

# Accounting for Leases and Portfolio Decisions of Active Corporate Bond Funds

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## Abstract

This study examines the impact of the new lease standard, ASC 842, on the portfolio decisions of active corporate bond funds. ASC 842 requires firms to recognize operating leases on the balance sheet and disclose additional information to support this recognition. Using monthly portfolio holdings, I find that shortly after its implementation, active corporate bond funds reduce holdings of bonds issued by firms with significant exposure to operating lease recognition. Further analyses show the effect is more pronounced for non-sophisticated funds, non-prominent bonds within the portfolio, and issuers who could have significantly overestimated discount rates under the traditional operating lease capitalization procedure. These findings suggest that active corporate bond funds fail to fully adjust for off-balance-sheet operating leases and underestimate credit risks of de facto riskier holdings under the legacy lease accounting standard. The operating lease recognition under ASC 842 alleviates the information-processing constraints faced by active corporate bond funds and improves their accuracy in capitalizing operating leases. This study is the first to highlight the impact of accounting reporting changes on the portfolio decisions of active corporate bond funds and provides evidence to FASB during its post-implementation review of the ASC 842.

**Keywords:** ASC 842, Off-Balance-Sheet Disclosure, Operating Lease Recognition, Corporate Bond Fund, Mutual Fund Portfolio Management, Mutual Fund Holding.

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## 1. Introduction

Accounting for leases has been a significant regulatory challenge for decades. Under the legacy standard, SFAS No. 13 (codified as ASC 840), lessees only recognized capital leases and disclosed operating lease payments in footnotes. A common criticism of ASC 840 is that it incentivized firms to opportunistically use operating leases, raising questions about the usefulness and reliability of operating lease disclosures (Abdel-Khalik, 1981; Cornaggia, Franzen, & Simin, 2013; Imhoff, Lipe, and Wright, 1991; Imhoff & Thomas, 1988; SEC, 2005).<sup>1</sup> The new lease accounting standard (codified as ASC 842), effective for public companies in 2019, supersedes ASC 840 and requires lessees to recognize operating leases on the balance sheet. The amendment aims to enhance the usefulness of lease accounting (FASB, 2016). In 2021, the FASB called for more research to assess whether it has achieved this stated purpose. Responding to this call, I investigate how operating lease recognition under the ASC 842 affects the portfolio decisions of active corporate bond funds, key players in the public debt sector.

The corporate bond fund industry has gained increasing prominence in the financial system (Anand, Jotikathira, and Venkataraman, 2021; Choi, Hoseinzade, Shin, and Tehranian, 2020; Jiang, Li, and Wang, 2021; Jiang, Li, Sun, and Wang, 2022). In 2021, corporate bond funds (hereafter, bond funds) held \$2.46 trillion in net assets and saw a net influx of \$1.12 trillion in cash flows (ICI, 2022). Anecdotal evidence suggests that the new lease standard affects the portfolio decision of funds that rely on credit metrics.<sup>2</sup> Given that active bond funds heavily rely on credit metrics in their investment strategies,<sup>3</sup> they can be significant market participants influenced by the new lease

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<sup>1</sup> While reporting incentive is one incentive for structuring lease contracts as operating leases, it is not the only incentive. See other incentives in Beatty, Liao, and Weber (2019), Caskey and Ozel (2019), Einfeldt and Rampini (2009), Hanlon and Heitzman (2022), Graham, Lemmon, and Schallheim (1998), and Sharpe and Nguyen (1995).

<sup>2</sup> See <https://www.cnbc.com/2019/02/15/a-big-change-in-accounting-puts-3-trillion-on-corporate-books.html>.

<sup>3</sup> Appendix B shows example investment strategies of bond funds, indicating credit metrics are incorporated into their portfolio decisions. Investment professionals of active corporate bond funds conduct independent company research and form their internal credit ratings independent of third-party rating agencies, allowing their funds to evaluate

standard. Surprisingly, there is limited research in accounting on whether the decisions of active corporate bond funds depend on the reporting of accounting numbers, even though numerous studies indicate that equity funds utilize accounting information (Blankespoor, deHann, and Marinovic, 2020; Bushee, 2001; Nekrasov, Teoh, and Wu, 2022). Bond funds differ from equity funds in terms of clienteles, risk appetites for underlying assets, markets for trading, and search frictions. As such, they stand out as a distinct group of users that require further understanding.

Sophisticated creditors, such as banks and credit rating agencies, have adjusted off-balance-sheet items in their fundamental credit analysis under the legacy standard (Altamuro et al., 2014; Kraft, 2015; Graden, 2018). Anecdotal evidence suggests that sophisticated users remain doubtful about the standard's ability to achieve its stated purpose, given the existing adjustment.<sup>4</sup> As sophisticated users, active bond funds should have also done so. If active bond funds have fully adjusted for off-balance-sheet operating leases, they would not react to the implementation of the new lease standard.

However, such adjustment can sometimes be inadequate (Altamuro et al., 2014).<sup>5</sup> Prior studies find that users tend to discount footnote disclosures compared to numbers recognized on financial statements due to information-processing constraints and concerns about accuracy (Barth, Clinch, and Shibano, 2003; Blankespoor, deHann, and Marinovic, 2020; Clor-Proell and Maines, 2014; Hirshleifer and Teoh, 2003; Müller, Riedl, and Sellhorn, 2015; Schipper, 2007). Active bond funds can encounter similar issues. First, when analyzing individual bonds within a diversified

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potential benefits as well as downside risks of credits. Figure 1 shows the credit analysis process of PIMCO, a leader in the active corporate bond fund industry. Their credit analysts, specialist portfolio managers, and lead portfolio managers work together to conduct in-depth company research to ensure successful active credit portfolio management.

<sup>4</sup> For example, American Bankers Association mentions in its comment letter, “many credit analysts are already making adjustments that are being proposed in the ED for operating leases”. Thus, they argue that incremental benefits of implementing the new lease standard is “questionable”.

<sup>5</sup> For example, Altamuro et al. (2014) find that credit rating agencies fail to consider lease type heterogeneity in their adjustments and that bank sophistication affect banks' adjustments.

portfolio, bond funds can face information-processing constraints that make them underreact to footnoted operating leases, thereby failing to fully adjust footnoted operating leases in fundamental credit analysis and underestimating credit metrics such as leverage (overestimate the pay-back ability of issuers). This underestimation of credit metrics due to inadequate adjustment can lead them to underestimate the de facto credit risks associated with firms engaged in heavy leasing. The recognition of operating leases under new standard can make operating lease liabilities more visible, improving funds' understanding of issuers' true credit risks and leading them to correct their prior underestimation of risks by selling de facto riskier bonds.<sup>6</sup>

Second, the accuracy of capitalizing off-balance-sheet operating leases in the adjustment procedure depends on the estimation of discount rates, which involves assumptions (Altamuro et al., 2014; Binfare, Connolly, Grigoris, and Liu, 2021; Imhoff et al., 1993; S&P, 2006). Overestimation of discount rate in capitalization of operating leases under the legacy standard is not uncommon.<sup>7</sup> Bond funds could overestimate discount rates and underestimate capitalized operating leases, underestimating leverage and associated credit risks. The new lease standard requires firms to disclose the average weighted discount rate. Bond funds can use this disclosed discount rate as feedback to correct their overestimated discount rates that lead to underestimated operating leases and associated risks.<sup>8</sup> Both of these reasons suggest that bond funds adjust their portfolio decisions by selling bonds issued by firms that are de facto riskier, which is uncovered by significant exposure to operating lease recognition after the implementation of the ASC 842.<sup>9</sup>

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<sup>6</sup> This is further supported by anecdotal and survey evidence regarding the potential impact of ASC 842. Prior to the implementation of ASC 842, firms were concerned that the new lease accounting standard would negatively affect firms' balance sheets, leverage, and return on assets, thereby impairing firms' ability to borrow (Deloitte, 2014).

<sup>7</sup> Imhoff et al. (1997) and Graham et al. (1998) use 10% discount rate to capitalize operating leases. This 10% discount rate has been criticized for being too high (Binfare et al., 2021; Duke et al., 2009).

<sup>8</sup> Users can use the new disclosure as feedback to correct their prior estimation mistakes (Maines and Wahlen, 2006).

<sup>9</sup> This is further supported by anecdotal evidence showing that the recognition of operating leases under the new lease standard could affect the decisions of quantitative funds that rely on credit metrics. See <https://www.cnbc.com/2019/02/15/a-big-change-in-accounting-puts-3-trillion-on-corporate-books.html>.

Therefore, it is an empirical question whether the implementation of the new lease standard affects the portfolio decisions of active bond funds.

To address this question, I collect monthly portfolio holdings data for individual funds from Morningstar and operating lease information under the new standard from Compustat Snapshot. I apply a generalized differences-in-differences design with a short-window sample. The combination of monthly holdings data and the short-window sample enhances my confidence in attributing changes in portfolio decisions of bond funds to the implementation of the new lease standard. For each fund-bond-month observation, post periods are defined as holding report months following the implementation of the new standard. I then compare changes in holdings of bonds issued by firms with significant exposure to operating lease recognition to the change in holdings of bonds issued by firms with limited exposure to operating lease recognition.

Analyzing monthly holdings of 2,493 unique bonds issued by 409 unique firms in the portfolios of 290 unique active bond funds, I find that the new lease accounting standard decreases a bond fund's monthly holdings of a treatment bond in their portfolios by 4.1% of the sample mean. The magnitude of this effect is economically significant compared to the impact of bond rating, a key credit metric in the portfolio decisions of bond funds. A one-standard-deviation improvement in bond rating notches increases fund holdings by 5.7% of the sample median.<sup>10</sup> The results suggest that the implementation of the new lease standard reduces bond fund holdings of bonds issued by firms with significant exposure to operating lease recognition. The differences-in-differences

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<sup>10</sup> Bond rating is a critical credit metric for active bond funds to form their investment strategies. See the example investment strategy mentioned in the fund prospectus of PIMCO: [https://www.pimco.com/handlers/displaydocument.ashx?c=722005154&wd=Prospectus&fn=PIMCO\\_Credit\\_Bond\\_Statutory.pdf&id=WiWgUmqT4eawzeCTAlaVFuoGKeZcK6kmLHYNT%2FGaggEplslJRkO%2Fvudt%2FyHVAKxExTFDq5EplLvmJVlXtSwN%2BNyAX0oLu5sX18t1i4BPV2tBPc7UjkJ%2Bqt9gnphblldDtZ0cEflrmmnIQ99XGZamxfprEOayOkDNRgVSDWjrNpB1nqn57yLrN7bd13ncaJVJom2Uzzejy9fqPZrH0Mj%2BvnhqHa16KOEsvkuGcZivXXsym5w2kY8DLQwlwa2EyflxH4DIfrpiYrT8OeMocs2pMrjyB9GDc5T1Xul0CgptJ3VEfMv7L3EWemKWvzoFcPt3FNVct3%2FZ4UMUI%2BX0wi%2FZuWTdlIzCcVbNYUgXu00gicKLYqG1xSSHu%2BFojJg%2BPoFnKe7%2FTfNNhp0RiJwzPmiQcmu009J4XwKbop%2F6tj5xbMH9CMju7yazWHIZjbp8RN](https://www.pimco.com/handlers/displaydocument.ashx?c=722005154&wd=Prospectus&fn=PIMCO_Credit_Bond_Statutory.pdf&id=WiWgUmqT4eawzeCTAlaVFuoGKeZcK6kmLHYNT%2FGaggEplslJRkO%2Fvudt%2FyHVAKxExTFDq5EplLvmJVlXtSwN%2BNyAX0oLu5sX18t1i4BPV2tBPc7UjkJ%2Bqt9gnphblldDtZ0cEflrmmnIQ99XGZamxfprEOayOkDNRgVSDWjrNpB1nqn57yLrN7bd13ncaJVJom2Uzzejy9fqPZrH0Mj%2BvnhqHa16KOEsvkuGcZivXXsym5w2kY8DLQwlwa2EyflxH4DIfrpiYrT8OeMocs2pMrjyB9GDc5T1Xul0CgptJ3VEfMv7L3EWemKWvzoFcPt3FNVct3%2FZ4UMUI%2BX0wi%2FZuWTdlIzCcVbNYUgXu00gicKLYqG1xSSHu%2BFojJg%2BPoFnKe7%2FTfNNhp0RiJwzPmiQcmu009J4XwKbop%2F6tj5xbMH9CMju7yazWHIZjbp8RN)

design relies on the parallel-trend assumption. I plot the coefficients of the interactions between event month dummies and the treatment dummy. The plot does not reveal significant trends in the pre-period, thereby validating the parallel-trend assumption.

I further conduct two sets of cross-sectional tests to uncover the underlying mechanisms. My first set of cross-sectional tests examines whether the treatment effects vary with the information processing constraints of active bond funds. I consider the information-processing constraint of bond funds in two aspects: (i) fund sophistication and (ii) bond prominence within the portfolio. Small funds, representing non-sophisticated funds, are defined as funds with below-median fund sizes. Small-weight bonds, capturing non-prominent bonds, are defined as bonds with security weights in the bottom quartile within the portfolio. I find that the treatment effect is stronger for small funds and for small-weight bonds in the portfolio. Taken together, these results suggest that the new lease standard alters bond funds' portfolio decisions by relieving the information processing constraints faced by active bond funds.

My next cross-sectional test examines whether the treatment effect varies with the overestimation of discount rate. I define large discount-rate overestimation for issuing firms with as-if misstated discount rate in the top quartile of all issuing firms in the post-period, where the misstated discount rate is the difference between the estimated discount rate using the S&P method (S&P, 2006)<sup>11</sup> and the disclosed weighted discount rate under the ASC 842. Indeed, I find that active bond funds reduce their holdings of bonds issued by firms subject to large overestimations of the discount rate.

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<sup>11</sup> In the S&P method, the discount rate is a firm-specific rate calculated as the interest expense divided by the average debt outstanding. Alternatively, Graham, Lemmon, and Schallheim (1998) propose a 10% economy-wide discount rate, which is also widely used by accountants. Duke, Hsieh, and Su (2009) argue that the 10% discount rate could be too high, potentially leading to an underestimation of capitalized operating leases. To take a conservative approach, I use the firm-specific discount rate from the S&P method to assess the potential lower bound of discount rate overestimation.

To attribute my results confidently to the alleviated information-processing constraints and better estimation accuracy under ASC 842, I test two alternative explanations. The first explanation suggests that my results stem from fundamental changes introduced by the new lease standard. Since fundamental changes typically manifest over longer periods, my short-window design helps mitigate this concern. Furthermore, I control for post-standard fundamental changes by including interacted terms between the post-period dummy variable and all fundamental metrics. These additional analyses yield results that align qualitatively with my main findings.

The second alternative explanation is that reduced holdings are a result of redemptions from fund investors in response to the new lease standard, rather than portfolio choices made by fund managers. The underlying assumption of this argument is that redemptions occur due to the new lease standard. I address this concern by testing this underlying assumption directly and find no evidence of such redemptions in response to the new lease standard. Collectively, these additional tests enhance my confidence in the inferences.

My study contributes to a common standard-setting trade-off between recognition and disclosure. James Kroeker, the FASB's vice chairman, maintains that the new lease rule "adds light to one of the last remaining crevasses of off-balance-sheet accounting." The standard transforms the reporting of operating leases from off-balance-sheet disclosures to balance-sheet recognitions. Several concurrent papers have examined the impact of the new lease standard on the private debt sector (Cheng, Jaggi, Yan, and Young, 2022; He, Lourie, Ma, and Zhu, 2023; Li, Sun, Wu, and Zeng, 2023). These studies suggest that banks modify debt contracts, loan spreads, and bank ratings in response to the new lease standard. In my study, I find that active corporate bond funds, which are sophisticated participants in the public debt sector, also alter their portfolio decisions in response to the implementation of the ASC 842. Additionally, this change in portfolio

decision is explained by alleviated information constraints and improved assessment accuracy brought by the operating lease recognition under the new lease standard. Along with the concurrent studies, my study suggests that the FASB facilitates the understanding of operating leases by debt market participants and has achieved its stated goal of changing lease rules to improve the usefulness of lease disclosures.

