Review of Accounting Studies (2023) 28:1413–1465
https://doi.org/10.1007/s11142-023-09792-7

Is tax return information useful to equity investors?

Paul Demeré[1]

Accepted: 19 June 2023 / Published online: 12 August 2023
© The Author(s) 2023

Abstract
I examine whether tax return information is useful to equity investors. I do so indirectly, by exploiting unique features of the syndicated loan market, as evidence shows that lenders obtain tax returns from borrowers and that lenders' private information is transmitted to equity markets when institutional investors are part of a loan syndicate. I find significant increases in tax expense valuation and decreases in tax-related market anomalies following the issuance of institutional syndicated loans, suggesting that equity investors find information about firm performance in tax returns that is useful for their trading decisions. I also find evidence suggesting that institutional investors may determine their loan syndicate participation in part based on the value of tax return information. This study extends prior research and informs policy debates over public disclosure of corporate tax return information by providing evidence to support that tax returns can be useful to investor decision making.

Keywords Tax return information · Syndicated loans · Tax expense valuation · Tax anomaly returns

JEL classification G11 · G14 · M41 · M48

1 Introduction

For as long as a corporate income tax system has been in place, policymakers in the United States and abroad have been debating whether tax return information (TRI) should be made publicly available (Lenter et al. 2003; Morris 2015).[1] For example, former Internal Revenue Service Commissioner Mark Everson has called for public disclosure of corporate tax returns, saying "Federal tax returns include important

[1] I define "tax return information" (TRI) as any information contained in a firm's tax returns.

✉ Paul Demeré
pauldemere@uga.edu

[1] University of Georgia, A323 Moore-Rooker Hall, Athens, GA 30602, USA

information about corporations beyond that available in financial statements. Making corporate returns available for public inspection would provide a powerful tool to analysts... [and] help others better evaluate counterparties and risk" (Everson 2008). Accounting research has also called for the disclosure of some TRI, noting the difficulties investors face in determining companies' tax positions from their financial statements and in valuing tax information (e.g., McGill and Outslay 2004; Hanlon 2005; Morris 2015). However, limited empirical evidence exists regarding the benefits and costs of public tax return disclosure (Hasegawa et al. 2013; Bø et al. 2015; Hoopes et al. 2018). I contribute to this debate by providing empirical evidence on a significant issue raised in the debate: Do tax returns help equity investors with firm valuation?[2]

Tax returns may not help investors with valuation. Regulators and practitioners question the information content of tax returns. As former Securities and Exchange Commission Chairman Harvey Pitt asserts: "The tax disclosure in companies' financial statements is more beneficial in helping investors understand a company's tax situation than would be providing public access to tax returns" (Lenter et al. 2003, 806). Even if tax returns do contain unique information, the Tax Executives Institute (TEI) has questioned whether investors can correctly understand and price TRI (TEI 2006). Consistent with these arguments, prior research shows that investors do not accurately price the tax information currently provided in financial statements (Lev and Nissim 2004; Thomas and Zhang 2011) and that even sophisticated market participants can struggle to understand the tax information provided for users' benefit in the financial statements (Plumlee 2003; Weber 2009).

However, there are three reasons why TRI might be useful to equity investors. First, tax returns contain detailed information that is not included in the financial statements yet could be important to investors' decision-making. For example, the Financial Accounting Standards Board (FASB) is considering requiring disaggregation of income taxes by jurisdiction for the benefit of investors (FASAC 2022), but this information is already available in corporate tax returns (Nessa et al. 2022). Second, the income tax accounting measurement in tax returns offers an alternative measurement of firm performance. If measurement error in income tax accounting is partially uncorrelated with measurement error in GAAP, then TRI may provide additional information about firm performance, risk, or financial reporting quality (Blackburne and Blouin 2016; Dhaliwal et al. 2017; Cussatt and Demeré 2023). Third, TRI could help investors better understand and use the tax information already available from other sources, such as financial statements, by providing the same information in a more salient and easier-to-process manner.

[2] Given the indirect nature of my empirical tests, I cannot determine whether TRI provides incremental value-relevant information or simply helps investors better understand the information they already have in financial statements, but in either case TRI would help equity investors value a firm more efficiently.

Because public disclosure of TRI is rare, I rely on features of the US syndicated loan market to indirectly examine the usefulness of TRI to investors.[3] Lenders frequently request TRI when evaluating bank loan applications (Minnis and Sutherland 2017). Further, private information provided to syndicated loan lenders is often transmitted to equity markets, particularly when the syndicated loan is traded on secondary markets and the loan syndicate includes institutional investors such as hedge funds, mutual funds, and insurance companies (Bushman et al. 2010; Ivashina and Sun 2011; Massoud et al. 2011; Addoum and Murfin 2020). This transmission could occur if institutional investor-lenders trade in a firm's equity based on private information, either directly or indirectly by following secondary loan market trading, or if their affiliated equity analysts use this private information in their forecasting and investors rely on these forecasts. Drawing on this research, I expect that TRI is conveyed to lenders and then to equity markets if it is informative, but only when institutional investors are involved in the loan syndicate (Bushman and Wittenberg-Moerman 2012).[4] If equity investors find the TRI they receive to be useful, then they should incorporate it into their trading behavior, which will result in a significant change in the association between tax information in financial statements and stock returns.[5]

I begin my analyses by validating the assumption that lenders obtain tax returns from publicly traded borrowers. I hand-collect information requests from 1,800 loan agreements filed with the SEC and find that 45% of loan agreements either require regular provision of TRI or indicate that TRI has been provided to lenders for due diligence. Further, over 99% of these loan agreements include provisions allowing lenders to regularly inspect the borrower's records or obtain any additional information about the borrower that they request, which would likely enable lenders to obtain TRI. Altogether, this hand-collected evidence indicates that lenders often obtain or have access to TRI from publicly traded borrowers.

To examine whether TRI is useful to investors, I implement a difference-in-differences design that examines how the association between returns and tax metrics differs (a) before and after the issuance of a syndicated loan and (b) between borrowers whose loan is, versus is not, an institutional loan where private borrower information is more likely to be transmitted to equity markets through secondary loan markets. I restrict my sample to firm-years within a six-year window of borrowing and

[3] For brevity, hereafter all mentions of "loans" refer to syndicated loans unless otherwise noted. This indirect approach within the syndicated loan setting offers an advantage in that this setting does not contain any public TRI disclosure event that would be confounded by investor reactions to anticipated responses by consumers, regulators, lawmakers, and other corporate stakeholders (e.g., reputational consequences and tax reform proposals).

[4] Institutional investors may become involved in the loan syndicate either in the primary or secondary markets. Approximately 80% of institutional loans are traded on secondary loan markets (Witternberg-Moerman 2008).

[5] I focus on trading with respect to financial-statement tax information because I cannot directly observe TRI, which should be correlated with financial-statement tax information. If tax returns help investors better understand the information they already have, then I am measuring the information investors are reacting to. This indirect empirical approach means that my analyses are effectively joint tests of the value of TRI and whether institutional lenders transmit TRI to equity markets.

ensure that both treatment (institutional loan) and control (non-institutional loan) firms obtain syndicated loans. I also use entropy balancing to further alleviate concerns about covariate imbalance and endogeneity (Hainmueller 2012).

Using this design, I conduct two different but complementary analyses to test my research question. First, I measure the differential valuation of tax expense by regressing equity returns on earnings that have been partitioned into pre-tax earnings and tax expense, similar to an earnings response coefficient analysis. This model can also suggest the type of information conveyed by TRI: When tax response coefficients are positive (negative), information about firm performance (cash tax payments) is the biggest source of investor reactions to tax information (Shevlin 2002; Hanlon et al. 2005). I also conduct this analysis after partitioning my sample into firms with high versus low GAAP earnings quality, as TRI is likely more valuable for firms with low GAAP earnings quality (Ayers et al. 2009). Results from this analysis show that tax expense valuation increases following institutional loan issuances, which indirectly suggests that TRI affects equity investors' valuation of firms by providing new information about firm performance or helping investors understand the performance information inherent in GAAP tax disclosures. As expected, this increase is concentrated among firms with lower earnings quality.

Second, I examine changes in tax-related market anomalies. If TRI helps investors as it is transmitted from institutional investor-lenders to equity markets, then investors will likely trade more efficiently on the tax information in financial statements. I focus on *tax* market anomalies related to tax expense surprises (Thomas and Zhang 2011) and the ratio of imputed taxable income to book income (Lev and Nissim 2004), as it is unlikely that these anomalies would be materially affected by the provision of non-tax private information given to lending syndicates. I control for non-tax information that could be related to these anomalies (Hepfer 2023), other characteristics associated with tax-related market anomalies, and borrower riskiness (Massoud et al. 2011). Results show that tax-related return anomalies decrease following institutional loan issuances, indirectly suggesting that TRI can help equity investors more efficiently price a firm's equity. In cross-sectional analyses, I find some evidence that the decrease in tax-related return anomalies is greater for loan syndicates where information flows to lenders faster and when the borrower's financial-statement tax disclosures are noisier due to greater tax avoidance. Altogether, these analyses provide consistent, though indirect, evidence suggesting that TRI is used by equity investors to either glean new information or better understand financial-statement tax disclosures.

However, this indirect approach has limitations. Because institutional ownership is not randomly assigned and TRI cannot be directly observed, it is possible that these results are attributable to selection bias, correlated omitted variable bias, or non-tax information transmission. Further, I cannot directly observe the transmission of TRI through the loan syndicate, which means that my inferences rest upon the assumptions that (a) lenders actually obtain the TRI which they have the right to obtain, and (b) use the TRI even though it may be stale relative to financial statement information. Unfortunately, these assumptions are not testable given the available data and require a caveat to my results pending future research that can directly examine the specific use and transmission of tax returns within lending syndicates.

While I cannot fully overcome the limitations to an indirect approach to inferring TRI, I perform additional analyses to address correlated omitted variable bias and non-tax information transmission concerns (besides using numerous control variables and entropy balancing in my primary analyses). First, I do not find similar results when replacing tax expense with non-tax expenses. Second, I find that common non-tax anomalies either do not significantly change or increase following an institutional loan issuance. The results from these first two tests are inconsistent with the transmission of non-tax information. Third, I find that randomly assigning institutional and non-institutional loan issuances to different firm-years does not produce significant results, suggesting that my results are not a function of my difference-in-differences design or control variables. Fourth, I attempt to induce a risk bias by designating the riskiest loans as "institutional" loans and again do not find significant results, suggesting that the primary results are not attributable to omitted risk variables. Altogether, these results provide some evidence that my primary results are likely not attributable to non-tax information transmission or certain correlated omitted variables.

Finally, I explore an interesting aspect of my results. I find that there are significant differences in tax expense valuation and tax anomaly returns in the pre-loan period between borrowers with and without institutional investors in their loan syndicates in both the tax expense valuation and tax anomaly tests.[6] This evidence implies that access to valuable TRI may be an important determinant in institutional investors' decisions to participate in a particular loan syndicate. Consistent with this conjecture, I find that tax metrics and tax information quality prior to loan issuance are associated with the likelihood that institutional investors are involved in specific loan syndicates, incremental to prior borrower-level determinants of institutional investor engagement in loan syndicates (Massoud et al. 2011; Lim et al. 2014).

Overall, this study provides novel empirical evidence regarding the usefulness of TRI to equity investors in the US and contributes to the policy debate over whether corporate TRI should be publicly disclosed (Lenter et al. 2003; Morris 2015; Rajgopal 2022b) by providing evidence suggesting that equity investors increase their reliance on tax information and trading efficiency following the receipt of TRI.[7] I also contribute to research that examines the incremental value of tax information contained in financial statements relative to non-tax information in those statements (Hanlon et al. 2005; Koester 2011) by showing that TRI is useful to investors incremental to both tax and non-tax financial statement information.

In examining the usefulness of TRI in a syndicated loan setting, I also contribute to the literature on syndicated loans and information transmission to and by lenders

[6] These differences are constant across the pre-loan period, meaning that the parallel-trends assumption of difference-in-differences estimators is not violated in my setting. I report tests of the parallel-trends assumption in Section 5.5.

[7] Recent research examines the public disclosure of TRI for large Australian firms and finds that Australian investors were likely able to predict the TRI from available data and did not find new information in the TRI disclosure (Chen 2017; Hoopes et al. 2018). However, this setting is confounded by investor reactions to concurrent reputational costs, consumer backlash, and tax reform proposals driven by the public Australian TRI disclosure.

(Dennis and Mullineaux 2000; Sufi 2007; Bushman et al. 2010; Ivashina and Sun 2011; Carrizosa and Ryan 2017; Cheng et al. 2019). I illustrate the importance of TRI as an information source for lenders, as my hand-collected evidence shows that access to TRI is frequently addressed in the loan agreements of large publicly traded companies, complementing the findings of Minnis and Sutherland (2017) among small commercial loans. Additionally, I identify TRI as a routinely created source of the private information that is likely transmitted *from lenders to equity markets*, complementing prior research that identifies private, pre-announcement knowledge of large but rare corporate events (e.g., private-equity buyouts, loan origination and amendments) as a key source of the private information transferred to equity markets (Acharya and Johnson 2010; Massoud et al. 2011). My results also suggest that access to TRI may be an important and previously undocumented determinant of institutional investors' decisions to participate in particular loan syndicates.

2 Background and related research

2.1 Public disclosure of tax returns – policy background

While US corporate tax returns are currently protected from disclosure, there is substantial debate about whether these returns should be made public, in whole or part (Lenter et al. 2003; Morris 2015). A major issue in this debate, and what I examine in this study, is whether disclosing tax returns would benefit investors, either by providing them new information or helping them better process tax information from other sources. However, there are other costs and benefits to tax return disclosure that are raised in this debate. Potential disclosure benefits include helping non-tax government agencies better regulate corporations, increasing public awareness of tax policy, reducing financial statement manipulation as firms try to limit divergences in tax and GAAP numbers that could reveal earnings management, and increasing corporate tax compliance among firms that could suffer backlash if their tax noncompliance was made public (Everson 2008; Bø et al. 2015; Morris 2015). Potential costs to tax return disclosure include providing proprietary information to competitors, providing managers with motivation to manipulate taxable income to make it appear consistent with GAAP income, and, if corporate tax return disclosure is limited to certain firms (e.g., those above a certain income threshold), leading to costly changes in corporate behavior to avoid disclosure (Lenter et al. 2003; Morris 2015). However, empirical examination of many of these benefits and costs is limited. Prior evidence indicates that business owners increase their reported taxable income after an increase in TRI accessibility (Bø et al. 2015) and that tax return disclosure can result in manipulation of tax disclosures (Hasegawa et al. 2013; Hoopes et al. 2018; Allen and Uysal 2022).

Some studies have also examined market reactions to the recent disclosure of taxable income and taxes payable of large Australian companies. These studies find that (a) consumer sentiment towards firms subject to disclosure declined; (b) investors of firms subject to disclosure reacted negatively to the implementation of the disclosure law two years prior to the disclosure of any TRI, suggesting that investors

were able to predict the limited TRI disclosure from available data sources; and (c) investor reactions were not consistent with the arrival of new information and were primarily attributable to reputational costs or voluntary disclosures designed to alleviate reputational costs (Chen 2017; Hoopes et al. 2018; Kays 2022). In total, the evidence from Australia suggests that the limited TRI disclosure did not provide new information to investors but did expose companies to costly backlash from corporate stakeholders.[8]

These reputational costs to disclosure significantly confound the ability to explore investors' reactions to public TRI disclosure because investors are likely to respond to anticipated reactions by consumers, regulators, and other stakeholders that may be proportional to disclosed TRI even when TRI was already predicted or known by investors. There are also additional confounds that may affect identification in public disclosure settings, such as manipulation of tax numbers to avoid disclosure thresholds and negative public sentiment that can bias investor decisions. These identification issues motivate the need for a setting where TRI is provided to only some sophisticated equity investors to avoid creating changes in behavior among other corporate stakeholders or affective reactions among investors that could bias pricing judgments.

2.2 Syndicated loans and information transmission to equity markets

To identify TRI, I rely on features of the US syndicated loan market, as depicted in Fig. 1. Syndicated loans can be thought of as a hybrid between public bonds and private bank loans and entail multiple lenders jointly entering into a direct lending arrangement with a borrower (Dennis and Mullineaux 2000; Sufi 2007). A syndicated loan typically has a "lead arranger" lender who initially sets loan terms with the borrower, serves in a primary administrative and coordination role, and seeks out additional lenders to participate in the lending syndicate. The lead arranger is the primary point of contact between the syndicate and the borrower; however, all syndicate lenders have a direct relationship with the borrower (Gorton and Pennacchi 1995). While many lenders that participate in loan syndicates are banks, a sizable and growing portion of loan syndicate participants are institutional investors, such as hedge funds, mutual funds, and insurance firms (Taylor and Sansone 2007; Jiang et al. 2010; Ivashina and Sun 2011).

As part of the lending process, lenders often require borrowers to provide them with substantial private information (1 in Fig. 1). This information is transmitted to all lenders in the syndicate. However, lenders that join the syndicate later through the secondary loan market, or prospective syndicate members that do not ultimately join, can also receive this detailed borrower information (Dennis and Mullineaux 2000). While this information can cover many topics, recent research among small commercial loans shows that lenders frequently request access to borrowers' tax

[8] Recent evidence from the European Union's announcement that it was going to publicly disclose country-by-country TRI suggests that reputational concerns by tax-avoiding firms are a significant factor in public tax return disclosure in other settings as well (Müller et al. 2021).

returns, both ex ante for due diligence purposes and ex post for continual monitoring (Lisowsky et al. 2017; Minnis and Sutherland 2017). Indeed, this research finds that tax returns are the most frequently requested source of data besides financial statements. Thus, I expect that borrowers transmit TRI to lenders in loan syndicates.

Lenders that obtain private information from the borrower are generally required to institute policies to prevent the transmission of private information obtained in their role as lenders to other parts of their business (e.g., equity investing and analyst operations; Chen and Martin 2011). However, prior research documents that these policies are frequently ineffective, as private information given to lenders is frequently transmitted to non-lender parties (2 in Fig. 1) such as bank-affiliated equity analysts (Chen and Martin 2011), potential acquirers of the borrower (Ivashina et al. 2009), and the borrower's auditor (Cheng et al. 2016). Private information given to lenders is also frequently transmitted to equity investors, but only when institutional investors are involved in a loan syndicate (the grey boxes in Fig. 1). Prior research finds that institutional investors earn significant abnormal returns from trading in the stocks of firms for which they also act as a lender in a lending syndicate following loan information events (Ivashina and Sun 2011). Additionally, institutional investor-lenders appear to engage in equity short-selling prior to loan origination announcements (Massoud et al. 2011), incorporate information into stock prices faster (Bushman et al. 2010), and produce unusually large trading volume and price swings preceding private-equity buyouts (Acharya and Johnson 2010). Thus, I expect that syndicated loan lenders transmit TRI to equity markets, but only when institutional investors are likely to be part of the lending syndicate.

