economic significance on *GAAP_ETR*, I multiply the coefficient estimate (0.152) by the standard deviation of the variable of interest (0.016 for *PCT_PENSIONS*) to get 0.0024. 0.0024/0.314 = 0.0076.

more or less than states that switch from a Democratic to a Republican (*DTR*) governor, conditional on in-state pension ownership. I estimate these effects using equation (2).

In Table 7, the coefficient estimates on *RTD*POST*INSTATE* and *DTR*POST*INSTATE* are statistically insignificant across all columns, except column (2), providing limited evidence that pensions seek to influence in-state firms' tax avoidance following an exogenous change in the governor's political party. F-tests comparing the coefficient estimates on *RTD*POST*INSTATE* against *DTR*POST*INSTATE* are also statistically insignificant across all but one column. Overall, the results in Table 7 do not provide consistent evidence of a differential effect on firm-level tax avoidance following an exogenous shock to public pension funds' governance and ESG preferences.

4.3 Portfolio-Level Empirical Results

Public pension preference for tax avoidance may not be detectable at the firm level (e.g., pensions may divest rather than use their voice), so I examine how pensions' *portfolio-level* tax avoidance measures change following an exogenous shock to pensions' ESG preferences, proxied by changes to the governor's political party. Table 8 reports the results of estimating equation (3) examining pensions' investment in low ETR firms after gubernatorial elections. The dependent variable, *WEIGHT_I*, is the proportion of a pension's portfolio invested in firm *i*. *LOW[variable name]* are indicator variables for firms that paid below industry-median (Fama-French 30) ETRs during the three years before an election. I anticipate the coefficient on *RTD*POST*LOWETR* to be negative and significantly smaller than *DTR*POST*LOWETR*, consistent with Democratic-led pension funds favoring ESG investing and being less likely to invest in (or more likely to divest from) tax-avoiding firms relative to Republican-led pensions. I expect these coefficients to differ from one another. My analysis follows Hoepner and Schopohl

(2020), who use portfolio analysis to find that pension funds from Democratic states tilt portfolios toward firms with higher ESG scores.

In Table 8, none of the coefficients of interest, or the differences between relevant *RTD* and *DTR* coefficients, in columns (1)-(6) are statistically significant, providing no evidence that exogenous changes to pension governance affect the proportion of assets invested in low ETR firms overall or differently based on political changes. In all, the results in Table 8 do not provide evidence that public pensions alter asset allocations based on firms' *ex-ante* tax avoidance following a shock to pensions' ESG preferences.

Lastly, in Table 9, I examine how pension portfolios' weighted ETRs change after a gubernatorial election using the model in equation (4). Weighted ETRs capture both pension activism (i.e., voice) and pension investment/divestment decisions (i.e., exit). My coefficients of interest, *RTD*POST* and *DTR*POST*, measure changes to portfolios' weighted ETRs following a gubernatorial election in which the political party of the state governor switches in an election. In Table 9, column (2), the negative coefficient on *RTD*POST* suggests that switching from a Republican to a Democratic governor is associated with a 2.7% *decrease* in a pension portfolio's weighted GAAP ETR. Conversely, switching from a Republican governor to a Democratic governor is associated with a 2.8% *increase* in the pension's weighted GAAP ETR. These two results contradict the notion that electing Democratic (Republican) governors increases (decreases) pensions' ETRs. In column (3), the coefficient estimates are in the opposite direction relative to column (2), and the difference between both coefficients is significant at the $p<0.01$ level. This provides limited evidence that Democratic-led public pensions may accept greater federal-level tax avoidance, perhaps to increase cash available to beneficiaries, while discouraging state-level tax avoidance to increase the availability of state-level government

services. Similarly, the coefficient estimates on *DTR*POST* and the difference between *DTR*POST* and *RTD*POST* in column (6) suggest that switching to a Democratic governor constrains portfolio firms' tax haven use (i.e., tax aggressiveness) relative to switching to a Republican governor. In all, the analysis from Table 9 provides some limited evidence that electing a governor from the opposing political party affects pensions' weighted ETRs.

4.4 Additional Analysis: Proxy Resolutions

I conduct additional analyses to examine whether public pensions seek to affect firm-level tax avoidance through proxy campaigns. Finding little evidence of tax-related proposals would help support my results and suggest that alternative factors (e.g., difficulty detecting an effect empirically) do not drive my results. I search the Institutional Shareholder Services database (ISS, formerly RiskMetrics) for all proxy resolutions submitted by public pensions during all available years (2006-2021) and identify only four resolutions containing the word "tax." Specifically, the New York State Common Retirement Fund submitted four proxy requests for firms to amend their policy on disclosing payments to tax-exempt organizations. Conceptually, these four requests are related to firm disclosure, not tax avoidance. These four resolutions represent just 0.16% of the 2,476 total resolutions filed by public pensions over the 15 years (untabulated). The most common proxy resolutions relate to anti-discrimination policies, reporting political contributions, and improving board governance. The lack of tax avoidance proxy resolutions filed by public pensions further supports the conclusion that pensions do not attempt to change firms' tax avoidance characteristics.

5. Robustness Tests

5.1 Simultaneity

It is important to acknowledge the potential for simultaneity in my study. Specifically, pension ownership may affect tax avoidance, and tax avoidance may simultaneously affect pension ownership, causing measurement issues in my previous regression models. My analyses in Tables 4 and 5 address this concern by using one-year lagged pension investment as the dependent variable, which helps ensure variation in pension ownership drives changes in tax avoidance. Additionally, my analyses in Tables 7 to 9 use an exogenous change to pension ESG preference (i.e., gubernatorial elections), which further addresses simultaneity concerns and ensures any results are driven by public pension investment. Nonetheless, to further mitigate simultaneity concerns, I estimate the joint decision to change tax avoidance when public pension investment varies, while also considering changes in public pension investment when tax avoidance varies. My analysis uses the following simultaneous equations:

$$PCT\_PENSIONS_{i,t} = \beta_0 + \beta_1 TAX\_AVOIDANCE_{i,t,} + \beta_2 PCT\_PENSIONS_{i,t-1} + \beta_3 PCT\_PENSIONS_{i,t-2} + \sum \beta_k \, TAX\_CONTROLS_{i,t,} + \delta_1 INDUSTRY\_FE + \delta_2 YEAR\_FE + \epsilon_{i,t,} \quad (5)$$

$$TAX\_AVOIDANCE_{i,t} = \beta_0 + \beta_1 PCT\_PENSIONS_{i,t,} + \beta_2 TAX\_AVOIDANCE_{i,t-1} + \beta_3 TAX\_AVOIDANCE_{i,t-2} + \sum \beta_k \, TAX\_CONTROLS_{i,t,} + \delta_1 INDUSTRY\_FE + \delta_2 YEAR\_FE + \epsilon_{i,t,} \quad (6)$$

I perform a joint estimation of equations (5) and (6) using three-stage least squares following Zillner and Theil (1962). The simultaneous analysis allows me to measure the effect of pension investment on my six tax avoidance measures (i.e., *CASH_ETR*, *GAAP_ETR*, etc.) in equation (6) while controlling for the influence of tax avoidance on public pension investment

(equation 5). My analysis includes lagged dependent variables for *t-1* and *t-2* as instruments in each equation (i.e., β_2 and β_3).

Table 10 presents the results of the simultaneous equations. In Panels B (*GAAP_ETR*) and F (*LN_HAVENS*), column (1), I find some evidence that tax avoidance leads to variation in public pension ownership (*PCT_PENSIONS)*. I only find evidence that public pension ownership (*PCT_PENSIONS*) is associated with lower tax avoidance in Panel E. In Panel E, column (2), the significant coefficient estimate (-0.013, t-statistic -4.80) suggests that a one standard deviation increase in public pension ownership is associated with a 16% reduction in uncertain tax benefits.[19] Other effects are economically small. In column (2) of both Panels A (*CASH_ETR*) and B (*GAAP_ETR*), the 90 percent confidence interval falls within a -0.5% to 1.3% change in the tax avoidance measure value versus its mean. The confidence intervals in the other columns are similarly narrow. In all, the simultaneous equations analysis provides limited support that public pension ownership affects tax avoidance.

5.2 Index Investing

Pensions' ability to invest or divest from companies based on firms' tax avoidance behavior may be limited if public pensions are index investors and, therefore, forced to adhere to prescribed portfolio weights from the S&P500 or Russell 3000 indices. Alternatively, indexers may have a greater incentive to voice their concerns because they do not pose a threat of exit (i.e., buying or selling shares) due to their obligations to invest fund assets based on broad index weights. Smith (1996) notes that in the late 1980s and early 1990s, CalPERS indexed its internally managed portfolio, but recent practitioner literature suggests that public pensions are

[19] To calculate the economic significance on UTB_ADD, I multiply the coefficient estimate (-0.013) by the standard deviation of the variable of interest (0.016 for PCT_PENSIONS) to get 0.000208. 0.16 = 0.000208/0.0013 (mean *UTB_ADD*).

not index investors, leading to significant underperformance relative to index funds (Ennis 2021). Therefore, I examine whether my inconsistent results are driven by pensions that are 1) index investors who cannot increase or decrease investments based on firms' tax avoidance, or 2) non-indexers who may not influence firm behavior but instead self-select into investments based on firms' ex-ante tax characteristics.