This paper also contributes to an emerging area concerning how active corporate bond fund managers assess corporate information to guide their portfolio decisions (Huang, Wermers, and Xue, 2022; Li, Wang, and Wei, 2022). While anecdotal evidence suggests that active corporate bond funds form security strategies based on fundamental credit analysis, previous studies have overlooked the role of accounting reporting in their portfolio decisions. In this study, I take an initial step to understand how active corporate bond funds react to an accounting regulation that alters the reporting of accounting numbers. My study suggests that active corporate bond funds change their portfolio decisions in response to the mandatory change in lease accounting rules.

The rest of this paper proceeds as follows. Section 2 discusses the Institutional background and relevant literature, and section 3 develops hypotheses. Section 4 presents the methodology for testing my hypothesis and describes the sample construction. Section 5 presents the empirical results. Section 6 concludes my investigation.

## **2. Institutional Details and Relevant Prior Literature**

### **2.1 Accounting for leases**

A *lease* is a contractual agreement between a *lessor* and a *lessee* that grants the *lessee* the right to use specific property, plant, or equipment owned by the *lessor* for a defined period of time in exchange for consideration. Lease transactions are common in the United States. Many *lessees* opt for leases over purchases to benefit from advantages such as more cost-effective and flexible



financing, avoidance of ownership risks related to property obsolescence, and reporting advantages under the legacy accounting standard.<sup>12</sup> *Lessors*, typically banks, captive leasing companies, and some individuals, view leases as a form of secured lending offering enhanced bankruptcy protection benefits.

Before fiscal year 2019, accounting for leases was regulated under Statement of Financial Accounting Standards No. 13, *Accounting for Leases* (SFAS No. 13), which was codified as Accounting Standard Codification Topic 840 (ASC 840). Under the legacy accounting standard, leases were categorized into two types: *operating leases* and *capital leases* (*finance leases* under the ASC 842). *Operating leases* are essentially considered as rentals, while *capital leases* were treated as property purchase. To classify a lease as a *capital lease*, it has to be noncancellable and meet at least one of the following four criteria: (1) the lease transfer ownership of the property to the lessee; (2) the lease contains a bargain-purchase option; (3) the lease term is equal to 75 percent or more of the estimated economic life of the leased property; and (4) the present value of the minimum lease payments (excluding executory costs) equals or exceeds 90 percent of the fair value of the leased property. The balance sheet contrast between operating leases and capital leases is stark: operating leases have no recognized asset or liability, whereas capital leases have a recognized leased asset (less depreciation or amortization) and a lease obligation.

Lessee accounting under the legacy standard has faced criticism for concealing substantial liabilities off the balance sheet through operating leases.<sup>13</sup> The practice of reporting operating leases off the balance sheet, combined with bright-line criteria for capitalizing leases, has

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<sup>12</sup> Under the legacy accounting standard, the off-balance-sheet operating leases can lower reported debt-to-equity ratios (leverage) and increase reported return on assets (profitability).

<sup>13</sup> For example, Ketz (2003) argues “lease accounting has been a disaster for a very long time... corporate managers can deceive investors and creditors by reporting leases as operating leases and pretend that they do not have any lease obligations.”

encouraged managers to structure lease agreements as operating leases. Abdel-Khalik (1981) find that many companies restructured their leases to avoid capitalization after the implementation of SFAS No. 13. The SEC (2005) highlighted that there were “approximately \$1.25 trillion in non-cancelable future cash obligations committed under operating leases that are not recognized on issuer balance sheets.”

Since SFAS No. 13 was criticized for failing to meet users’ demands for a faithful representation of leasing transactions, FASB and IASB initiated a joint project in 2006 to enhance the quality of lease reporting and issued two exposure drafts in 2010 and 2013 (FASB, 2010; FASB 2013). While some commentators supported the exposure drafts, agreeing that the new proposal could facilitate the decision of various market participants,<sup>14</sup> many respondents expressed concerns in their comment letters regarding the exposure drafts. Comiran and Graham (2016) analyze 1,454 comment letters and find that approximately 80 percent of the commentators were against the new lease proposal. Furthermore, they identify at least three distinct motivations for companies to lobby against the proposed change: (1) a higher perceived implementation cost, (2) a belief that the changes will increase the cost of capital, and (3) a desire by managers to avoid any administrative burden associated with the changes.

Despite vigorous debate in comment letters, the FASB released the new lease accounting standard (Accounting Standards Update No. 2016-02) in 2016, codified as Accounting Standards Codification 842 (ASC 842). ASC 842 mandates the capitalization of nearly all leases (excluding short-term leases) on the balance sheet and the disclosure of inputs to support the capitalization.

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<sup>14</sup> For example, CFA Institute (2013) posited in their comment letter that “the update to the lease accounting standards proposed in the Revised ED provides an opportunity for the Boards to enhance the transparency of lease contracts and to improve comparability of financial statements across the globe.” More specifically, CFA Institute highlighted: “Capitalization of leases will enable different market participants (i.e., investors, auditors, academics, preparers) to better assess the lease obligation and, therefore, the total financial leverage of reporting companies.”

Under the ASC 842, a lessee recognizes both a right-of-use asset and a lease liability at the lease commencement date. The lease liability is determined as the present value of expected lease payments over the lease term, discounted either at the rate implicit in the lease or at the lessee's incremental borrowing rate.<sup>15</sup> The right-of-use asset is calculated as the sum of the initial lease liability, any lease payments made to the lessor at or before the lease commencement date, and any initial direct costs incurred by the lessee, minus any lease incentives received.<sup>16</sup> ASC 842 also eliminates the bright-line rule for classifying leases as finance leases (formerly known as capital leases), which are already recognized on the balance sheet under the legacy standard.

ASC 842 also expands lease-related footnote disclosures. Under the legacy accounting standard, lessees were required to disclose future lease payments for each of the next five years, along with a lump-sum thereafter portion, separately for operating leases and capital leases. ASC 842 goes further by mandating lessees to disclose the weighted average discount rate used in measuring the lease liability, the weighted average remaining lease term, and several additional quantitative items. Additionally, ASC 842 enhances the qualitative disclosure of lease transactions.

The FASB allowed for an extended transition period of more than two years to implement ASC 842. ASC 842 became effective for fiscal years beginning after December 15, 2018, with early implementation permitted. The first fiscal year under ASC 842 for a public company was 2019. In 2021, the FASB issued a call for more research on the post-implementation review of ASC 842. The objectives of the FASB's post-implementation review were (1) to determine whether the new lease standard is accomplishing its stated purpose, (2) to evaluate the implementation and continuing compliance costs, and (3) to provide feedback to improve the standard-setting process.

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<sup>15</sup> When the rate implicit in the lease is unknown to the lessee, the lessee should use the incremental borrowing rate.

<sup>16</sup> Right-of-use assets are intangible assets and are subject to amortization in the subsequent treatment.

## 2.2 Corporate bond mutual funds

As shown in Figure 2, the total net assets of corporate bond mutual funds (including investment-grade and high-yield bond funds) in the universe of bond mutual funds have trended up steadily. According to the ICI (2022), corporate bond funds grew from managing approximately \$350 billion total net assets in 2000 to approximately \$3 trillion as of the end of 2021, suggesting an average annual growth rate of over 11%. This growth rate is roughly twice the average annual growth rate of total net assets under the management of governmental and municipal bond funds over the same period.

Despite their growing prominence, research on corporate bond funds has been quite limited. Most studies on mutual funds and institutional investors, particularly in the accounting literature, tend to focus on equity funds rather than bond funds. However, corporate bond funds have unique features compared to equity funds. First, investors in corporate bond funds are likely to be a different clientele from investors in equity funds due to their differing preferences for underlying assets. Corporate bonds exhibit distinct return and risk characteristics compared to stocks. They offer investors fixed income streams, with their prices factoring in downside risks, yield curve risks, credit risks, and liquidity risks (Bai et al., 2019; Chen and Qin, 2017; Culp et al., 2018; Giesecke et al., 2011; Lin et al., 2011).

Second, equity funds and corporate bond funds have a different relationship between fund performance and investor flows (fund flows). A pervasive number of studies have documented that equity funds have convex flow-performance sensitivity, that is, inflows to equity funds are very sensitive to good past performance while outflows are not that sensitive to bad past performance (Brown, Harlow, and Starks, 1996; Chevalier and Ellison, 1997; Goldstein et al., 2017; Huang, Wei, and Yan, 2007; Ippolito, 1992; Lynch and Musto, 2003; Sirri and Tufano,

1998). However, recent studies show that corporate bond funds have concave flow-performance sensitivity and are likely to contribute to financial fragility (Choi, Hoseinzade, Shin, and Tehranian 2020; Goldstein et al., 2017; Jiang, Li, Sun, and Wang 2022; Jiang, Li, and Wang 2021).<sup>17</sup> Due to its potential implications for financial stability, regulators, practitioners, and academia have shown interest in the liquidity management of underlying assets within corporate bond funds (Claessens and Lewrick, 2021; Jiang et al., 2021; O’Hara and Zhou, 2021; Sharpe and Zhou, 2020; Schrimpf et al., 2021).

Third, while most stocks are traded on exchanges today, corporate bond trading has largely migrated away from exchanges to a dealer-oriented “over-the-counter” market since the 1940s. The dealer market has been dominated by large institutional investors. Participants in the corporate bond market mainly consist of insurance companies, pension funds, and mutual funds. Insurance companies and pension funds have differential investment objectives from corporate bond mutual funds. Insurance companies and pension funds target their internal liabilities and absorb bond issues into their stable “buy-and-hold” portfolios soon after issuance (Aramonte and Mano, 2022; Bessembinder and Maxwell, 2008). Bond mutual funds, on the other hand, aim to maximize their total rate of return and adjust bond holdings based on variations in risk factors or in response to investor flows (Aramonte and Mano, 2022; Dudley, 2016; Jones, 2012).

Lastly, given that over-the-counter corporate bond trades tend to be large and infrequent, search frictions and transaction costs are higher in the bond market than in the stock market (Bessembinder et al., 2006; Edwards et al., 2007; Feldhutter, 2012; Huang et al., 2022). Bond funds have strong incentives to exploit the information asymmetry in the bond market and adopt

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<sup>17</sup> The concave flow-performance sensitivity of bond funds mainly results from the mismatch between the short-term investor flows, which can occur on a daily basis like other open-ended funds, and long-term holdings, which consist of bonds with duration spanning years. This liquidity mismatch makes corporate bond funds more susceptible to triggering a fire sale when faced with large redemptions from investors, thereby posing a threat to financial stability.

active management strategies. To effectively select creditworthy issues, active bond funds largely rely on fundamental credit analysis conducted by in-house credit analysts (Sorow, 2012).

The unique features mentioned above make actively managed corporate bond funds a necessary subject of study in accounting literature. However, there is surprisingly little research about whether and how active corporate bond funds use accounting information to facilitate their portfolio decisions. Although prior studies show that accounting information affects bond prices (Bhojraj and Swaminathan, 2009; Even-Tov, 2017), bond prices are aggregate signals of all the information available in the bond market. As Lee (2001) points out, price discovery is a complex procedure. Due to the importance and uniqueness of active corporate bond funds, it is worthwhile to understand how their decision-making processes rely on accounting information. Focusing on the holdings of bond securities of individual funds can directly speak to this question and provide more nuances to the literature.

### **3. Hypotheses Development**

Earlier studies provide evidence that lease capitalization affects users' assessment of financial ratios and is incorporated into the assessment of risks under the legacy standard (Elam, 1976; Altman, 1976; Bowman, 1976; Ely, 1995; Finnerty et al., 1980; Imhoff et al., 1993). Credit market participants rely heavily on financial ratios and risk assessment in their decisions. Existing studies have documented that credit market users capitalize the off-balance-sheet operating leases and adjust financial ratios for as-if capitalized operating leases in their evaluations of credit risks (Altamuro et al., 2014; Graden, 2018). As a group of credit market participants, active bond funds rely on their in-house credit analysts to conduct fundamental credit analysis and should have

accounted for the off-balance-sheet operating leases as well under the legacy standard (Soronow, 2012).<sup>18</sup> However, this adjustment can be inadequate for at least two reasons.

First, active bond funds are probably subject to information processing constraints. Recent studies find that large institutional investors and sophisticated credit users exhibit limited attention (Campbell et al., 2019; Kempf et al., 2017; Nekrasov et al., 2022).<sup>19</sup> Sophisticated credit users possess cognitive processing limits, such as function fixation and presentation effects, related to lease disclosures (Hale et al., 2012)<sup>20</sup> and can underweight footnote disclosures compared to accounting numbers recognized in financial statement (Aboody, 1996; Clor-Proell and Maines, 2014; Hirshleifer and Teoh, 2003; Müller et al., 2015; Blankespoor et al., 2020). Altamuro et al. (2014) find that the sophistication of banks affects their adjustment. They also find credit rating agencies can fail to consider the heterogeneity in lease types. Since operating leases were only disclosed in the footnote under the legacy standard, active bond funds can fail to fully adjust for them in financial ratios, and underestimate credit risks associated with intensive operating lease usage disguised in footnote disclosures. Lease capitalization can increase the power of financial ratios in predicting firm bankruptcy (Elam, 1976). If ASC 842 improves the information processing abilities of active bond funds, they can correct the underestimation of de facto credit risks and reduce holdings of bonds issued by firms with large exposure to operating lease recognition.

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<sup>18</sup> Per my conversations with a few practitioners in active fixed income funds, there are three key risks they consider in their portfolio decisions: interest risk, liquidity risk, and credit risk. When assessing credit risks, in-house analysts primarily base their internal recommendations on financial ratios generated from their credit analyses. They adjust for off-balance-sheet items, including operating leases, in their credit analyses. However, different bond funds can adjust for these items with different levels of efforts. For example, some analysts can use heuristics to adjust for off-balance-sheet operating leases, while other analysts can conduct sensitivity tests with different scenarios.

<sup>19</sup> In the context of credit market, Campbell et al. (2019) document the limited attention of sophisticated credit users and uncover that distracted loan officers can lead to deficient loan decisions.

<sup>20</sup> Applying experimental methods, Hales et al. (2012) show lenders exhibit functional fixation and are subject to presentation effects and are less willing to lend to firms that were required to capitalize lease renewal options than to firms that were not required to capitalize renewal options.

Second, even though active bond funds have adjusted for the off-balance-sheet operating leases, the as-if capitalization process involves estimation (Altamuro et al., 2014; Imhoff et al., 1993). For example, the as-capitalization method used by S&P requires credit users to calculate the present value of future minimum lease payments disclosed in the footnote with a discount rate and then treat this as-capitalized operating lease as an asset or a liability. The accuracy of the estimation can depend on the estimation of discount rates, which involves a lot of assumptions and is not easy to estimate accurately (Altamuro et al., 2014; Binfare et al., 2021; Imhoff et al., 1993). Overestimation of discount rate in operating lease capitalization is not uncommon (Duke et al., 2009). If the fund overestimates the discount rate, it will underestimate the as-capitalized operating leases and thus underestimate credit risks of the bond issuer.