How the private information given to lenders is transmitted to equity markets and other non-lender parties is unclear. Prior research discusses three possible channels (3 in Fig. 1). First, institutional investors may directly trade in equity markets based on private information they received in their role as lenders, in violation of SEC insider trading rules (Ivashina and Sun 2011). Second, institutional investors may provide their affiliated equity analysts with the private information they received as lenders, in violation of Regulation Fair Disclosure (Chen and Martin 2011). If these analysts then use the information to make forecasts that equity investors rely upon, the private information will be incorporated into equity prices. Finally, institutional investors may simply be more aware of the information content in secondary loan markets where insider trading is not illegal, particularly as they are major participants in the secondary loan market (Nandy and Shao 2010). By weighting movements in secondary loan market prices and volume higher in their equity-investment decisions, institutional investors may effectively incorporate private information in a legal manner (Bushman et al. 2010; Addoum and Murfin 2020).[9] Thus, for the

[9] Addoum and Murfin (2020) show that an equity trading strategy that mirrors publicly available secondary loan market prices can earn excess returns of up to 2.2 percent per month. However, this trading strategy only works when mutual funds that also participate in syndicated loan markets do not hold a stock, consistent with these institutional investors recognizing the private information in secondary loan market prices and trading in equities accordingly.

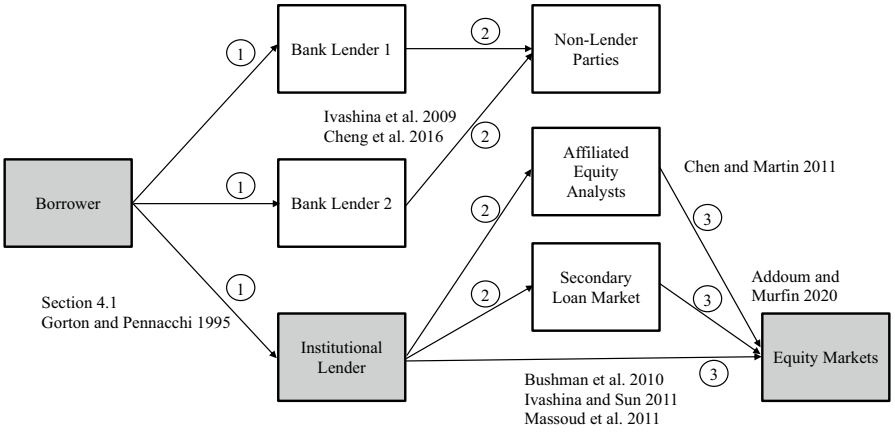

Fig. 1 Identifying Tax Return Information Transmission Using Syndicated Loans. Note: This figure illustrates the syndicated loan environment I use to identify tax return information. Private information (including tax returns) is transmitted from borrowers to lenders (1). Private borrower information is then transmitted to a variety of non-lender parties (2). Only when institutional lenders are involved in the loan syndicate does private borrower information get transmitted to equity markets, either directly through insider trading or indirectly through affiliated equity analysts or secondary loan market trading (3). Thus when institutional investors are involved in a loan syndicate, I expect that tax return information will be transmitted to equity investors (the grey boxes)

information transmission to equity markets to be legal, the loan must be traded on a secondary loan market.

2.3 Tax information

Currently, investors have access to significant information about firms' financial operations and tax positions in GAAP financial statements. Given the quantity of information available to investors in financial statements, opponents of tax return disclosure argue that even very sophisticated investors would not find any additional, meaningful information in tax returns (Lenter et al. 2003; TEI 2006). However, academics claim that it is nearly impossible to determine firms' taxable income and taxes payable from financial statements (Hanlon 2003; McGill and Outslay 2004; Donohoe et al. 2012; Rajgopal 2022a).

What specific information in a tax return might be valuable to investors? One major example is the tax-basis income statement included on page 1 of the US corporate tax return (Form 1120), which provides an alternate measure of firm performance. This alternative measurement is valuable if there is noise in GAAP numbers that is not mirrored by tax accounting rules, which will result in tax accounting containing unique information about the underlying construct of interest (e.g., firm performance) (Blackburne and Blouin 2016; Dhaliwal et al. 2017). This noise could occur if (a) GAAP does not map well to underlying economic fundamentals, (b) GAAP provides for estimation (such as estimation of fair values) that is subject to the risk of estimation errors, or (c) GAAP provides managers with discretion that

they use to manipulate financial statements (Cussatt and Demeré 2023). In other words, if tax accounting provides more accurate measurement or limits accrual manipulation, investors should understand and forecast firm performance better when they have access to both GAAP financial statements and tax returns.[10]

However, tax returns also contain substantial detail that is not available in financial statements but that may be relevant to investors. For example, Schedule M-3 includes a thorough breakdown of book and taxable income, as well as whether book-tax differences (BTDs) are permanent or temporary, providing significantly greater detail about BTDs than financial statements. This detail could increase corporate transparency by providing a roadmap to understanding firms' tax positions (Donohoe and McGill 2011) and aid investors in interpreting the growth, persistence, and risk attributable to a variety of specific activities.[11] Other TRI that may provide clearer and more detailed information than financial statements is country-by-country disclosures of taxes and corporate activities from Form 8975, detail on foreign subsidiaries and their intercompany transactions from Form 5471, detail on capital gains and losses from Schedule D, and detail on firms' depreciable assets from Form 4562. Because the detail in these items is difficult or impossible to determine from the financial statements, explicit tax return disclosure would be needed to provide this information to investors. Finally, if managers obscure or fail to disclose important GAAP disclosures, such as permanently reinvested earnings (Ayers et al. 2015), then tax returns may provide this information clearly, given that IRS scrutiny and potentially large penalties can provide additional deterrence against non-disclosure in the tax return.

As previously described, what little evidence exists regarding whether information in the *tax return* is useful to investors comes from the Australian setting and suggests that TRI is not useful to investors. However, prior research shows that taxable income *inferred from the financial statements* is a useful metric of firm performance incremental to book income, particularly when book income is lower quality and when imputed taxable income contains less noise due to tax planning (Hanlon et al. 2005; Ayers et al. 2009; Blaylock et al. 2020). Imputed taxable income also

[10] Most public-company financial statements must be filed within 60 to 90 days of the fiscal year-end. However, with extensions, corporate tax returns are not required to be filed until 9.5 months after the fiscal year-end. This means that TRI from the filed tax return may be stale by the time it is provided to investors. However, even if a firm waits until the last day to file its tax return, it still must have a reasonably accurate estimate of many major pieces of the tax return, including the tax-basis income statement and BTDs, in filing its tax return extension, which is due 3.5 months after the end of the fiscal year. Thus, major pieces of TRI are known by firms and may be conveyed to lenders concurrent with financial statement filing. Additionally, even stale TRI may be useful to investors if it is not available from other sources and the information has persistent information content. For example, if the 2021 tax return can reveal earnings management in the 2021 financial statements that will not reverse in 2022, then this TRI will still be useful even if it is not provided to investors until October 2022.

[11] BTDs that may be particularly informative to investors include BTDs related to consolidation differences that can speak to intercompany heterogeneity in tax strategies, pension and deferred compensation differences that may reveal opportunistic actuarial and return assumptions in GAAP numbers, depreciation differences that can inform about average asset age and the timing of asset replacement costs, and Section 481(a) adjustments that can speak to the proactivity of a firm's tax function.

has information content incremental to book income for earnings growth (Kim et al. 2015), discount rate news (Henry 2018), and firm risk (Dhaliwal et al. 2017).

Prior research also identifies tax metrics in financial statements that have unique, value-relevant information content that is incremental to pre-tax metrics for future earnings, earnings growth, and earnings persistence (Lev and Nissim 2004; Hanlon 2005; Schmidt 2006; Thomas and Zhang 2011). Despite the predictable association between these tax metrics and future earnings outcomes, this literature also finds that investors generally misprice the information in these metrics, resulting in trading strategies that generate average annual abnormal returns of 4 to 9 percent. In other words, investors do not fully incorporate the tax information they already have into their valuation judgments.

This research also examines whether other market participants understand the information in these tax metrics and yields mixed results. Analysts, like investors, often struggle to understand and incorporate tax information into their forecasts (Plumlee 2003; Weber 2009; Kim et al. 2020). However, credit rating agencies adjust their ratings in line with the information contained in BTDs (Crabtree and Maher 2009; Ayers et al. 2010). Corporate insiders and short sellers also trade on mispricing related to the ratio of taxable income to book income, suggesting that they understand and use the information in the financial statement tax accounts, although they do not fully arbitrage away mispricing (Chi et al. 2014). Chi et al. (2014) also document similar trading on BTD mispricing for both insiders, who have access to corporate tax returns, and short sellers, who very likely do not have access to tax returns. The similar trading between these two groups could imply that tax returns do not provide incremental information to investors, even sophisticated investors like corporate insiders.

3 Hypothesis development

Opponents of tax return disclosure make several arguments about why tax returns are not useful to equity investors. First, tax returns may not provide any additional useful information beyond what equity investors can obtain from financial statements, analysts, credit rating agencies, media reports, social media, company websites, and voluntary disclosures (Morris 2015). Second, tax returns are not designed for market participants. Whereas financial reporting is explicitly designed to provide reliable, decision-relevant information to corporate stakeholders (FASB 1978), tax reporting is designed to raise revenues for the government in an efficient and equitable manner (Manzon and Plesko 2002) and is frequently used to enact governmental policies and subsidies (e.g., tax credits for green-energy investments) that can add substantial noise to tax return numbers. Finally, even if tax returns contain incremental useful information, their length and complexity could lead to misinterpretation that would reduce market efficiency with respect to taxes.[12] These arguments

[12] The Tax Executives Institute suggests that without significant training in tax law and complex business transactions as well as access to tax-subject-matter specialists and companies' detailed tax records, investors will "likely misunderstand and misconstrue" TRI (TEI 2006, 242). Because easier processing of less value-relevant information can lead investors to inefficiently overweight the information (Elliott

are supported by evidence in prior research that investors and sophisticated market participants do not fully understand the tax information that is provided *for their benefit* in the financial statements (Lev and Nissim 2004; Weber 2009; Thomas and Zhang 2011; Chi et al. 2014), and that public disclosure of some TRI in Australia did not provide new information to investors there (Chen 2017; Kays 2022).

Conversely, proponents of public tax return disclosure give several reasons why tax returns would be useful to equity investors. First, tax returns contain detailed information that is not included in the financial statements yet could be important to investors' decision-making; Schedule M-3 is an example (Donohoe and McGill 2011). Second, tax returns offer an alternative measurement of firm performance. As discussed in Section 2.3, TRI can provide additional information about the measurement quality of financial statements (and thus firm performance and risk) if measurement error in tax accounting is uncorrelated with measurement error in GAAP (Blackburne and Blouin 2016; Dhaliwal et al. 2017).

However, even if tax returns do not convey additional decision-relevant information to investors, providing investors with tax returns could still help them better use the tax information they have from other available sources. Because it can be very difficult to piece together a firm's tax position from financial statements (Hanlon 2003; McGill and Outslay 2004; Rajgopal 2022a) and can require difficult and complex calculations (Graham 1996), it may be helpful to investors to provide them with the same tax information that is currently included in financial statements but to do so more saliently and in an easier-to-process manner (i.e., without requiring significant computations), such as by directly giving them the tax return.[13]

Given these competing arguments, it is unclear whether TRI is useful to equity investors. As such, I state my hypothesis in the null as:

Hypothesis: Tax return information is not useful to equity investors.

To operationalize this hypothesis, I rely on features of the lending environment described in Section 2.2 and presented in Fig. 1. Specifically, lenders frequently request access to borrowers' tax returns, and private information conveyed to lenders is frequently transmitted to equity markets when institutional investors are part of the lending syndicate (Bushman et al. 2010; Ivashina and Sun 2011; Massoud et al. 2011). As such, I look after issuances of institutional loans to see how the association between returns and tax metrics changes relative to the pre-issuance period and relative to the change for non-institutional loans. If investors find that the TRI that is transmitted to them by institutional investor-lenders is useful, then they should change their valuation of tax expense, with an increase (decrease) in

Footnote 12 (continued)
et al. 2015), providing non-value-relevant TRI to equity investors could result in less market efficiency due to investor overweighting of this information.

[13] Prior research shows that simply changing the presentation of information to make it easier to process can enhance information acquisition (Hirst and Hopkins 1998) and improve investor weighting of information (Maines and McDaniel 2000), leading to greater market efficiency (Dietrich et al. 2001; Elliott et al. 2015).

valuation suggesting that TRI provides additional information about firm performance (cash taxes paid). Additionally, the transmission of TRI to equity investors should reduce tax-related market anomalies if TRI is useful to them.

4 Data and empirical design

4.1 Lender access to borrower TRI

My empirical specification inherently assumes that lenders have access to TRI. However, it is not clear whether this assumption is reasonable. Commercial lenders frequently request the tax returns of small- and medium-sized businesses, and tax returns and financial statements can serve as information complements in this setting (Lisowsky et al. 2017; Minnis and Sutherland 2017). However, this research also finds that tax returns and financial statements can serve as substitutes, and prior results may not generalize to the publicly traded borrowers in my sample.

To investigate whether lenders have access to TRI in my setting, I read 1,800 randomly selected loan agreements filed with the SEC and hand-collect tax mentions.[14] I find that approximately 45.0% of these loan agreements require the provision of corporate TRI or indicate that TRI has already been provided to the lenders for due diligence purposes. This result is very similar to the evidence in Minnis and Sutherland (2017), who find that 43% of small- and medium-sized commercial borrowers provide corporate tax returns to their lender. I also find that 99.2% of these loan agreements contain a provision that allows lenders to regularly inspect the borrower's books and records or obtain any additional information about the borrower that they request. These provisions would likely enable lenders to obtain TRI through an ex post information request even absent a specific contract provision about TRI. In total, this hand-collected evidence supports that institutional investors in lending syndicates often have access to some TRI and complements the evidence in Minnis and Sutherland (2017) regarding small commercial loans.[15]

[14] Specifically, I searched 8-Ks for the loan terms used by Christensen and Nikolaev (2017) and the term "syndicate" or "syndication" to identify loan agreements. While I hand-collected the tax mentions from 80 randomly selected 8-Ks with loan agreements, this procedure resulted in a false positive rate of approximately 75%. To reduce false positives, I hand-collected tax mentions for the remaining loan agreements by randomly selecting from the Nini et al. (2009) loan agreement sample. All reported numbers are nearly identical across the two loan agreement subsamples.

[15] Information requested through the loan agreement or as part of a lender's information request is usually posted to a web-based confidential sharing service where all loan participants can obtain it (Bellucci and McCluskey 2017). A former employee of a major US bank whose role was to oversee compliance with information-transmission policies corroborated this point. Discussions with this former compliance officer suggest that as many as 10,000 unique individuals may have access to loan information requests, which for this major bank typically included the borrower's entire corporate tax return. This is also consistent with my observation, during hand collection, that almost all information covenants require that the borrower provide all information (a) directly to each lender or (b) to an administrative or documentation agent who is required by the loan contract to distribute all information to each lender.

4.2 Empirical design

To test my hypothesis, I adapt taxable income valuation models (e.g., Hanlon et al. 2005; Thomas and Zhang 2014) to a difference-in-differences specification.[16] This model enables me to indirectly examine whether TRI has value to investors, since a change in tax expense valuation following the receipt of TRI implies the arrival of new information or a change in investor understanding of existing information. Additionally, this model reveals the type of information conveyed by TRI. Following prior research (Shevlin 2002; Hanlon et al. 2005; Thomas and Zhang 2014), I expect that a positive change in tax expense valuation indicates that investors receive access to more tax-related performance information. I expect that a negative change in tax expense valuation indicates that investors receive access to more information about current or future cash tax payments or tax information that maps to and confirms information about pre-tax income.[17] Specifically, I estimate for firm i at time t:

$$\begin{aligned} Returns_{it} = {} & \beta_0 + \beta_1 INST_{it} + \beta_2 POST_{it} + \beta_3 INST \times POST_{it} + \beta_4 TaxExpense_{it} + \beta_5 INST \\ & \times Tax\ Expense_{it} + \beta_6 POST \times Tax\ Expense_{it} + \beta_7 INST \times POST \times Tax\ Expense_{it} \\ & + \beta_8 Pretax\ Income_{it} + \beta_9 INST \times Pretax\ Income_{it} + \beta_{10} POST \times Pretax\ Income_{it} \\ & + \beta_{11} INST \times POST \times Pretax\ Income_{it} + \sum_{j=12}^{J} \beta_j CTRL_{jit} + \delta_t + \eta_i + \epsilon_{it}, \end{aligned} \tag{1}$$

where the dependent variable is annual buy-and-hold returns (*Returns*). While a typical earnings-response regression will have post-tax earnings as the primary independent variable, here I split earnings into *Pretax income* and *Tax expense*. The Appendix Table 6 contains definitions for all variables.

To implement the difference-in-differences design, I include *POST* and *INST*, as well as their fully crossed interactions with both *Tax expense* and *Pretax income*. *POST* is equal to one for the year of a syndicated loan issuance and the following two years and zero for the three years preceding the issuance of a loan. *INST* is equal to one for firms receiving a syndicated loan designed for institutional investors *for the first time* and zero for firms receiving either a non-institutional syndicated loan or an institutional syndicated loan where a previous syndicated loan has been issued.[18] I classify a syndicated loan as designed for institutional investors if it is a

[16] Previous research contrasts imputed taxable income with book income rather than pre-tax income with tax expense. However, because imputed taxable income is simply a constant transformation of tax expense, this design choice should be irrelevant except in removing unnecessary noise from mismeasurement of firms' tax rates.

[17] Prior research highlights that imputed taxable income (and its linear transformation, tax expense) factors into firm value in two different ways. First, taxable income (as a linear transformation of tax expense) matches cash payments to tax authorities with book income and thus should be negatively valued by investors because tax expense represents cash outflows to tax authorities (Lipe 1986). Second, taxable income effectively measures firm performance according to tax accounting rules (i.e., has a "proxy-for-profitability" role; Shevlin 2002). Thus, taxable income may capture firm performance incremental to GAAP income and be positively valued by investors who view taxable income as an alternate measure of firm profitability; indeed, this proxy-for-profitability role is what prior research generally finds most important (Hanlon et al. 2005; Ayers et al. 2009; Thomas and Zhang 2014).