I identify indexers and non-indexers based on portfolio returns relative to the Russell 3000 index return. I classify pensions as indexers if their annual portfolio returns have a regression coefficient (i.e., Beta) between 0.8-1.2 relative to the Russell 3000 index. Approximately half of the pensions in my sample are index investors using my criteria. I repeat my analyses and find that my results are consistent for both indexers and non-indexers, suggesting that my main results are not driven by either indexer or non-indexer pension funds.

5.3 Heightened Political Focus

After the Great Recession of 2009, public pension expenditures became important for voters as states and local municipalities faced larger fiscal deficits (Anzia and Moe 2017). Anzia and Moe (2017) note that before the Great Recession of 2009, Republicans and Democratic legislators voted to increase pension benefits at similar rates since there was no constituency lobbying against pension benefits and, therefore, no political benefit with opposing greater pension benefits. After the 2009 Great Recession, voters became increasingly concerned about government deficits, and Republican legislators became more likely to vote against bills that expanded public pension benefits and vote in favor of bills that reduced pension benefits to cater to a growing voter constituency. On the other hand, Democratic legislators continued to vote to expand public pension benefits, consistent with their appeal to labor and public sector employees.

I examine whether the diverging voting patterns between Republicans and Democratic legislators after 2008 changes my inferences by limiting my analyses from 2009 to 2021 (untabulated). I find consistent results between the shorter sample period (i.e., 2009-2021) and the longer sample period (i.e., 1993-2021), suggesting that the longer sample period does not conceal a potentially consistent and stronger effect between public pensions and tax avoidance during a shorter sample period when politicians and voters were increasingly focused on public pension benefits.

5.4 ESG Validation

Prior literature finds that institutional investors, including public pensions, associated with Democratic states focus on ESG issues more than other institutional investors associated with Republican states (Hong and Kostovetsky 2012; Hoepner and Schopohl 2020). To ensure that my lack of results is not due to sample misspecification, I validate that public pension ownership, and ownership by public pensions in states that switch from Republican to Democratic governors, is associated with higher ESG scores in my sample. Table 11, Panel A, presents the results of regressing firms' overall ESG score (*ESG*) and separate environmental (*ENV*), social (*SOC*), and governance (*GOV*) scores on public pension investment across my pooled sample with firm fixed effects. The results in Table 11, Panel A, columns (1), (3), and (4) suggest that public pension ownership is positively associated with firm ESG scores in my sample. Panel B presents similar results after controlling for determinants of ESG scores following Gillan et al. (2021). Lastly, Panel C presents slightly weaker results after controlling for determinants of tax avoidance consistent with my analysis in Table 4 (i.e., tax avoidance controls from Dyreng et al. 2017).

Table 11, Panels D-F, presents the results of regressing firm ESG scores on Democratic to Republican (DTR) and Republican to Democratic (RTD) governor switches across all public pension investors. The analysis uses pension-firm and cohort-year fixed effects, allowing me to capture variation in ESG preferences across all public pension investor and firm combinations. The results with no controls (i.e., Panel D), with ESG controls from Gillan et al. 2021 (i.e., Panel E), and with tax avoidance controls from Dyreng et al. 2017 (i.e., Panel F) all suggest that Democratic governance is associated with higher ESG scores than Republican governance.

Lastly, Panels G-I present the results of regressing pension portfolio weighted ESG scores on Democratic to Republican (DTR) and Republican to Democratic (RTD) governor switches, including pension fixed effects. The results in Panel G suggest that public pensions led by Democratic (Republican) governors increase (decrease) their portfolio-weighted ESG scores following a political party switch, consistent with Democratic governance favoring ESG more than Republican governance. The F-tests also confirm a statistically significant difference between RTD and DTR switches. Panel H presents the portfolio-weighted analysis after controlling for determinants of ESG scores. The statistical significance between *RTD*POST* and *DTR*POST* disappears in Columns (2) and (4), though the sign of the coefficient estimates remains consistent with Panel G (i.e., with no controls). Panel I present results after controlling for determinants of tax avoidance. The coefficient estimates remain larger for *RTD*POST* than *DTR*POST* (though insignificant), consistent with the notion that Democratic governance favors ESG investing more than Republican governance, though the F-tests comparing coefficient estimates are no longer significant across all columns.

Overall, the ESG validity tests provide evidence that, within my sample, public pensions and public pensions located in states led by Democratic governors are associated with higher

ESG scores. The fact that results weaken slightly in some cases after including controls is also consistent with the possibility that public pension investing is driven by other firm attributes but appears – to the public – to consider ESG, without pensions taking direct action (voice or exit) related to ESG. This may be viewed as a form of "greenwashing."

6. Conclusion

This study examines the relation between public pensions and their investee firms' tax avoidance. Public pensions are influential investors that focus on broad governance issues, increasingly including environmental, social, and governance (ESG) concerns. Across a battery of tests, I do not find consistent evidence that public pensions affect firm-level tax avoidance, or that public pensions allocate fund assets based on firms' ex-ante tax avoidance. Thus, I am unable to support academic and practitioner claims that taxes are a critical element of a business' social contribution—part of the 'S' in ESG. Additionally, I am unable to confirm pensions are meeting their public commitment to reduce or eliminate opportunities for corporate tax abuse (evasion and avoidance) under the United Nations Principles for Responsible Investment (UNPRI).

My study has important implications for the literature on institutional investors and sustainable investing. Recent literature finds that institutional investors who publicly commit to ESG criteria are not meeting their commitment to improve stakeholder wellbeing (Gibson et al. 2022). Instead, institutional investors, particularly U.S.-based institutional investors, commit to ESG criteria for commercial motives (Heath et al. 2023). My study adds to this literature by finding no evidence that public pensions are meeting their UNPRI commitment to reduce tax avoidance, raising potential greenwashing concerns.

My study also contributes to the public finance and state-owned enterprise literature. Public pensions face a $1 trillion funding shortfall, which requires greater government funding, leading to reduced government services (Coggburn and Reddick 2007; Rao 2022). At the same time, pensions willingly accept lower fund returns in exchange for social impact (Barber et al. 2021). My study does not find evidence that pensions are sacrificing fund returns in exchange for broader tax contributions and are, therefore, likely sacrificing fund returns for environmental or other governance concerns. Lastly, my study does not find evidence that U.S. states use public pensions to pressure firms to increase or decrease tax payments to help fund local governments, which differs from recent studies on Chinese state-owned enterprises (e.g., Chen et al. 2021).

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Appendix A - Variable Descriptions

Dependent Variables	
CASH_ETR	Cash taxes paid scaled by pretax income. (TXPD/PI). Source: Compustat
GAAP_ETR	Total income tax expense divided by pretax income. (TXT / PI). Source: Compustat
SALT_ETR	Current state and local income tax plus deferred state and local income tax, all divided by domestic pretax income. (TXS+TXDS)/(PIDOM). Source: Compustat
SALT_CASH_ETR	Current state and local income tax divided by domestic pretax income. (TXS)/(PIDOM). Source: Compustat
UTBADD	Current year increases to uncertain tax benefits scaled by lagged total assets. ($TXTUBPOSINC/AT_{t-1}$). Source: Compustat
LN_HAVENS	The natural log of tax haven jurisdictions with at least one subsidiary from 10K Exhibit 21. Source. Scott Dyreng
WEIGHT_I	The proportion of each pension fund's investment in firm *i*. The sum equals 100%. Source: Thomson/Refinitiv
WEIGHTED_ETR	The proportion of each pension fund's investment in firm *i* multiplied by firm *i*'s respective ETR. The sum for all investees equals a portfolio's weighted ETR. Source: Thomson/Refinitiv
ESG	Overall ESG score. Source: Refinitiv
ENV	Separate environmental score. Source: Refinitiv
SOC	Separate social score. Source: Refinitiv
GOV	Separate governance score. Source: Refinitiv
WEIGHTED_ESG	The proportion of each pension fund's investment in firm *i* multiplied by firm *i*'s respective ESG score. The sum for all investees equals a portfolio's weighted ESG score. Source: Refinitiv
Independent Variables	
PCT_PENSIONS	The proportion of a firm's shares outstanding owned by public pensions in Appendix B. Source: Thomson/Refinitiv
PCT_INSTATE_TOT	The proportion of public pension investment held by the headquarter state's public pensions. Source: Thomson/Refinitiv
INSTATE	Equals one if the firm has any public pension investor located in the headquarter state, zero otherwise. Source: Thomson/Refinitiv
LOW_ETR	LOWCASHETR, LOWGAAPETR, LOWSALTETR, LOWSALTCASHETR, LOWUTBADD, LOWLNHAVENS. Indicator equal to one if the firm reports below industry median (Fama-French 30) ETRs for the three years before an election, zero otherwise. Source: Compustat
PEN_DUMMY	Equals one if the firm has any public pension investor, zero otherwise. Source: Thomson/Refinitiv