The two reasons above support the prediction that active bond funds underestimate credit risks of bond issuers under the legacy standard and should correct their assessment under the new lease standard. Assuming semi-strong form market efficiency, funds on average should trade to reflect new information. Thus, the correction in their estimation of credit risks can trigger the reduction in holdings of bonds issued by firms with significant exposure to operating lease recognition after the issuer adopts ASC 842.

Survey and anecdotal evidence also support the prediction. In the survey of corporate executives conducted by Deloitte, the majority of respondents were concerned that ASC 842 would negatively affect firms' balance sheets, leverage, and return on assets, which further impairs firms' ability to borrow. In addition, commentators strongly opposed the proposal of the new lease accounting standard due to similar concerns. The National Association of Realtors suggests that the proposal "reduces the overall borrowing capacity of many commercial real estate lessees and lessors" as recognizing operating leases "bloating" the balance sheet.



The evidence above suggests bond funds should reduce holdings of de facto risky bonds after the implementation of the new standard. However, it is also likely that active bond funds do not react to the new standard if they are perfectly informed about the operating leases and fully adjust for off-balance-sheet operating leases under the legacy standard. I state my hypothesis in the alternative form:

***Hypothesis: The adoption of ASC 842 leads to a reduction in active bond fund holdings of bonds issued by firms with significant exposure to operating lease recognition.***

#### **4. Sample Selection and Research Design**

##### **4.1 Sample**

I source data from the following databases. I obtain security-level fund holdings from Morningstar Historical Month-End Holdings database (hereafter, Morningstar). Morningstar provides portfolio identifiers that can be linked to fund tickers, security-level holdings at the end of month, security identifier (CUSIP), security type (equity, bond, cash, mortgage, etc.), and other security-level information. For fixed-income securities, Morningstar provides month-end portfolio level of holdings (in par amount and market value of the bond) and the change in bond holdings (in par amount of the bond). There are several advantages of using Morningstar to obtain historical fund holdings.<sup>21</sup> The Morningstar data that I obtained covers the period from January 2000 to November 2020.

Following Goldstein, Jiang, and Ng (2017), I use Lipper Objective Codes<sup>22</sup> from CRSP Mutual Fund database to identify corporate bond funds and exclude index corporate bond funds,

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<sup>21</sup> First, unlike Thomson Mutual Fund Holdings (S12), which only contains stock holdings, Morningstar contains more comprehensive types of securities, allowing me to study bond holdings. Second, unlike Thomson Reuters Lipper eMaxx databases, another database also used in corporate bond fund studies, Morningstar provides month-end rather than quarter-end holdings, enabling me to detect the impact in a timely trend.

<sup>22</sup> More details regarding Lipper Objective Code are provided in Appendix C.

exchange traded funds, and exchange traded notes.<sup>23</sup> Since I need the detailed information of historical holdings of these active bond funds, I link the fund holdings provided by Morningstar with fund characteristics provided by CRSP by the fund TICKER and keep non-missing-holding securities. I obtain data on bond characteristics, such as issue maturity, issuance date, amount outstanding, coupon, bond types, and bond ratings, from the Mergent FISD database, and data on firms' accounting fundamentals from Compustat/CRSP Merged Annual (hereafter, CCM) database. I merge Morningstar holdings of active bond funds with Mergent FISD database by bond issue CUSIP and require holdings to be corporate bonds. I further match this merged data with CCM using issuer CUSIP and require reported holdings to be matched to the most recently available financial report.

I require the fund to invest at least 10% of the total market value in corporate bonds. I restrict my sample to funds that provide monthly holdings information to Morningstar.<sup>24</sup> During 2018-2020, around 60% of unique active bonds funds report their holdings monthly to Morningstar, corresponding to 80% of fund-month-end observations in Morningstar among active bond funds. Restricting my sample to monthly-reporting funds allows me to pin down the effect of ASC 842 within a short window centered around the adoption month, including three months before the adoption, the adoption month, and three months after the adoption. The adoption month is defined as the first month in which the fund's holdings report is issued following the release date of the financial report where the new lease standard went into effect. The short window allows me to alleviate concerns about confounding factors that are likely to happen in a longer window.

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<sup>23</sup> While CRSP Mutual Fund database also provides fund holdings, Morningstar is the data vendor for CRSP to source their holdings information and provides more details regarding holdings than CRSP. Thus, I use Morningstar Historical Month-End Holdings rather than CRSP Mutual Fund for holdings data.

<sup>24</sup> Similar method, including the 10% threshold and monthly reporting frequency of corporate bond funds, is applied in Huang, Wermers, and Xue (2022), a paper studying how trading of corporate bond funds respond to corporate news events.

I further exclude non-standard bonds<sup>25</sup> and bonds retired during the sample period,<sup>26</sup> bonds issued by financial firms,<sup>27</sup> issued by firms with no data available in the pre-period or the post-period of the sample, and bonds issued by firms with no operating leases recognized after the adoption of the new lease standard,<sup>28</sup> as well as observations with missing controls. The final sample consists of 108,550 fund-bond-month observations, corresponding to 290 unique funds and 2,493 unique bonds issued by 409 unique firms. Table 1, Panel A shows the sample construction procedure.

## 4.2 Research Design

To investigate the effect of implementing ASC 842 on the portfolio decisions of active bond funds, I take advantage of bond issuers' implementation of ASC 842 defined by their fiscal year ends and bond issuers' differential exposure to operating lease recognition under ASC 842. I employ a generalized difference-in-difference framework, where the treatment group consists of bonds issued by firms with significant recognized operating leases in the portfolio of individual funds, and the control group includes bonds issued by firms with limited recognized operating leases in the portfolio of individual funds. I track the monthly fund holdings of treatment bonds and control bonds in a seven-month window surrounding the adoption of ASC 842. This identification strategy effectively compares the fund holdings *before* and *after* the adoption of the new lease accounting standard for the treatment and control bonds.

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<sup>25</sup> Non-standard bonds include bonds denominated in foreign currency, bonds that are privately placed, Yankee bonds, pay-in-kind bonds, convertible bonds, asset-backed bonds, and puttable bonds.

<sup>26</sup> The reduction in holdings of these bonds can result from the retirement of the bonds rather than bond funds' decisions.

<sup>27</sup> Corporate bonds can be issued by industrial, financial, or service firms. Since financial firms have different financial statements and are usually lessors rather than lessees, who are mainly affected by the new lease standard, I remove corporate bonds issued by financial firms in my analysis.

<sup>28</sup> Operating leases are pervasively used in practice. Firms without assets recognized for operating leases, namely "right-of-use assets", account for a relatively small portion in my sample, which is around 10% of the sample before excluding these firms.

In the main analysis, I estimate the following model (where the subscripts  $i$ ,  $j$ ,  $y$ , and  $t$  denote bond, fund, fiscal year, and fund holding report year-month-end, respectively):

$$\begin{aligned} Holding\_Pct_{j,i,t} = & \beta_0 + \beta_1 Post_{i,t} \times Large\_ROUA_i + \sum \varphi_k Controls_{i(j),t} \\ & + \gamma_i + \mu_j + \eta_y + \delta_t + \epsilon_{i,t} \quad (1) \end{aligned}$$

The unit of observation is fund-bond-month. The dependent variable is  *Holding\_Pct* , that is, the percentage fund holdings of bond  $i$  at the end of holding report year-month  $t$  scaled by the beginning total net assets (TNA) of fund  $j$ . This holding measure is commonly used to capture portfolio decisions of mutual funds in the mutual fund literature (Chen et al., 2021; Jiang et al., 2021). The main variable of interest is the interaction term  $Post \times Large\_ROUA$ .  $Post$  is an indicator variable set equal to one for holding reporting year-month-ends  $t$  following the issuer of bond  $i$  releases 10-K filing prepared under ASC 842, as indicated by "ACCTCHG"="ASU16-02" in the CCM Annual database. The implementation year-month ("Month 0") is the first holding reporting year-month-end following the release date of the first 10-K report prepared under ASC 842. Table 1, Panel B shows the distribution of implementation month of unique bond issuers in the sample. Due to the differences in fiscal year ends, the implementation month is de facto staggered, which mitigates the concerns about potential biases brought by concurrent events.  $Large\_ROUA$  is an indicator set to be one if the issuer of bond  $i$  has larger exposure to operating lease recognition under ASC 842, that is, if the bond issuer has above-median first recognized unscaled right-of-use asset ("ROUANT") corresponding to operating lease recognition after the implementation of ASC 842.

The  *Controls*  are a group of variables that prior studies have found to be associated with bond creditworthiness and bond fund holdings. Following Altamuro et al. (2014) and Huang et al. (2022), I include a comprehensive set of common issuer-level characteristics that correlate with issuer credit risks which are incorporated into the bond funds' portfolio decisions and are also

closely aligned with the variables used by S&P (2006) during the rating process. These specific issuer-level control variables include *Size* (natural logarithm of market value), *Ebit\_Cov* (ratio of EBIT to interest expenses), *Freecash* (ratio of free cash flows to total debt), *Debt\_EBITDA* (ratio of total debt to EBITDA), *Leverage* (ratio of total debt to the sum of total debt and total equity), *Idiosyncratic\_Risk* (idiosyncratic volatility calculated using Fama-French-Carhart four factor model). Following Choi et al. (2020) and Huang et al. (2022), I control for bond-level time-variant characteristics that are associated with credit assessment of the bond and the portfolio decisions of corporate bond funds, including *Bond\_Rating* (average bond ratings provided by three credit rating agencies converted to rank orders)<sup>29</sup>, *No\_Bond\_Rating* (indicator for none of three credit rating agencies providing bond ratings), *Bond\_Age* (the natural logarithm of the number of months from the issuance of the bond plus one), and *Maturity* (the natural logarithm of months to maturity of the bond)<sup>30</sup>. Following Jiang et al. (2021) and Huang et al. (2022), I also control for fund-level time-variant characteristics that affect bond fund holdings, including *Retail\_Shr* (fraction of fund assets held by retail investors), *Fund\_Size* (the natural logarithm of TNA at the beginning of the month), *Fund\_Age* (the natural logarithm of years from inception of the fund at the beginning of the month), and *Fund\_Turnover* (the minimum of aggregated sales or aggregated purchases of securities).

Model (1) includes fund, bond, holding report year-months, and fiscal year fixed effects. The inclusion of fund fixed effects allows me to control for time-invariant fund characteristics potentially affecting funds' portfolio decisions, such as fund investment styles and fund manager

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<sup>29</sup> Bond ratings synthesize the information on both the issuer's financial condition, operating performance, and risk-management strategies, along with specific bond characteristics like coupon rate, seniority, and option features (Bai et al., 2019).

<sup>30</sup> Bond age and bond maturity are correlated with liquidity of bonds and thus affect the investment decisions of active bond funds. The liquidity premium increases with maturity but decays with the age of a bond (Fontaine and Garcia, 2012).

preferences. Including bond fixed effects allows me to control for time-invariant bond characteristics potentially affecting portfolio decisions, such as coupon rate and bond offering size. Fiscal year fixed effects account for fiscal-year-specific characteristics, including some macroeconomic factors that happen in the annual operating cycle of a firm. Holding report year-month fixed effects account for factors specific to fund holding report year-months, including potential systematic shocks that happened to the bond market or the fund industry clustering in certain reporting year-month. Bond fixed effects and fiscal-year fixed effects subsume the main effects of *Large\_ROUA* and *Post*, which are excluded from equation (1) accordingly. Given that the shock occurs at the bond issuer level, I cluster standard errors at the bond issuer level to account for potential autocorrelation among holdings of bonds of the same issuer. All continuous variables are winsorized at the 1 and 99 percent levels.

The main coefficient of interest is  $\beta_1$ . If, as I predict, bond funds reduce holdings of bonds issued by firms with significant exposure to recognized operating leases after the issuer implement the new lease standard, then  $\beta_1$  should be negative. For control variables at the issuer level and the bond level, I predict that on average funds tend to hold more bonds issued by less risky firms and bonds with fewer liquidity risks. For fund-level control variables, I predict more diversified funds tend to hold fewer individual bonds.

#### 4.3 Descriptive Statistics

Table 2 reports descriptive statistics for the sample. The average percentage holding (in par amount) of individual bonds is around 0.2 percent of portfolio total net assets. This average is reasonable given the diversified nature of corporate bond fund holdings and matches with percentage holdings disclosed in Form NPort-P of bond funds.<sup>31</sup> Given that the *Post* variable is

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<sup>31</sup> Appendix D shows an example Form NPort-P to provide a sense of the common percentage holdings.

defined as one for Month 0 to Month 3 (four event months for each fund-bond) while defined as zero for Month -3 to Month -1 (three event months for each fund-bond), the mean of *Post* is slightly greater than 50%. *Large\_ROUA* is calculated at issuer level and is set to be one if the issuer has the above-median first recognized unscaled right-of-use assets after the adoption among unique sample firms with non-missing right-of-use assets after the adoption. The mean of *Large\_ROUA* is around 70%, which is above 50%, indicating that issuers with large operating lease assets have more bonds outstanding in the sample.

Regarding control variables, on average bonds in portfolios of active bond funds are issued by larger and healthier firms and have investment-grade ratings (over “BBB-/Baa3”). On average, active bonds funds in the sample have \$5 billions total net assets, are 20 years old, have turnover ratio of 157%,<sup>32</sup> and have around 20% of fund assets held by retail investors.

## 5. Empirical Results

### 5.1 Operating Lease Recognition and Holdings of Active Corporate Bond Funds

Table 3 reports the results for my main differences-in-differences test for estimating Equation (1). In Column (1), I only control for fixed effects and exclude additional control variables. Column (2) presents the results of estimating the full model. If the change in lease accounting standards triggers the reduction in bond fund holdings of bonds issued by firms with significant exposure to operating lease recognition, then the coefficient on  $Post \times Large\_ROUA$  should be negative. I find that, following the adoption of ASC 842, bond fund percentage holdings of a bond issued by firms with large exposures to operating lease recognitions on average significantly decrease by 0.7 percent (coefficient estimate for the variable of interest  $Post \times Large\_ROUA = -0.007$ ,  $t\text{-stat} = -2.51$ ). In terms of economic magnitude, the results from Column

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<sup>32</sup> Corporate bond funds have high turnover ratio. This is comparable to the turnover ratio documented in other papers. In Jiang et al. (2021), the turnover ratio of corporate bonds is 114%.

(2) indicate that the new lease accounting standard decreases a bond fund's monthly percentage holdings of a treated bond in their portfolios by 4.1% ( $=0.007/0.17$ ) of the sample mean, or 2.5% ( $=0.007/0.278$ ) of the sample standard deviation. This economic magnitude is significant since it is comparable to *Bond\_Rating*, measured in bond rating notches, which is a common credit metric that affects the investment strategies of bond funds. A one-standard-deviation improvement in bond rating notches implies an increase in a bond fund's monthly percentage holding equal to 5.7% ( $=0.003 \times 3.267/0.17$ ) of the sample mean. These results suggest that the change in lease accounting standard has an economically significant impact on bond fund holdings, consistent with the *Hypothesis*.

As for the control variables, the results on *Leverage* is consistent with the intuition that firms with lower leverage are safer, and thus their bonds are held more by bond funds; the results on *Bond\_Rating*, *Bond\_Age*, and *Maturity* are consistent with the intuition that bonds with better credit ratings and new bonds with better liquidity are held more by bond funds; and the results on *Fund\_Size* are consistent with the intuition that larger funds tend to have more diversified portfolios and thus allocate smaller weights to individual bonds in their portfolios.

## 5.2 Dynamic Effects

My identification comes from the comparison of the changes in bond fund percentage holdings of individual bonds issued by treated and control firms following the implementation of the new lease accounting standard. An important identifying assumption is that, in the absence of the changes in the new lease accounting standard, treatment and control groups would exhibit similar trends in bond fund percentage holdings (i.e., parallel trends). I validate this assumption by examining the dynamic effect of the new lease accounting standard on bond fund holdings.