[18] I only classify the first institutional loan issuance from a firm as a treated loan issuance and place additional institutional loan issuances in my control group to ensure that there is a clear demarcation in the availability of TRI for the pre-loan versus post-loan period. However, doing so may bias against

term loan B, C, D, E, or F, because these loans have features that are particularly attractive to institutional investors (Bushman et al. 2010). This classification also allows me to focus on loans where the legal transmission of information through secondary loan markets is more likely to occur, given that most of these loans are traded on secondary loan markets (Witternberg-Moerman 2008; Bushman et al. 2010).[19] Because both treatment ($INST=1$) and control ($INST=0$) firms issue syndicated loans, this design alleviates concerns about self-selection effects related to the choice to obtain financing through a syndicated loan and ensures that both treatment and control observations are subject to qualitatively similar financing events. In the difference-in-differences design, the coefficient on *Tax expense* represents the valuation of tax expense in the pre-loan period for firms that obtain a non-institutional loan, and this coefficient acts as a baseline in that all coefficients on *Tax expense* interactions represent deviations from this valuation. The coefficients on $INST \times Tax\ expense$ and $POST \times Tax\ expense$ then represent the difference in tax expense valuation from the baseline for the pre-loan period of institutional loan borrowers and the post-loan period of non-institutional borrowers, respectively. The primary coefficient of interest is β_7 on $POST \times INST \times Tax\ expense$, which captures the differential valuation of tax expense that is unique to the post-loan period of institutional loan borrowers whose equity investors likely receive TRI. If the transmission of TRI to equity markets increases (decreases) investor valuation of tax expense, I would expect a positive (negative) β_7.

In addition to the primary variables, I control for the degree of firms' *Institutional ownership*. Because the treatment variable captures whether institutional investors are likely part of the loan syndicate, controlling for institutional ownership helps ensure that *INST* does not capture greater investor sophistication or better corporate governance rather than TRI transmission to equity markets.

While taxable income valuation models are typically estimated with few control variables, I also include a vector of controls (*CTRL*) in some specifications. I control for the logarithm of the market value of equity (*Size*), the *Book-to-market* ratio, *Cash* holdings, *Minority interest*, *Special items*, and net operating loss (NOL) carryforwards (*NOLs*) to address confounds related to size, growth, liquidity, consolidation

Footnote 18 (continued)
finding results if additional institutional loan issuances make it easier for lenders to obtain TRI or for TRI to be transmitted to equity markets. I limit the sample to firm-years within three years of a loan issuance and eliminate observations that lie within both a pre-issuance and post-issuance three-year window to limit the extent to which treatment timing can bias my staggered difference-in-differences design. In Section 5.5, I report that my results are robust to using a dynamic trend analysis, and, in further untabulated analyses, I find that my results are robust to a stacked regression design, which should further limit concerns about possible bias in my staggered difference-in-differences design (Barrios 2021; Baker et al. 2022).

[19] This proxy's close ties to secondary loan markets allow me to focus on loans where (a) legal transmission of private information is possible and (b) institutional investors that are not part of the initial syndicate may obtain private information by joining the syndicate through the secondary market. This is preferable over alternate proxies for institutional investor initial involvement in loan syndicates (Lim et al. 2014; Peyravan 2020). However, this proxy will be less likely to capture private information transmission through lender-affiliated analysts (Chen and Martin 2011) or through direct insider trading.

differences, one-off earnings items, and tax carryforwards. I also control for a firm's *Analyst following* to address changes in the information environment that may arise if a lender also has equity analysts with a preference for following the bank's borrowers. To address features of the loan, I control for whether the loan is issued by an industry-specialist lender (*Specialist*), whether the purpose of the loan is to engage in a restructuring or a merger/acquisition (*Restructuring*), and whether the loan is *Secured*, as well as the interaction of these variables with *POST*. To address the concern that institutional loans may have different risk profiles than non-institutional loans (Massoud et al. 2011), I control for market *Beta*, *Return volatility*, *Earnings volatility*, *Cash flow volatility*, *Leverage*, financial distress risk (*Altman's Z*), and expected *Default probability*. I also control for two-digit NAICS industry (η_i) and year (δ_t) fixed effects.[20] Finally, to address covariate differences and some sources of selection bias, I entropy balance observations with *INST* equal to one and zero across control variables (Hainmueller 2012).[21]

While Eq. (1) can identify whether investors change their valuation of tax expense following the likely receipt of TRI, as well as the type of information investors are reacting to, it cannot identify the optimality of investor reactions to TRI (i.e., whether they lead to more or less efficient market valuations). To examine whether TRI helps investors more efficiently value a firm, I also examine prior models of tax-related market anomalies (Lev and Nissim 2004; Thomas and Zhang 2011) adapted to a difference-in-differences specification. Examining these anomalies is important, given that providing investors with tax returns could lead to greater mispricing of tax information (TEI 2006). This test also provides a different way of examining whether investor valuations change in response to TRI, thus providing evidence to triangulate results from Eq. (1).[22] Specifically, I estimate for firm i at time t:

$$\begin{aligned} FFReturns_{it+1} = {} & \theta_0 + \theta_1 INST_{it} + \theta_2 POST_{it} + \theta_3 INST \times POST_{it} + \theta_4 TAX_{it} + \theta_5 INST \\ & \times TAX_{it} + \theta_6 POST \times TAX_{it} + \theta_7 INST \times POST \times TAX_{it} \\ & + \sum_{j=8}^{J} \theta_j CTRL2_{jit} + \delta_t + \eta_i + \epsilon_{it}, \end{aligned} \tag{2}$$

where the dependent variable is the abnormal annual return from the Fama and French (2015) five-factor model (*FF Returns*). *TAX* is alternately the annual *Tax*

[20] The results are also robust to incorporating firm fixed effects, except as described later. I do not present my primary results with firm fixed effects, though, given that firm fixed effects can introduce bias when a model fails to meet the "strict exogeneity" assumption, as I find in my setting (Wooldridge 2010; Grieser and Hadlock 2019). Firm fixed effects also substantially affect test power and estimation efficiency, which can inflate standard errors and remove important variation in variables of interest (deHaan 2021; Whited et al. 2022).

[21] I cluster standard errors by firm to address serial correlation, but do not cluster by time to avoid dimensionality bias from having insufficient cluster dimensions (Cameron et al. 2011; Cameron and Miller 2015).

[22] Equation (1) is incrementally useful to examine over Eq. (2), as it can reveal what type of information investors are reacting to. Equation (2) helps to ensure that the Eq. (1) results are not caused by a decline in information available to investors about cash tax expenses in the post-institutional-loan issuance period, as a decline in information availability should not decrease tax anomalies.

surprise (Thomas and Zhang 2011) or the ratio of taxable income to book income (*Tax/Book*) (Lev and Nissim 2004), both of which are tax metrics associated with return anomalies.

As in Eq. (1), I include *POST*, *INST*, and their fully crossed interactions with *TAX* to implement the difference-in-differences design. The coefficient on *TAX* represents the abnormal returns predicted by the relevant tax anomaly variable in the pre-loan period for firms that obtain a non-institutional loan. This coefficient acts as a baseline in that all coefficients on *TAX* interactions represent deviations from this level of mispricing. The coefficients on $INST \times TAX$ and $POST \times TAX$ represent the difference in tax anomaly mispricing from the baseline for the pre-loan period of institutional loan borrowers and the post-loan period of non-institutional borrowers, respectively. In this analysis, the coefficient of interest is θ_7 on $POST \times INST \times TAX$, which captures the differential mispricing of tax anomalies that is unique to the post-loan period of institutional loan borrowers (when equity investors likely receive TRI). If the transmission of TRI to equity markets increases (decreases) market efficiency with respect to taxes, I would expect a negative (positive) θ_7.

I also include a vector of control variables (*CTRL2*) that are important in evaluating tax-related market anomalies. To begin, I include the full *CTRL* vector from Eq. (1). Following prior research (Thomas and Zhang 2011), I also control for *Lag returns*, *Earnings surprise*, *Sales surprise*, and selling, general, and administrative surprises (*SG&A Surprise*). To ensure that my results are incremental to non-tax anomalies that may overlap with tax anomalies, I control for the earnings-price ratio (*Earnings/Price*), the ratio of operating cash flows to price (*Cash flows/Price*), *Pre-tax accruals*, and Modified Jones *Abnormal accruals* (Xie 2001; Desai et al. 2004; Hepfer 2023). I also control for net *External financing*, research and development (*R&D*), and capital expenditures (*CapEx*), as these have been shown to be associated with future abnormal stock returns and I examine a setting with significant corporate financing activities (Lev and Sougiannis 1996; Anderson and Garcia-Feijóo 2006; Bradshaw et al. 2006). Finally, I control for industry and year fixed effects, and I entropy balance observations with *INST* equal to one and observations with *INST* equal to zero across control variables (Hainmueller 2012).

4.3 Data and sample selection

To construct my dataset, I begin with the full universe of DealScan data from 1996 through 2015.[23] I then eliminate loan facilities that are not syndicated loans, not US loans, or not denominated in US dollars. I require a match with both Compustat and CRSP and eliminate firm-years in the financial and utility industries, with a non-US

[23] Starting my sample period with loans issued in 1996 (1) ensures that the issuance of SFAS 109 does not affect my results and (2) increases the likelihood that loans designed for institutional investors are traded on secondary loan markets. Secondary loan markets experienced a tenfold increase between 1991 and 1998, marking this as a period of significant growth in secondary loan market activity. I link DealScan to Compustat using an extended version of the file originally compiled by Chava and Roberts (2008) and extended further by Keil (2023).

incorporation code, or not within a six-year window of a loan issuance (i.e., t−3 to t+2). This process leaves 39,027 firm-years.Further requiring that data be matched to 13-F data produces a full sample of 24,481 firm-years from 1993 to 2017 that lie within the six-year window around 7,093 loan issuances for 4,562 unique borrowers.

5 Results

5.1 Univariate statistics

Table 1, Panel A reports descriptive statistics for all variables. Approximately 16% of my syndicated loan observations are institutional loans (*INST*), with the remainder of the observations linked to non-institutional loans. Table 1, Panel B reports tests of differences in means between non-institutional and institutional loans (columns 1–4) and between pre-issuance and post-issuance observations (columns 5–8), while Panel C reports Pearson and Spearman correlations for key study variables.

5.2 Tax expense valuation analyses

I report the tests of Eq. (1) in Table 2. In Panel A, I illustrate how the coefficient on *Tax expense* changes for firms before and after the issuance of a syndicated loan and between institutional and non-institutional loans. Consistent with prior research (Hanlon et al. 2005; Ayers et al. 2009), the coefficient is positive in three of the four cells, supporting the proxy-for-profitability role of tax expense dominating the matching role. The one cell that is an exception is for firms in the pre-loan period that receive an institutional loan. This result likely indicates that investors in the pre-institutional-loan period obtain information about cash tax payments (i.e., the matching role of tax expense) but do not obtain the same amount of tax-related performance information that investors typically receive (Hanlon et al. 2005).[24]

With regard to my hypothesis, I find a significant difference in the *Tax expense* coefficient for firms in the post-loan period that receive institutional loans (i.e., firms with likely transmission of TRI to equity markets), both relative to these same firms in the pre-loan period and overall, as the $INST \times POST \times Tax\ expense$ coefficient reported in the bottom-right cell is significantly positive. This result suggests that investors receive additional tax-related performance information following the issuance of an institutional syndicated loan and is consistent with TRI being useful to equity investors and a rejection of my null hypothesis. Further, that the *Tax expense* coefficient increases with TRI suggests that the TRI is useful to equity investors

[24] The lack of tax-related performance information available to only pre-institutional-loan investors could come about if institutional investors can identify firms ex ante with little publicly available tax-related performance information and choose to participate in particular syndicated loans in part to obtain private tax-related performance information from the tax return (Massoud et al. 2011; Doellman et al. 2020). I test this conjecture in Section 5.6.

Table 1 Descriptive Statistics, Test of Differences in Means, Pearson and Spearman Correlations

Panel A: Descriptive Statistics

	N	Mean	Median	Std. Dev
Return Variables				
Returns	20,424	0.180	0.079	0.716
FF Returns	17,152	−0.609	−0.856	0.514
Lag Returns	20,231	0.172	0.073	0.687
Difference-in-Differences Variables				
INST	24,481	0.159	0.000	0.366
POST	24,481	0.609	1.000	0.488
Primary Variables				
Tax expense	22,941	0.020	0.019	0.059
Pretax income	22,941	−0.032	0.063	0.616
Tax surprise	23,702	0.002	0.000	0.038
Tax/Book	23,396	0.571	0.549	1.048
Cross-Section Variables				
High Abnormal Accruals	22,202	0.500	0.500	0.500
Specialist	24,481	0.289	0.000	0.453
Earnings Covenant	24,481	0.373	0.000	0.484
High Default Risk	17,674	0.117	0.000	0.321
High Tax Avoidance	20,103	0.500	0.000	0.500
Post M3	20,468	0.497	0.000	0.500
Control Variables				
Institutional ownership	24,481	0.423	0.404	0.372
Earnings/Price	20,208	−2.411	−2.372	0.894
Cash flows/Price	20,330	−2.342	−2.359	1.024
Pretax Accruals	22,634	−0.062	−0.050	0.227
Abnormal Accruals	22,202	0.060	0.030	0.309

Table 1 (continued)

Leverage	24,333	0.291	0.258	0.262
Altman's Z	20,982	4.066	3.228	11.660
Earnings volatility	23,597	2.532	0.826	6.098
Cash flow volatility	23,267	1.610	0.557	4.386
Default probability	17,674	0.037	0.000	0.182
Special items	24,335	−0.019	0.000	0.076
NOLs	24,335	0.192	0.000	1.201
Book-to-market	24,117	0.472	0.465	2.231
Beta	17,324	0.009	0.010	0.009
Return volatility	17,324	0.153	0.146	0.069
Size	24,117	6.080	6.111	2.066
Cash	24,335	0.124	0.058	0.160
ROA	24,287	0.011	0.040	0.183
Minority interest	24,335	0.001	0.000	0.004
CapEx	23,996	0.076	0.042	0.118
R&D	24,335	0.036	0.000	0.105
SG&A surprise	21,909	0.022	0.007	0.309
Earnings surprise	23,704	0.009	0.005	0.392
Sales surprise	23,704	0.082	0.043	0.606
External financing	19,868	0.114	−0.004	0.850
Analyst following	24,481	1.516	1.576	0.971
Restructuring	24,481	0.185	0.000	0.388
Secured	24,481	0.617	1.000	0.486

Table 1 (continued)

Panel B: Test of Differences in Means

	By Loan Type				Pre vs. Post Loan Issuance			
	INST = 0	*INST* = 1	Diff	t stat	*POST* = 0	*POST* = 1	Diff	t stat
Returns	0.179	0.184	−0.004	−0.32	0.205	0.162	0.044	4.30***
FF Returns	−0.594	−0.692	0.098	8.93***	−0.722	−0.533	−0.189	−23.98***
Lag returns	0.169	0.191	−0.023	−1.69*	0.228	0.134	0.094	9.53***
INST	0.000	1.000	−1.000	N/A	0.070	0.216	−0.146	−31.16***
POST	0.568	0.828	−0.261	−31.16***	0.000	1.000	−1.000	N/A
Tax expense	0.020	0.019	0.001	0.49	0.025	0.016	0.009	10.75***
Pretax income	−0.029	−0.052	0.023	2.04**	0.040	−0.077	0.116	13.96***
Tax surprise	0.002	0.002	−0.001	−1.10	0.003	0.001	0.002	4.08***
Tax/Book	0.587	0.487	0.100	5.31***	0.677	0.502	0.175	12.51***
High Abnormal Accruals	0.506	0.470	0.036	3.96***	0.524	0.484	0.040	5.80***
Specialist	0.293	0.270	0.023	2.90***	0.237	0.322	−0.085	−14.31***
Earnings Covenant	0.323	0.637	−0.314	−38.29***	0.276	0.435	−0.160	−25.52***
High Default Risk	0.104	0.187	−0.083	−12.64***	0.082	0.138	−0.057	−11.44***
High Tax Avoidance	0.491	0.552	−0.061	−6.25***	0.430	0.543	−0.112	−15.54***
Post M3	0.512	0.421	0.091	9.54***	0.349	0.594	−0.245	−35.27***
Institutional ownership	0.421	0.434	−0.012	−1.90*	0.274	0.519	−0.245	−53.14***
Earnings/Price	−2.448	−2.221	−0.227	−13.44***	−2.435	−2.395	−0.040	−3.15***
Cash flows/Price	−2.363	−2.235	−0.127	−6.54***	−2.431	−2.287	−0.144	−9.77***
Pretax accruals	−0.060	−0.073	0.013	3.17***	−0.046	−0.073	0.027	8.86***
Abnormal accruals	0.062	0.053	0.009	1.68*	0.058	0.062	−0.004	−1.00
Leverage	0.271	0.396	−0.124	−27.49***	0.230	0.330	−0.100	−29.39***
Altman's Z	4.308	2.841	1.467	6.78***	5.598	3.087	2.511	15.30***
Earnings volatility	2.411	3.179	−0.768	−7.05***	2.377	2.627	−0.250	−3.06***
Cash flow volatility	1.613	1.598	0.015	0.19	1.702	1.553	0.149	2.51**
Default probability	0.032	0.066	−0.034	−9.09***	0.019	0.048	−0.030	−10.63***
Special items	−0.019	−0.022	0.003	2.40**	−0.017	−0.021	0.004	3.83***
NOLs	0.190	0.197	−0.007	−0.32	0.167	0.207	−0.040	−2.56**

Table 1 (continued)

Book-to-market	0.471	0.475	−0.003	−0.08	0.575	0.406	0.169	5.75***
Beta	0.009	0.010	−0.001	−4.40***	0.008	0.010	−0.002	−10.98***
Return volatility	0.150	0.171	−0.020	−13.83***	0.159	0.149	0.010	9.58***
Size	6.097	5.989	0.108	2.96***	5.834	6.236	−0.403	−14.82***
Cash	0.131	0.089	0.042	15.01***	0.140	0.114	0.026	12.21***
ROA	0.012	0.005	0.007	2.17**	0.028	0.000	0.028	11.59***
Minority interest	0.001	0.001	0.000	−1.18	0.000	0.001	0.000	−0.55
CapEx	0.076	0.075	0.000	0.14	0.088	0.068	0.020	12.83***
R&D	0.038	0.024	0.014	7.73***	0.044	0.031	0.013	9.18***
SG&A surprise	0.020	0.027	−0.007	−1.21	0.018	0.024	−0.005	−1.20
Earnings surprise	0.007	0.017	−0.010	−1.40	0.013	0.006	0.008	1.47
Sales surprise	0.077	0.108	−0.031	−2.92***	0.089	0.078	0.011	1.32
External financing	0.098	0.199	−0.101	−6.12***	0.139	0.097	0.042	3.42***
Analyst following	1.532	1.434	0.098	5.80***	1.442	1.564	−0.123	−9.66***
Restructuring	0.144	0.401	−0.257	−38.95***	0.142	0.213	−0.071	−13.93***
Secured	0.574	0.843	−0.269	−32.38***	0.546	0.662	−0.116	−18.39***