PCT_OUTSTATE_TOT	The proportion of public pension investment held by the pensions outside the firm's headquarter state. Source: Source: Thomson/Refinitiv
DTR	Equals 1 for firms incorporated in states where a Republican governor succeeds a Democratic governor. Set to zero for firms headquartered in states where the political party stays the same, or a Republican governor succeeds a Democratic governor. Source: Inter-university Consortium for Political and Social Research (ICPSR).
RTD	Equals 1 for firms incorporated in states where a Democratic governor succeeds a Republican governor. Set to zero for firms headquartered in states where the political party stays the same, or a Republican governor succeeds a Democratic governor. Source: Inter-university Consortium for Political and Social Research (ICPSR).
POST	Equal to 1 for years 2-4 of a newly elected governor's tenure. Equal to 0 for the last three years of the outgoing governor's tenure. Source: Inter-university Consortium for Political and Social Research (ICPSR).
Control Variables	
ADVERT	Advertising expense (if missing, it is set to zero) scaled lagged total assets. (XAD/AT_{t-1}). Source: Compustat
BTM	Book value of equity divided by market value of equity at calendar year-end. (CEQ/(PRCC_F*CSHO)). Source: Compustat
BETA	The firm's annual beta measure. Source: Beta Suite by WRDS
CAPEX	Capital asset expense scaled by net property, plant, and equipment. (CAPX/PPENT). Source: Compustat
CASH	Cash and cash equivalents divided by scaled by lagged total assets. (CHE/AT_{t-1}). Source: Compustat
DIV_YIELD	Dividends for common stockholders divided by the market value of equity. (DVT/(PRCC_F*CSHO)). Source: Compustat
FOR_INC	Absolute value of pretax foreign income divided by the absolute value of pretax total income. (|PIFO| / |PI|). Source: Compustat
INTANG	Intangible assets scaled by lagged total assets. ($INTAN/AT_{t-1}$). Source: Compustat
LEV	Total debt scaled by lagged total assets. $(DLTT+DLC)/AT_{t-1}$. Source: Compustat
LNMKTCAP	The natural log of firm market capitalization. Ln(PRC*CSHO). Source: CRSP
LN_ASSETS	The natural log of firm total assets. Ln(AT). Source: Compustat
LN_GDP	The natural log of each state's annual GDP Source: U.S. Census Bureau

MNE	Multinational entity. Set equal to 1 if the absolute value of pretax foreign income is greater than zero (Abs(PIFO)>0) or the absolute value of foreign income taxes is greater than zero (Abs(TXFO)>0), zero otherwise. Source: Compustat
NOL_DUMMY	Set equal to 1 if tax loss carryforward (TLCF) is greater than zero; zero otherwise. Source: Compustat
NOL_CHANGE	The change in the NOL balance scaled by lagged total assets. $(TLCF - TLCF_{t-1})/ (AT_{t-1})$. Source: Compustat
NUM_FIRMS	The number of firms in a pension's portfolio on December 31. Source: Thomson/Refinitiv
PI	Pretax income. Source: Compustat
PORTFOLIO_VALUE	The value of a public pension portfolio. Sum of (PRC*SHARES owned) for all investees. Source. CRSP, Thomson/Refinitiv
PCT_OTHINST	The portion of shares held by non-public-pension institutional investors. Source: Thomson/Refinitiv
PPE	Net property, plant, and equipment scaled by lagged total assets. $(PPENT/AT_{t-1})$. Source: Compustat
PTROA	Pretax book income scaled by lagged total assets. (PI/AT_{t-1})
RD_EXPENSE	Research and development expense (set to zero if missing) scaled by lagged total assets. (XRD/AT_{t-1}). Source: Compustat
SGA	Selling, general, and administrative expense minus advertising expense minus R&D expense, all scaled by lagged total assets. $(XSGA - XAD - XRD)/(AT_{t-1})$. XSGA, XAD, XRD are set to zero if missing. Source: Compustat
SPECIAL_ITEMS	The ratio of special items to lagged total assets. (SPI/AT_{t-1}). Source: Compustat
TWELVEMONTHRET	12-month compounded return (EXP(SUM(LOG(1+ RET)))-1. Source: CRSP

Appendix B: Public Pensions in Sample

	State	Thomson Manager Number	Bushee's Permanent Key	Bushee's Entity Type	Manager Name
1	Alabama	9059	10630	PPS	RETIREMENT SYSTEMS OF ALABAMA
2	Alaska	18936	7867	PPS	ALASKA RETIREMENT MGMT BD
3	Arizona	13290	9494	PPS	ARIZONA STATE RETIREMENT SYS
4	California	12000	1187	PPS	CALIFORNIA PUBLIC EMP RET SYS
5	California	12120	772	PPS	CALIFORNIA STATE TEACH RETIRE
6	Colorado	18740	137	PPS	CO PUBLIC EMPLOYEE RETIREMENT
7	Florida	38330	911	PPS	FLORIDA STATE BD ADMINISTRATIO
8	Kentucky	13676	9855	PPS	KENTUCKY RET SYSTEMS INS TR FD
9	Kentucky	49050	380	PPS	KY TEACHERS RETIREMENT
10	Louisiana	13747	9924	PPS	LOUISIANA STATE EMP' RET SYS
11	Maryland	54360	427	PPS	MARYLAND STATE RETIRMENT
12	Michigan	13663	9842	PPS	MUNI EMP' RETIREMENT SYS MI
13	Michigan	57500	462	PPS	MICHIGAN DEPT OF TREASURY
14	Missouri	58150	2659	PPS	MISSOURI STATE EMP' RETIRE SYS
15	Montana	58650	1463	PPS	MONTANA BOARD OF INVTS
16	New Jersey	12368	8693	PPS	NJ BETTER EDU SAVINGS TRUST FD
17	New Jersey	12387	8738	PPS	STATE NJ COMMON PENSION FD A
18	New Jersey	12388	8739	PPS	STATE NJ COMMON PENSION FD B
19	New Jersey	12389	8740	PPS	STATE NJ COMMON PENSION FD D
20	New Jersey	12390	8741	PPS	STATE NJ COMMON PENSION FD E
21	New Jersey	12391	8694	PPS	NJ STATE EMP DEFERRED COMPENSA
22	New Jersey	12399	8745	PPS	SUPPLEMENTAL ANNTY COLL TR NJ
23	New Mexico	63600	1332	PPS	NEW MEXICO EDUC. RET. BD
24	New York	63850	946	PPS	NEW YORK ST COMMON RET.
25	New York	63895	502	PPS	NEW YORK ST TEACHERS RET
26	North Carolina	28288	15210	PPS	TREASURER OF THE STATE OF NC
27	Ohio	66550	2048	PPS	OHIO PUBLIC EMP RETIREMENT SYS
28	Ohio	66610	520	PPS	OHIO SCHOOL EMP RETIRMNT
29	Ohio	66635	521	PPS	STATE TEACH RETIREMENT SYS OH
30	Oregon	12462	8700	PPS	OREGON PUBLIC EMP RET FD_NLE
31	Pennsylvania	68830	6245	PPS	PENNSYLVANIA PUBLIC SCH EMP RE
32	South Dakota	9202	10744	PPS	SOUTH DAKOTA INVT COUNCIL
33	Tennessee	13690	9869	PPS	STATE OF TN, TREASURY DEPT
34	Texas	7712	5278	PPS	TEXAS TREASURY SAFEKEEPING CO
35	Texas	7851	5384	PPS	TEXAS PERMANENT SCHOOL FUND
36	Texas	11593	8272	PPS	EMPLOYEES RETIREMENT SYS OF TX
37	Texas	83360	669	PPS	TX TEACHER RETIRM SYS
38	Utah	13295	9499	PPS	UTAH RETIREMENT SYSTEMS

39	Virginia	90803	2268	PPS	VA RETIREMENT SYS
40	Washington	12927	9386	PPS	WASHINGTON STATE INVESTMENT BD
41	Wisconsin	93405	745	PPS	STATE OF WI INVESTMENT BOARD

Appendix C: Refinitiv ESG Data

ESG Scores are obtained from Refinitiv (previously Asset4). Scores range from 0 to 100. Refinitiv notes that it "offers one of the most comprehensive ESG databases in the industry, covering over 88% of the global market cap, across more than 700 different ESG metrics, with a history going back to 2002."[20] The underlying data for ESG scores are obtained from publicly reported sources. Refinitiv defines its overall ESG score and its separate environmental, social, and governance scores as follows:

ESG Score
ESG score is an overall company score based on the self-reported information in the environmental, social, and corporate governance pillars.

ENV Score: Environmental Pillar
Environmental pillar measures a company's impact on living and non-living natural systems, including the air, land, and water, as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities to generate long-term shareholder value.

SOC Score: Social Pillar
Social pillar measures a company's capacity to generate trust and loyalty with its workforce, customers, and society, through its use of best management practices. It reflects the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long-term shareholder value.

GOV Score: Governance Pillar
Corporate governance pillar measures a company's systems and processes, which ensure that its board members and executives act in the best interests of its long-term shareholders. It reflects a company's capacity, through its use of best management practices, to direct and control its rights and responsibilities through the creation of incentives, as well as checks and balances to generate long-term shareholder value.