Specifically, I re-estimate Equation (1) after replacing the *Post* indicator with five indicator variables capturing time relative to the change in lease accounting standard: *Post*<sub>-2</sub>, *Post*<sub>-1</sub>, *Post*<sub>0</sub>, *Post*<sub>1</sub>, and *Post*<sub>2+</sub>. These indicators are defined for event months Month -2 through Month 1 plus an indicator for Month 2 and Month 3 combined. Since the sample period includes seven event months centered around the implementation (Month 0), the Month -3 serves as the benchmark period. These five indicators enter the regression only as interactions with the treatment indicator, *Large\_ROUA*, as their main effects are absorbed by fiscal year fixed effects. Formally:

$$\begin{aligned}
 \text{Holding\_Pct}_{j,i,t} = & \beta_0 + \sum_{\tau=-2}^{\tau=2+} \beta_{1,\tau} \times \text{Post}_{i,t} \times \text{Large\_ROUA}_i + \sum \varphi_k \text{Controls}_{i(j),t} \\
 & + \gamma_i + \mu_j + \eta_y + \delta_t + \epsilon_{i,t}
 \end{aligned} \tag{2}$$

I plot the point estimates of  $\beta_1$  and 90 percent confidence intervals in Figure 3. The coefficients on *Post*<sub>-2</sub> × *Large\_ROUA*, *Post*<sub>-1</sub> × *Large\_ROUA*, and *Post*<sub>0</sub> × *Large\_ROUA* are statistically insignificant for bond fund percentage holdings. This evidence indicates that prior to the implementation of the new lease accounting standard, the estimated treatment effects are statistically indistinguishable from zero and do not change significantly, validating the parallel-trend assumption. Moreover, coefficients on *Post*<sub>1</sub> × *Large\_ROUA* and *Post*<sub>2+</sub> × *Large\_ROUA* are significantly negative, suggesting a significant decrease in bond fund holdings of treatment bonds in the months following the implementation of ASC 842. The sharp decrease further enhances my confidence in attributing the change in fund holdings to operating lease recognition under ASC 842. Overall, these findings strengthen my inferences by mitigating concerns related to different pre-existing trends in my variables of interest for treatment and control bonds.

### 5.3 Cross-Sectional Heterogeneity – Information-Processing Constraints

If the decrease in fund holdings that I have documented is driven by the improved processing abilities of lease information possessed by active bond funds under the new lease accounting standard, then I should observe stronger decreases in bond fund holdings for funds with

greater information-processing constraints to analyze the security's fundamental information in their portfolio decisions during the pre-period. I capture the information-processing constraint in two aspects: (i) fund sophistication, and (ii) bond prominence within the portfolio.

### 5.3.1 Fund Sophistication

My first proxy for information-processing constraints of funds is fund sophistication. Similar to Altamuro et al. (2014), which uses bank size to capture bank sophistication, I use fund size to gauge fund sophistication. I posit that, all else being equal, smaller active corporate bond funds are subject to more information-processing constraints and allocate less attention to the fundamental credit analysis compared to larger funds. If recognition of operating leases under the new lease accounting standard indeed mitigates such constraints faced by active corporate bond funds, small funds should react stronger to the implementation of ASC 842 for treated bonds than large funds. I create an indicator variable for fund size, *Small\_Fund*, which is set to be one if the fund has below-median fund size among all fund-issuer observations at the end of the most recent month in the pre-period of each bond issuer, and zero otherwise. Fund size is the natural logarithm of fund total net assets (in millions of dollars) at the month beginning.

I then estimate the following model:

$$\begin{aligned}
 Holding\_Pct_{j,i,t} = & \beta_0 + \beta_1 Post_{i,t} \times Large\_ROUA_i + \beta_2 Post_{i,t} \times Small\_Fund_{j,i} \\
 & + \beta_3 Large\_ROUA_i \times Small\_Fund_{j,i} \\
 & + \beta_4 Post_{i,t} \times Large\_ROUA_i \times Small\_Fund_{j,i} \\
 & + \sum \varphi_k Controls_{i(j),t} + \gamma_i + \mu_j + \eta_y + \delta_t + \epsilon_{i,t}
 \end{aligned} \tag{3}$$

I predict  $\beta_4$ , the coefficient on the triple interaction term  $Post \times Large\_ROUA \times Small\_Fund$ , to be negative if small funds experience stronger decrease in fund holdings for treated bonds after the bond issuer implements the new lease accounting standard. Table 4 presents the results of estimating Equation (3). In Column (1), I exclude additional control variables.

Column (2) presents the results of estimating the full model. Across both columns, the coefficients on the triple interaction term  $Post \times Large\_ROUA \times Small\_Fund$  are negative and statistically significant. The coefficients on  $Post \times Large\_ROUA$  remain negative yet insignificant. The results suggest that non-sophisticated funds benefit more in understanding lease information from the implementation of new lease standard and reduce more holdings of bonds issued by firms with greater exposure to operating lease recognition than sophisticated funds.

### 5.3.2 Bond Prominence within the Portfolio

The second proxy for information-processing constraints faced by bond funds in their portfolio decisions is the prominence of individual bonds within the portfolio. Given that bond funds in my study are mutual funds, their holdings tend to be quite diversified. If a bond has lower prominence within the fund's portfolio, active bond funds tend to allocate less attention to that individual bond when conducting fundamental credit analyses. By recognizing operating leases on the balance sheet, the new lease accounting standard reduces their workload of adjusting the balance sheet for operating leases. Since less prominent bonds are subject to greater information-processing constraints, they should benefit more from the new lease accounting standard compared to their more prominent counterparts. I use the weights of a bond security in the fund portfolio to gauge the relative bond prominence within the portfolio. Specifically, I construct an indicator variable for bonds with low prominence,  $Small\_Weight$ , which is set to be one if the bond has percentage holdings in the bottom quartile of all fund-bond observations at the end of the most recent month in the pre-period of each bond issuer, and zero otherwise.

I then estimate the following model:

$$\begin{aligned}
 Holding\_Pct_{j,i,t} = & \beta_0 + \beta_1 Post_{i,t} \times Large\_ROUA_i + \beta_2 Small\_Weight_{j,i,t} \\
 & + \beta_3 Post_{i,t} \times Small\_Weight_{j,i} \\
 & + \beta_4 Large\_ROUA_i \times Small\_Weight_{j,i,t}
 \end{aligned}$$

$$\begin{aligned}
& + \beta_5 \text{Post}_{i,t} \times \text{Large\_ROUA}_i \times \text{Small\_Weight}_{j,i,t} \\
& + \sum \varphi_k \text{Controls}_{i(j),t} + \gamma_i + \mu_j + \eta_y + \delta_t + \epsilon_{i,t}
\end{aligned} \tag{4}$$

I predict  $\beta_5$ , the coefficient on the triple interaction term  $\text{Post} \times \text{Large\_ROUA} \times \text{Small\_Weight}$ , to be negative if non-prominent bonds experience a stronger decrease in fund holdings for treated bonds after the bond issuer implements the new lease accounting standard. Table 5 presents the results of estimating Equation (4). In Column (1), I exclude additional control variables. Column (2) presents the results of estimating the full model. Across both columns, the coefficients on the triple interaction term  $\text{Post} \times \text{Large\_ROUA} \times \text{Small\_Weight}$  are negative and statistically significant. The coefficients on  $\text{Post} \times \text{Large\_ROUA}$  remain negative and significant. The results suggest that active bond funds reduce their holdings of non-prominent bonds more significantly than prominent bonds after the issuer implements the new lease accounting standard.

#### 5.4 Cross-Sectional Heterogeneity – Accuracy of As-If Capitalization

If the decrease in fund holdings that I have observed is driven by the improved accuracy in understanding lease information, then I should observe stronger decreases in bond fund holdings for bond issuers that tend to have greater underestimation of as-if capitalized operating lease liabilities due to overestimation of discount rates. I create an indicator variable for the overestimation of the discount rate,  $\text{Large\_Overstate\_Rate}$ , which is set to be one if the issuing firm has a difference between the discount rate used in as-if capitalization and the as-if misstated discount rate in the top quartile of all issuing firms in the post-period. The as-if misstated discount rate is calculated as the signed difference between the estimated discount rate using the S&P method (Altamuro et al., 2014; S&P, 2006) and the disclosed weighted discount rate (“WAVLR”) under ASC 842. This variable is a firm-specific indicator since the months in the post-period all

belong to the first fiscal year under the new lease accounting standard, and thus the financial variables are constant.

I then estimate the following model:

$$\begin{aligned}
 \text{Holding\_Pct}_{j,i,t} = & \beta_0 + \beta_1 \text{Post}_{i,t} \times \text{Large}_{ROUA_i} + \beta_2 \text{Post}_{i,t} \times \text{Large\_Overstate\_Rate}_i \\
 & + \beta_3 \text{Post}_{i,t} \times \text{Large\_Overstate\_Rate}_i \times \text{Large}_{ROUA_i} \\
 & + \sum \varphi_k \text{Controls}_{i(j),t} + \gamma_i + \mu_j + I + \delta_t + \epsilon_{i,t}
 \end{aligned} \tag{5}$$

I predict  $\beta_3$ , the coefficient on the triple interaction term  $\text{Post} \times \text{Large}_{ROUA} \times \text{Large\_Overstate\_Rate}$ , will be negative if bond issuers subject to a significant overestimation of the discount rate experience a stronger decrease in fund holdings after implementing the new lease accounting standard. Table 6 presents the results of estimating Equation (5). In Column (1), I exclude additional control variables. Column (2) presents the results of estimating the full model. Across both columns, the coefficients on the triple interaction term  $\text{Post} \times \text{Large}_{ROUA} \times \text{Large\_Overstate\_Rate}$  are negative and statistically significant. The coefficients on  $\text{Post} \times \text{Large}_{ROUA}$  remain negative yet insignificant. The results suggest that active bond funds reduce their holdings of bonds issued by firms subject to significant overestimation of the discount rate in credit analyses which requires adjustment for off-balance-sheet items.

## 5.5 Additional Analyses

### 5.5.1 Alternative Explanations

In the previous section, I demonstrate that the bond fund holdings decrease in response to the new lease standard for treated bonds. One interpretation of this result is that active bond funds fail to fully incorporate operating lease disclosures into their portfolio decisions under the legacy standard. However, there are two potential alternative explanations: (1) driven purely by changes in fundamentals and credit ratings; and (2) solely driven by redemptions from fund investors,

which represents a different type of resource constraint, that is, constraint on money available rather than information processing.

First, recent studies have shown that the new lease accounting standard has significant real impacts on firms in a longer time period, leading them to reduce their reliance on operating leases to improve their fundamentals or credit ratings (Ma and Thomas, 2022; Yoon, 2020). Given these findings, it is possible that firms experience changes in their fundamentals and credit ratings after implementing the new lease standard, which could influence portfolio decisions of funds. In my primary research design, I use a short-window test to partially mitigate the concern about real changes that usually happen in a longer window.

To further address this concern, I employ an alternative specification to account for changes in firm-level fundamental characteristics, including *Size*, *Ebit\_Cov*, *Freecash*, *Debt\_EBITDA*, *Leverage*, as well as *Idiosyncratic\_Risk*, and bond ratings, including *Bond\_Rating* as well as *No\_Bond\_Rating*, following the implementation of the new lease standard. Specifically, I introduce interaction terms between firm-level control variables as well as bond rating variables and the *Post* indicator and further include the interaction terms in the model. In Table 7 Column (1), the results remain qualitatively similar. This approach helps alleviate concerns that my findings are solely driven by post-implementation changes in firm fundamentals and credit ratings.

Second, fund managers can sell assets in response to redemption from fund investors (Choi et al., 2020; Goldstein et al., 2017). It is possible that my results are merely driven by such redemption, reflected by the reduction in fund flows. The underlying assumption of this argument is that fund flows decrease in response to the implementation of ASC 842 for treated bonds. To mitigate this concern, I test the assumption that fund flows significantly decrease in response to the implementation of the new lease standard. I follow Goldstein et al. (2017) to calculate fund

flows and include it as the dependent variable in the Equation (1).<sup>33</sup> Results are reported in Table 7 Column (2) and show that fund flows do not change significantly after the implementation of the new lease standard for treated bonds. The results make sense since individual fund investors of bond funds barely pay close attention to the accounting changes of each bond issuer when they choose to diversify their investment with a fund.

Taking this result a step further, the unchanged fund flows in response to the new lease standard further validates that the change in fund holdings is more a decision of within-fund reallocation of assets rather than a result of redemption from fund investors. In untabulated results, I remove fiscal year fixed effects and include *Post* dummy in Equation (1). I find that the coefficient of *Post* dummy is positive and significant, suggesting that fund holdings of bonds issued by firms with limited exposure to operating lease recognition increase after the implementation of the new lease standard. This finding further implies that active bond funds reallocate assets from heavy-leasing firms to light-leasing firms after the implementation of ASC 842. Taken together, these tests enhance my confidence to attribute the change in portfolio decisions of active corporate bond funds to the informational shock brought by the ASC 842.

### 5.5.2 *Alternative Specifications*

I conduct several tests to show my results are robust to alternative specifications. First, anecdotal evidence and prior studies indicate that active corporate bond funds have adjusted financial ratios for as-capitalized operating leases under the legacy standard. Following Altamuro et al. (2014), I adjust all financial ratios with numerators and/or denominators affected by as-capitalized operating leases in the pre-implementation period, including *Ebit\_Cov*, *Freecash*,

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<sup>33</sup> In Goldstein et al. (2017), fund flows are calculated at fund class level, not fund level. To calculate fund flows at the fund level, I aggregate fund total net assets within the fund and use average return of all fund classes to calculate fund-level flows.

*Debt\_EBITDA*, and *Leverage*.<sup>34</sup> Table 8 Column (1) shows the results are similar to my main results.

Second, to control for time-varying fund characteristics that affect portfolio decisions, I control for fund by time fixed effects instead of controlling fund fixed effects and time fixed effects separately. Specifically, I replace fund fixed effects and holding report year-month fixed effects with fund by holding report year-month fixed effects in Table 8 Column (2) and replace fund fixed effects and fiscal year fixed effects with fund by fiscal year fixed effects in Table 8 Column (3). Results remain similar. Taken together, my main results are robust to alternative specifications above.

## **6. Conclusion**

In this study, I examine the impact of operating lease recognition under the new lease standard on the portfolio decisions of active corporate bond funds. I take advantage of monthly fund holdings to form a short-window sample surrounding the implementation of the new lease standard and apply the generalized differences-in-differences framework. I document that, in a seven-month window centered around the implementation of the new lease standard, active bond funds reduce holdings of bonds issued by firms with significant exposure to operating lease recognition, which are de facto riskier securities in fund portfolios. Further analyses support the idea that this reduction is a result of the alleviated information-processing constraints and improved assessment accuracy driven by the operating lease recognition under the new lease standard.

Here are a few caveats to consider. First, although my design allows me to mitigate concerns about fundamental changes, I cannot entirely rule out this explanation. Similar to other

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<sup>34</sup> See Appendix E for the adjustment procedure.



studies related to the information content of an accounting standard, real effects pose empirical challenges to this type of studies. Second, bond funds, a group of sophisticated market participants, typically exhibit more pronounced behavior within the shorter window. While the short-window test allows me to identify the immediate impact, it cannot answer policy-evaluation questions about the long-term effect of the new lease standard on the financial system. This caveat opens the door for future studies into whether accounting standards have long-term impacts on the financial system.