Table 1 (continued)

Panel C: Pearson and Spearman Correlations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)	*Returns*	**1.000**	0.270	−0.051	−0.025	−0.021	−0.008	−0.010	−0.008	−0.005	−0.016	0.022	0.007	0.044	−0.005	−0.010	−0.012
(2)	*FF Returns*	0.327	**1.000**	−0.013	−0.084	0.326	−0.190	−0.160	−0.037	−0.153	0.023	0.314	0.196	−0.029	0.123	0.776	0.665
(3)	*Lag returns*	−0.089	−0.089	**1.000**	0.005	−0.080	0.281	0.388	0.237	0.064	0.049	0.017	−0.031	−0.124	0.013	−0.007	−0.054
(4)	*INST*	0.012	−0.091	0.037	**1.000**	0.217	−0.031	−0.065	−0.025	−0.068	−0.030	−0.055	0.199	0.137	0.053	−0.097	0.010
(5)	*POST*	−0.023	0.231	−0.052	0.217	**1.000**	−0.156	−0.170	−0.064	−0.108	−0.026	0.119	0.205	0.056	0.095	0.299	0.407
(6)	*Tax expense*	−0.050	−0.129	0.174	−0.020	−0.097	**1.000**	0.808	0.458	0.401	0.295	−0.105	−0.067	−0.065	−0.221	−0.227	−0.223
(7)	*Pretax income*	−0.113	−0.127	0.267	−0.067	−0.089	0.557	**1.000**	0.377	0.289	0.333	−0.088	−0.067	−0.119	−0.139	−0.184	−0.193
(8)	*Tax surprise*	−0.033	−0.027	0.140	−0.020	−0.044	0.492	0.226	**1.000**	0.114	0.153	−0.029	−0.020	−0.037	0.013	−0.034	−0.051
(9)	*Tax/Book*	−0.035	−0.078	0.022	−0.054	−0.073	0.188	0.163	0.054	**1.000**	0.167	−0.047	−0.076	−0.152	−0.339	−0.156	−0.138
(10)	*High Abnormal Accruals*	−0.044	0.003	0.026	−0.030	−0.026	0.209	0.236	0.121	0.092	**1.000**	−0.015	−0.052	−0.116	−0.110	−0.010	0.001
(11)	*Specialist*	−0.018	0.257	−0.023	−0.055	0.119	−0.071	−0.046	−0.021	−0.026	−0.015	**1.000**	0.062	−0.073	0.050	0.371	0.374
(12)	*Earnings Covenant*	0.014	0.166	−0.018	0.199	0.205	−0.044	−0.068	−0.017	−0.048	−0.052	0.062	**1.000**	0.054	0.085	0.211	0.233
(13)	*High Default Risk*	0.110	0.009	−0.047	0.137	0.056	−0.043	−0.194	−0.013	−0.104	−0.116	−0.073	0.054	**1.000**	0.052	−0.083	−0.079
(14)	*High Tax Avoidance*	0.022	0.105	0.039	0.053	0.095	−0.133	−0.074	0.035	−0.196	−0.110	0.050	0.085	0.052	**1.000**	0.146	0.141
(15)	*Post M3*	−0.036	0.675	−0.046	−0.097	0.299	−0.148	−0.090	−0.016	−0.093	−0.010	0.371	0.211	−0.083	0.146	**1.000**	0.771
(16)	*Institutional ownership*	−0.039	0.560	−0.067	0.013	0.398	−0.141	−0.083	−0.028	−0.092	0.007	0.382	0.228	−0.088	0.139	0.787	**1.000**

Panel A, All continuous variables are winsorized by year at the 1st and 99th percentiles. Variables are defined in the Appendix Table 6

Panel B, This table reports tests of differences in means between firms issuing institutional and non-institutional loans (first four columns) and observations pre vs. post loan issuance (last four columns). The number of observations associated with any variable ranges from 14,597 to 20,590 in column 1, from 2,555 to 3,891 in column 2, from 6,731 to 9,571 in column 5, and from 10,266 to 14,910 in column 6. *, **, and *** denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (two-tailed), respectively. Continuous variables are winsorized at the 1st and 99th percentiles. Variables are defined in the Appendix Table 6

Panel C, This table reports Pearson (Spearman) correlations below (above) the diagonal for key variables of this study using casewise deletion. Continuous variables are winsorized at the 1st and 99th percentiles. Variables are defined in the Appendix Table 6

Table 2 Tax Response Coefficient Analysis, Tax Response Coefficient Analysis – High Discretionary Accrual Firms, Tax Response Coefficient Analysis – Low Discretionary Accrual Firms, Tax Response Coefficient Regressions

Panel A: Tax Response Coefficient Analysis

	Pre Loan Issuance	Post Loan Issuance	Differences
Non-institutional Loan	0.044	0.010	−0.034
	(1.00)	(0.48)	(0.72)
Institutional Loan	−0.158*	0.056**	0.214**
	(1.84)	(2.19)	(2.41)
Differences	−0.202**	0.046	0.248**
	(2.12)	(1.46)	(2.47)

Panel B: Tax Response Coefficient Analysis – High Discretionary Accrual Firms

	Pre Loan Issuance	Post Loan Issuance	Differences
Non-institutional Loan	0.083**	0.020	−0.063
	(2.42)	(0.89)	(1.58)
Institutional Loan	−0.303**	0.070**	0.373***
	(2.28)	(2.21)	(2.74)
Differences	−0.386***	0.050	0.436***
	(2.80)	(1.36)	(3.07)

Panel C: Tax Response Coefficient Analysis – Low Discretionary Accrual Firms

	Pre Loan Issuance	Post Loan Issuance	Differences
Non-institutional Loan	−0.013	−0.002	0.011
	(0.13)	(0.07)	(0.11)
Institutional Loan	−0.044	0.053	0.097
	(0.55)	(1.34)	(1.09)
Differences	−0.031	0.055	0.086
	(0.24)	(1.15)	(0.64)

Table 2 (continued)

Panel D: Tax Response Coefficient Regressions

Dependent Variable:	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Returns	**All**	***High Abnormal Accruals* = 1**	***High Abnormal Accruals* = 0**	**All**	***High Abnormal Accruals* = 1**	***High Abnormal Accruals* = 0**	**All**	***High Abnormal Accruals* = 1**	***High Abnormal Accruals* = 0**	**All**	***High Abnormal Accruals* = 1**	***High Abnormal Accruals* = 0**
INST	−0.031	−0.067	−0.003	−0.034	−0.087	−0.005	0.011	−0.006	−0.029	0.031	−0.011	0.027
	(0.81)	(1.02)	(0.05)	(0.72)	(1.12)	(0.07)	(0.25)	(0.09)	(0.42)	(0.58)	(0.14)	(0.31)
POST	−0.076***	−0.079**	−0.064*	−0.051**	−0.045	−0.049	−0.047	−0.046	−0.086	0.006	0.019	−0.015
	(3.62)	(2.55)	(1.75)	(2.12)	(1.21)	(1.13)	(1.33)	(0.97)	(1.49)	(0.14)	(0.39)	(0.20)
INST×*POST*	0.069	0.098	0.058	0.042	0.094	−0.011	0.019	0.030	0.063	−0.008	0.030	−0.041
	(1.58)	(1.36)	(0.85)	(0.82)	(1.09)	(0.13)	(0.41)	(0.42)	(0.84)	(0.15)	(0.35)	(0.43)
Tax expense	0.044	0.083**	−0.013	0.042	0.106***	−0.053	0.031	0.063	−0.030	0.019	0.056	−0.049
	(1.00)	(2.42)	(0.13)	(0.78)	(2.80)	(0.45)	(0.64)	(1.65)	(0.33)	(0.31)	(1.32)	(0.49)
INST×*Tax expense*	−0.202**	−0.386***	−0.031	−0.223**	−0.385***	−0.018	−0.143	−0.359**	0.027	−0.137	−0.317***	0.078
	(2.10)	(2.80)	(0.24)	(2.12)	(3.71)	(0.12)	(1.41)	(2.35)	(0.25)	(1.22)	(2.70)	(0.67)
POST×*Tax expense*	−0.034	−0.063	0.011	−0.026	−0.092*	0.054	−0.032	−0.050	0.004	−0.026	−0.088*	0.014
	(0.72)	(1.58)	(0.11)	(0.46)	(1.93)	(0.45)	(0.62)	(1.14)	(0.04)	(0.42)	(1.79)	(0.13)
INST*×*POST*×*Tax expense	**0.248****	**0.436*****	**0.086**	**0.268****	**0.450*****	**0.078**	**0.170**	**0.383****	**0.017**	**0.166**	**0.378*****	**−0.035**
	(2.47)	**(3.07)**	**(0.64)**	**(2.45)**	**(3.97)**	**(0.50)**	**(1.63)**	**(2.44)**	**(0.15)**	**(1.44)**	**(2.95)**	**(0.28)**
Pretax income	0.063**	0.035	0.121***	0.085*	0.060	0.125**	−0.004	0.003	−0.006	0.013	−0.005	−0.049
	(2.20)	(0.87)	(2.79)	(1.90)	(0.81)	(2.20)	(0.15)	(0.07)	(0.13)	(0.45)	(0.06)	(0.80)
INST×*Pretax income*	0.425***	0.660**	0.192	0.486***	0.622**	0.199	0.245*	0.587**	0.031	0.229	0.427*	−0.008
	(2.72)	(2.30)	(1.46)	(2.91)	(2.30)	(1.35)	(1.93)	(2.30)	(0.35)	(1.56)	(1.72)	(0.08)
POST×*Pretax income*	−0.027	−0.075	−0.003	−0.066	−0.126***	−0.051	0.019	−0.048	0.103**	−0.042	−0.095**	0.081
	(0.71)	(1.40)	(0.07)	(1.10)	(2.94)	(0.86)	(0.41)	(0.87)	(2.03)	(0.81)	(2.31)	(1.21)
INST×*POST*×*Pretax income*	−0.344**	−0.494*	−0.189	−0.401**	−0.460*	−0.146	−0.197	−0.452*	−0.071	−0.152	−0.258	0.051
	(2.15)	(1.69)	(1.36)	(2.35)	(1.74)	(0.95)	(1.47)	(1.74)	(0.74)	(1.00)	(1.05)	(0.48)
Institutional ownership	−0.060***	−0.063***	−0.053***	−0.235***	−0.211***	−0.253***	−0.022	−0.040*	−0.014	−0.170***	−0.187***	−0.158***
	(5.06)	(3.25)	(2.72)	(8.96)	(4.88)	(5.78)	(1.44)	(1.76)	(0.57)	(5.49)	(4.14)	(2.82)
Special items							0.042***	0.049**	0.042***	0.040***	0.094***	0.036***
							(3.37)	(2.15)	(3.68)	(2.79)	(2.79)	(2.65)
NOLs							0.006	0.035*	0.008	0.003	0.070*	0.003
							(1.00)	(1.85)	(0.98)	(0.20)	(1.68)	(0.19)
Cash							0.009	−0.023	0.038*	0.022	−0.030	0.041
							(0.74)	(1.31)	(1.86)	(0.99)	(0.83)	(1.12)

Table 2 (continued)

Minority interest	−0.011	−0.002	−0.030	0.006	0.006	−0.052
	(1.10)	(0.24)	(1.35)	(0.33)	(0.38)	(1.37)
Leverage	−0.009	−0.023	−0.009	−0.007	0.015	−0.025
	(0.75)	(1.52)	(0.59)	(0.41)	(0.50)	(0.92)
Altman's Z	0.079***	0.101***	0.050***	0.058**	0.136**	0.023
	(5.02)	(4.21)	(3.20)	(2.04)	(2.48)	(0.78)
Earnings volatility	0.015*	0.001	0.018*	0.010	−0.002	0.017
	(1.67)	(0.05)	(1.66)	(1.10)	(0.15)	(1.17)
Cash flow volatility	−0.003	0.005	−0.019**	−0.005	0.007	−0.013
	(0.39)	(0.33)	(2.00)	(0.41)	(0.33)	(0.49)
Default probability	0.014	0.019	0.005	0.051***	0.043***	0.059***
	(1.29)	(1.50)	(0.35)	(3.97)	(2.79)	(2.73)
Book-to-market	−0.029	−0.030	−0.041**	−0.018	−0.030	−0.040
	(1.44)	(1.18)	(2.29)	(0.81)	(0.82)	(1.36)
Beta	0.017*	−0.008	0.032**	0.029*	0.022	0.051**
	(1.68)	(0.60)	(2.10)	(1.92)	(1.11)	(2.11)
Return volatility	0.201***	0.161***	0.230***	0.302***	0.215***	0.361***
	(10.96)	(6.45)	(7.96)	(10.55)	(6.00)	(8.61)
Size	0.280***	0.280***	0.291***	0.597***	0.527***	0.725***
	(13.28)	(9.82)	(9.66)	(11.92)	(5.90)	(10.05)
Analyst following	−0.178***	−0.180***	−0.175***	−0.250***	−0.219***	−0.293***
	(11.98)	(8.75)	(7.80)	(9.45)	(5.68)	(6.67)
Specialist	−0.030	−0.061	−0.037	−0.040	−0.032	−0.097
	(0.99)	(1.60)	(0.65)	(1.03)	(0.62)	(1.28)
Specialist × POST	0.022	0.044	0.045	0.030	0.015	0.118
	(0.61)	(0.93)	(0.70)	(0.72)	(0.27)	(1.53)
Restructuring	−0.045	−0.110**	−0.007	−0.074	−0.085	−0.050
	(1.35)	(2.53)	(0.11)	(1.62)	(1.34)	(0.64)
Restructuring × POST	0.066*	0.142***	0.025	0.028	0.046	0.037
	(1.67)	(2.62)	(0.38)	(0.60)	(0.69)	(0.48)
Secured	0.029	0.095**	−0.008	−0.009	0.057	−0.011
	(0.89)	(2.14)	(0.15)	(0.20)	(1.05)	(0.14)
Secured × POST	0.007	−0.054	0.063	−0.013	−0.072	−0.021
	(0.18)	(1.09)	(1.04)	(0.31)	(1.29)	(0.27)

Table 2 (continued)

Intercept	0.020	−0.019	−0.083	0.350***	0.320***	0.400***	−0.028	−0.086	−0.051	0.270***	0.128	0.428***
	(0.29)	(0.15)	(0.82)	(6.84)	(4.36)	(4.45)	(0.31)	(0.78)	(0.31)	(3.16)	(1.16)	(2.89)
Fixed Effects	I&Y	I&Y	I&Y	F&Y	F&Y	F&Y	I&Y	I&Y	I&Y	F&Y	F&Y	F&Y
Strict Exogeneity *F*	N/A	N/A	N/A	6.36***	3.51***	4.13***	N/A	N/A	N/A	3.76***	2.45**	2.01*
Observations	18,524	8,496	8,505	18,524	8,496	8,505	14,514	6,921	6,986	14,514	6,921	6,986
Adjusted R^2	0.210	0.239	0.219	0.228	0.257	0.236	0.289	0.318	0.302	0.333	0.367	0.356

Panel A, This table reports the coefficient estimates for *Tax expense* from Eq. (1), based on the regression in column 1 of Panel D. All coefficients are standardized (by demeaning all variables and dividing them by their standard deviation prior to regression), so they can be interpreted as the change in returns for a standard deviation change in *Tax expense*. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p<0.10$, 0.05, and 0.01 levels (two-tailed), respectively

Panel B, This table reports the coefficient estimates for *Tax expense* from Eq. (1), based on the regression in column 2 of Panel D that is estimated only for firms with high abnormal accruals, i.e., *High Abnormal Accruals* = 1. All coefficients are standardized (by demeaning all variables and dividing them by their standard deviation prior to regression), so they can be interpreted as the change in returns for a standard deviation change in *Tax expense*. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p<0.10$, 0.05, and 0.01 levels (two-tailed), respectively

Panel C, This table reports the coefficient estimates for *Tax expense* from Eq. (1), based on the regression in column 3 of Panel D that is estimated only for firms with low abnormal accruals, i.e., *High Abnormal Accruals* = 0. All coefficients are standardized (by demeaning all variables and dividing them by their standard deviation prior to regression), so they can be interpreted as the change in returns for a standard deviation change in *Tax expense*. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p<0.10$, 0.05, and 0.01 levels (two-tailed), respectively

Panel D, This table reports the estimates of Eq. (1) using raw buy-and-hold returns as the dependent variable. Columns 2, 5, 8, and 11 (columns 3, 6, 9, and 12) are estimated only for firms with high (low) abnormal accruals, i.e., *High Abnormal Accruals* = 1 (*High Abnormal Accruals* = 0). All coefficients for continuous variables are standardized (by demeaning all variables and dividing them by their standard deviation prior to regression), so they can be interpreted as the change in returns for a standard deviation change in the continuous independent variable. Year fixed effects (Y) and either industry (I) or firm (F) fixed effects are included in all specifications, and robust standard errors clustered by firm are used. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). The Strict Exogeneity *F*-statistic is the *F*-statistic from testing the strict exogeneity assumption per Wooldridge (2010). *, **, and *** denote statistical significance at the $p<0.10$, 0.05, and 0.01 levels (two-tailed), respectively. The adjusted R^2 in columns with firm fixed effects is a within-adjusted R^2, meaning that it reports the portion of returns variation explained by the independent variables after removing the variation attributable to firm fixed effects. All continuous variables are winsorized by year at the 1st and 99th percentiles. All variables are defined in the Appendix Table 6

because it provides them with more, or a better understanding of, tax-related performance information.

I next split my sample into firms with high and low abnormal accruals (*High Abnormal Accruals*) and present these results in Panels B and C, respectively. Ayers et al. (2009) document that the information content of imputed taxable income is significantly stronger for firms with noisier book income, while other research shows that tax information is particularly informative when earnings are managed upwards (Phillips et al. 2003; Blaylock et al. 2012; Demeré et al. 2019). As such, my results should be stronger for firms with high abnormal accruals if TRI is useful to investors.[25] Consistent with TRI being particularly useful to investors when book income is noisier, I find that these results become larger and stronger for firms with high abnormal accruals (in Panel B). For firms with low abnormal accruals (in Panel C), I find that the results are weaker, as expected. Specifically, the $INST \times POST \times Tax\ expense$ coefficient for these firms is insignificantly positive and the *Tax expense* coefficient for firms receiving institutional loans is insignificant in both the pre- and post-loan periods.