[20] Additional information on Refinitiv's ESG scores can be found here: https://www.refinitiv.com/en/sustainable-finance/esg-scores#company-esg-scores

Table 1: Sample Selection

All Compustat and CRSP firm-year observations 1993-2021	224,906
Total assets > $10M	195,591
Pretax income > $0	136,835
Delete missing income taxes (TXT) and income taxes paid (TXPD)	116,068
Delete utilities and financials (SICH 4800-4999, 6000-6999) and non-U.S. incorporated or headquartered firms	76,829
Delete missing control variables	57,570
Final sample (firm-years)	**57,570**
Final sample (unique firms)	**7,383**

This table reports the sample selection process for the primary analysis associated with H1 (i.e., firm-year observations before the stacking process).

Table 2: Summary Statistics

Panel A: Firm-Level Summary Statistics

	N	Mean	Std. Dev.	min	p10	Median	p90	max
PEN DUMMY	57570	0.800	0.400	0	0	1	1	1
PCT PENSIONS	57570	0.016	0.016	0	0	0.012	0.035	0.082
GAAP ETR	57570	0.314	0.173	0	0.033	0.346	0.431	1
CASH ETR	57570	0.269	0.225	0	0.012	0.246	0.510	1
SALT ETR	57570	0.019	0.040	0	0	0	0.061	0.260
SALT CASH ETR	57570	0.020	0.040	0	0	0	0.062	0.256
UTBADD	19457	0.001	0.002	0	0	0	0.004	0.015
LN HAVENS	25341	0.889	0.781	0	0	0.693	1.946	2.639
MNE	57570	0.572	0.495	0	0	1	1	1
LOG ASSETS	57570	6.316	1.942	2.559	3.781	6.239	8.930	11.178
RD EXPENSE	57570	0.031	0.059	0	0	0	0.117	0.282
PPE	57570	0.270	0.223	0.009	0.044	0.203	0.628	0.892
INTANG	57570	0.159	0.189	0	0	0.080	0.457	0.739
LEV	57570	0.221	0.196	0	0	0.196	0.489	0.833
CAPEX	57570	0.257	0.175	0.009	0.081	0.210	0.504	0.849
ADVERT	57570	0.011	0.025	0	0	0	0.034	0.152
SPECIAL ITEMS	57570	-0.004	0.020	-0.080	-0.021	0	0.003	0.097
NOL DUMMY	57570	0.390	0.488	0	0	0	1	1
PTROA	57570	0.123	0.104	0.003	0.023	0.096	0.253	0.572
PI	57570	421.942	2271.812	0.001	2.556	39.417	646.0	111686
PCT OTHINST	57570	0.504	0.340	0	0	0.574	0.916	1
PCT INSTATE TOT(x10)	57570	0.012	0.027	0	0	0	0.043	0.151
PCTOUTSTATETOT(x10)	57570	0.143	0.149	0	0	0.111	0.329	0.773
ESG	8646	40.865	19.868	1.303	17.009	37.702	70.404	95.162
ENV	6367	37.236	25.914	0.031	4.869	34.091	75.879	98.546
SOC	8646	42.237	22.172	0.629	16.147	38.234	76.102	98.991
GOV	8646	50.002	22.166	0.615	19.147	50.808	79.407	99.482

Panel B: Pension-Firm Level Summary Statistics

	N	Mean	Std. Dev.	min	p10	Median	p90	max
GAAP ETR	260807	0.298	0.169	0	0.067	0.315	0.413	1
CASH ETR	260807	0.263	0.202	0	0.032	0.242	0.456	1
SALT ETR	260807	0.028	0.055	0	0	0	0.067	0.414
SALT CASH ETR	260807	0.026	0.046	0	0	0.007	0.066	0.316
UTBADD	173988	0.002	0.002	0	0	0.001	0.004	0.015
LN HAVENS	158791	1.170	0.807	0	0	1.099	2.197	2.708
LNMKTCAP	260807	15.066	1.705	11.356	12.932	14.953	17.384	19.273
BTM	260807	0.413	0.288	0	0.107	0.353	0.797	1.467
DIV YIELD	260807	0.012	0.016	0	0	0.007	0.031	0.083
DEBT RATIO	260807	0.236	0.187	0	0	0.222	0.487	0.829
BETA	260807	1.181	0.652	-0.108	0.425	1.109	2.016	3.380
ROA	260807	0.075	0.055	-0.006	0.017	0.064	0.147	0.287
TWELVEMONTHRET	260807	0.192	0.419	-0.601	-0.269	0.142	0.672	1.909
NUM FIRMS	260807	1908	878	308	887	1767	2989	4217
LOG GDP	260807	10.808	0.134	10.564	10.626	10.808	10.976	11.202
WEIGHT I (x1,000)	260807	0.812	1.892	0.002	0.016	0.171	1.992	12.448
PORTFOLIO VALUE (IN BILLIONS)	260807	22.090	18.380	0.390	2.970	17.630	48.070	85.410
LOWCASHETR	260807	0.402	0.490	0	0	0	1	1
LOWGAAPETR	260807	0.414	0.492	0	0	0	1	1
LOWSALTETR	260807	0.540	0.498	0	0	1	1	1
LOWSALTCASHETR	260807	0.514	0.500	0	0	1	1	1
LOWUTBADD	260807	0.513	0.500	0	0	1	1	1
LOWLNHAVENS	260807	0.391	0.488	0	0	0	1	1

Panel C: Portfolio-Level Summary Statistics

	N	Mean	Std. Dev.	min	p10	Median	p90	max
WEIGHTED GAAPETR	383	0.251	0.053	0.127	0.160	0.264	0.310	0.343
WEIGHTED CASHETR	383	0.206	0.032	0.117	0.168	0.208	0.241	0.280
WEIGHTED SALTETR	383	0.022	0.005	0.013	0.015	0.023	0.029	0.042
WEIGHTED SALTCASHETR	383	0.024	0.005	0.014	0.016	0.024	0.030	0.042
WEIGHTED UTBADD	303	0.002	0	0.001	0.001	0.002	0.002	0.002
WEIGHTED LNHAVENS	383	0.942	0.259	0.057	0.733	1.014	1.127	1.204
WEIGHTED LNMKTCAP	383	17.419	0.541	16.328	16.802	17.359	18.195	18.771
WEIGHTED BTM	383	0.677	4.251	0.208	0.250	0.359	0.488	59.264
WEIGHTED DIV YIELD	383	37.436	155.415	6.351	6.351	22.128	46.428	2165.843
WEIGHTED DEBT RATIO	383	0.251	0.033	0.200	0.214	0.243	0.296	0.325
WEIGHTED BETA	383	0.937	0.091	0.700	0.811	0.949	1.047	1.090
WEIGHTED ROA	383	0.067	0.013	0.037	0.049	0.068	0.080	0.102
WEIGHTED TWELVEMONTH~R	383	0.189	0.148	-0.224	-0.019	0.208	0.353	0.588
WEIGHTED ESG	348	42.099	13.26	3.366	22.584	44.252	56.680	63.961
WEIGHTED ENV	348	38.303	13.485	1.597	17.501	41.706	52.668	59.408
WEIGHTED SOC	348	43.928	13.809	3.538	22.814	45.895	59.79	66.792
WEIGHTED GOV	348	43.561	12.317	4.335	28.463	45.188	57.057	63.031
LOG GDP	383	10.815	0.146	10.564	10.624	10.819	10.998	11.202
RTD	383	0.282	0.451	0	0	0	1	1
DTR	383	0.381	0.486	0	0	0	1	1
POST	383	0.574	0.495	0	0	1	1	1

This table reports summary statistics. Panel A (B) reports statistics for the firm-level (pension-firm-level) analysis. Panel C reports summary statistics for the portfolio-level analysis. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles.