In closing, my study documents the significant impact of the new lease accounting rule on the portfolio decision of a prominent market participant in the public debt sector, active corporate bond funds. This study adds to the long-standing standard-setting trade-off between recognition and disclosure, as well as the emerging literature that explores the information sources utilized by active bond fund managers in their decision-making processes. My findings are likely to be of interest to mutual funds, debt market participants, and regulators alike.

## References

- Abdel-Khalik, A. R. 1981. The Economic effects on lessees of FASB Statement No. 13, Accounting for Leases. Samford, Conn.: Financial Accounting Standards Board.
- Aboody, D. 1996. Market valuation of employee stock options. *Journal of accounting and economics*, 221-3, 357-391.
- Altamuro, J., Johnston, R., Pandit, S., & Zhang, H. 2014. Operating leases and credit assessments. *Contemporary Accounting Research*, 312, 551-580.
- Altman, E. I. 1976. Capitalization of leases and the predictability of financial ratios: a comment. *The Accounting Review*, 512, 408-412.
- Anand, A., Jotikasthira, C., & Venkataraman, K. 2021. Mutual fund trading style and bond market fragility. *The Review of Financial Studies*, 346, 2993-3044.
- Aramonte, S., & Mano, N. 2022. Insurance companies as liquidity providers: The case of corporate-bond mutual funds. Working paper. Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4074056](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4074056).
- Bai, J., Bali, T. G., & Wen, Q. 2019. Common risk factors in the cross-section of corporate bond returns. *Journal of Financial Economics*, 1313, 619-642.
- Barth, M. E., Clinch, G., & Shibano, T. 2003. Market effects of recognition and disclosure. *Journal of Accounting research*, 414, 581-609.
- Beatty, A., Liao, S., & Zhang, H. H. 2019. The effect of banks' financial reporting on syndicated-loan structures. *Journal of Accounting and Economics*, 672-3, 496-520.
- Berndt, A., & Watford, C. 2015. The Credit Analysis Process: From In-Depth Company Research to Selecting the Right Instrument. Available at <https://www.pimco.com/handlers/displaydocument.ashx?wd=Insight&id=UitnnJk7nwEG>

qdjdZ6g7TMpolOSLfS%2bPoAVInNIII%2bPXUanVLne4apJxpi8dj28JbKIXXVnUaq4  
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MP1anKKltsSimAw%3d%3d

Bessembinder, H., Kahle, K. M., Maxwell, W. F., & Xu, D. 2008. Measuring abnormal bond performance. *The Review of Financial Studies*, 22(10), 4219-4258.

Bessembinder, H., Maxwell, W., & Venkataraman, K. 2006. Market transparency, liquidity externalities, and institutional trading costs in corporate bonds. *Journal of Financial Economics*, 82(2), 251-288.

Binfare, M., Connolly, R. A., Grigoris, F., & Liu, C. H. 2020. A new lease on firm behavior. Working paper. Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3672699](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3672699)

Blankespoor, E., deHaan, E., & Marinovic, I. 2020. Disclosure processing costs, investors' information choice, and equity market outcomes: A review. *Journal of Accounting and Economics*, 70(2-3), 101344.

Bowman, R. G. 1980. The debt equivalence of leases: An empirical investigation. *Accounting Review*, 55(2), 237-253.

Brown, K.C., Harlow, W.V., Starks, L.T., 1996. Of tournaments and temptations: an analysis of managerial incentives in the mutual fund industry. *The Journal of Finance* 51, 85–110.

Bushee, B. J. 2001. Do institutional investors prefer near-term earnings over long-run value?. *Contemporary accounting research*, 18(2), 207-246.

- Campbell, D., Loumioti, M., & Wittenberg-Moerman, R. 2019. Making sense of soft information: Interpretation bias and loan quality. *Journal of Accounting and Economics*, 682-3, 101240.
- Caskey, J., & Ozel, N. B. 2019. Reporting and non-reporting incentives in leasing. *The Accounting Review*, 946, 137-164.
- Chevalier, J., Ellison, G., 1997. Risk taking by mutual funds as a response to incentives. *Journal of Political Economy* 105, 1167–1200.
- Chen, H., Cohen, L., & Gurun, U. G. 2021. Don't take their word for it: the misclassification of bond mutual funds. *The Journal of Finance*, 764, 1699-1730.
- Chen, Y., & Qin, N. 2017. The behavior of investor flows in corporate bond mutual funds. *Management Science*, 635, 1365-1381.
- Cheng, L., Jaggi, J., Yan, M. Y., & Young, S. 2022. Debt Contracting and Changes to the Accounting for Leases: Implications of Accounting Standards Codification 842. Working paper. Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4203733](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4203733).
- Choi, J., Hoseinzade, S., Shin, S. S., & Tehranian, H. 2020. Corporate bond mutual funds and asset fire sales. *Journal of Financial Economics*, 1382, 432-457.
- Claessens, S., & Lewrick, U. 2021. Open-ended bond funds: systemic risks and policy implications. *BIS Quarterly Review*, 37.
- Clor-Proell, S. M., & Maines, L. A. 2014. The impact of recognition versus disclosure on financial information: A preparer's perspective. *Journal of Accounting Research*, 523, 671-701.
- Comiran, F., & Graham, C. M. 2016. Comment letter activity: A response to proposed changes in lease accounting. *Research in Accounting Regulation*, 282, 109-117.
- Cornaggia, K. J., Franzen, L. A., & Simin, T. T. 2013. Bringing leased assets onto the balance sheet. *Journal of Corporate Finance*, 22, 345-360.

- Crabbe, L. E., & Fabozzi, F. J. 2012. Liquidity, Trading, and Trading Costs. *Advanced Bond Portfolio Management: Best Practices in Modeling and Strategies*, 21-42.
- Culp, C. L., Nozawa, Y., & Veronesi, P. 2018. Option-based credit spreads. *American Economic Review*, 1082, 454-488.
- Dudley, W. 2016. Market and Funding Liquidity – An Overview. Available at <https://www.bis.org/review/r160502a.htm>
- Duke, J. C., Hsieh, S. J., & Su, Y. 2009. Operating and synthetic leases: Exploiting financial benefits in the post-Enron era. *Advances in Accounting*, 25(1), 28-39.
- Deloitte. 2014. Lease accounting survey- Preparing for implementation. Available at <https://www.iasplus.com/en/publications/us/other/leases-survey>. Edwards, A. K., Harris, L. E., & Piwowar, M. S. 2007. Corporate bond market transaction costs and transparency. *The Journal of Finance*, 623, 1421-1451.
- Dhaliwal, D., Lee, H. S., & Neamtiu, M. 2011. The impact of operating leases on firm financial and operating risk. *Journal of Accounting, Auditing & Finance*, 262, 151-197.
- Eisfeldt, A. L., & Rampini, A. A. 2009. Leasing, ability to repossess, and debt capacity. *The Review of Financial Studies*, 224, 1621-1657.
- Elam, R. 1976. Capitalization of Leases and the Predictability of Financial Ratios: A Reply. *The Accounting Review*, 512, 413.
- Ely, K. M. 1995. Operating lease accounting and the market's assessment of equity risk. *Journal of accounting research*, 332, 397-415.
- Feldhütter, P. 2012. The same bond at different prices: identifying search frictions and selling pressures. *The Review of Financial Studies*, 254, 1155-1206.

- Financial Accounting Standards Board (FASB) and International Financial Reporting Standards (IFRS) Foundation. 2013. Staff Paper: Summary of Feedback on the 2013 ED Leases. Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB). 2010. Staff Draft of an Exposure Draft on Financial Statement Presentation. Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB). 2016. Accounting Standards Update No. 2016-02. Available at [https://fasb.org/Page/ShowPdf?path=ASU+2016-02\\_Section+A.pdf&title=UPDATE+2016-02%E2%80%94LEASES+%28TOPIC+842%29+SECTION+A%E2%80%94LEASES%3A+AMENDMENTS+TO+THE+FASB+ACCOUNTING+STANDARDS+CODIFICATION%3Csup%3E%3C%2Fsup%3E&acceptedDisclaimer=true&Submit=](https://fasb.org/Page/ShowPdf?path=ASU+2016-02_Section+A.pdf&title=UPDATE+2016-02%E2%80%94LEASES+%28TOPIC+842%29+SECTION+A%E2%80%94LEASES%3A+AMENDMENTS+TO+THE+FASB+ACCOUNTING+STANDARDS+CODIFICATION%3Csup%3E%3C%2Fsup%3E&acceptedDisclaimer=true&Submit=).
- Finnerty, J. E., Fitzsimmons, R. N., & Oliver, T. W. 1980. Lease capitalization and systematic risk. *Accounting review*, 631-639.
- Giesecke, K., Longstaff, F. A., Schaefer, S., & Strebulaev, I. 2011. Corporate bond default risk: A 150-year perspective. *Journal of financial Economics*, 1022, 233-250.
- Goldstein, I., Jiang, H., & Ng, D. T. 2017. Investor flows and fragility in corporate bond funds. *Journal of Financial Economics*, 1263, 592-613.
- Graden, B. 2018. Do Lenders Uniformly Capitalize Operating Leases in Debt Covenants?. *Journal of Accounting & Finance* 2158-3625, 185.
- Graham, J. R., Lemmon, M. L., & Schallheim, J. S. 1998. Debt, leases, taxes, and the endogeneity of corporate tax status. *The journal of finance*, 531, 131-162.
- Hales, J. W., Venkataraman, S., & Wilks, T. J. 2012. Accounting for lease renewal options: The informational effects of unit of account choices. *The Accounting Review*, 871, 173-197.

- Hanlon, M., & Heitzman, S. 2022. Corporate Debt and Taxes. *Annual Review of Financial Economics*, 14, 509-534.
- Hirshleifer, D., & Teoh, S. H. 2003. Limited attention, information disclosure, and financial reporting. *Journal of accounting and economics*, 361-3, 337-386.
- Huang, J., Wei, K.D., Yan, H., 2007. Participation costs and the sensitivity of fund flows to past performance. *The Journal of Finance* 62, 1273–1311.
- Huang, A. G., Wermers, R., & Xue, J. 2022. ‘Buy the Rumor, Sell the News’: Liquidity Provision by Bond Funds Following Corporate News Events. Working paper. Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3980151](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3980151).
- Imhoff Jr, E. A., & Thomas, J. K. 1988. Economic consequences of accounting standards: The lease disclosure rule change. *Journal of Accounting and Economics*, 104, 277-310.
- Imhoff Jr, E. A., Lipe, R. C., & Wright, D. W. 1991. Operating leases: Impact of constructive capitalization. *Accounting Horizons*, 51, 51.
- Imhoff Jr, E. A., Lipe Jr, R., & Wright Jr, D. W. 1993. The effects of recognition versus disclosure on shareholder risk and executive compensation. *Journal of Accounting, Auditing & Finance*, 84, 335-368.
- Imhoff Jr, E. A., Lipe, R. C., & Wright, D. W. 1997. Operating leases: Income effects of constructive capitalization. *Accounting Horizons*, 11(2), 12.
- Investment Company Institute (ICI). 2022. Investment Company Fact Book, Available at <https://www.icifactbook.org/>.
- Ippolito, R.A., 1992. Consumer reaction to measures of poor quality: evidence from the mutual fund industry. *Journal of Law and Economics* 35, 45–70.

- Jiang, H., Li, D., & Wang, A. 2021. Dynamic liquidity management by corporate bond mutual funds. *Journal of Financial and Quantitative Analysis*, 565, 1622-1652.
- Jiang, H., Li, Y., Sun, Z., & Wang, A. 2022. Does mutual fund illiquidity introduce fragility into asset prices? Evidence from the corporate bond market. *Journal of Financial Economics*, 1431, 277-302.
- Jones, F. J. 2012. Overview of Fixed Income Portfolio Management. *Advanced Bond Portfolio Management: Best Practices in Modeling and Strategies*, 1-19.
- Kempf, E., Manconi, A., & Spalt, O. 2017. Distracted shareholders and corporate actions. *The Review of Financial Studies*, 305, 1660-1695.
- Ketz, J. E. 2003. *Hidden financial risk: Understanding off-balance sheet accounting*. John Wiley & Sons.
- Kraft, P. 2015. Rating agency adjustments to GAAP financial statements and their effect on ratings and credit spreads. *The Accounting Review*, 902, 641-674.
- Li, Y., Sun, S., Wu, Q., & Zeng, C. C. 2023. Does New Lease Accounting Standard ASC 842 Affect Bank Loan Pricing?. Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4524996](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4524996).
- Li, X., Wang, Y., & Wei, J. Z. 2022. Do Corporate Bond Mutual Funds Possess Skills? Evidence from Trading Around Earnings Announcements. Evidence from Trading Around Earnings Announcements. Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4067847](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4067847).
- Lin, H., Wang, J., & Wu, C. 2011. Liquidity risk and expected corporate bond returns. *Journal of Financial Economics*, 993, 628-650.



- Lynch, A.W., Musto, D.K., 2003. How investors interpret past fund returns. *The Journal of Finance* 58, 2033–2058.
- Ma, M. S., & Thomas, W. B. 2023. Economic consequences of operating lease recognition. *Journal of Accounting and Economics*, 752-3, 101566.
- Maines, L. A., & Wahlen, J. M. 2006. The nature of accounting information reliability: Inferences from archival and experimental research. *Accounting Horizons*, 20(4), 399-425.
- Maurer, M. 2019. New Lease Accounting Standard May Mislead Investors, Credit Suisse Says. *Wall Street Journal*. Available at <https://www.wsj.com/articles/new-lease-accounting-standard-may-mislead-investors-credit-suisse-says-11562800479>
- Müller, M. A., Riedl, E. J., & Sellhorn, T. 2015. Recognition versus disclosure of fair values. *The Accounting Review*, 906, 2411-2447.
- Nekrasov, A., Teoh, S. H., & Wu, S. 2022. Limited attention. *Handbook of Financial Decision Making*, Forthcoming.
- O'Hara, M., & Zhou, X. A. 2021. Anatomy of a liquidity crisis: Corporate bonds in the COVID-19 crisis. *Journal of Financial Economics*, 1421, 46-68.
- Schipper, K. 2007. Required disclosures in financial reports. *The Accounting Review*, 822, 301-326.
- Schrimpf, A., Shim, I., & Shin, H. S. 2021. Liquidity management and asset sales by bond funds in the face of investor redemptions in March 2020. Working paper. Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3799868](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3799868).
- Securities and Exchange Commission (SEC). 2005. Report and recommendations pursuant to section 401c of the Sarbanes-Oxley act of 2002 on arrangements with off-balance sheet

- implications, special purpose entities, and transparency of filings by issuers. Washington, DC: SEC.
- Sharpe, S. & Zhou, A. 2020. The Corporate Bond Market Crises and the Government Response. Available at <https://www.federalreserve.gov/econres/notes/feds-notes/the-corporate-bond-market-crises-and-the-government-response-20201007.html>
- Sharpe, S. A., & Nguyen, H. H. 1995. Capital market imperfections and the incentive to lease. *Journal of Financial Economics*, 39:2-3, 271-294.
- Sirri, E.R., Tufano, P., 1998. Costly search and mutual fund flows. *The Journal of Finance* 53, 1589–1622.
- Soronow, D. 2012. Capturing the Credit Alpha. *Advanced Bond Portfolio Management: Best Practices in Modeling and Strategies*, 407-417.
- Standard & Poor's (S&P). 2006. Corporate rating criteria. Standard & Poor's Rating Services. Available at: [http://www2.standardandpoors.com/spf/pdf/fixedincome/corporateratings\\_2006.pdf](http://www2.standardandpoors.com/spf/pdf/fixedincome/corporateratings_2006.pdf)
- Yoon, Y.S., 2020. Recognition Versus Disclosure: Operating Lease Capitalization and Managerial Leasing Decisions. Working paper. Available at SSRN: <https://ssrn.com/abstract=3689446>.