Finally, in Panel D of Table 2, 2 report the full regression analyses that support Panels A, B, and C in columns 1, 2, and 3, respectively. Inferences about the *Tax expense* coefficient and the type of information content TRI provides to equity investors are similar whether the *CTRL* vector of controls is included or not. I also find that my results are similar when firm fixed effects are included to address time-invariant omitted variables. However, I also find that the strict exogeneity assumption required of firm fixed effect models (Wooldridge 2010; Grieser and Hadlock 2019) is violated ($p < 0.1$) in all models, suggesting that firm fixed effects may introduce bias and thus be inappropriate in this context (Arellano 2003).

This table also allows me to directly compare the coefficients on $INST \times POST \times Pretax\ income$ and $INST \times POST \times Tax\ expense$.When estimating Eq. (1) on the entire sample or the high abnormal accrual subsample, the coefficient on $INST \times POST \times Pretax\ income$ is negative, in contrast to the positive coefficient on $INST \times POST \times Tax\ expense$.[26] If my results were attributable to the transmission of non-TRI information about performance or risk, then the performance information in pretax income and tax expense should be affected in the same way. However,

[25] I use signed abnormal accruals rather than absolute abnormal accruals because signed accruals better capture the upwards earnings management that makes tax information particularly informative. Conversely, economic shocks and unique firm characteristics that might produce large absolute abnormal accruals are likely to affect book and tax accounting similarly. Consistent with this idea, in untabulated analyses I do not find differences in my results across firms with high versus low *absolute* abnormal accruals.

[26] There are two possible explanations for the significant coefficient on $INST \times POST \times Pretax\ income$. First, it could indicate that private information that is unique to pretax income and not from tax returns is also being transmitted to equity markets. Second, the opposite signs on $INST \times POST \times Pretax\ income$ and $INST \times POST \times Tax\ expense$ could indicate that a substantial portion of the information in GAAP income and tax returns acts as a substitute. In other words, investors may rely substantially less on GAAP performance information, or better identify noise in GAAP information, when they also have access to performance information from TRI, consistent with information substitution (Gonedes 1978; Allen and Ramanan 1990; Cussatt and Demeré 2023).

the opposite signs on these coefficients indicate that investors are reacting to non-tax performance information in a very different way than they are reacting to tax-related performance information, consistent with investors reacting to information that is uniquely related to taxes (e.g., TRI).[27]

5.3 Tax anomaly analyses

I next estimate Eq. (2) to further triangulate the usefulness of TRI for equity investors, and report these results in Table 3, Panels A and B, with the supporting regressions reported in Panel C. In Panel A, I examine whether investors price the information in *Tax surprise* differently after they receive TRI. Across the four cells (2×2 for firms before and after the issuance of a syndicated loan and between institutional and non-institutional loans), I find that the *Tax surprise* anomaly only significantly exists for firms that receive institutional loans in the pre-loan period. Transforming this coefficient into an abnormal return based on a trading strategy that goes long in the upper decile of *Tax surprise* and shorts the lowest decile of *Tax surprise* shows that this mispricing yields a significant 10.26% annual return.[28] This result is consistent with the findings from testing Eq. (1) and could suggest that institutional investors participate in specific syndicated loans (rather than others) partly to obtain private tax-related performance information from the tax return. I also find that the transmission of TRI to equity markets eliminates this anomaly return, both overall and relative to the control sample (i.e., there is a significant difference in returns pre and post loan issuance for institutional loan borrowers, and the $INST \times POST \times Tax\ surprise$ coefficient reported in the bottom-right cell is significant), so, following the issuance of an institutional loan, there is no significant evidence of *Tax surprise* anomaly returns or difference in *Tax surprise* anomaly returns between institutional and non-institutional borrowers. These results suggest that the market differentially reacts to the tax information in financial statements when equity market participants are provided TRI, and that equity market pricing efficiency with respect to tax information improves as equity markets receive TRI.

In Panel B, I examine the effect of TRI on investor pricing of *Tax/Book*. I find that the *Tax/Book* anomaly is largest for firms that receive institutional loans in the pre-loan period, consistent with previous results. Transforming this coefficient into an abnormal return based on a trading strategy that goes long in the upper decile of *Tax/Book* and shorts the lowest decile of *Tax/Book* shows that this mispricing

[27] In untabulated analyses, I replace stock returns as my dependent variable with returns on assets and find that my difference-in-differences coefficient on *Tax expense* is insignificant for current return on assets or return on assets for the following two years, consistent with the baseline predictive ability of tax expense for firm profitability not differing for firms that receive an institutional syndicated loan.

[28] I report both coefficients and abnormal returns based on a trading strategy that goes long in the upper decile of *TAX* and shorts the lowest decile of *TAX*. These returns are calculated by multiplying the relevant standardized coefficient or standardized coefficient sum by the number of standard deviations that separate the 5th and 95th percentiles of *TAX*. The 5th and 95th percentiles were chosen for comparability to prior literature, given the prevalence of using decile-ranked anomaly variables in prior literature and given that the 5th and 95th percentiles lie midway in the first and tenth decile.

yields a significant 8.53% annual return. I also find that the transmission of TRI to equity markets through institutional syndicated loans economically (but not statistically) decreases this anomaly return by 71%, so, following the issuance of an institutional loan, there is no significant difference in *Tax/Book* anomaly returns between institutional and non-institutional borrowers.[29] Altogether, these anomaly results are consistent with TRI being useful to equity investors by helping them more efficiently price tax information and, along with the tests of Eq. (1), support a rejection of my null hypothesis.

5.4 Cross-sectional analyses

To further corroborate these results, I examine, in Table 4, how my results vary across five cross-sections. Bushman et al. (2010) find that lenders obtain access to information faster when (a) the lender is highly reputable, (b) the loan is subject to earnings-based financial covenants, and (c) borrowers have higher credit risk. Thus, my results may be stronger when these items are present. Ayers et al. (2009) document that the information content of imputed taxable income is weaker for firms with high tax avoidance, so I also split my sample into firms with high and low industry-adjusted cash effective tax rates (*High Tax Avoidance*) to examine whether TRI has a greater effect on firms that avoid more taxes. Finally, I also examine whether the effect of TRI is greater in the period before or after the implementation of Schedule M-3. Beginning with tax years ending on December 31, 2004, the IRS required that firms file Schedule M-3, which requires significant detail on all differences between book and taxable income.This additional schedule is "one of the most important new sources of information... in the last 40 years" (Donohoe and McGill 2011, 36) and represents a shock to the richness of TRI.

I examine how the Eq. (1) results vary across these cross-sections in Table 4, Panel A. In columns 1 through 6, I do not find any statistically significant evidence that the tax expense coefficient varies with proxies of lender information access speed. However, the test of coefficient differences between the two samples is subject to extremely high multicollinearity (VIFs > 38). Because multicollinearity inflates coefficient standard errors and thus reduces the power of analyses (Wooldridge 2016), it is not surprising that these tests of differences are statistically insignificant.

In columns 7 and 8 of Panel A, I find that the effect of TRI is more pronounced (and is only statistically significant) among firms that avoid more taxes ($p < 0.05$). This evidence suggests that investors can adjust for noise in financial statement tax amounts created by tax avoidance through access to TRI. In columns 9 and 10, I do not find a difference in the tax response coefficient across the pre- and post-Schedule M-3 periods, initially suggesting that Schedule M-3 may not be a significant source of the TRI lenders obtain and transmit to equity investors. However, this analysis should be interpreted cautiously, given that Schedule M-3 implementation occurred

[29] (8.53% – 2.51%)/8.53% = 0.71. The statistical insignificance may be due to high multicollinearity (VIF = 23.03).

Table 3 Tax Surprise (*Tax surprise*) Anomaly Analysis, Lev and Nissim (*Tax/Book*) Anomaly Analysis, Tax Anomaly Regressions

Panel A: Tax Surprise (*Tax surprise*) Anomaly Analysis

	Pre Loan Issuance	**Post Loan Issuance**	**Differences**
Non-institutional Loan	−0.057 −14.99% (1.33)	−0.005 −1.32% (0.55)	0.053 13.68% (1.14)
Institutional Loan	0.039††† 10.26% (2.33)	−0.009 −2.37% (0.89)	−0.048** −12.62% (2.51)
Differences	0.096** 25.25% (2.03)	−0.004 −1.05% (0.35)	−0.100** (2.00)

Panel B: Lev and Nissim (*Tax/Book*) Anomaly Analysis

	Pre Loan Issuance	**Post Loan Issuance**	**Differences**
Non-institutional Loan	−0.010 −2.51% (0.52)	−0.001 −0.25% (0.07)	0.009 2.26% (0.41)
Institutional Loan	0.034†† 8.53% (2.09)	0.010† 2.51% (1.30)	−0.025 −6.02% (1.28)
Differences	0.044* 11.04% (1.82)	0.011 2.76% (0.92)	−0.034 (1.24)

Panel C: Tax Anomaly Regressions

	(1)	(2)
	FF Returns	*FF Returns*
INST	−0.081* (1.83)	−0.067* (1.75)
POST	0.005 (0.18)	0.010 (0.39)
INST×*POST*	0.051 (1.10)	0.044 (1.06)
Tax surprise	−0.057 (1.33)	
INST×*Tax surprise*	0.096** (2.03)	
POST×*Tax surprise*	0.053 (1.14)	
INST*×*POST*×*Tax surprise	−0.100** (2.00)	
Tax/Book		−0.010 (0.52)
INST×*Tax/Book*		0.044* (1.82)
POST×*Tax/Book*		0.009 (0.41)
INST*×*POST*×*Tax/Book		−0.034 (1.24)
Lag returns	0.003 (0.55)	0.000 (0.01)
Earnings/Price	0.023** (2.00)	0.022** (2.10)
Cash flows/Price	−0.017 (1.61)	−0.017 (1.60)

Table 3 (continued)

Pretax accruals	−0.023*	−0.024*
	(1.76)	(1.74)
Abnormal accruals	0.010	0.007
	(1.31)	(0.94)
Special items	0.016	0.016
	(0.95)	(1.05)
NOLs	−0.007	0.002
	(0.94)	(0.18)
Leverage	0.027	0.026
	(1.53)	(1.63)
Altman's Z	0.022***	0.016*
	(2.59)	(1.93)
Earnings volatility	0.002	0.006
	(0.28)	(0.83)
Cash flow volatility	−0.008*	−0.009**
	(1.87)	(2.13)
Default probability	−0.002	−0.001
	(0.28)	(0.17)
Book-to-market	0.035	0.033
	(1.12)	(1.13)
Beta	−0.044***	−0.045***
	(7.27)	(7.46)
Return volatility	−0.010	−0.012
	(0.67)	(0.88)
Size	−0.022*	−0.025*
	(1.72)	(1.92)
Cash	0.007	0.006
	(0.90)	(0.81)
ROA	−0.024	−0.017
	(1.28)	(1.09)
Minority interest	−0.002	−0.002
	(0.44)	(0.39)
CapEx	−0.001	−0.000
	(0.15)	(0.07)
R&D	0.010	0.007
	(1.24)	(1.00)
SG&A surprise	0.011	−0.005
	(1.62)	(0.42)
Earnings surprise	0.006	−0.003
	(0.89)	(0.39)
Sales surprise	0.000	0.005
	(0.02)	(0.44)
External financing	−0.011**	−0.012**
	(2.28)	(2.46)
Institutional ownership	−0.017	−0.017
	(1.37)	(1.40)
Analyst following	0.023**	0.022**
	(2.42)	(2.22)
Specialist	0.044	0.049
	(0.73)	(0.84)
Specialist × POST	−0.046	−0.053
	(0.70)	(0.82)
Restructuring	0.038	0.032
	(0.87)	(0.74)
Restructuring × POST	−0.027	−0.017
	(0.56)	(0.36)

Table 3 (continued)

Secured	0.015	0.008
	(0.49)	(0.30)
Secured×*POST*	−0.010	−0.007
	(0.29)	(0.22)
Intercept	−0.243	−0.241
	(1.63)	(1.48)
Observations	8,739	8,548
Adjusted R^2	0.693	0.690

Panel A, This table reports coefficient estimates for *Tax surprise* from Eq. (2), based on the regression in column 1 of Panel C. All coefficients are standardized (by demeaning all variables and dividing them by their standard deviation prior to regression), so they can be interpreted as the change in returns for a standard deviation change in *Tax surprise*. Anomaly returns are computed by multiplying the relevant standardized coefficient by an adjustment factor, which is the number of standard deviations that separate the 5th and 95th percentiles of *Tax surprise* (2.63). The 5th and 95th percentiles were chosen for ease in comparing returns to prior research, given the prevalence of decile-ranked anomaly variables in prior research and given that the 5th and 95th percentiles lie midway in the first and tenth deciles. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (two-tailed), respectively, while †, ††, and ††† denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (one-tailed), respectively. I use one-tailed tests for the main effects of the anomaly given significant prior evidence of tax anomalies (e.g., Thomas and Zhang 2011)

Panel B, This table reports coefficient estimates for *Tax/Book* from Eq. (2), based on the regression in column 2 of Panel C. All coefficients are standardized (by demeaning all variables and dividing them by their standard deviation prior to regression), so they can be interpreted as the change in returns for a standard deviation change in *Tax/Book*. Anomaly returns are computed by multiplying the relevant standardized coefficient by an adjustment factor, which is the number of standard deviations that separate the 5th and 95th percentiles of *Tax/Book* (2.51). The 5th and 95th percentiles were chosen for ease in comparing returns to prior research, given the prevalence of using decile-ranked anomaly variables in prior research and that the 5th and 95th percentiles lie midway in the first and tenth deciles. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (two-tailed), respectively, while †, ††, and ††† denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (one-tailed), respectively. I use one-tailed tests for the main effects of the anomaly given significant prior evidence of tax anomalies (e.g., Lev and Nissim 2004)

Panel C, This table reports the estimates of Eq. (2) using Fama and French (2015) abnormal returns as the dependent variable. All coefficients for continuous variables are standardized (by demeaning all variables and dividing them by their standard deviation before performing the regression), so they can be interpreted as the change in returns for a standard deviation change in the continuous independent variable. Industry and year fixed effects are included in all specifications, and robust standard errors clustered by firm are used. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (two-tailed), respectively. All continuous variables are winsorized by year at the 1st and 99th percentiles. All variables are defined in the Appendix Table 6

Table 4 Tax Response Coefficient Cross-Sectional Analyses, *Tax surprise* Anomaly Cross-Sectional Analyses, *Tax/Book* Anomaly Cross-Sectional Analyses

Panel A: Tax Response Coefficient Cross-Sectional Analyses

Dependent Variable:	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Returns	***Specialist***		***Earnings Covenant***		***High Default Risk***		***High Tax Avoidance***		***Post M3***	
	=1	**=0**	**=1**	**=0**	**=1**	**=0**	**=1**	**=0**	**=1**	**=0**
INST	0.036	0.058	0.088	0.080	0.250	0.163	−0.048	−0.014	0.023	−0.059
	(0.38)	(0.57)	(1.04)	(0.52)	(1.44)	(1.43)	(0.48)	(0.25)	(0.22)	(0.79)
POST	0.026	−0.044	0.063	−0.087*	−0.265*	−0.003	−0.083*	0.035	−0.013	0.092
	(0.34)	(1.12)	(1.20)	(1.78)	(1.93)	(0.07)	(1.75)	(0.69)	(0.22)	(1.32)
INST×POST	−0.010	−0.083	−0.174*	−0.024	−0.097	−0.187	0.008	0.083	−0.052	0.010
	(0.09)	(0.75)	(1.94)	(0.14)	(0.45)	(1.54)	(0.07)	(1.17)	(0.44)	(0.10)
Tax expense	0.658	1.731**	2.233**	0.803	1.011	0.568	0.527	3.099***	2.106**	−1.502
	(0.60)	(2.18)	(2.18)	(0.99)	(0.78)	(0.99)	(0.68)	(2.90)	(2.20)	(0.98)
INST×Tax expense	−9.137***	−7.522***	−6.185***	−10.363**	−4.914***	−8.336**	−9.041***	−2.639	−1.926	−3.719**
	(4.89)	(2.67)	(3.51)	(2.32)	(2.75)	(2.08)	(3.04)	(1.38)	(0.74)	(2.00)
POST×Tax expense	0.385	−1.427	−2.239*	−0.136	−2.277	0.206	−0.738	−1.673	−1.424	1.750
	(0.23)	(1.62)	(1.85)	(0.13)	(1.52)	(0.24)	(0.78)	(1.39)	(1.15)	(1.12)
INST×POST×Tax expense	**9.370*** **	**8.411*** **	**7.529*** **	**10.974** **	**6.653*** **	**8.713** **	**10.291*** **	**2.306**	**5.128***	**4.638** **
	(4.04)	**(2.88)**	**(3.83)**	**(2.36)**	**(3.22)**	**(2.03)**	**(3.25)**	**(1.11)**	**(1.77)**	**(2.32)**
Pretax income	0.860	0.078	−0.035	0.514**	0.215	0.717***	0.296*	0.160	−0.072	2.075***
	(1.34)	(0.57)	(0.22)	(1.97)	(1.03)	(3.15)	(1.93)	(0.63)	(0.23)	(3.24)
INST×Pretax income	3.152***	1.872**	1.977***	1.588	1.989***	1.393	3.021***	1.250	0.203	0.647
	(4.63)	(2.09)	(3.01)	(1.02)	(3.60)	(1.06)	(3.10)	(1.61)	(0.31)	(0.81)
POST×Pretax income	−0.861	−0.221	−0.092	−0.590*	−0.352	−0.450	−0.408***	0.270	0.171	−1.976***
	(1.26)	(1.16)	(0.40)	(1.76)	(1.38)	(1.12)	(2.70)	(0.76)	(0.46)	(2.97)
INST×POST×Pretax income	−2.580***	−1.384	−1.404**	−1.194	−1.522***	−0.906	−2.273**	−1.538*	−0.127	−0.512
	(3.31)	(1.51)	(1.99)	(0.76)	(2.63)	(0.65)	(2.24)	(1.87)	(0.18)	(0.62)
Institutional ownership	−0.090	−0.183***	−0.078	−0.284***	−0.314*	−0.200***	−0.175**	−0.166***	−0.108*	−0.170
	(1.10)	(2.74)	(1.19)	(3.83)	(1.90)	(3.51)	(2.31)	(2.60)	(1.76)	(1.58)
Intercept	−0.289	0.056	−0.107	0.072	−0.177	−0.093	−0.079	0.255*	−0.181	0.589**
	(1.47)	(0.32)	(0.51)	(0.39)	(0.53)	(0.60)	(0.61)	(1.89)	(0.86)	(2.57)

Table 4 (continued)