Table 3: Pairwise Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) PCT_PENSIONS	1.00													
(2) GAAP_ETR	0.06*	1.00												
(3) CASH_ETR	0.04*	0.38*	1.00											
(4) SALT_ETR	0.09*	0.08*	0.07*	1.00										
(5) SALT_CASH_ETR	0.11*	0.06*	0.12*	0.70*	1.00									
(6) UTBADD	0.07*	-0.03*	-0.02	0.05*	0.08*	1.00								
(7) LN_HAVENS	0.19*	-0.06*	0.04*	0.14*	0.14*	0.16*	1.00							
(8) MNE	0.24*	-0.01*	0.05*	0.36*	0.37*	0.15*	0.34*	1.00						
(9) LOG_ASSETS	0.40*	-0.01*	-0.01	0.17*	0.16*	0.10*	0.48*	0.36*	1.00					
(10) RD_EXPENSE	0.08*	-0.13*	-0.07*	0.06*	0.08*	0.31*	0.10*	0.23*	-0.04*	1.00				
(11) PPE	0.00	0.00	-0.09*	-0.11*	-0.14*	-0.16*	-0.07*	-0.22*	0.11*	-0.32*	1.00			
(12) INTANG	0.07*	0.02*	0.04*	0.11*	0.11*	-0.02	0.14*	0.20*	0.30*	-0.01	-0.35*	1.00		
(13) LEV	-0.04*	0.00	-0.04*	0.01	-0.02*	-0.09*	0.06*	-0.03*	0.30*	-0.27*	0.27*	0.23*	1.00	
(14) CAPEX	-0.04*	0.03*	0.00	-0.01	0.01	0.14*	-0.09*	-0.02*	-0.23*	0.25*	-0.30*	-0.05*	-0.27*	1.00
(15) ADVERT	0.01*	0.01*	0.03*	0.05*	0.05*	0.08*	0.06*	0.04*	0.08*	-0.02*	-0.07*	0.09*	0.01	0.05*
(16) SPECIAL_ITEMS	-0.08*	-0.12*	-0.22*	-0.08*	-0.11*	-0.02*	-0.09*	-0.10*	-0.09*	-0.07*	0.06*	-0.09*	-0.02*	-0.04*
(17) NOL_DUMMY	0.02*	-0.12*	-0.12*	0.11*	0.08*	0.03*	0.14*	0.22*	0.19*	0.12*	-0.11*	0.20*	0.08*	-0.02*
(18) PTROA	0.02*	-0.02*	-0.10*	-0.08*	-0.06*	0.18*	-0.05*	-0.05*	-0.12*	0.06*	-0.11*	-0.15*	-0.27*	0.28*
(19) PCT_OTHINST	0.51*	-0.01*	-0.01*	0.15*	0.14*	0.06*	0.27*	0.33*	0.61*	0.09*	-0.05*	0.28*	0.05*	-0.05*
(20) PCT_INSTATE_TOT	0.35*	0.02*	0.00	0.07*	0.08*	0.16*	0.11*	0.15*	0.19*	0.15*	-0.06*	0.03*	-0.07*	0.04*
(21) PCT_OUTSTATE_TOT	0.97*	0.06*	0.04*	0.09*	0.10*	0.04*	0.18*	0.23*	0.40*	0.06*	0.01*	0.08*	-0.03*	-0.05*

Variables	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(15) ADVERT	1.00						
(16) SPECIAL_ITEMS	-0.03*	1.00					
(17) NOL_DUMMY	0.02*	-0.02*	1.00				
(18) PTROA	0.05*	0.15*	-0.13*	1.00			
(19) PCT_OTHINST	0.05*	-0.12*	0.23*	-0.01	1.00		
(20) PCT_INSTATE_TOT	0.04*	-0.04*	0.02*	0.03*	0.23*	1.00	
(21) PCT_OUTSTATE_TOT	0.01	-0.08*	0.02*	0.01*	0.50*	0.15*	1.00

This table presents the pairwise Pearson correlations between the main variables of interest in the full sample (N = 57,570 except for *UTBADD* and *LN_HAVENS* as reported in Table 2, Panel A). All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. * indicates a statistically significant difference from zero at the p-value < 0.01 level.

Table 4: Tax Avoidance and Pension Ownership

VARIABLES	(1) CASH_ETR	(2) GAAP_ETR	(3) SALT_ETR	(4) SALT_CASH_ ETR	(5) UTB_ADD	(6) LN_HAVENS
$PCT\_PENSIONS_{t-1}$	0.001	0.106	-0.001	0.004	-0.001	0.058
	(0.01)	(1.55)	(-0.04)	(0.24)	(-0.44)	(0.13)
MNE	0.003	0.009***	0.018***	0.020***	0.000**	0.058**
	(0.72)	(2.65)	(20.07)	(22.28)	(2.22)	(2.36)
LOG_ASSETS	0.025***	0.016***	0.003***	0.004***	0.000	0.216***
	(9.16)	(6.94)	(5.58)	(6.91)	(0.46)	(12.27)
RD_EXPENSE	0.324***	0.059	-0.000	-0.004	0.003	0.163
	(4.04)	(0.85)	(-0.01)	(-0.29)	(1.37)	(0.62)
PPE	-0.004	0.034***	-0.003	-0.000	0.000	-0.118
	(-0.25)	(2.59)	(-0.92)	(-0.00)	(0.08)	(-1.26)
INTANG	0.017	0.006	-0.003	-0.002	-0.000	0.058
	(1.23)	(0.55)	(-1.02)	(-0.94)	(-0.14)	(0.86)
LEV	-0.028***	-0.017*	0.000	-0.002	-0.000	-0.041
	(-2.65)	(-1.87)	(0.08)	(-0.89)	(-0.37)	(-0.80)
CAPEX	0.063***	0.028***	-0.001	-0.000	0.000	-0.067*
	(6.70)	(4.24)	(-0.39)	(-0.29)	(0.36)	(-1.86)
ADVERT	-0.053	-0.040	0.028	0.024	0.001	0.917
	(-0.52)	(-0.49)	(1.56)	(1.35)	(0.44)	(1.64)
SPECIAL_ITEMS	-2.188***	-0.886***	-0.047***	-0.119***	-0.004***	-0.066
	(-32.46)	(-15.83)	(-4.49)	(-10.68)	(-2.95)	(-0.39)
$SPECIAL\_ITEMS_{t-1}$	0.347***	0.021	-0.014**	0.001	-0.001**	-0.277***
	(10.88)	(0.76)	(-2.36)	(0.20)	(-2.27)	(-3.32)
NOL_DUMMY	-0.037***	-0.017***	0.001	-0.001	0.000	0.015
	(-10.74)	(-6.58)	(1.40)	(-0.96)	(0.49)	(1.04)
NOL_CHANGE	0.000	-0.000***	-0.000	0.000	0.000**	0.014**
	(0.04)	(-11.67)	(-0.36)	(0.58)	(1.97)	(2.08)
PCT_OTHINST	-0.006	0.010*	-0.000	-0.002	0.000	-0.002
	(-0.94)	(1.89)	(-0.19)	(-1.52)	(0.53)	(-0.06)
PTROA	-0.358***	-0.067***	-0.020***	-0.017***	0.004***	-0.180***
	(-21.75)	(-5.42)	(-8.68)	(-6.93)	(9.15)	(-2.84)
Constant	0.147***	0.198***	-0.006**	-0.012***	0.000	-0.626***
	(8.50)	(13.35)	(-2.01)	(-3.59)	(0.39)	(-5.19)
Observations	57,570	57,570	57,570	57,570	19,457	25,341
Adjusted R-squared	0.29	0.30	0.34	0.34	0.49	0.80
Fixed Effects	Firm/Year	Firm/Year	Firm/Year	Firm/Year	Firm/Year	Firm/Year
Cluster	Firm	Firm	Firm	Firm	Firm	Firm

This table reports the results of estimating equation (1) examining the relation between lagged public pension ownership (*$PCT\_PENSIONS_{t-1}$*) and six different firm-level tax avoidance measures. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by firm, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests.

Table 5: Tax Avoidance and In-State Pension Ownership

VARIABLES	(1) CASH_ETR	(2) GAAP_ETR	(3) SALT_ETR	(4) SALT_CASH_ETR	(5) UTB_ADD	(6) LN_HAVENS
$PCT\_INSTATE\_TOT_{t-1}$	-0.047	0.069*	-0.000	0.010	-0.002	0.199
	(-0.92)	(1.88)	(-0.04)	(0.93)	(-1.27)	(0.81)
MNE	0.003	0.009***	0.018***	0.020***	0.000**	0.058**
	(0.74)	(2.65)	(20.07)	(22.29)	(2.22)	(2.37)
LOG_ASSETS	0.025***	0.016***	0.003***	0.004***	0.000	0.215***
	(9.29)	(7.08)	(5.63)	(6.95)	(0.48)	(12.47)
RD_EXPENSE	0.325***	0.059	-0.000	-0.004	0.003	0.160
	(4.05)	(0.84)	(-0.01)	(-0.30)	(1.40)	(0.61)
PPE	-0.004	0.035***	-0.003	-0.000	0.000	-0.117
	(-0.24)	(2.63)	(-0.92)	(-0.00)	(0.06)	(-1.24)
INTANG	0.017	0.006	-0.003	-0.002	-0.000	0.059
	(1.22)	(0.54)	(-1.02)	(-0.93)	(-0.16)	(0.87)
LEV	-0.029***	-0.017*	0.000	-0.002	-0.000	-0.040
	(-2.69)	(-1.90)	(0.08)	(-0.87)	(-0.39)	(-0.78)
CAPEX	0.063***	0.028***	-0.001	-0.000	0.000	-0.066*
	(6.68)	(4.22)	(-0.39)	(-0.28)	(0.33)	(-1.85)
ADVERT	-0.052	-0.041	0.028	0.023	0.001	0.909
	(-0.52)	(-0.49)	(1.56)	(1.34)	(0.44)	(1.63)
SPECIAL_ITEMS	-2.188***	-0.884***	-0.047***	-0.119***	-0.004***	-0.066
	(-32.48)	(-15.82)	(-4.50)	(-10.66)	(-2.96)	(-0.39)
$SPECIAL\_ITEMS\_{t-1}$	0.346***	0.021	-0.014**	0.001	-0.001**	-0.278***
	(10.88)	(0.74)	(-2.36)	(0.20)	(-2.26)	(-3.34)
NOL_DUMMY	-0.037***	-0.017***	0.001	-0.001	0.000	0.015
	(-10.74)	(-6.56)	(1.40)	(-0.95)	(0.48)	(1.05)
NOL_CHANGE	0.000	-0.000***	-0.000	0.000	0.000**	0.014**
	(0.04)	(-11.71)	(-0.36)	(0.58)	(1.98)	(2.08)
PCT_OTHINST	-0.006	0.010**	-0.000	-0.002	0.000	-0.003
	(-0.88)	(2.06)	(-0.19)	(-1.55)	(0.55)	(-0.11)
PTROA	-0.359***	-0.067***	-0.020***	-0.017***	0.004***	-0.179***
	(-21.86)	(-5.48)	(-8.69)	(-6.92)	(9.15)	(-2.83)
Constant	0.146***	0.198***	-0.006**	-0.011***	0.000	-0.623***
	(8.46)	(13.36)	(-2.01)	(-3.58)	(0.38)	(-5.23)
Observations	57,570	57,570	57,570	57,570	19,457	25,341
Adjusted R-squared	0.29	0.30	0.34	0.34	0.49	0.80
Fixed Effects	Firm/Year	Firm/Year	Firm/Year	Firm/Year	Firm/Year	Firm/Year
Cluster	Firm	Firm	Firm	Firm	Firm	Firm

This table reports the relation between lagged in-state public pension ownership ($PCT\_INSTATE\_TOT_{t-1}$) and six firm-level tax avoidance measures following equation (1). All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by firm, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests.