## Appendix A. Variable Definition

Variable	Definition
<i> Holding_Pct </i>	<p>Percentage fund holdings (in par amount) of the bond at the month end scaled by beginning total net assets (TNA) of the fund. The calculation of it is as follows:</p> $\frac{Holdings_{i,j,t}}{Fund\ TNA_{j,t-1}} \times 100$ <p>where i denotes bond, j denotes fund, and t denotes the month of reported holding. Data source: Morningstar.</p>
<i> Post </i>	<p>An indicator set to be one for post-implementation month, where the implementation month (Month 0) is the first holding report month following the release month of the annual filing prepared under ASC 842, as indicated by "ACCTCHG"="ASU16-02", and zero otherwise. Data source: Compustat/CRSP Merged Annual.</p>
<i> Large_ROUA </i>	<p>An indicator set to be one if an issuing firm has above-median first recognized unscaled right-of-use-asset ("ROUANT") after the implementation of ASC 842, and zero otherwise. The median is the sample median of the first recognized right-of-use assets among unique firms that have right-of-use assets after the implementation of ASC 842. Data source: Compustat Snapshot.</p>
<i> Size </i>	<p>The natural logarithm of market value of the firm at the end of the most recent fiscal year. Data source: Compustat/CRSP Merged Annual.</p>
<i> Ebit_Cov </i>	<p>EBIT scaled by interest expense of the firm at the end of the most recent fiscal year. Compustat tags: (OIADP + NOPI+ XINT)/XINT. Data source: Compustat/CRSP Merged Annual.</p>
<i> Freecash </i>	<p>Free cash flow scaled by total debt at the end of the most recent fiscal year. Compustat tags: (OANCF-CAPX) / (DLC + DLTT). Data source: Compustat/CRSP Merged Annual.</p>
<i> Debt_EBITDA </i>	<p>Total debt scaled by EBITDA at the end of the most recent fiscal year. Compustat tags: (DLC + DLTT) / OIBDP. Data source: Compustat/CRSP Merged Annual.</p>
<i> Leverage </i>	<p>Total debt scaled by the sum of total debt and equity at the end of the most recent fiscal year. Compustat tags: (DLC + DLTT) / (DLC + DLTT + SEQ + MIBT). Data source: Compustat/CRSP Merged Annual.</p>
<i> Idiosyncratic_Risk </i>	<p>Idiosyncratic volatility calculated using Fama-French-Carhart four factor model with a 30-day estimation window at the beginning of the month. Data source: CRSP.</p>
<i> Bond_Rating </i>	<p>The bond-specific consensus credit ratings converted in rank orders (C=1, CC/Ca=2, ... , AA+/Aa1=20, AAA/Aaa=21). The consensus credit ratings is the average of most recent bond ratings provided by three bond rating agencies (S&amp;P, Moody's, and Fitch) at the beginning of holding report month. It is set to be zero for firms without bond ratings. Data source: Mergent FISD.</p>

<i>No_Bond_Rating</i>	An indicator equal to one if the bond has no rating from either of the three bond rating agencies (S&P, Moody's, and Fitch), and zero otherwise. Data source: Mergent FISD.
<i>Bond_Age</i>	The natural logarithm of number of months from the issuance of the bond plus one. Data source: Mergent FISD.
<i>Maturity</i>	The natural logarithm of months to maturity of the bond. Data source: Mergent FISD.
<i>Retail_Shr</i>	Fraction of fund assets held by retail investors. It is set to zero if there are no fund assets held by retail investors. Data source: CRSP.
<i>Fund_Size</i>	The natural logarithm of fund total net assets (in millions of dollars) at the beginning of the month. When there are multiple share classes within the fund, the TNA is aggregated across all share classes. Data source: CRSP.
<i>Fund_Age</i>	The natural logarithm of years from inception of the fund at the beginning of the month. When there are multiple share classes within a fund, the inception of the fund is the date of inception of the oldest share class. Data source: CRSP.
<i>Fund_Turnover</i>	Fund turnover ratio defined as the minimum of aggregated sales or aggregated purchases of securities, divided by the average 12-month TNA of the fund. When there are multiple share classes within the fund, <i>Fund_Turnover</i> is the weighted average across all share classes, with weights to be the month-begin TNA of the share class relative to the total month-begin TNA of the fund. Data source: CRSP.
<i>Small_Fund</i>	An indicator set to be one if the fund has below-median fund size among all fund-issuer observations as the end of the most recent month in the pre-period of each bond issuer, and zero otherwise. Data source: CRSP.
<i>Small_Weight</i>	An indicator set to be one if the bond has percentage holdings less than the bottom quartile of all fund-bond observations as the end of the most recent month in the pre-period of unique bond issuers, and zero otherwise. Data source: Morningstar.
<i>Large_Overstate_Rate</i>	An indicator set to be one if the issuing firm with as-if misstated discount rate above top quartile of all issuing firms in the post-period. The as-if misstated discount rate is calculated as the signed difference between estimated discount rate using S&P method and the disclosed weighted discount rate (“WAVLR”) under ASC 842. The discount rate under S&P method is calculated as interest expense divided by the average debt outstanding. Data source: Compustat Snapshot.
<i>Flow_Pct</i>	Percentage fund flows at the end of holding reporting month calculated at the fund level. It is calculated as follows: $\frac{Fund\ TNA_{j,t} - Fund\ TNA_{j,t-1} \times (1 + R)}{Fund\ TNA_{j,t-1}} \times 100$ <p>where <i>j</i> denotes fund, and <i>t</i> denotes the month of reported holding. <i>Fund TNA</i> is total net assets aggregated across all fund classes within a fund and <i>R</i> is the average fund return of all fund classes within a fund.</p>

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## Appendix B. Investment Strategy Examples of Corporate Bond Funds

The following quotes from prospectus provide examples that corporate bond funds rely on their own fundamental credit analysis to form security strategies (emphasis in **bold**).

JPMorgan Corporate Bond Fund Prospectus (2022): “The adviser buys and sells investments for the Fund using a three part process that includes determining: (1) macro credit strategy, (2) sector strategy, and (3) security strategy... The third component of the process focuses on an evaluation of individual companies based on **fundamental credit metrics**, as well as a review of each company’s competitive environment, event risk and technical factors such as supply, **liquidity of debt** issued by the company and equity performance. The adviser’s assessment is based on an analysis of key opportunities and risks across industries to **identify financially material issues on the Fund’s investments in issuers** and ascertain key issues that merit engagement with issuers.”

PGIM Corporate Bond Fund Prospectus (2022): “In managing the Fund’s assets, the subadviser uses a combination of top-down economic analysis and bottom-up research in conjunction with proprietary quantitative models and risk management systems... In its bottom-up research, the subadviser develops an **internal rating and outlook on issuers**. The rating and outlook are determined based on a thorough review of the **financial health and trends of the issuer**, which include a review of the composition of **revenue, profitability, cash flow margin, and leverage**.”

TIAA-CREF Core Bond Fund Prospectus (2022): “The Fund **does not rely exclusively on rating agencies when making investment decisions**. Instead, the Fund’s investment adviser, Teachers Advisors, LLC (“Advisors”), **performs its own credit analysis**, paying particular attention to economic trends and other market events.”

## **Appendix C. Selection of Corporate Bond Funds in CRSP Mutual Fund**

I follow Goldstein, Jiang, and Ng (2017) and use Lipper Objective Code in CRSP Mutual Fund ('lipper\_obj') to selection the sample of corporate bond funds. Lipper Objective Codes can capture the style of a corporate bond fund. Specifically, to be identified as corporate bond fund, a mutual fund should have Lipper Objective Code in the set ('A', 'BBB', 'HY', 'SII', 'SID', 'IID'). The meaning of each Lipper Objective Code within this set is provided below.

'A': A-rated corporate debt funds that invest primarily in corporate debt issues rated A or better or government issues.

'BBB': BBB-rated corporate debt funds that invest primarily in corporate and government debt issues rated in the top four grades (BBB or better).

'HY': high current yield funds that aim to attain high (relative) current yield from fixed income securities, have no quality or maturity restrictions, and tend to invest in lower grade debt issues.

'SII': Short-intermediate investment grade debt funds that invest primarily in investment-grade debt issues (BBB or better) and target dollar-weighted average maturities of 1 to 5 years.

'SID': Short investment grade debt funds that invest primarily in investment-grade debt issues (BBB or better) and target dollar-weighted average maturities of less than 3 years.

'IID': Intermediate investment grade debt funds that invest primarily in investment-grade debt issues (BBB or better) and target dollar-weighted average maturities of 5 to 10 years.

## Appendix D. Snapshot of PIMCO's Form NPort-P

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549  
FORM NPORT-P  
Monthly Portfolio Investments Report

### NPORT-P: Filer Information

Filer CIK	<input type="text" value="0001219360"/>
Filer CCC	<input type="text" value="*****"/>
Filer Investment Company Type	<input type="text"/>

...

### NPORT-P: Part A: General Information

#### Item A.1. Information about the Registrant.

a. Name of Registrant	<input type="text" value="PIMCO High Income Fund"/>
b. Investment Company Act file number for Registrant: (e.g., 811-_____)	<input type="text" value="811-21311"/>
c. CIK number of Registrant	<input type="text" value="0001219360"/>
d. LEI of Registrant	<input type="text" value="TYNS8LL5KA936NJZN198"/>

...

### NPORT-P: Part B: Information About the Fund

Report the following information for the Fund and its consolidated subsidiaries.

#### Item B.1. Assets and liabilities. Report amounts in U.S. dollars.

a. Total assets, including assets attributable to miscellaneous securities reported in Part D.	<input type="text" value="1235729379.040000"/>
b. Total liabilities.	<input type="text" value="589038894.300000"/>
c. Net assets.	<input type="text" value="646690484.740000"/>

#### Item B.2. Certain assets and liabilities. Report amounts in U.S. dollars.

a. Assets attributable to miscellaneous securities reported in Part D.	<input type="text" value="0.000000"/>
b. Assets invested in a Controlled Foreign Corporation for the purpose of investing in certain types of instruments such as, but not limited to, commodities.	<input type="text" value="0.000000"/>

c. Borrowings attributable to amounts payable for notes payable, bonds, and similar debt, as reported pursuant to rule 6-04(13)(a) of Regulation S-X [17 CFR 210.6-04(13)(a)].

Amounts payable within one year.

Banks or other financial institutions for borrowings.	<input type="text" value="179422344.830000"/>
Controlled companies.	<input type="text" value="0.000000"/>
Other affiliates.	<input type="text" value="0.000000"/>
Others.	<input type="text" value="0.000000"/>

...

## NPORT-P: Part C: Schedule of Portfolio Investments

For each investment held by the Fund and its consolidated subsidiaries, disclose the information requested in Part C. A Fund may report information for securities in an aggregate amount not exceeding five percent of its total assets as miscellaneous securities in Part D in lieu of reporting those securities in Part C, provided that the securities so listed are not restricted, have been held for not more than one year prior to the end of the reporting period covered by this report, and have not been previously reported by name to the shareholders of the Fund or to any exchange, or set forth in any registration statement, application, or report to shareholders or otherwise made available to the public.

### Item C.1. Identification of investment.

a. Name of issuer (if any).	BOEING CO/THE
b. LEI (if any) of issuer. In the case of a holding in a fund that is a series of a series trust, report the LEI of the series.	RVHJWBXLJ1RFUBSY1F30
c. Title of the issue or description of the investment.	BOEING CO SR UNSECURED 02/33 6.125
d. CUSIP (if any).	097023AU9
At least one of the following other identifiers:	
Identifier.	ISIN
ISIN	US097023AU94

### Item C.2. Amount of each investment.

Balance. Indicate whether amount is expressed in number of shares, principal amount, or other units. For derivatives contracts, as applicable, provide the number of contracts.

Balance	1909000.000000
Units	Principal amount
Description of other units.	
Currency. Indicate the currency in which the investment is denominated.	United States Dollar
Value. Report values in U.S. dollars. If currency of investment is not denominated in U.S. dollars, provide the exchange rate used to calculate value.	1946316.020000
Exchange rate.	
Percentage value compared to net assets of the Fund.	0.3009656

Item C.3. Indicate payoff profile among the following categories (long, short, N/A). For derivatives, respond N/A to this item and respond to the relevant payoff profile question in Item C.11.

Payoff profile.  Long is checked Long  Short is not checked Short  N/A is not checked N/A

...

Link to the filing:

[https://www.sec.gov/Archives/edgar/data/1219360/000121936023000009/xslFormNPORT-P\\_X01/primary\\_doc.xml](https://www.sec.gov/Archives/edgar/data/1219360/000121936023000009/xslFormNPORT-P_X01/primary_doc.xml)



## Appendix E. Adjusting Financial Ratios for As-Capitalized Operating Leases

In Column (1) of Table 8, I adjust financial ratios, including *Ebit\_Cov*, *Freecash*, *Debt\_EBITDA*, and *Leverage* in the pre-implementation period for the *as-capitalized* operating leases to keep accurate and comparable controls over time. I follow the S&P's method (S&P, 2006) described in Altamuro et al. (2014) to adjust for these four financial ratios.

First, I calculate the *as-capitalized* operating leases as the present value of future minimum lease payments reported in the Compustat annual database (*MRC1*, *MRC2*, *MRC3*, *MRC4*, *MRC5*, and *MRCTA*). This *as-capitalized* operating lease can be treated as an asset or a liability, which can be added to the total assets and total liabilities. In addition, the resulting asset can give rise to the implicit depreciation expense and the resulting liability can give rise to the implicit interest expense. The increase in the net present value of lease payments from year to year is shown as an increase in capital spending, and thus can be added to capital expenditure. Specifically, I define the implicit interest expense, implicit depreciation expense, and implicit capital expenditures associated with *as-capitalized* operating leases as follows:

*As-capitalized operating leases (PV\_SP)* = Present value of future minimum lease payments following S&P's adjusting procedure, where the discount rate equals *DISCOUNT\_RATE\_SP* defined below.

*Discount rate (DISCOUNT\_RATE\_SP)* = Interest expense divided by the average debt outstanding. If the discount rate indicates financial distress, I use the average of the previous three years' borrowing rates.