Test of Differences: *INST×POST×Tax expense*	0.959 (0.26)		−3.445 (0.68)		−2.06 (0.43)		7.986** (2.11)		0.490 (0.14)	
Test VIF	65.70		52.67		38.13		54.68		45.79	
Observations	2,517	5,979	3,145	5,351	590	7,138	3,297	4,486	3,381	3,544
Adjusted R^2	0.353	0.225	0.270	0.232	0.519	0.221	0.297	0.237	0.359	0.166

Panel B: *Tax surprise* Anomaly Cross-Sectional Analyses

Dependent Variable:	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
FF Returns	***Specialist***		***Earnings Covenant***		***High Default Risk***		***High Tax Avoidance***		***Post M3***	
	=1	**=0**	**=1**	**=0**	**=1**	**=0**	**=1**	**=0**	**=1**	**=0**
INST	−0.198* (1.65)	−0.053* (1.70)	−0.146** (2.06)	0.003 (0.09)	−0.224 (1.54)	−0.006 (0.31)	−0.179** (2.17)	−0.005 (0.21)	−0.179* (1.75)	−0.003 (0.40)
POST	−0.097* (1.71)	0.033 (1.16)	−0.035 (0.64)	0.047* (1.66)	−0.143 (1.00)	0.039* (1.86)	−0.034 (0.67)	0.048* (1.89)	−0.051 (0.53)	0.036*** (2.93)
INST×POST	0.211* (1.68)	0.006 (0.17)	0.116 (1.57)	−0.024 (0.58)	0.288* (1.90)	−0.029 (1.24)	0.135 (1.57)	−0.007 (0.24)	0.194* (1.83)	−0.068*** (3.11)
Tax surprise	−3.601* (1.68)	−0.707 (0.64)	−3.562 (1.62)	0.373 (1.05)	−9.735** (2.51)	0.445 (1.62)	−4.079** (2.09)	0.675* (1.74)	−3.945* (1.74)	0.259 (1.05)
INST×Tax surprise	5.853* (1.83)	1.807 (1.53)	4.693* (1.92)	1.357 (1.51)	9.070** (1.98)	0.892 (1.44)	4.516** (2.39)	1.200 (1.10)	6.636** (2.20)	0.098 (0.38)
POST×Tax surprise	3.727 (1.41)	0.574 (0.49)	3.274 (1.41)	−0.433 (0.97)	11.052** (2.26)	−0.703* (1.86)	3.975* (1.93)	−0.584 (1.04)	3.666 (1.50)	−0.364 (0.94)
INST×POST×Tax surprise	**−6.375*** **(1.81)**	**−1.888** **(1.48)**	**−4.881**** **(2.00)**	**−0.986** **(0.93)**	**−12.627**** **(2.28)**	**−0.523** **(0.71)**	**−4.551**** **(2.32)**	**−1.177** **(0.96)**	**−7.305**** **(2.27)**	**0.311** **(0.63)**
Intercept	−0.635*** (3.04)	−0.094 (0.51)	−0.402 (1.61)	0.323** (2.33)	0.358 (0.89)	−0.146 (0.89)	0.066 (0.33)	−0.163 (1.01)	−0.219 (0.44)	−0.819*** (10.86)
Test of Differences: *INST×POST×Tax surprise*	−4.487 (1.20)		−4.782* (1.46)		−12.104*** (2.34)		−3.374* (1.46)		−7.616*** (2.34)	
Test VIF	30.41		51.07		69.95		41.25		37.68	

Table 4 (continued)

Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,110	5,629	3,722	5,017	561	8,178	3,686	4,885	4,051	3,276
Adjusted R^2	0.709	0.706	0.693	0.739	0.667	0.740	0.672	0.750	0.591	0.556
Panel C: *Tax/Book* Anomaly Cross-Sectional Analyses										
Dependent Variable:	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
FF Returns	***Specialist***		***Earnings Covenant***		***High Default Risk***		***High Tax Avoidance***		***Post M3***	
	=1	**=0**	**=1**	**=0**	**=1**	**=0**	**=1**	**=0**	**=1**	**=0**
INST	−0.180	−0.076**	−0.184**	−0.005	−0.078	−0.015	−0.146*	−0.045	−0.207*	−0.005
	(1.26)	(2.09)	(1.99)	(0.15)	(0.38)	(0.60)	(1.88)	(1.12)	(1.90)	(0.50)
POST	−0.087	0.029	−0.036	0.063**	−0.277*	0.046*	−0.026	0.054*	−0.062	0.050***
	(1.19)	(0.94)	(0.58)	(2.04)	(1.69)	(1.93)	(0.53)	(1.74)	(0.59)	(2.66)
INST×POST	0.180	0.029	0.145	−0.016	0.145	−0.022	0.109	0.022	0.220*	−0.070**
	(1.22)	(0.73)	(1.54)	(0.46)	(0.70)	(0.75)	(1.34)	(0.48)	(1.92)	(2.27)
Tax/Book	0.020	−0.008	−0.039	0.012*	−0.057	0.015***	−0.020	0.012	−0.031	0.002
	(0.63)	(0.71)	(0.85)	(1.65)	(0.63)	(2.84)	(0.70)	(1.27)	(0.77)	(0.66)
INST×Tax/Book	0.003	0.046**	0.088*	0.031	−0.096	0.018	0.040	0.038	0.102*	0.002
	(0.07)	(2.05)	(1.65)	(0.66)	(0.67)	(1.11)	(1.22)	(1.43)	(1.90)	(0.26)
POST×Tax/Book	−0.018	0.005	0.046	−0.03**	0.068	−0.016	0.015	−0.008	0.041	−0.017
	(0.51)	(0.30)	(0.95)	(2.55)	(0.67)	(1.57)	(0.44)	(0.64)	(0.91)	(1.19)
INST×POST×Tax/Book	**0.014**	**−0.038**	**−0.076**	**−0.016**	**0.106**	**−0.007**	**−0.035**	**−0.027**	**−0.092**	**0.014**
	(0.28)	**(1.40)**	**(1.40)**	**(0.32)**	**(0.74)**	**(0.31)**	**(0.94)**	**(0.90)**	**(1.48)**	**(0.71)**
Intercept	−0.675***	−0.044	−0.405*	0.367***	0.518	−0.129	0.077	−0.173	−0.192	−0.800***
	(3.53)	(0.24)	(1.69)	(2.74)	(1.20)	(0.74)	(0.38)	(0.96)	(0.39)	(10.45)
Test of Differences: *INST×POST×Tax/Book*	0.052		−0.060		0.113		−0.008		−0.106*	
	(0.92)		(0.82)		(0.84)		(0.17)		(1.61)	
Test VIF	45.87		109.33		73.47		45.62		45.79	
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,059	5,489	3,636	4,912	531	8,017	3,588	4,806	4,014	3,162
Adjusted R^2	0.698	0.704	0.690	0.731	0.631	0.736	0.663	0.744	0.582	0.557

Table 4 (continued)

Panel A, This table reports the estimates of Eq. (1) using raw buy-and-hold returns as the dependent variable. All columns are estimated only for firms with high abnormal accruals (i.e., *High Abnormal Accruals* = 1) as these observations are where the effects in Table 2 are most concentrated. Further,

- column 1 is estimated only for observations with a loan lead arranger who is an industry specialist;
- column 2 is estimated only for observations with a loan lead arranger who is not an industry specialist;
- column 3 is estimated only for observations whose loan contains an earnings-based financial covenant;
- column 4 is estimated only for observations whose loan does not contain an earnings-based financial covenant;
- column 5 is estimated only for observations with an expected default probability greater than 0;
- column 6 is estimated only for observations with an expected default probability equal to 0;
- column 7 is estimated only for observations classified as high tax avoiders (i.e., having a low industry-adjusted cash effective tax rate);
- column 8 is estimated only for observations classified as low tax avoiders (i.e., having a high industry-adjusted cash effective tax rate);
- column 9 is estimated only for loan issuances occurring in 2007 or later, so that the entire six-year window occurs post Schedule M-3 implementation; and
- column 10 is estimated only for loan issuances occurring in 2001 or earlier, so that the entire six-year window occurs pre Schedule M-3 implementation

Industry and year fixed effects are included in all specifications, and robust standard errors clustered by firm are used. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (two-tailed for regression coefficients, one-tailed for tests of differences), respectively. All continuous variables are winsorized by year at the 1st and 99th percentiles. All variables are defined in the Appendix Table 6

Panel B and C, This table reports the estimates of Eq. (2) using Fama and French (2015) abnormal returns as the dependent variable. Further,

- column 1 is estimated only for observations with a loan lead arranger who is an industry specialist;
- column 2 is estimated only for observations with a loan lead arranger who is not an industry specialist;
- column 3 is estimated only for observations whose loan contains an earnings-based financial covenant;
- column 4 is estimated only for observations whose loan does not contain an earnings-based financial covenant;
- column 5 is estimated only for observations with an expected default probability greater than 0;
- column 6 is estimated only for observations with an expected default probability equal to 0;
- column 7 is estimated only for observations classified as high tax avoiders (i.e., having a low industry-adjusted cash effective tax rate);
- column 8 is estimated only for observations classified as low tax avoiders (i.e., having a high industry-adjusted cash effective tax rate);
- column 9 is estimated only for loan issuances occurring in 2007 or later, so that the entire six-year window occurs post Schedule M-3 implementation; and
- column 10 is estimated only for loan issuances occurring in 2001 or earlier, so that the entire six-year window occurs pre Schedule M-3 implementation

Industry and year fixed effects are included in all specifications, and robust standard errors clustered by firm are used. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (two-tailed for regression coefficients, one-tailed for tests of differences), respectively. All continuous variables are winsorized by year at the 1st and 99th percentiles. All variables are defined in the Appendix Table 6

relatively concurrently with a growth in institutional investor involvement in syndicated loan markets (Taylor and Sansone 2007) and other regulatory events (e.g., the Sarbanes–Oxley Act and Regulation Fair Disclosure).

In Panels B and C of Table 4, 4 explore how the tax anomaly results vary across these same cross-sections. Focusing first on the *Tax surprise* anomaly (Thomas and Zhang 2011) in Panel B, I find in columns 1 and 2 that the effect of TRI on anomaly returns is only statistically significant when the lender is a highly reputable industry specialist. However, the difference in TRI effects between loans with and without a reputable lead arranger is not statistically significant. In columns 3 through 6, I find that the effect of TRI in reducing *Tax surprise* anomaly returns is concentrated among loans with earnings-based financial covenants and high default risk ($p < 0.1$). These results are consistent with the effect of TRI being stronger when information flows to lenders faster (Bushman et al. 2010).

In columns 7 and 8 of Panel B, I find that the effect of TRI is concentrated among firms with a high degree of tax avoidance relative to their industry, consistent with TRI being particularly beneficial when tax disclosures in the financial statements are noisier (Ayers et al. 2009). Together with similar evidence from Panel A, this result is also consistent with the tax return disclosure proponents' arguments that disclosure would alleviate the difficulties investors have in determining firms' tax avoidance strategies (McGill and Outslay 2004). In columns 9 and 10, I find that TRI can more effectively reduce the *Tax surprise* anomaly in the period after Schedule M-3 implementation. This result could suggest that the information in Schedule M-3 may be particularly valuable to investors in efficiently pricing firms' equity. However, these results could also suggest that the value of other TRI or access to TRI by equity markets has increased over time, as the role of institutional investors in the syndicated loan market has increased.

Finally, in Table 4, Panel C, I examine cross-sectional variation in the effect of TRI in reducing the *Tax/Book* anomaly (Lev and Nissim 2004). I do not find statistically different effects of TRI across lender information acquisition speed or borrower tax avoidance in the first eight columns. These insignificant results may be due to the considerable multicollinearity (e.g., VIFs > 45) that reduces the power of these tests. It is also possible that the *Tax/Book* anomaly is not sensitive to lender information acquisition speed, because it may take even sophisticated market participants time to fully recognize the information content in *Tax/Book* (Plumlee 2003; Weber 2009). Even with low test power, I find significant ($p < 0.1$) evidence that the effect of TRI in reducing *Tax/Book* anomaly returns is greater in the post-Schedule M-3 period, consistent with the *Tax surprise* results in Panel B.

5.5 Robustness and placebo tests

To evaluate the validity of my results, I also perform several untabulated robustness and placebo tests. First, I test the parallel trends assumption of a difference-in-differences estimator using a dynamic trend analysis (Autor 2003). Across tests of Eq. (1) and (2), I do not find statistically significant treatment leads or trends that would indicate a violation of the parallel trend assumption, suggesting that

my results are validly identified through a difference-in-differences design. I also include treatment- and control-specific trend variables (Besley and Burgess 2004; Angrist and Pischke 2009), which address general trends in tax expense valuation and tax anomaly returns over time and force identification through a sharp change in these items at loan issuance, and find that my results retain similar statistical and economic significance.

To help ensure that the tax expense valuation analyses capture tax-related information and not private non-tax information received by lenders, in untabulated analyses I replace *Pretax income* and *Tax expense* with either (a) sales and cost of goods sold expense or (b) gross profit and selling, general, and administrative expenses (all variables scaled by the lagged market value of equity). If my results or the patterns in my results are due to my research design, general changes in income versus expense valuation around loan issuances, or non-tax information that is correlated with non-tax expenses, revenues, or gross profits, then I would expect to find a similar pattern of significant results in these analyses. However, I do not find results in either case, consistent with the differential investor reaction following the implementation of an institutional syndicated loan being unique to tax information.

I also use non-tax anomalies as placebo variables by including a full set of difference-in-differences interactions with the non-tax anomaly variables *Earnings surprise*, *Pretax accruals*, *Abnormal accruals*, *External financing*, *Earnings/Price*, and *Cash flows/Price* in untabulated analyses. I continue to find statistically higher tax anomaly returns in the pre-loan period and a significant reduction in *TAX* anomaly returns in the post-loan period for institutional loan borrowers. However, I do not find any statistically significant evidence that the returns to the non-tax anomalies related to *Earnings surprise*, *Pretax accruals*, *Abnormal accruals*, and *External financing* differ between institutional and non-institutional loan borrowers. For the value-glamor anomaly (i.e., *Earnings/Price* and *Cash flows/Price*), I find a statistically significant difference between institutional and non-institutional loan borrowers; however, this difference suggests that borrowers experience *larger* anomaly returns following the issuance of an institutional loan.[30] Altogether, this evidence suggests that my primary results capture the transmission of information that is uniquely related to taxes (e.g., TRI).

To further explore whether differences in risk between institutional and non-institutional loans or transfers of non-tax risk information influence my results, in untabulated analyses I also control for, and entropy balance on, the credit rating of the borrower. Doing so holds constant sophisticated market participants' perceptions of total firm risk but comes at the expense of controlling for (a) TRI that credit rating agencies receive and use in rating firms and (b) tax information that credit rating agencies use more effectively than equity investors, which is why I do not

[30] It is not clear why these anomaly returns increase following the likely transmission of private information to equity markets, unless the confidence from having private information exacerbates investors' fixation on past performance that underlies value-glamor mispricing (Desai et al. 2004). For my study, the importance of this finding is simply that non-tax anomaly variables produce very different results than tax anomaly variables, supporting that I am capturing transmission of private TRI and not other non-tax private information.

include this control variable in tabulated analyses. I find that all inferences remain unchanged, except that the *Tax/Book* anomaly results become insignificant. This evidence is consistent with prior research that shows that credit ratings agencies adjust their ratings for BTDs, such as those captured by *Tax/Book* (Crabtree and Maher 2009; Ayers et al. 2010), though it is not clear whether this implies (a) that the *Tax/Book* results are affected by risk, or (b) that controlling for credit ratings eliminates variation due to BTD-related TRI that is contained in credit ratings.

To test whether a similar pattern of results could be obtained by any sequence of non-loan observations, I perform a placebo test by randomly classifying 3,000 firm-years as institutional loan issuance dates, and an additional 12,000 firm-years as non-institutional loan issuance dates. Using 500 simulation iterations, I find that the placebo results for Table 2 and Table 4 do not reject the null hypothesis significantly more or less than a random variable (all $p > 0.3$). I also repeat this analysis but instead randomly classify 15,000 firm-years as loan issuance dates and then select the 3,000 firm-years with the greatest score from a principal component analysis of seven risk variables (i.e., *Beta*, *Return volatility*, *Earnings volatility*, *Cash flow volatility*, *Leverage*, *Altman's Z*, and *Default probability*) to be classified as institutional loan issuance dates. This effectively embraces any potential correlated omitted variable bias by making only the riskiest observations the "institutional loans" and thus should produce similar or stronger results than what I find if an omitted risk factor is driving my results. Nevertheless, in 500 simulation iterations, I find that these placebo results do not reject the null hypothesis more or less frequently than a random variable (all $p > 0.15$). I conclude that my results are not likely to be an artifact of my design, risk factors, or transmission of non-tax information, and that unique tax-related information (e.g., TRI) is transmitted to equity markets following institutional loan issuances.

5.6 Institutional investor participation in loan syndicates

In both the tax expense valuation and tax anomaly tests, I find significant differences in tax expense valuation and tax anomaly returns in the pre-loan period between borrowers with and without institutional investors in their loan syndicates. These results indicate that institutional investors may target particular loan syndicates over others based on access to valuable TRI that can generate additional trading returns. As such, I also explore whether tax characteristics are previously undocumented determinants of institutional investor participation in loan syndicates.[31] To perform this analysis, I use the determinants model of Massoud et al. (2011) to predict

[31] Prior research that finds that mutual funds change their investments based on tax-related information processing costs (Doellman et al. 2020) and that tax avoidance and related tax information opacity discourage analysts from following certain firms (He et al. 2020). Tax avoidance and the corresponding declines in the quality of tax-related information in financial statements (Ayers et al. 2009; Balakrishnan et al. 2019) have also been shown to affect the pricing, maturity structure, and features of bank loans (Hasan et al. 2014; Platikanova 2017; Isin 2018), consistent with lenders changing loan offerings in response to tax information.

institutional investor participation in loan syndicates (*INST* = 1).[32] I then add several measures of tax information characteristics and report the results in Table 5.

In columns 1 and 2, I find that firms with lower tax expense and more negative tax expense surprises are more likely to have institutional investors included in the loan syndicate. This result is consistent with prior research that shows that (a) paying lower taxes motivates lower-quality financial reporting (Chen et al. 2018; Balakrishnan et al. 2019) and can enable abnormal insider trading profits (Chung et al. 2019), and (b) institutional investors seek out borrowers with opaque information environments (Massoud et al. 2011), where access to private information is most valuable and where abnormal returns can be generated from access to this information (Lim et al. 2014).

I do not find that the ratio of imputed taxable income (a linear transformation of tax expense) to book income in the year of loan initiation is associated with institutional investor syndicate participation in column 3. However, column 4 reports that having relatively lower taxable income than book income in the year prior to loan issuance is significantly associated with the likelihood that a loan syndicate is targeted toward institutional investors, consistent with the tax expense results.