Table 6: Tax Avoidance and Pension Ownership Using Industry Fixed Effects

Panel A: All Pension Ownership

VARIABLES	(1) CASH_ETR	(2) GAAP_ETR	(3) SALT_ETR	(4) SALT_CASH_ ETR	(5) UTB_ADD	(6) LN_HAVENS
$PCT\_PENSIONS_{t-1}$	0.235***	0.152**	0.001	0.020	-0.010***	0.739
	(2.82)	(2.38)	(0.03)	(1.22)	(-4.16)	(1.41)
Controls	YES	YES	YES	YES	YES	YES
Observations	57,570	57,570	57,570	57,570	19,457	25,341
Adjusted R-squared	0.13	0.11	0.15	0.16	0.19	0.35
Fixed Effects	FF-30 Industry/Year	FF-30 Industry/Year	FF-30 Industry/Year	FF-30 Industry/Year	FF-30 Industry/Year	FF-30 Industry/Year
Cluster	Firm	Firm	Firm	Firm	Firm	Firm

Panel B: In-State Pension Ownership

VARIABLES	(1) CASH_ETR	(2) GAAP_ETR	(3) SALT_ETR	(4) SALT_CASH _ETR	(5) UTB_ADD	(6) LN_HAVENS
$PCT\_INSTATE\_TOT_{t-1}$	-0.012	0.056	0.028**	0.029***	0.007***	0.637*
	(-0.26)	(1.64)	(2.48)	(2.62)	(4.47)	(1.80)
Controls	YES	YES	YES	YES	YES	YES
Observations	57,570	57,570	57,570	57,570	19,457	25,341
Adjusted R-squared	0.13	0.11	0.15	0.16	0.19	0.35
Controls	YES	YES	YES	YES	YES	YES
Fixed Effects	FF-30 Industry/Year	FF-30 Industry/Year	FF-30 Industry/Year	FF-30 Industry/Year	FF-30 Industry/Year	FF-30 Industry/Year
Cluster	FIRM	FIRM	FIRM	FIRM	FIRM	FIRM

This table reports the results of estimating equations (1) and (2), examining the relation between lagged public pension ownership ($PCT\_PENSIONS_{t-1}$), lagged in-instate public pension ownership ($PCT\_INSTATE\_TOT_{t-1}$), and six different firm-level tax avoidance measures using Fama-French 30 industry fixed effects. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by firm, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests.

Table 7: Tax Avoidance and RTD DTR Switches for Headquarter State and In-State Pension Investment

VARIABLES	(1) CASH_ETR	(2) GAAP_ETR	(3) SALT_ETR	(4) SALT_CASH_ETR	(5) UTBADD	(6) LN_HAVENS
RTD*POST*INSTATE	-0.015	-0.019**	-0.001	-0.003	-0.000	0.029
	(-1.59)	(-2.43)	(-0.31)	(-1.54)	(-1.28)	(0.86)
DTR*POST*INSTATE	0.002	-0.014**	0.000	0.001	-0.000	0.023
	(0.24)	(-2.43)	(0.30)	(0.74)	(-1.13)	(0.97)
RTD*POST	0.004	-0.001	-0.001	-0.000	-0.000***	-0.024
	(0.43)	(-0.08)	(-0.91)	(-0.05)	(-3.19)	(-0.90)
DTR*POST	0.009	0.007	-0.000	0.000	-0.000	-0.036
	(1.27)	(1.20)	(-0.22)	(0.12)	(-1.25)	(-1.45)
POST	-0.012**	-0.015***	0.001	-0.000	-0.000	0.034**
	(-2.41)	(-3.69)	(0.87)	(-0.03)	(-1.00)	(2.26)
RTD	0.004	0.001	0.001	-0.000	0.000***	-0.025
	(0.53)	(0.29)	(1.11)	(-0.11)	(3.30)	(-1.14)
DTR	-0.009	0.000	-0.002	-0.003**	0.000*	-0.015
	(-1.30)	(0.07)	(-1.61)	(-2.41)	(1.95)	(-0.57)
Test: RTD*POST*INSTATE= DTR*POST*INSTATE	-0.017 [0.14]	-0.005 [0.55]	-0.001 [0.65]	-0.004* [0.07]	0.000 [0.83]	0.006 [0.88]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	32,821	32,821	32,821	32,821	14,128	16,450
Adjusted R-squared	0.34	0.30	0.36	0.35	0.51	0.83
Fixed Effects	Firm/Cohort-Year	Firm/Cohort-Year	Firm/Cohort-Year	Firm/Cohort-Year	Firm/Cohort-Year	Firm/Cohort-Year
Cluster	Firm	Firm	Firm	Firm	Firm	Firm

This table reports the results of estimating the difference-in-differences model in equation (2) examining the relation between in-state public pension ownership and six different firm-level tax avoidance measures using an exogenous shock to pension tax avoidance preferences (i.e., political party switches). *INSTATE* is an indicator variable set equal to one if in-state pension investment in a firm is greater than zero. Differences between the coefficient estimates on *RTD*POST*INSTATE* and *DTR*POST*INSTATE* are tested using an F-test. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by firm, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests. Probability values from the F-test of coefficients are reported in brackets.

Table 8: Investment in Low ETR Firms After Political Party Switch

VARIABLES	(1) WEIGHT_I | LOWGAAP_ ETR	(2) WEIGHT_I | LOWCASH_ ETR	(3) WEIGHT_I | LOWSALT_ ETR	(4) WEIGHT_I | LOWSALT_ CASH_ETR	(5) WEIGHT_I | LOWUTB_ ADDS	(6) WEIGHT_I | LOWLN_ HAVENS
RTD*POST*LOWCASHETR	-0.014					
	(-0.40)					
DTR*POST*LOWCASHETR	0.052					
	(0.88)					
LOWCASHETR	0.148***					
	(14.87)					
RTD*POST*LOWGAAPETR		0.013				
		(0.48)				
DTR*POST*LOWGAAPETR		0.097				
		(1.49)				
LOWGAAPETR		0.114***				
		(7.57)				
RTD*POST*LOWSALTETR			0.021			
			(0.64)			
DTR*POST*LOWSALTETR			0.043			
			(0.86)			
LOWSALTETR			0.165***			
			(9.62)			
RTD*POST*LOWSALTCASH				0.022		
				(0.63)		
DTR*POST*LOWSALTCASH				0.016		
				(0.28)		
LOWSALTCASHETR				0.145***		
				(9.67)		
RTD*POST*LOWUTBADD					-0.008	
					(-0.14)	
DTR*POST*LOWUTBADD					-0.078	
					(-1.12)	
LOWUTBADD					0.075***	
					(4.62)	
RTD*POST*LOWLNHAVEN						-0.028
						(-0.58)
DTR*POST*LOWLNHAVEN						-0.010
						(-0.18)
LOWLNHAVEN						0.237***
						(14.37)
RTD*POST	-0.005	-0.016	-0.020	-0.019	-0.074	0.003
	(-0.05)	(-0.17)	(-0.22)	(-0.22)	(-0.89)	(0.03)
DTR*POST	0.012	-0.011	0.015	0.032	0.066	0.042
	(0.19)	(-0.17)	(0.23)	(0.47)	(0.78)	(0.62)
POST	-0.187***	-0.184***	-0.188***	-0.187***	-0.184***	-0.198***
	(-4.79)	(-4.80)	(-4.77)	(-4.80)	(-5.91)	(-5.70)
RTD	-0.077	-0.075	-0.079	-0.078	-0.004	-0.051
	(-1.50)	(-1.49)	(-1.51)	(-1.49)	(-0.05)	(-1.03)
DTR	-0.010	-0.010	-0.010	-0.011	0.038	-0.007

	(-0.19)	(-0.19)	(-0.19)	(-0.20)	(0.63)	(-0.14)
Test: RTD*POST*LOWETR = DTR*POST*LOWETR	-0.066 [0.1550]	-0.084 [0.2151]	-0.022 [0.4656]	0.006 [0.8700]	0.07 [0.3930]	-0.018 [0.6311]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	260,807	260,807	260,807	260,807	173,988	158,791
Adjusted R-squared	0.47	0.47	0.47	0.47	0.47	0.49
Fixed Effects	Pension/ Cohort Year	Pension/ Cohort Year	Pension/ Cohort Year	Pension/ Cohort Year	Pension/ Cohort Year	Pension/ Cohort Year
Cluster	Pension	Pension	Pension	Pension	Pension	Pension

This table reports the results of estimating the difference-in-differences model in equation (3) examining the relation between public pension weighted-investment in low ETR firms using an exogenous shock to pension tax avoidance preferences (i.e., political party switches). A firm is considered *LOWETR* if its tax avoidance measure is below the industry median (Fama-French 30) for the three years before an election cycle. Differences between the coefficient estimates in the first two rows in each column (i.e., *RTD*POST*LOWETR* and *DTR*POST*LOWETR*) are tested using an F-test. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by pension, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests. Probability values from the F-test of coefficients are reported in brackets.