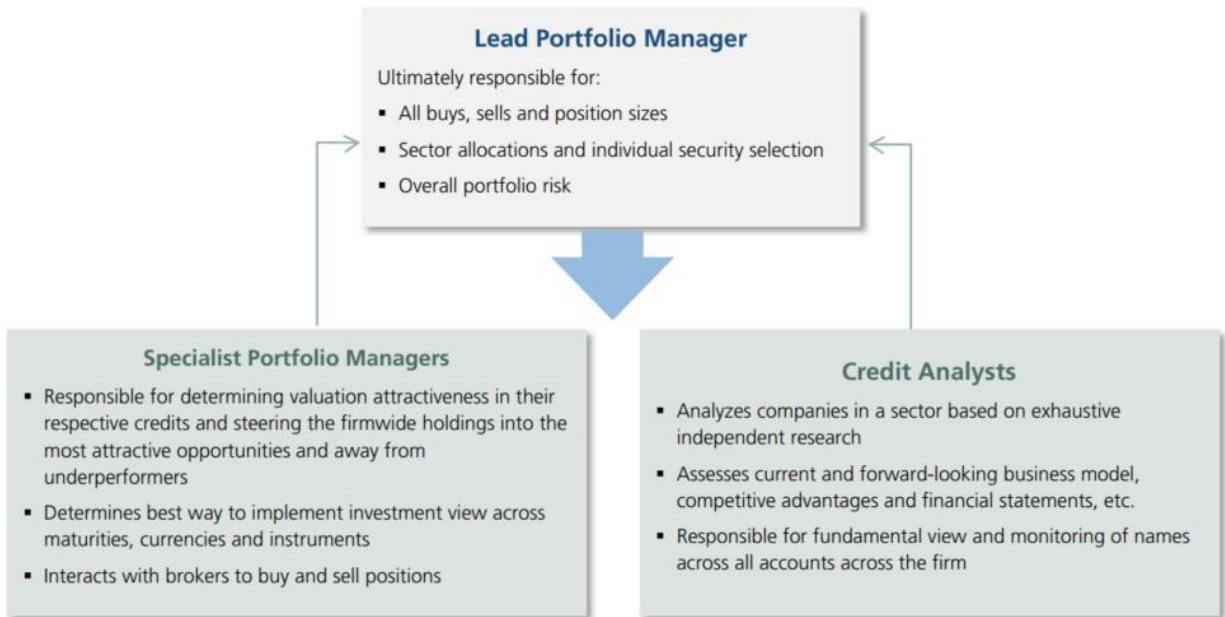
$$\text{Implicit interest expense (II\_SP)} = \text{DISCOUNT\_RATE\_SP} \times (\text{PV\_SP}_t + \text{PV\_SP}_{t-1}) / 2.$$

$$\text{Implicit depreciation expense (IDEPR\_SP)} = \text{Current rent expense (XRENT)} - \text{II\_SP}.$$

$$\text{Implicit capital expenditures (ICAPX\_SP)} = \text{PV\_SP}_t - \text{PV\_SP}_{t-1}.$$

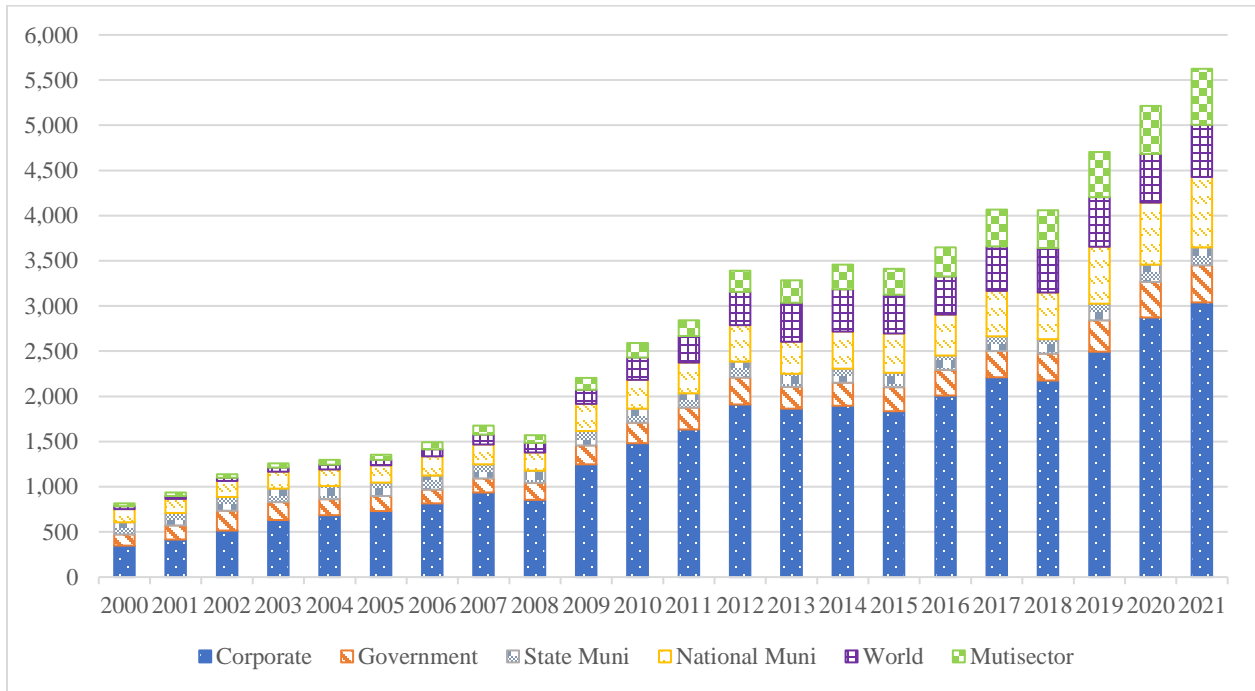
Next, I adjust the four financial ratios for the potential influence of *as-capitalized* operating leases on total assets, total liabilities, capital expenditures, interest expenses, and depreciation expenses. *Ebit\_Cov* is adjusted for implicit interests, where implicit interests (*II\_SP*) are added to both the numerator and the denominator as they both contain interest expenses. *Freecash* has capital expenditures in the numerator and has the total debt as the denominator. I adjust it by reducing the numerator for the implicit capital expenditures (*ICAPX\_SP*) and adding *as-capitalized* operating leases (*PV\_SP*) to the denominator. *Debt\_EBITDA* has total debt in the numerator and has the interest expense in the denominator. I adjust it by adding *as-capitalized* operating leases (*PV\_SP*) to the numerator and adding the implicit interest expenses (*II\_SP*) to the denominator. *Leverage* contains total debt in both the denominator and the numerator, and thus I add *as-capitalized* operating leases (*PV\_SP*) to both the denominator and the numerator.

**FIGURE 1**  
**Company Research Conducted by Multiple PIMCO Investment Professionals in Every Client Portfolio**



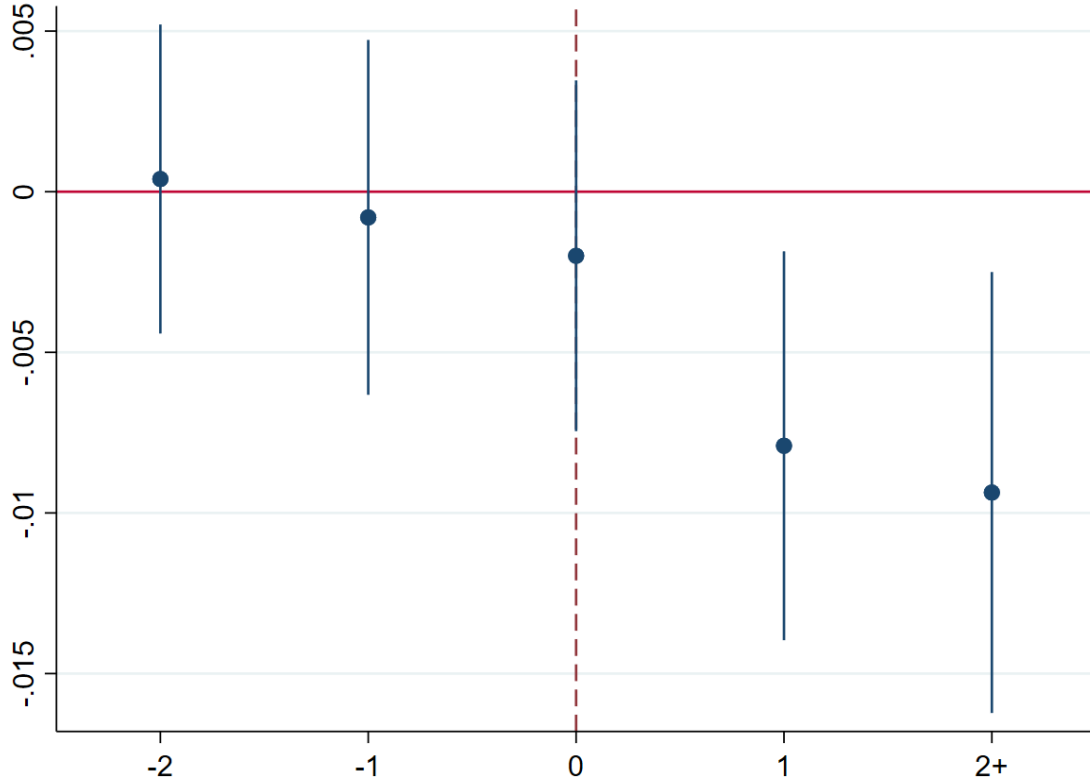
This figure illustrates the credit analysis process of PIMCO. This figure is sourced from Figure 1 in the PIMCO Feature Solution “The Credit Analysis Process: From In-Depth Company Research to Selecting the Right Instrument” by Andreas Berndt and Charles Watford. Link of the document: <https://www.pimco.com/handlers/displaydocument.ashx?wd=Insight&id=UitnnJk7nwEGqjdZ6g7TMpolOSLfs%2bPoAVInNII%2bPXUanVLne4apJxpi8dj28JbKIXXVnUaq4Vmo3Fh4VtNmJeSSS5MXof%2b%2fPFeU9JTxVsOKH8lmWgiUw9v3qOV5MNAfh3Sqa%2fnGRQLIK3QAK0%2b17moI5yPfr2zII2xPJirtl62Dbjoc4j04BAM8XlXopUqyhnrpE7VArR4XHq7Yg54Tap9S6S64Fior8B7vWibDWjJneB9pXNhb9XHOjzss0M5rn%2f0fj81yfo6G9BwGdrh8O24MA2sBOjGinjdALvQ8XR19jBEvKapiE2sHiXjZKpsL%2b3sIMP1anKKltsSimAw%3d%3d>

**FIGURE 2**  
**Trend of Bond Fund Assets across Investment Objectives**



This figure plots the total net assets (in billions of USD) of bond mutual fund groups by their investment objectives over 2000 to 2021. The source of data is the ICI (2022).

**FIGURE 3**  
**Operating Lease Recognition and Bond Fund Holdings: Dynamic Impacts**



The figure depicts the estimated coefficients of the interaction terms in the following model which I use to investigate the differential bond fund percentage holdings of bonds issued by firms with significant exposure to operating lease recognition and bonds issued by firms with limited exposure to operating lease recognition surrounding the adoption of new lease accounting standard.

$$\begin{aligned}
 Holding\_Pct_{j,i,t} = & \beta_0 + \sum_{\tau=-2}^{\tau=2+} \beta_{1,\tau} \times Post_{i,t} \times Large\_ROUA_i + \sum \varphi_k Controls_{i(j),t} \\
 & + \gamma_i + \mu_j + \eta_y + \delta_t + \epsilon_{i,t}
 \end{aligned}$$

Specifically, I plot the coefficient estimates and 90% confidence intervals of the interactions term between every dummy indicator for each event month from Month -2 onward and the dummy indicator for operating lease recognition. Month 2+ indicates Month 2 and Month 3. Standard errors are clustered at the issuer level.

**Table 1. Sample Selection and Composition***Panel A. Sample Selection*

<b>Sample Selection</b>	<b>Observations</b>
Fund-bond-month end of active corporate bond holdings in overlap with firms in Compustat/CRSP Merged Quarterly database with 7 months surrounding the implementation of ASC 842	223,406
<b>Fund characteristics:</b>	
Exclude funds with corporate bond holding accounts for less than 10% of total market value of portfolios	(316)
Exclude funds that are not reporting monthly	(40,717)
<b>Bond characteristics:</b>	
Exclude non-standard bonds	(5,086)
Exclude bonds that have retired during the sample period	(3,776)
<b>Issuer characteristics:</b>	
Exclude financial issuing firms	(42,863)
Exclude issuing firms that have no pre-periods or post-periods	(4,269)
Exclude issuing firms without recognized operating lease assets ("ROUANT")	(12,831)
<b>Control variables:</b>	
Exclude missing values of controls	(4,998)
<b>Final sample</b>	<b>108,550</b>

*Panel B. Distribution of Implementation Calendar Month of Unique Bond Issuers*

Implementation Month	Frequency	Percentage	Cumulative Percentage
January, 2020	94	22.98	22.98
February, 2020	235	57.46	80.44
March, 2020	21	5.130	85.57
April, 2020	5	1.220	86.80
May, 2020	11	2.690	89.49
June, 2020	8	1.960	91.44
July, 2020	7	1.710	93.15
August, 2020	16	3.910	97.07
September, 2020	6	1.470	98.53
October, 2020	6	1.470	100
Total	409	100	

Panel A reports the sample construction procedure for my main analysis. The final sample consists of 108,550 fund-bond-month observations. The sample consists of seven months centered around the implementation of ASC 842. Panel B shows the distribution of implementation month of unique bond issuers in the sample. The implementation month ("Month 0") is the first holding reporting year-month following the release date of the first 10-K report prepared under ASC 842. For each month, I report the number, percentage, and cumulative percentage of firms that announced the new lease standard in the month. These bond issuers are bond issuers showing up in the sample of my main analysis.

**Table 2. Descriptive Statistics**

<i>Variables</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>Min</i>	<i>P25</i>	<i>Median</i>	<i>P75</i>	<i>Max</i>
<i> Holding_Pct</i>	108,550	0.170	0.278	0.000	0.018	0.067	0.199	1.755
<i> Post</i>	108,550	0.645	0.479	0.000	0.000	1.000	1.000	1.000
<i> Large_ROUA</i>	108,550	0.761	0.426	0.000	1.000	1.000	1.000	1.000
<i> Size</i>	108,550	10.330	1.734	6.136	9.176	10.520	11.780	13.810
<i> Ebit_Cov</i>	108,550	8.098	6.557	-3.490	4.349	6.450	9.575	38.920
<i> Freecash</i>	108,550	0.154	0.188	-0.276	0.066	0.130	0.201	0.982
<i> Debt_EBITDA</i>	108,550	3.623	1.761	0.492	2.506	3.215	4.462	10.140
<i> Leverage</i>	108,550	0.622	0.251	0.177	0.471	0.571	0.722	1.467
<i> Idiosyncratic_Risk</i>	108,550	0.020	0.018	0.005	0.010	0.014	0.023	0.104
<i> Bond_Rating</i>	108,550	12.490	3.267	3.000	10.670	13.000	14.500	20.000
<i> No_Bond_Rating</i>	108,550	0.004	0.065	0.000	0.000	0.000	0.000	1.000
<i> Bond_Age</i>	108,550	3.133	1.170	0.000	2.485	3.401	3.989	5.303
<i> Maturity</i>	108,550	4.440	0.924	1.946	3.932	4.382	5.193	6.114
<i> Retail_Shr</i>	108,550	0.211	0.309	0.000	0.000	0.079	0.265	1.000
<i> Fund_Size</i>	108,550	7.186	1.862	2.128	5.899	7.345	8.427	10.950
<i> Fund_Age</i>	108,550	2.743	0.807	0.000	2.303	2.944	3.296	4.190
<i> Fund_Turnover</i>	108,550	1.570	1.523	0.180	0.590	1.050	1.860	6.920
<i> Small_Fund</i>	108,536	0.301	0.459	0.000	0.000	0.000	1.000	1.000
<i> Small_Weight</i>	80,989	0.182	0.386	0.000	0.000	0.000	0.000	1.000
<i> Large_Overstate_Rate</i>	98,590	0.193	0.394	0.000	0.000	0.000	0.000	1.000

This table reports summary statistics of my main sample, including the number of observations, mean, standard deviation, min, bottom quartile, median, top quartile, and max. The sample of my main analysis consists of 108,550 fund-bond-month observations. All variables are defined in Appendix A.