In column 5, I explore whether *Negative BTDs* are associated with institutional investor participation in loan syndicates. Negative BTDs can proxy for both tax avoidance (Desai and Dharmapala 2006) and earnings management (Phillips et al. 2003) and act as red flags (Hanlon 2005) that may encourage tax reporting opacity. I find that larger negative BTDs are associated with institutional investor syndicate participation, consistent with institutional investors seeking out opaque information environments (Massoud et al. 2011).

Finally, I test whether variation in tax outcomes may signal the value of private information to institutional investors. In columns 6 and 7, I test whether the likelihood of having institutional investors in a loan syndicate is associated with the five-year standard deviation of cash effective tax rates (*Tax risk*) (Guenther et al. 2017) and the five-year standard deviation of imputed taxable income (*Tax Income Variation*). I find a significant association with *Tax risk*, indicating that more variation in tax avoidance predicts whether institutional investors are included in a loan syndicate, but no association with concurrent *Tax Income Variation*. However, I find, in column 9, that *Tax Income Variation* measured the year prior to loan issuance is significantly associated with institutional investor syndication involvement. Together, these results suggest that institutional investors may consider tax-related information

[32] I also include analyst coverage (the borrower variable included in Lim et al. (2014) that does not have a counterpart in the Massoud et al. (2011) model) and abnormal accruals as a common measure of financial information quality. I use the Massoud et al. (2011) model because (a) I do not expect hedge fund participation in syndicated loans to materially differ from the participation of institutional investors more broadly and (b) this model contains more borrower-specific determinants than the model of Lim et al. (2014). All of these tests are run using data only from the year of loan initiation unless otherwise noted, and the sample is not restricted by requiring data for variables in *CTRL2* that are not included in the Massoud et al. (2011) model.

Table 5 Determinants of Institutional Investor Involvement in Syndicated Loans

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	INST	*INST*	*INST*	*INST*	*INST*	*INST*	*INST*	*INST*
Ind. variables at:	*t*	*t*	*t*	*t−1*	*t*	*t*	*t*	*t−1*
Tax expense	−1.635**							
	(2.02)							
Tax surprise		−2.622*						
		(1.74)						
Tax/Book			−0.050	−0.136**				
			(0.79)	(2.47)				
Negative BTDs					2.167***			
					(4.17)			
Tax risk						0.987**		
						(2.19)		
Tax income variation							0.072	0.301***
							(1.31)	(4.25)
Size	−0.092*	−0.093*	−0.081*	−0.159***	−0.079	−0.078	−0.094*	−0.165***
	(1.93)	(1.95)	(1.69)	(3.21)	(1.64)	(1.56)	(1.85)	(3.17)
Default probability	−0.456	−0.379	−0.473	0.282	−0.477	−0.563*	−0.524	0.362
	(1.36)	(1.16)	(1.46)	(0.95)	(1.45)	(1.66)	(1.52)	(1.16)
Altman's Z	−0.008	−0.008	−0.007	−0.006	−0.006	−0.010	0.001	0.005
	(0.65)	(0.57)	(0.49)	(0.32)	(0.50)	(0.60)	(0.06)	(0.28)
Cash	−0.199	−0.169	0.110	0.470	0.119	0.266	−0.018	0.450
	(0.33)	(0.28)	(0.19)	(0.93)	(0.21)	(0.41)	(0.03)	(0.84)
Leverage	2.129***	2.138***	2.478***	0.615**	2.528***	2.516***	2.481***	0.610**
	(7.19)	(7.12)	(9.40)	(2.14)	(9.60)	(9.45)	(8.87)	(2.05)
Book-to-market	0.189***	0.193***	0.208***	0.093	0.214***	0.214***	0.257***	0.104
	(3.23)	(3.29)	(3.64)	(1.35)	(3.75)	(3.70)	(3.75)	(1.53)
ROA	0.171	0.106	−0.212	−0.171	−0.218	−0.421	−0.368	−0.877
	(0.27)	(0.17)	(0.47)	(0.28)	(0.62)	(1.13)	(0.80)	(1.45)

Table 5 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	INST	*INST*	*INST*	*INST*	*INST*	*INST*	*INST*	*INST*
Ind. variables at:	*t*	*t*	*t*	*t−1*	*t*	*t*	*t*	*t−1*
Sales surprise	0.304***	0.317***	0.315***	−0.025	0.315***	0.328***	0.303***	−0.125
	(4.43)	(4.48)	(4.58)	(0.17)	(4.54)	(4.37)	(4.21)	(0.99)
Beta	7.235	7.175	6.891	6.820	7.402	5.197	9.251	7.247
	(1.09)	(1.08)	(1.01)	(0.98)	(1.09)	(0.74)	(1.31)	(1.01)
Return volatility	2.150*	2.275*	2.031*	0.574	1.800	2.722**	2.125	0.515
	(1.82)	(1.94)	(1.65)	(0.54)	(1.46)	(2.23)	(1.61)	(0.46)
Institutional ownership	0.220	0.221	0.274	−0.236	0.269	0.215	0.240	−0.260
	(0.80)	(0.80)	(0.97)	(0.75)	(0.95)	(0.73)	(0.80)	(0.80)
Abnormal accruals	−0.038	−0.042	0.044	0.173	0.118	−0.154	0.125	0.525**
	(0.18)	(0.19)	(0.23)	(0.31)	(0.63)	(0.58)	(0.63)	(2.04)
Analyst following	−0.170**	−0.168**	−0.192**	−0.082	−0.195**	−0.145*	−0.176**	−0.086
	(2.20)	(2.17)	(2.42)	(0.94)	(2.46)	(1.76)	(2.12)	(0.95)
Intercept	−2.095**	−2.150**	−2.317**	−0.981	−2.347**	−2.641***	−2.663**	−0.888
	(2.05)	(2.13)	(2.27)	(0.88)	(2.31)	(2.60)	(2.39)	(0.79)
Observations	9,418	9,418	9,165	8,386	9,165	8,917	8,660	7,905
Pseudo R^2	0.105	0.105	0.113	0.080	0.117	0.114	0.113	0.084

This table reports logit regressions with a proxy for institutional investor involvement in a loan syndicate (*INST*) as the dependent variable. Independent variables are alternately measured as of the year of loan issuance (*t*) or the year preceding the loan issuance (*t−1*). Industry and year fixed effects are included in all specifications, and robust standard errors are used. Absolute t statistics are reported in parentheses (all based on two-tailed t-tests). *, **, and *** denote statistical significance at the $p < 0.10$, 0.05, and 0.01 levels (two-tailed), respectively. All continuous variables are winsorized by year at the 1st and 99th percentiles. All variables are defined in the Appendix Table 6

opacity in syndicate participation decisions and choose to participate in particular loan syndicates to obtain TRI that can generate additional trading profits.[33]

6 Conclusion

I examine whether tax returns are useful to equity investors, providing evidence to inform the policy debate over whether tax returns should be publicly disclosed (Lenter et al. 2003; Morris 2015), and extend the literature on the information in tax disclosures (e.g., Hanlon et al. 2005; Ayers et al. 2009). Through many robust empirical tests, I find indirect evidence to support that TRI can aid equity investors in valuation. Specifically, I document that tax expense response coefficients increase and tax-related market anomalies decline following the issuance of a syndicated loan where lenders obtain tax returns, but only for loans designed for institutional investors that can transmit the information to equity markets (Bushman et al. 2010; Ivashina and Sun 2011). I also document cross-sectional evidence of greater effects of TRI when lenders obtain information faster and when financial statement information is noisier, and evidence that access to TRI may motivate institutional investor participation in particular loan syndicates.

However, these inferences should be tempered by some caveats. I cannot directly observe TRI or its transmission through the loan syndicate, and therefore all of my evidence is indirect. This indirect inferring of TRI also makes it possible that my results are attributable not to TRI but to selection bias, correlated omitted variable bias, or non-tax information transmission. While I have tried to rule out these explanations to the extent possible, fully ruling them out is impossible. Further, because I cannot directly observe the transmission of TRI through the loan syndicate, I must assume that lenders actually obtain the TRI which they have the right to obtain, and that they use the TRI even though it may be stale relative to financial statement information.

While this indirect evidence supports public disclosure of tax returns, whether tax returns are useful to investors is only one facet of the debate over public disclosure of tax returns. Future research can explore other facets of the debate so that other potential costs and benefits can be weighed in determining the total effect of tax return disclosure to society. Because I examine a setting without public disclosure, I can identify the usefulness of TRI to equity investors absent confounding effects. However, the usefulness of TRI to equity investors could be different in a setting with public disclosure, particularly if public disclosure incentivizes companies to manipulate tax amounts. Further, my results employ data on US companies and investors and thus may not apply to other countries, particularly countries

[33] This inference is also consistent with my findings, in Table 3, that access to TRI appears to enable trading away tax anomalies equivalent to annual abnormal returns of 6.0 to 10.3 percent. To provide economic context to this result, Addoum and Murfin (2020) show that an equity trading strategy that mirrors publicly available secondary loan market prices can earn excess returns of up to 2.2 percent per month (approximately 29.8 percent annualized), suggesting that TRI could represent over one-third of the private information advantage that lenders have over equity investors.

with greater book-tax conformity than the US, as there is likely to be less unique information in tax returns relative to financial statements in these settings (Hanlon et al. 2008). Additional research in other countries should examine if tax returns are useful when these features change or when other facets of the tax return disclosure debate interact with tax return usefulness.

Appendix

Table 6 Variable Definitions

Return Variables	
Returns	Annual buy-and-hold returns, computed beginning in the third month of the fiscal year and continuing until three months after the end of the fiscal year. Delisting returns are incorporated per Beaver et al. (2007)
FF Returns	Annual buy-and-hold abnormal returns, computed beginning in the third month of the following fiscal year (t + 1) and continuing until three months after the end of the following fiscal year (i.e., at the end of the third month of t + 2). Abnormal returns are computed monthly using the Fama and French (2015) five-factor methodology, before being aggregated to an annual abnormal return. Monthly return regressions are estimated over the preceding 48 months and require that returns for at least 24 of those months be present. Delisting returns are incorporated per Beaver et al. (2007)
Lag Returns	Annual buy-and-hold returns, computed over the fiscal year. Delisting returns are incorporated per Beaver et al. (2007)
Difference-in-Differences Variables	
INST	Indicator variable equal to 1 the first time a firm issues a Term Loan B, C, D, E, or F, indicating that the loan has features that are particularly attractive to institutional investors (Bushman et al. 2010; Bushman and Wittenberg-Moerman 2012). *INST* is set equal to 0 for firms receiving either (a) a loan other than a Term Loan B, C, D, E, or F or (b) a Term Loan B, C, D, E, or F for other than the first time in my sample
POST	Indicator variable equal to 1 in the year of a loan syndication and the following two years and 0 otherwise
Primary Tax and Earnings Variables	
Pretax income	Pre-tax income (pi) scaled by lagged market value of equity (prcc_f × csho)
Tax expense	Total tax expense (txt) scaled by lagged market value of equity (prcc_f × csho)
Tax surprise	The annual change in tax expense per share (txt/csho), scaled by lagged total assets per share (at/csho)

Table 6 (continued)

Tax/Book	Taxable income/book income, computed as taxable income divided by book income (ib). Taxable income is computed as current tax expense (txt – txdi) multiplied by (1-T)/T, where T is the top US corporate tax rate
Cross-Sectional Analysis Variables	
High Abnormal Accruals	Indicator variable equal to 1 if the signed Modified Jones model (Dechow et al. 1995) abnormal accrual estimated by lifecycle and year (Chang and Li 2016) is above the median for the full sample and 0 otherwise
Specialist	Indicator variable equal to 1 if the lead arranger on the issued loan is an industry specialist and 0 otherwise. An industry specialist is defined as being one of the three largest lead arrangers by total loan value within a three-digit SIC industry
Earnings Covenant	Indicator variable equal to 1 if the issued loan contains an earnings-based covenant. Following Bushman et al. (2010), I classify the following covenants as earnings-based: (senior) debt to EBITDA; (cash) interest coverage; debt service coverage; fixed charge coverage; and EBITDA
High Default Risk	Indicator variable equal to 1 if the expected default frequency, computed following Bharath and Shumway (2008), is greater than 0, and 0 otherwise
Post M3	Indicator variable equal to 1 for syndicated loan issuances occurring in 2007 or later, so that the entire six-year issuance window occurs post Schedule M-3 implementation, and 0 for syndicated loan issuances occurring in 2001 or earlier, so that the entire six-year issuance window occurs prior to Schedule M-3 implementation
High Tax Avoidance	Indicator variable equal to 1 if the three-year industry-adjusted cash effective tax rate calculated over the previous three years is below the median for the full sample and 0 otherwise
Supplemental Test Variables	
Negative BTDs	Deferred tax expense (txdi) multiplied by one divided by the top US corporate tax rate and scaled by lagged total assets (at). Computed only for firm-years with *negative* BTDs
Tax risk	The standard deviation of the cash effective tax rate (txpd / (pi – spi)) over a five-year rolling window following Guenther et al. (2017)
Tax income variation	The standard deviation of taxable income over a five-year rolling window. Taxable income is computed as current tax expense (txt – txdi) multiplied by (1-T)/T, where T is the top US corporate tax rate
Control Variables	
Institutional ownership	The percentage of stock held by institutional owners as defined by 13F filings
Analyst following	Computed as $ln(A+1)$, where A is the average number of analysts providing earnings forecasts at any point during the year from I/B/E/S
Restructuring	Indicator variable equal to 1 if the loan being issued has a primary purpose in DealScan of "LBO," "MBO," "Takeover," "Recap," or "Merger" and 0 otherwise

Table 6 (continued)

Secured	Indicator variable equal to 1 if the loan being issued is secured and 0 otherwise
Size	Logged market value of equity, computed as the natural log of a firm's market value of equity (prcc_f × csho)
Special items	Special purpose items (spi), scaled by lagged total assets (at). Where missing, I replace spi with 0
NOLs	Tax loss carryforwards (tlcf) scaled by lagged total assets (at). Where missing, I replace tlcf with 0
Cash	Cash and cash equivalents (che) scaled by total assets (at)
ROA	Return on assets, defined as income (pi – txt) scaled by average total assets (at)
Minority interest	Minority interest income (mii) scaled by lagged total assets (at)
Book-to-market	The book value of equity (seq) divided by the market value of equity (prcc_f × csho)
Beta	Market beta, computed as the coefficient on the market return less the risk-free rate from the Fama–French five-factor regressions
Return volatility	The root mean squared error from the Fama–French five-factor regressions
Earnings volatility	The standard deviation of earnings before extraordinary items (ib) over the last five years scaled by the absolute value of the mean earnings before extraordinary items (ib) over the last five years (Donohoe 2015)
Cash flow volatility	The standard deviation of operating cash flows (oancf) over the last five years scaled by the absolute value of the mean operating cash flows (oancf) over the last five years (Donohoe 2015)
Leverage	Leverage, computed as total debt (dltt + dlc) scaled by total assets (at)
Altman's Z	Altman's z-score, computed following Altman and Hotchkiss (2006) and Massoud et al. (2011)
Default probability	Expected default frequency, computed following Bharath and Shumway (2008)
SG&A surprise	Selling, general, and administrative expense surprise, computed as the annual change in selling, general, and administrative expense per share (xsga/csho), scaled by lagged total assets per share (at/csho)
Earnings surprise	Earnings surprise, computed as the annual change in earnings per share (ib/csho), scaled by lagged total assets per share (at/csho)
Sales surprise	Sales surprise, computed as the annual change in sales per share (sale/csho), scaled by lagged total assets per share (at/csho)
Earnings/Price	Earnings to price ratio (logged), computed as the natural log of operating income before depreciation (oiadp) minus *Size*
Cash flows/Price	Cash flow to price ratio (logged), computed as the natural log of operating cash flows (oancf) minus *Size*
Pretax accruals	Pre-tax income (pi) less pre-tax cash flows from operations (oancf + txpd), scaled by lagged total assets (at)

Table 6 (continued)

Abnormal accruals	Computed using the Modified Jones model (Dechow et al. 1995) as estimated by lifecycle and year (Chang and Li 2016)
CapEx	Capital expenditures, computed as capital expenditures (capx) scaled by lagged total assets (at)
R&D	Research & development, computed as research and development expenditures (xrd) scaled by lagged total assets (at). Where missing, I replace xrd with 0
External financing	Cash flow received from net financing activities, computed as stock issuances (sstk) plus debt issuances (dltis) plus changes in the current portion of long-term debt (dlcch), less stock repurchases (prstkc), cash dividends (dv), and debt reductions (dltr), all scaled by lagged total assets (at). Where changes in current debt (dlcch) is missing, I replace it with 0

Acknowledgements This study is based on my dissertation, which was completed at the University of Illinois at Urbana-Champaign. I am extremely grateful for the guidance of my committee: Michael Donohoe, Timothy Johnson, Petro Lisowsky (Chair), and Theodore Sougiannis. I also thank Jennifer Blouin (editor), an anonymous reviewer, Eric Allen, Steve Baginski, Andrew Bauer, John Campbell, Tina Carpenter, Hye Sun Chang, Ted Christensen, Will Ciconte, Richard Crowley, Will Demeré, Brent Garza, Jeff Gramlich, Steph Grant, Erin Henry, Sean Hillison, Jeff Hoopes, Michelle Hutchens, Taylor James, Hansol Jang, Larry Killough, Stacie Laplante, Josh Lee, Christy Nielson, Marcel Olbert, Patrick Ryu, Harm Schütt, Terry Shevlin, Jacob Shortt, Stephanie Sikes, Erin Towery, Dave Weber, and workshop participants at the University of Connecticut, the University of Georgia, the University of Illinois at Urbana-Champaign, Virginia Polytechnic Institute, Washington State University, the 2017 Journal of the American Taxation Association Conference, the 2018 Hawaii Accounting Research Conference, the 2022 Berlin-Vallendar Conference on Tax Research, and the 2022 *Review of Accounting Studies* Conference for helpful comments and advice. I gratefully acknowledge financial support from the AICPA Accounting Doctoral Scholars Program and the Kenneth P. Santee Fellowship at the University of Illinois at Urbana-Champaign.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

Acharya, V., and T. Johnson. 2010. More insiders, more insider trading: Evidence from private-equity buyouts. *Journal of Financial Economics* 98: 500–523.

Addoum, J., and J. Murfin. 2020. Equity price discovery with informed private debt. *Review of Financial Studies* 33: 3766–3803.

Allen, S., and R. Ramanan. 1990. Earnings surprises and prior insider trading: Tests of joint informativeness. *Contemporary Accounting Research* 6 (2): 518–543.