Table 9: RTD and DTR Change and Fund-Level Tax Avoidance

VARIABLES	(1) WEIGHTED CASH_ETR	(2) WEIGHTED GAAP_ETR	(3) WEIGHTED SALT_ETR	(4) WEIGHTED SALT_CASH _ETR	(5) WEIGHTED UTBADD	(6) WEIGHTED LNHAVENS
RTD*POST	-0.012*	-0.027**	0.001	-0.001	-0.000	-0.000
	(-1.94)	(-2.34)	(0.92)	(-0.45)	(-0.42)	(-0.01)
DTR*POST	-0.009	0.028***	-0.003***	-0.001	0.000	0.234***
	(-1.35)	(3.01)	(-2.96)	(-1.45)	(1.11)	(4.74)
POST	0.001	-0.025***	0.002**	0.001	-0.000***	-0.115***
	(0.20)	(-2.88)	(2.09)	(0.56)	(-2.94)	(-2.83)
RTD	0.005	0.009	-0.003**	-0.000	0.000	-0.137**
	(0.56)	(1.03)	(-2.71)	(-0.40)	(1.20)	(-2.62)
DTR	0.006	-0.026**	0.001	0.001	0.000	-0.256***
	(0.71)	(-2.51)	(0.74)	(1.41)	(0.87)	(-5.35)
PORTFOLIO_VALUE	0.000	0.000	-0.000	-0.000	-0.000	0.000
	(1.37)	(1.64)	(-0.84)	(-1.43)	(-0.09)	(0.24)
NUM_FIRMS	-0.000	-0.000***	0.000	-0.000	0.000*	-0.000*
	(-0.88)	(-3.69)	(0.71)	(-1.56)	(1.99)	(-1.84)
WEIGHTED_LNMKTCAP	-0.007	-0.024*	-0.003	-0.003	0.000	-0.159
	(-0.70)	(-1.70)	(-1.47)	(-1.52)	(1.24)	(-1.64)
WEIGHTED_BTM	-0.015*	-0.015*	-0.000	-0.001	-0.000	-0.102**
	(-2.02)	(-1.79)	(-0.46)	(-1.20)	(-0.53)	(-2.67)
WEIGHTED_DIV_YIELD	0.000*	0.000*	0.000	0.000	-0.000*	0.003**
	(2.00)	(1.75)	(0.51)	(1.18)	(-1.89)	(2.60)
WEIGHTED_DEBT_RATIO	-0.275*	-0.333	0.010	-0.000	-0.001	0.084
	(-1.69)	(-1.54)	(0.39)	(-0.02)	(-0.48)	(0.08)
WEIGHTED_BETA	0.069**	0.051	0.014**	0.008**	0.002***	0.422*
	(2.28)	(1.23)	(2.26)	(2.24)	(4.96)	(1.70)
WEIGHTED_ROA	-0.026	-0.571**	0.008	0.135***	0.000	-6.559***
	(-0.12)	(-2.06)	(0.25)	(3.28)	(0.17)	(-4.01)
WEIGHTED_TWELV~E	-0.041***	0.017	0.003	0.003	-0.000**	-0.008
	(-2.98)	(1.06)	(1.31)	(0.99)	(-2.15)	(-0.07)
LOG_GDP	-0.017	-0.114*	-0.008	0.005	0.001	-0.876**
	(-0.46)	(-1.97)	(-0.88)	(0.53)	(1.50)	(-2.23)
Test: RTD* POST = DTR*POST	-0.003 [0.62]	-0.055*** [0.00]	0.004*** [0.00]	0.000 [0.67]	0.000 [0.25]	-0.234*** [0.00]
Observations	383	383	383	383	303	383
Adjusted R-squared	0.63	0.75	0.45	0.39	0.63	0.56
Fixed Effects	Pension/ Cohort Year	Pension/ Cohort Year	Pension/ Cohort Year	Pension/ Cohort Year	Pension/ Cohort Year	Pension/ Cohort Year
Cluster	Pension	Pension	Pension	Pension	Pension	Pension

This table reports the results of estimating the difference-in-differences model in equation (4) examining changes in pension-weighted tax avoidance measures following an exogenous shock to pension tax avoidance preferences (i.e., political party switches). Differences between the coefficient estimates on *RTD*POST* and *DTR*POST* are tested using an F-test. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by pension, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests. Probability values from the F-test of coefficients are reported in brackets.

Table 10: Simultaneous Equations

Panel A: Cash ETR

VARIABLES	(1) EQ1:DV=PCT_PENSIONS	(2) EQ2:DV=CASH_ETR
CASH_ETR	0.001	
	(1.33)	
PCT_PENSIONS		0.068
		(0.72)
Observations	57,570	57,570
Adjusted R-squared	0.71	0.20
Controls	Yes	Yes
Fixed Effects	FF-30 Industry/Year	FF-30 Industry/Year

Panel B: GAAP ETR

VARIABLES	(1) EQ1:DV=PCT_PENSIONS	(2) EQ2:DV=GAAP_ETR
GAAP_ETR	0.002***	
	(3.68)	
PCT_PENSIONS		0.025
		(0.34)
Observations	57,570	57,570
Adjusted R-squared	0.71	0.21
Controls	Yes	Yes
Fixed Effects	FF-30 Industry/Year	FF-30 Industry/Year

Panel C: SALT ETR

VARIABLES	(1) EQ1:DV=PCT_PENSIONS	(2) EQ2:DV=SALT_ETR
SALT_ETR	0.000	
	(0.03)	
PCT_PENSIONS		-0.006
		(-0.39)
Observations	57,570	57,570
Adjusted R-squared	0.71	0.21
Controls	Yes	Yes
Fixed Effects	FF-30 Industry/Year	FF-30 Industry/Year

Panel D: SALT Cash ETR

VARIABLES	(1) EQ1:DV=PCT_PENSIONS	(2) EQ2:DV=SALT_CASH_ETR
SALT_CASH_ETR	-0.001	
	(-0.26)	
PCT_PENSIONS		0.021
		(1.27)
Observations	57,570	57,570
Adjusted R-squared	0.71	0.22
Controls	Yes	Yes
Fixed Effects	FF-30 Industry/Year	FF-30 Industry/Year

Panel E: Uncertain Tax Benefit Additions (*UTBADD*)

VARIABLES	(1) EQ1:DV=PCT_PENSIONS	(2) EQ2:DV=UTBADD
UTBADD	-0.070	
	(-1.28)	
PCT_PENSIONS		-0.013***
		(-4.80)
Observations	15,643	15,643
Adjusted R-squared	0.72	0.30
Controls	Yes	Yes
Fixed Effects	FF-30 Industry/Year	FF-30 Industry/Year

Panel F: Tax Havens (*LN_HAVENS*)

VARIABLES	(1) EQ1:DV=PCT_PENSIONS	(2) EQ2:DV=LN_HAVENS
LN_HAVENS	-0.000***	
	(-2.65)	
PCT_PENSIONS		-0.080
		(-0.39)
Observations	18,342	18,342
Adjusted R-squared	0.75	0.92
Controls	Yes	Yes
Fixed Effects	FF-30 Industry/Year	FF-30 Industry/Year

This table reports the results of estimating the three-stage least squares regressions (equations (5) and (6)) examining the simultaneous effect of tax avoidance and public pension investment. Panel A examines the relation between *PCT_PENSIONS* and firm-level *CASH_ETR*. Panel B examines the relation between *PCT_PENSIONS* and firm-level *GAAP_ETR*. Panel C examines the relation between *PCT_PENSIONS* and firm-level *SALT_ETR*. Panel D examines the relation between *PCT_PENSIONS* and firm-level *SALT_CASH_ETR*. Panel E examines the relation between *PCT_PENSIONS* and firm-level *UTBADD*. Panel F examines the relation between *PCT_PENSIONS* and firm-level *LN_HAVENS*. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by firm, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests.