**Table 3. Operating Lease Recognition and Bond Fund Holdings: Baseline Results**

	<i> Holding_Pct </i>	
	(1)	(2)
<i> Post × Large_ROUA </i>	-0.007*** (-2.77)	-0.007** (-2.51)
<i> Size </i>		0.003 (0.78)
<i> Ebit_Cov </i>		0.000 (0.41)
<i> Freecash </i>		0.001 (0.16)
<i> Debt_EBITDA </i>		-0.001 (-0.55)
<i> Leverage </i>		-0.031* (-1.76)
<i> Idiosyncratic_Risk </i>		0.009 (0.15)
<i> Bond_Rating </i>		0.003* (1.68)
<i> No_Bond_Rating </i>		0.029 (1.39)
<i> Bond_Age </i>		-0.007* (-1.67)
<i> Maturity </i>		0.060*** (3.50)
<i> Retail_Shr </i>		0.038 (1.24)
<i> Fund_Size </i>		-0.059*** (-9.42)
<i> Fund_Age </i>		-0.021* (-1.93)
<i> Fund_Turnover </i>		-0.001 (-0.65)
Constant	0.174*** (131.22)	0.356*** (3.29)
Fund FE	Yes	Yes
Bond FE	Yes	Yes
Holding Report Year-Month FE	Yes	Yes
Fiscal Year FE	Yes	Yes



Observations	108,550	108,550
Adjusted R-squared	0.696	0.697

This table examines the impact of implementing ASC 842 on the holdings of active corporate bond funds. The dependent variable  *Holding\_Pct*  is the percentage fund holdings of bond  *i*  at the end of holding report year-month  *t*  scaled by the beginning total net assets (TNA) of fund  *j* . The main variable of interest is the interaction term  $Post \times Large\_ROUA$ .  *Post*  is an indicator variable set equal to one for holding reporting year-month  *t*  after the issuer of bond  *i*  releases 10-K filing prepared under ASC 842, as indicated by "ACCTCHG"="ASU16-02" in the Compustat/CRSP Merged Annual database.  *Large\_ROUA*  is an indicator set to be one if the issuer of bond  *i*  has significant exposure to operating lease recognition under ASC 842, that is, if the bond issuer has above-median first recognized unscaled right-of-use asset ("ROUANT") corresponding to operating lease recognition after the implementation of ASC842. Column (1) includes variable of interest, fund fixed effects, bond fixed effects, holding year-month fixed effects, and fiscal year fixed effects. Column (2) further includes all control variables. I cluster standard errors by issuing firm of the bond. All variables are defined in Appendix A. \*,\*\*, and \*\*\* indicate significance levels at less than 10%, 5%, and 1% based on two-tailed t-tests.

**Table 4. Cross-sectional Heterogeneity: Fund Sophistication**

	<i> Holding_Pct </i>	
	(1)	(2)
<i>Post</i> × <i>Large_ROUA</i>	-0.002 (-0.68)	-0.001 (-0.28)
<i>Post</i> × <i>Small_Fund</i>	0.011* (1.69)	0.011* (1.78)
<i>Large_ROUA</i> × <i>Small_Fund</i>	0.030*** (2.74)	0.031*** (2.80)
<i>Post</i> × <i>Large_ROUA</i> × <i>Small_Fund</i>	-0.018** (-2.51)	-0.019*** (-2.60)
<i>Size</i>		0.003 (0.76)
<i>Ebit_Cov</i>		0.000 (0.52)
<i>Freecash</i>		0.001 (0.16)
<i>Debt_EBITDA</i>		-0.001 (-0.49)
<i>Leverage</i>		-0.030* (-1.76)
<i>Idiosyncratic_Risk</i>		0.009 (0.15)
<i>Bond_Rating</i>		0.003* (1.75)
<i>No_Bond_Rating</i>		0.030 (1.44)
<i>Bond_Age</i>		-0.007* (-1.66)
<i>Maturity</i>		0.060*** (3.46)
<i>Retail_Shr</i>		0.037 (1.23)
<i>Fund_Size</i>		-0.059*** (-9.49)
<i>Fund_Age</i>		-0.020* (-1.83)
<i>Fund_Turnover</i>		-0.001 (-0.81)

Constant	0.165*** (52.64)	0.349*** (3.23)
Fund FE	Yes	Yes
Bond FE	Yes	Yes
Holding Report Year-Month FE	Yes	Yes
Fiscal Year FE	Yes	Yes
Observations	108,536	108,536
Adjusted R-squared	0.696	0.697

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This table examines the moderating effect of fund sophistication, captured by fund size. The dependent variable  *Holding\_Pct*  is the percentage fund holdings of bond  *i*  at the end of holding report year-month  *t*  scaled by the beginning total net assets (TNA) of fund  *j* .  *Small\_Fund*  is an indicator set to be one if the fund has below-median fund size among all fund-issuer observations as the end of the most recent month in the pre-period of each bond issuer, and zero otherwise. Column (1) includes variable of interest, fund fixed effects, bond fixed effects, holding year-month fixed effects, and fiscal year fixed effects. Column (2) further includes all control variables. I cluster standard errors by issuing firm of the bond. All variables are defined in Appendix A. \*, \*\*, and \*\*\* indicate significance levels at less than 10%, 5%, and 1% based on two-tailed t-tests.

**Table 5. Cross-sectional Heterogeneity: Bond Prominence within the Portfolio**

	<i> Holding_Pct </i>	
	(1)	(2)
<i>Post</i> × <i>Large_ROUA</i>	-0.007*** (-2.99)	-0.006*** (-2.66)
<i>Small_Weight</i>	-0.073*** (-9.61)	-0.073*** (-9.58)
<i>Post</i> × <i>Small_Weight</i>	0.039*** (7.53)	0.041*** (7.76)
<i>Large_ROUA</i> × <i>Small_Weight</i>	0.004 (0.51)	0.005 (0.53)
<i>Post</i> × <i>Large_ROUA</i> × <i>Small_Weight</i>	-0.010* (-1.78)	-0.012** (-2.02)
<i>Size</i>		0.004 (1.22)
<i>Ebit_Cov</i>		-0.000 (-0.04)
<i>Freecash</i>		0.001 (0.16)
<i>Debt_EBITDA</i>		0.000 (0.09)
<i>Leverage</i>		-0.023* (-1.68)
<i>Idiosyncratic_Risk</i>		0.054 (0.76)
<i>Bond_Rating</i>		0.003* (1.84)
<i>No_Bond_Rating</i>		0.036** (2.12)
<i>Bond_Age</i>		0.038*** (3.28)
<i>Maturity</i>		0.043** (2.52)
<i>Retail_Shr</i>		0.007 (0.21)
<i>Fund_Size</i>		-0.062*** (-9.72)
<i>Fund_Age</i>		-0.007 (-0.60)

<i>Fund_Turnover</i>		-0.001 (-1.09)
Constant	0.183*** (165.87)	0.254** (2.23)
Fund FE	Yes	Yes
Bond FE	Yes	Yes
Holding Report Year-Month FE	Yes	Yes
Fiscal Year FE	Yes	Yes
Observations	80,989	80,989
Adjusted R-squared	0.730	0.731

This table examines the moderating effect of bond prominence in the portfolio, captured by security weights. The dependent variable  *Holding\_Pct*  is the percentage fund holdings of bond  *i*  at the end of holding report year-month  *t*  scaled by the beginning total net assets (TNA) of fund  *j* .  *Small\_Weight*  is an indicator set to be one if the bond has percentage holdings less than the bottom quartile of all fund-bond observations as the end of the most recent month in the pre-period of each bond issuer, and zero otherwise. Column (1) includes variable of interest, fund fixed effects, bond fixed effects, holding year-month fixed effects, and fiscal year fixed effects. Column (2) further includes all control variables. I cluster standard errors by issuing firm of the bond. All variables are defined in Appendix A. \*, \*\*, and \*\*\* indicate significance levels at less than 10%, 5%, and 1% based on two-tailed t-tests.

**Table 6. Cross-sectional Heterogeneity: Overestimation of Discount Rate**

	<i> Holding_Pct </i>	
	(1)	(2)
<i>Post</i> × <i>Large_ROUA</i>	-0.003 (-1.22)	-0.003 (-1.11)
<i>Post</i> × <i>Large_Overstate_Rate</i>	0.010* (1.89)	0.009* (1.76)
<i>Post</i> × <i>Large_ROUA</i> × <i>Large_Overstate_Rate</i>	-0.012** (-2.08)	-0.010* (-1.66)
<i>Size</i>		0.005 (1.34)
<i>Ebit_Cov</i>		-0.000 (-0.17)
<i>Freecash</i>		0.004 (0.49)
<i>Debt_EBITDA</i>		-0.001 (-0.68)
<i>Leverage</i>		-0.018 (-1.10)
<i>Idiosyncratic_Risk</i>		0.022 (0.31)
<i>Bond_Rating</i>		0.003 (1.46)
<i>No_Bond_Rating</i>		0.061*** (2.80)
<i>Bond_Age</i>		-0.008** (-1.97)
<i>Maturity</i>		0.066*** (3.56)
<i>Retail_Shr</i>		0.055 (1.13)
<i>Fund_Size</i>		-0.053*** (-7.43)
<i>Fund_Age</i>		-0.025** (-2.29)
<i>Fund_Turnover</i>		-0.001 (-0.81)
Constant	0.171*** (117.21)	0.266** (2.30)

Fund FE	Yes	Yes
Bond FE	Yes	Yes
Holding Report Year-Month FE	Yes	Yes
Fiscal Year FE	Yes	Yes
Observations	98,590	98,590
Adjusted R-squared	0.698	0.698

This table examines the moderating effect of inaccuracy of as-if capitalization of operating leases, captured by overestimation of discount rates. The dependent variable  *Holding\_Pct*  is the percentage fund holdings of bond  *i*  at the end of holding report year-month  *t*  scaled by the beginning total net assets (TNA) of fund  *j* .  *Large\_Overstate\_Rate*  is an indicator set to be one if the issuing firm with as-if misstated discount rate above the top quartile of all issuing firms in the post-period. Column (1) includes variable of interest, fund fixed effects, bond fixed effects, holding year-month fixed effects, and fiscal year fixed effects. Column (2) further includes all control variables. I cluster standard errors by issuing firm of the bond. All variables are defined in Appendix A. \*, \*\*, and \*\*\* indicate significance levels at less than 10%, 5%, and 1% based on two-tailed t-tests.

**Table 7. Alternative Explanations**

	<i> Holding_Pct </i>	<i> Flow_Pct </i>
	(1)	(2)
<i>Post</i> × <i>Large_ROUA</i>	-0.006* (-1.88)	-0.075 (-0.64)
<i>Post</i> × <i>Size</i>	0.001 (0.89)	
<i>Post</i> × <i>Ebit_Cov</i>	-0.000 (-0.63)	
<i>Post</i> × <i>Freecash</i>	0.010 (0.86)	
<i>Post</i> × <i>Debt_EBITDA</i>	-0.000 (-0.14)	
<i>Post</i> × <i>Leverage</i>	-0.001 (-0.33)	
<i>Post</i> × <i>Idiosyncratic_Risk</i>	0.143 (0.88)	
<i>Post</i> × <i>Bond_Rating</i>	-0.001 (-0.77)	
<i>Post</i> × <i>No_Bond_Rating</i>	-0.002 (-0.16)	
<i>Size</i>	0.003 (0.78)	0.428*** (2.68)
<i>Ebit_Cov</i>	0.000 (0.55)	0.000 (0.00)
<i>Freecash</i>	-0.004 (-0.39)	0.316 (0.98)
<i>Debt_EBITDA</i>	-0.001 (-0.45)	-0.001 (-0.03)
<i>Leverage</i>	-0.031* (-1.74)	0.937* (1.91)
<i>Idiosyncratic_Risk</i>	-0.113 (-0.68)	20.132*** (4.07)
<i>Bond_Rating</i>	0.004** (2.00)	-0.187** (-2.06)
<i>No_Bond_Rating</i>	0.033 (1.40)	-0.479 (-0.45)
<i>Bond_Age</i>	-0.007* (-1.67)	0.251 (1.37)



<i>Maturity</i>	0.061*** (3.49)	1.643** (2.49)
<i>Retail_Shr</i>	0.038 (1.24)	4.567*** (2.97)
<i>Fund_Size</i>	-0.059*** (-9.41)	9.423*** (7.97)
<i>Fund_Age</i>	-0.021* (-1.93)	-2.800*** (-9.14)
<i>Fund_Turnover</i>	-0.001 (-0.68)	-0.200*** (-4.28)
Constant	0.336*** (3.19)	-71.492*** (-7.21)
Fund FE	Yes	Yes
Bond FE	Yes	Yes
Holding Report Year-Month FE	Yes	Yes
Fiscal Year FE	Yes	Yes
Observations	108,550	108,539
Adjusted R-squared	0.697	0.386

This table presents results of alternative explanations. Column (1) presents the results of whether the main results are purely driven by changes in fundamentals brought by the implementation of the new lease standard. Column (2) directly tests the underlying assumption that redemption from fund investors reduces for bonds issued by firms with significant exposure to operating lease recognition in response to the implementation of the new lease standard, which further drives sales of bonds by bond funds. Both columns include fund fixed effects, bond fixed effects, holding year-month fixed effects, and fiscal year fixed effects. I cluster standard errors by issuing firm of the bond. All variables are defined in Appendix A. \*, \*\*, and \*\*\* indicate significance levels at less than 10%, 5%, and 1% based on two-tailed t-tests.

**Table 8. Alternative Specifications**

	<i> Holding_Pct </i>		
	(1)	(2)	(3)
<i>Post × Large_ROUA</i>	-0.007*** (-2.76)	-0.010*** (-3.15)	-0.010*** (-3.11)
<i>Size</i>	0.003 (0.90)	0.000 (0.02)	0.003 (0.75)
<i>Ebit_Cov</i>	0.000 (0.71)	0.000 (0.50)	0.000 (0.95)
<i>Freecash</i>	-0.002 (-0.18)	-0.002 (-0.22)	-0.002 (-0.27)
<i>Debt_EBITDA</i>	0.000 (0.19)	-0.000 (-0.22)	0.000 (0.00)
<i>Leverage</i>	-0.027 (-1.30)	-0.042** (-2.33)	-0.037** (-2.00)
<i>Idiosyncratic_Risk</i>	0.006 (0.10)	-0.124* (-1.86)	0.003 (0.04)
<i>Bond_Rating</i>	0.003* (1.75)	0.004*** (2.71)	0.004** (2.15)
<i>No_Bond_Rating</i>	0.033 (1.60)	0.043** (2.15)	0.035* (1.72)
<i>Bond_Age</i>	-0.008** (-1.99)	-0.004 (-0.99)	-0.007 (-1.62)
<i>Maturity</i>	0.065*** (3.68)	0.051*** (2.75)	0.066*** (3.36)
<i>Retail_Shr</i>	0.039 (1.26)		0.037 (1.24)
<i>Fund_Size</i>	-0.061*** (-9.59)		-0.079*** (-10.07)
<i>Fund_Age</i>	-0.024** (-2.18)		-0.014 (-1.15)
<i>Fund_Turnover</i>	-0.001 (-0.79)		-0.000 (-0.04)
Constant	0.351*** (3.14)	-0.065 (-0.68)	0.443*** (3.64)
Fund FE	Yes	No	No
Bond FE	Yes	Yes	Yes
Holding Report Year-Month FE	Yes	No	Yes
Fiscal Year FE	Yes	Yes	No

Fund × Holding Report Year-Month FE	No	Yes	No
Fund × Fiscal Year FE	No	No	Yes
Observations	106,125	108,550	108,550
Adjusted R-squared	0.697	0.711	0.702

This table presents results of alternative specifications. Column (1) adjust all financial ratios for as- capitalized operating leases in the pre-period. Appendix E shows the adjusting procedure. Column (2) and (3) control for fund by time fixed effects. Specifically, Column (2) control for fund by holding report month fixed effects; Column (3) control for fund by fiscal year fixed effects. I cluster standard errors by issuing firm of the bond. All variables are defined in Appendix A. \*, \*\*, and \*\*\* indicate significance levels at less than 10%, 5%, and 1% based on two-tailed t-tests.