Allen, E., and A. Uysal. 2022. The effect of the mandatory disclosure of corporate tax returns on reporting bias. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4185130. Accessed 19 June 2023

Altman, E., and E. Hotchkiss. 2006. *Corporate financial distress and bankruptcy: Predict and avoid bankruptcy, analyze and invest in distressed debt*, 3rd ed. Hoboken: Wiley.

Anderson, C., and L. Garcia-Feijóo. 2006. Empirical evidence on capital investment, growth options, and security returns. *Journal of Finance* 61 (1): 171–194.

Angrist, J., and J.S. Pischke. 2009. *Mostly harmless econometrics: An empiricist's companion*. Princeton: Princeton University Press.

Arellano, M. 2003. *Panel data econometrics: Advanced texts in econometrics*. Oxford: Oxford University Press.

Autor, D. 2003. Outsourcing at will: The contribution of unjust dismissal doctrine to the growth of employment outsourcing. *Journal of Labor Economics* 21 (1): 1–42.

Ayers, B., J. Jiang, and S. Laplante. 2009. Taxable income as a performance measure: The effects of tax planning and earnings quality. *Contemporary Accounting Research* 26 (1): 15–54.

Ayers, B., S. Laplante, and S. McGuire. 2010. Credit ratings and taxes: The effect of book-tax differences on ratings changes. *Contemporary Accounting Research* 27 (2): 359–402.

Ayers, B., C. Schwab, and S. Utke. 2015. Noncompliance with mandatory disclosure requirements: The magnitude and determinants of undisclosed permanently reinvested earnings. *The Accounting Review* 90 (1): 59–93.

Baker, A., D. Larcker, and C. Wang. 2022. How much should we trust staggered difference-in-differences estimates? *Journal of Financial Economics* 144: 370–395.

Balakrishnan, K., J. Blouin, and W. Guay. 2019. Tax aggressiveness and corporate transparency. *The Accounting Review* 94 (1): 45–69.

Barrios, J. 2021. Staggeringly problematic: A primer on staggered DiD for accounting researchers. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3794859. Accessed 19 June 2023.

Beaver, W., M. McNichols, and R. Price. 2007. Delisting returns and their effect on accounting-based market anomalies. *Journal of Accounting and Economics* 43: 341–368.

Bellucci, M., and J. McCluskey. 2017. *The LTSA's complete credit agreement guide*, 2nd ed. New York: McGraw Hill Education.

Besley, T., and R. Burgess. 2004. Can labor regulation hinder economic performance? Evidence from India. *Quarterly Journal of Economics* 119 (1): 91–134.

Bharath, S., and T. Shumway. 2008. Forecasting default with the Merton distance to default model. *Review of Financial Studies* 21 (3): 1339–1369.

Blackburne, T., and J. Blouin. 2016. Understanding the information content of book-tax differences. Working paper, https://www.anderson.ucla.edu/documents/areas/fac/2015/accounting/Blouin-Understanding-the-informativeness-of-book-tax-differences.pdf . Accessed 19 June 2023.

Blaylock, B., T. Shevlin, and R. Wilson. 2012. Tax avoidance, large positive temporary book-tax differences, and earnings persistence. *The Accounting Review* 87 (1): 91–120.

Blaylock, B., B. Lawson, and M. Mayberry. 2020. Taxable income, future profitability, and stock returns. *Journal of Business, Finance and Accounting* 47: 858–881.

Bø, E., J. Slemrod, and T. Thoresen. 2015. Taxes on the internet: Deterrence effects of public disclosure. *American Economic Journal: Economic Policy* 7 (1): 36–62.

Bradshaw, M., S. Richardson, and R. Sloan. 2006. The relation between corporate financing activities, analyst's forecasts and stock returns. *Journal of Accounting and Economics* 42: 53–85.

Bushman, R., and R. Wittenberg-Moerman. 2012. The role of bank reputation in "certifying" future performance implications of borrowers' accounting numbers. *Journal of Accounting Research* 50 (4): 883–930.

Bushman, R., A. Smith, and R. Wittenberg-Moerman. 2010. Price discovery and dissemination of private information by loan syndicate participants. *Journal of Accounting Research* 48 (5): 921–972.

Cameron, A.C., and D. Miller. 2015. A practitioner's guide to cluster-robust inference. *Journal of Human Resources* 50 (2): 317–372.

Cameron, A.C., J. Gelbach, and D. Miller. 2011. Robust inference with multiway clustering. *Journal of Business & Economic Statistics* 29 (2): 238–249.

Carrizosa, R., and S.G. Ryan. 2017. Borrower private information covenants and loan contract monitoring. *Journal of Accounting and Economics* 64: 313–339.

Chang, H., and L.Y. Li. 2016. Firm life cycle and detection of accrual-based earnings manipulation. Working paper, https://www.proquest.com/docview/1746694418?pq-origsite=gscholar&fromopenview=true. Accessed 19 June 2023

Chava, S., and M. Roberts. 2008. How does financing impact investment? The role of debt covenants. *Journal of Finance* 63 (5): 2085–2121.

Chen, S. 2017. Do investors value corporate tax return information? Evidence from Australia. Working paper, https://repositories.lib.utexas.edu/handle/2152/63281. Accessed 19 June 2023.

Chen, T., and X. Martin. 2011. Do bank-affiliated analysts benefit from lending relationships? *Journal of Accounting Research* 49 (3): 633–675.

Chen, C.W., B. Hepfer, P. Quinn, and R. Wilson. 2018. The effect of tax-motivated income shifting on information asymmetry. *Review of Accounting Studies* 23: 958–1004.

Cheng, L., M. Cheng, D. Dhaliwal, and S. Kaplan. 2016. Bank auditor connection and audit quality. Working paper, University of Arizona.

Cheng, L., J. Jaggi, P. Michas, and J. Schatzberg. 2019. Auditor communication provisions in private loan agreements: Do they matter? Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3433846. Accessed 19 June 2023.

Chung, S.G., B.W. Goh, J. Lee, and T. Shevlin. 2019. Corporate tax aggressiveness and insider trading. *Contemporary Accounting Research* 36: 230–258.

Chi, S., M. Pincus, and S.H. Teoh. 2014. Mispricing of book-tax differences and the trading behavior of short sellers and insiders. *The Accounting Review* 89 (2): 511–543.

Christensen, H., and V. Nikolaev. 2017. Contracting on GAAP changes: Large sample evidence. *Journal of Accounting Research* 55 (5): 1021–1050.

Crabtree, A., and J. Maher. 2009. The influences of differences in taxable income and book income on the bond credit market. *Journal of the American Taxation Association* 31 (1): 75–99.

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

Dechow, P., R. Sloan, and A. Sweeney. 1995. Detecting earnings management. *The Accounting Review* 70 (2): 193–225.

DeHaan, E. 2021. Using and interpreting fixed effects models. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3699777. Accessed 19 June 2023.

Demeré, P., L.Y. Li, P. Lisowsky, and R.W. Snyder. 2019. Do smoothing activities indicate higher or lower financial reporting quality? Evidence from effective tax rates. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2757786. Accessed 19 June 2023.

Dennis, S., and D. Mullineaux. 2000. Syndicated loans. *Journal of Financial Intermediation* 9: 404–426.

Desai, H., S. Rajgopal, and M. Venkatachalam. 2004. Value-glamour and accruals mispricing: One anomaly or two? *The Accounting Review* 79 (2): 355–385.

Desai, M., and D. Dharmapala. 2006. Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics* 79: 145–179.

Dhaliwal, D., H.S. Lee, M. Pincus, and L. Steele. 2017. Taxable income and firm risk. *Journal of the American Taxation Association* 39 (1): 1–24.

Dietrich, J.R., S. Kachelmeier, D. Kleinmuntz, and T. Linsmeier. 2001. Market efficiency, bounded rationality, and supplemental business reporting disclosures. *Journal of Accounting Research* 39 (2): 243–268.

Doellman, T., F. Huseynov, T. Nasser, and S. Sardarli. 2020. Corporate tax avoidance and mutual fund ownership. *Accounting and Business Research* 50 (6): 608–635.

Donohoe, M. 2015. The economic effects of financial derivatives on corporate tax avoidance. *Journal of Accounting and Economics* 59 (1): 1–24.

Donohoe, M., and G. McGill. 2011. The effects of increased book-tax difference tax return disclosures on firm valuation and behavior. *Journal of the American Taxation Association* 33 (2): 35–65.

Donohoe, M., G. McGill, and E. Outslay. 2012. Through a glass darkly: What can we learn about a U.S. multinational corporation's international operations from its financial statement disclosures? *National Tax Journal* 65 (4): 961–984.

Elliott, W.B., J. Hobson, and B. White. 2015. Earnings metrics, information processing, and price efficiency in laboratory markets. *Journal of Accounting Research* 53 (3): 555–592.

Everson, M. 2008. A reform tool: Tax returns. *The Washington Post* October 18, 2008.

Fama, E., and K. French. 2015. A five-factor asset pricing model. *Journal of Financial Economics* 116: 1–22.

Financial Accounting Standards Advisory Council (FASAC). 2022. Financial Accounting Standards Advisory Council meeting recap. September 20, 2022. Retrieved from https://www.fasb.org/Page/PageContent?PageId=/about-us/advisory-groups/fasac/fasac-meeting-recap/fasac-meeting-recap-september-20-2022.html. Accessed 19 June 2023

Financial Accounting Standards Board (FASB). 1978. *Objectives of Financial Reporting by Business Enterprises (Statement of Financial Accounting Concepts No. 1)*. Norwalk: FASB.

Gonedes, N. 1978. Corporate signaling, external accounting, and capital market equilibrium: Evidence on dividends, income, and extraordinary items. *Journal of Accounting Research* 16 (1): 26–79.

Gorton, G., and G. Pennacchi. 1995. Banks and loan sales: Marketing nonmarketable assets. *Journal of Monetary Economics* 35: 389–411.

Graham, J. 1996. Proxies for the corporate marginal tax rate. *Journal of Financial Economics* 42: 187–221.

Grieser, W., and C. Hadlock. 2019. Panel-data estimation in finance: Testable assumptions and parameter (in)consistency. *Journal of Financial and Quantitative Analysis* 54 (1): 1–29.

Guenther, D., S. Matsunaga, and B. Williams. 2017. Is tax avoidance related to firm risk? *The Accounting Review* 92 (1): 115–136.

Hainmueller, J. 2012. Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis* 20: 25–46.

Hanlon, M. 2003. What can we infer about a firm's taxable income from its financial statements? *National Tax Journal* 56 (4): 831–863.

Hanlon, M. 2005. The persistence and pricing of earnings, accruals, and cash flows when firms have large book-tax differences. *The Accounting Review* 80 (1): 137–166.

Hanlon, M., S. Laplante, and T. Shevlin. 2005. Evidence for the possible information loss of conforming book income and taxable income. *Journal of Law and Economics* 48 (2): 407–442.

Hanlon, M., E. Maydew, and T. Shevlin. 2008. An unintended consequence of book-tax conformity: A loss of earnings informativeness. *Journal of Accounting and Economics* 46: 294–311.

Hasegawa, M., J. Hoopes, R. Ishida, and J. Slemrod. 2013. The effect of public disclosure on reported taxable income: Evidence from individuals and corporations in Japan. *National Tax Journal* 66 (3): 571–608.

Hasan, I., C.K.S. Hoi, Q. Wu, and H. Zhang. 2014. Beauty is in the eye of the beholder: The effect of corporate tax avoidance on the cost of bank loans. *Journal of Financial Economics* 113: 109–130.

He, G., H.M. Ren, and R. Taffler. 2020. The impact of corporate tax avoidance on analyst coverage and forecasts. *Review of Quantitative Finance and Accounting* 54: 447–477.

Henry, E. 2018. The information content of tax expense: A discount rate explanation. *Contemporary Accounting Research* 35 (4): 1917–1940.

Hepfer, B. 2023. Are book-tax differences mispriced? *The Accounting Review* 98 (3): 285–306.

Hirst, D.E., and P. Hopkins. 1998. Comprehensive income reporting and analysts' valuation judgments. *Journal of Accounting Research* 36 (Supplement): 47–75.

Hoopes, J., L. Robinson, and J. Slemrod. 2018. Public tax-return disclosure. *Journal of Accounting and Economics* 66: 142–162.

Isin, A.A. 2018. Tax avoidance and cost of debt: The case for loan-specific risk mitigation and public debt financing. *Journal of Corporate Finance* 49: 344–378.

Ivashina, V., and Z. Sun. 2011. Institutional stock trading on loan market information. *Journal of Financial Economics* 100: 284–303.

Ivashina, V., V. Nair, A. Saunders, N. Massoud, and R. Stover. 2009. Bank debt and corporate governance. *Review of Financial Studies* 22 (1): 42–77.

Jiang, W., K. Li, and P. Shao. 2010. When shareholders are creditors: Effects of the simultaneous holding of equity and debt by non-commercial banking institutions. *Review of Financial Studies* 23 (10): 3595–3637.

Kays, A. 2022. Voluntary disclosure responses to mandated disclosure: Evidence from Australian corporate tax transparency. *The Accounting Review* 97 (4): 317–344.

Keil, J. 2023. Lending relationships when creditors are in control. *Journal of Corporate Finance* 79: 102363.

Kim, S., A. Koester, and S. Lim. 2015. The substitutive role of taxable income when book income is less informative. Working paper, University of Massachusetts – Boston.

Kim, S., A. Schmidt, and K. Wentland. 2020. Analysts, taxes, and the information environment. *Journal of the American Taxation Association* 42 (1): 103–131.

Koester, A. 2011. Investor valuation of tax avoidance through uncertain tax positions. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1905210. Accessed 19 June 2023
Lenter, D., J. Slemrod, and D. Shackelford. 2003. Public disclosure of corporate tax return information: Accounting, economics, and legal perspectives. *National Tax Journal* 56 (4): 803–830.
Lev, B., and D. Nissim. 2004. Taxable income, future earnings, and equity values. *The Accounting Review* 79 (4): 1039–1074.
Lev, B., and T. Sougiannis. 1996. The capitalization, amortization, and value-relevance of R&D. *Journal of Accounting and Economics* 21: 107–138.
Lim, J., B. Minton, and M. Weisbach. 2014. Syndicated loan spreads and the composition of the syndicate. *Journal of Financial Economics* 111: 45–69.
Lipe, R. 1986. The information contained in the components of earnings. *Journal of Accounting Research* 24 (Supplement): 37–64.
Lisowsky, P., M. Minnis, and A. Sutherland. 2017. Economic growth and financial statement verification. *Journal of Accounting Research* 55 (4): 745–794.
Maines, L., and L. McDaniel. 2000. Effects of comprehensive-income characteristics on nonprofessional investors' judgments: The role of financial-statement presentation format. *The Accounting Review* 75 (2): 179–207.
Manzon, G., and G. Plesko. 2002. The relation between financial and tax reporting measures of income. *Tax Law Review* 55: 175–214.
Massoud, N., D. Nandy, A. Saunders, and K. Song. 2011. Do hedge funds trade on private information? Evidence from syndicated lending and short-selling. *Journal of Financial Economics* 99: 477–499.
McGill, G., and E. Outslay. 2004. Lost in translation: Detecting tax shelter activity in financial statements. *National Tax Journal* 57 (3): 739–756.
Minnis, M., and A. Sutherland. 2017. Financial statements as monitoring mechanisms: Evidence from small commercial loans. *Journal of Accounting Research* 55 (1): 197–233.
Morris, D. 2015. A case for company-specific public disclosure of corporate tax returns. *Accounting and the Public Interest* 15 (1): 1–21.
Müller, R., C. Spengel, and S. Weck. 2021. How do investors value the publication of tax information? Evidence from the European public country-by-country reporting. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3949860. Accessed 19 June 2023
Nandy, D., and P. Shao. 2010. Institutional investment in syndicated loans. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=966276. Accessed 19 June 2023
Nessa, M., A.V. Persson, J.Z. Song, E. Towery, and M. Vernon. 2022. The effect of U.S. country-by-country reporting on U.S. multinationals' tax-motivated income shifting and real activities. Working paper, https://nathanseegert.com/utaxi2022material/Song.pdf. Accessed 19 June 2023
Nini, G., D. Smith, and A. Sufi. 2009. Creditor control rights and firm investment policy. *Journal of Financial Economics* 92: 400–420.
Peyravan, L. 2020. Financial reporting quality and dual-holding of debt and equity. *The Accounting Review* 95 (5): 351–371.
Phillips, J., M. Pincus, and S.O. Rego. 2003. Earnings management: New evidence based on deferred tax expense. *The Accounting Review* 78 (2): 491–521.
Platikanova, P. 2017. Debt maturity and tax avoidance. *European Accounting Review* 26 (1): 97–124.
Plumlee, M. 2003. The effect of information complexity on analysts' use of that information. *The Accounting Review* 78 (1): 275–296.
Rajgopal, S. 2022a. Why investors need better corporate tax disclosures – Part I. *Forbes* December 21, 2022.
Rajgopal, S. 2022b. Why investors need better corporate tax disclosures – Part II. *Forbes* December 24, 2022.
Schmidt, A. 2006. The persistence, forecasting, and valuation implications of the tax change component of earnings. *The Accounting Review* 81 (3): 589–616.
Shevlin, T. 2002. Commentary on corporate tax shelters and book-tax differences. *Tax Law Review* 55: 427–443.
Sufi, A. 2007. Information asymmetry and financing arrangements: Evidence from syndicated loans. *Journal of Finance* 62 (2): 629–668.
Tax Executives Institute (TEI). 2006. TEI opposes public disclosure of corporate tax returns. *The Tax Executive* 58 (3): 241–243.
Taylor, A., and A. Sansone. 2007. *The handbook of loan syndications & trading*, 1st ed. New York: The McGraw-Hill Companies Inc.

Thomas, J., and F. Zhang. 2011. Tax expense momentum. *Journal of Accounting Research* 49 (3): 791–821.

Thomas, J., and F. Zhang. 2014. Valuation of tax expense. *Review of Accounting Studies* 19: 1436–1467.

Weber, D. 2009. Do analysts and investors fully appreciate the implications of book-tax differences for future earnings? *Contemporary Accounting Research* 26 (4): 1175–1206.

Whited, R., Q. Swanquist, J. Shipman, and J.R. Moon. 2022. Out of control: The (over)use of controls in accounting research. *The Accounting Review* 97 (3): 395–413.

Witternberg-Moerman, R. 2008. The role of information asymmetry and financial reporting quality in debt trading: Evidence from the secondary loan market. *Journal of Accounting and Economics* 46: 240–260.

Wooldridge, J. 2010. *Econometric analysis of cross section and panel data*, 2nd ed. Cambridge: The MIT Press.

Wooldridge, J. 2016. *Introductory econometrics: A modern approach*, 6th ed. Boston: Cengage Learning.

Xie, H. 2001. The mispricing of abnormal accruals. *The Accounting Review* 76 (3): 357–373.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.