Table 11: ESG Validation

Panel A: Firm ESG Scores and Pension Ownership. No Controls

	(1)	(2)	(3)	(4)
VARIABLES	ESG	ENV	SOC	GOV
$PCT\_PENSIONS_{t-1}$	101.41***	46.91	70.96**	195.19***
	(3.45)	(1.04)	(2.21)	(4.01)
Controls	No	No	No	No
Observations	8,646	6,367	8,646	8,646
Adjusted R-squared	0.81	0.80	0.78	0.61
Fixed Effects	Firm/Year	Firm/Year	Firm/Year	Firm/Year
Cluster	Firm	Firm	Firm	Firm

Panel B: Firm ESG Scores and Pension Ownership. ESG Controls

	(1)	(2)	(3)	(4)
VARIABLES	ESG	ENV	SOC	GOV
$PCT\_PENSIONS_{t-1}$	89.51***	52.66	68.89**	167.23***
	(3.01)	(1.12)	(2.16)	(3.48)
Controls	ESG	ESG	ESG	ESG
Observations	8,646	6,367	8,646	8,646
Adjusted R-squared	0.81	0.80	0.78	0.61
Fixed Effects	Firm/Year	Firm/Year	Firm/Year	Firm/Year
Cluster	Firm	Firm	Firm	Firm

Panel C: Firm ESG Scores and Pension Ownership. Tax Controls

	(1)	(2)	(3)	(4)
VARIABLES	ESG	ENV	SOC	GOV
$PCT\_PENSIONS_{t-1}$	69.98**	11.01	47.51	151.05***
	(2.38)	(0.24)	(1.52)	(3.16)
Controls	Tax	Tax	Yes	Yes
Observations	8,646	6,367	8,646	8,646
Adjusted R-Squared	0.82	0.81	0.79	0.61
Fixed Effects	Firm/Year	Firm/Year	Firm/Year	Firm/Year
Cluster	Firm	Firm	Firm	Firm

This table reports the results of the ESG score validation tests. Panels (A)-(C) report the results of estimating a modified version of equation (1) examining the relation between lagged public pension ownership ($PCT\_PENSIONS_{t-1}$), firms' overall ESG (*ESG*) score, and separate environmental (*ENV*), social (*SOC*), and governance (*GOV*) scores. Panel A reports the results without control variables. Panel B reports results after controlling for determinants of ESG scores following Gillan et al. (2021). Panel C reports results after controlling for determinants of tax avoidance following Dyreng et al. (2017). All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by firm, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests.

Panel D: Firm ESG Scores After RTD/DTR Switches. No Controls

VARIABLES	(1) ESG	(2) ENV	(3) SOC	(4) GOV
RTD*POST	2.71***	3.33***	2.94***	1.07***
	(11.83)	(9.62)	(10.66)	(3.24)
DTR*POST	-2.54***	-2.74***	-3.94***	0.15
	(-11.50)	(-7.97)	(-15.31)	(0.43)
Test: RTD*POST = DTR*POST	5.25***	6.07***	6.88***	0.92**
	[0.0000]	[0.0000]	[0.0000]	[0.0228]
Controls	No	No	No	No
Observations	120,740	97,805	120,740	120,740
Adjusted R-squared	0.81	0.81	0.79	0.59
Fixed Effects	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year
Cluster	Pension-Firm	Pension-Firm	Pension-Firm	Pension-Firm

Panel E: Firm ESG Scores After RTD/DTR Switches. ESG Controls

VARIABLES	(1) ESG	(2) ENV	(3) SOC	(4) GOV
RTD*POST	2.70***	3.33***	2.93***	1.06***
	(11.80)	(9.62)	(10.62)	(3.21)
DTR*POST	-2.41***	-2.58***	-3.81***	0.29
	(-10.90)	(-7.47)	(-14.78)	(0.85)
Test: RTD*POST = DTR*POST	5.11***	5.91***	6.74***	0.77*
	[0.0000]	[0.0000]	[0.0000]	[0.0581]
Controls	ESG	ESG	ESG	ESG
Observations	120,740	97,805	120,740	120,740
Adjusted R-squared	0.81	0.81	0.79	0.59
Fixed Effects	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year
Cluster	Pension-Firm	Pension-Firm	Pension-Firm	Pension-Firm

Panel F: Firm ESG Scores After RTD/DTR Switches. Tax Controls

VARIABLES	(1) ESG	(2) ENV	(3) SOC	(4) GOV
RTD*POST	3.07***	3.71***	3.34***	1.46***
	(13.27)	(10.59)	(11.98)	(4.38)
DTR*POST	-1.81***	-1.53***	-3.26***	0.93***
	(-7.96)	(-4.28)	(-12.21)	(2.62)
Test: RTD*POST = DTR*POST	4.88***	5.24***	6.60***	2.39
	[0.0000]	[0.0000]	[0.0000]	[0.1964]
Controls	Tax	Tax	Tax	Tax
Observations	120,740	97,805	120,740	120,740
Adjusted R-squared	0.82	0.82	0.80	0.60
Fixed Effects	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year	Pension-Firm/Cohort-Year
Cluster	Pension-Firm	Pension-Firm	Pension-Firm	Pension-Firm

This table reports the results of the ESG score validation tests. Panels (D)-(F) report the results of estimating the difference-in-differences model modified from equation (3), examining the relation between firms' ESG scores and an exogenous shock to pension tax avoidance preferences (i.e., political party switches) using pension-firm fixed effects. ESG scores include firms' overall ESG (*ESG*) score and separate environmental (*ENV*), social (*SOC*), and governance (*GOV*) scores. Differences between the coefficient estimates in the first two rows in each column (i.e., *RTD*POST* and *DTR*POST*) are tested using an F-test. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by pension, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests. Probability values from the F-test of coefficients are reported in brackets.

Panel G: Pension Portfolio ESG Scores After RTD/DTR Switches. No Controls

VARIABLES	(1) WEIGHTED ESG	(2) WEIGHTED ENV	(3) WEIGHTED SOC	(4) WEIGHTED GOV
RTD*POST	5.12**	4.92**	5.51**	4.40**
	(2.42)	(2.15)	(2.51)	(2.18)
DTR*POST	-1.42	-0.83	-1.90	-1.05
	(-0.98)	(-0.55)	(-1.25)	(-0.62)
Test: RTD*POST = DTR*POST	6.54***	5.75**	7.41***	5.45**
	[0.0016]	[0.0123]	[0.0006]	[0.0127]
Controls	No	No	No	No
Observations	348	348	348	348
Adjusted R-squared	0.84	0.84	0.83	0.82
Fixed Effects	Pension/Cohort-Year	Pension/Cohort-Year	Pension/Cohort-Year	Pension/Cohort-Year
Cluster	Pension	Pension	Pension	Pension

Panel H: Pension Portfolio ESG Scores After RTD/DTR Switches. ESG Controls

VARIABLES	(1) WEIGHTEDESG	(2) WEIGHTED ENV	(3) WEIGHTED SOC	(4) WEIGHTED GOV
RTD*POST	2.19	2.00	2.41	1.93
	(0.88)	(0.70)	(0.96)	(0.84)
DTR*POST	-1.31	-1.20	-1.80	-0.61
	(-0.97)	(-0.84)	(-1.28)	(-0.41)
Test: RTD*POST = DTR*POST	3.5*	3.2	4.21**	2.54
	[0.0697]	[0.1828]	[0.0307]	[0.1634]
Controls	ESG	ESG	ESG	ESG
Observations	348	348	348	348
Adjusted R-squared	0.88	0.88	0.88	0.87
Fixed Effects	Pension/Cohort-Year	Pension/Cohort-Year	Pension/Cohort-Year	Pension/Cohort-Year
Cluster	Pension	Pension	Pension	Pension

Panel I: Pension Portfolio ESG Scores After RTD/DTR Switches. Tax Controls

VARIABLES	(1) WEIGHTED ESG	(2) WEIGHTED ENV	(3) WEIGHTED SOC	(4) WEIGHTED GOV
RTD*POST	1.24	0.81	1.35	1.28
	(0.62)	(0.38)	(0.68)	(0.63)
DTR*POST	-0.14	0.30	-0.46	0.03
	(-0.09)	(0.21)	(-0.29)	(0.02)
Test: RTD*POST = DTR*POST	1.38	0.51	1.81	1.31
	[0.4410]	[0.7985]	[0.3130]	[0.5194]
Controls	Tax	Tax	Tax	Tax
Observations	348	348	348	348
Adjusted R-squared	0.91	0.91	0.91	0.88
Pension FE	Pension/Cohort-Year	Pension/Cohort-Year	Pension/Cohort-Year	Pension/Cohort-Year
Cluster	Pension	Pension	Pension	Pension

This table reports the results of the ESG score validation tests. Panels (G)-(I) report the results of estimating a difference-in-differences model modified from equation (4) examining changes in pensions' weighted ESG scores following an exogenous shock to pensions' tax avoidance preferences (i.e., political party switches). Portfolio-weighted ESG scores include an overall ESG (*WEIGHTED_ESG*) score and separate weighted environmental (*WEIGHTED_ENV*), weighted social (*WIGHTED_SOC*), and weighted governance (*WEIGHTED_GOV*) scores. Differences between the coefficient estimates on *RTD*POST* and *DTR*POST* are tested using an F-test. All variables are defined in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. Robust t-statistics, clustered by pension, are presented in parentheses. ***, **, and * denote statistical significance at the one-, five-, and ten-percent levels, respectively, using two-tailed tests. Probability values from the F-test of coefficients are reported in brackets.