Banks as Tax Planning Intermediaries

John Gallemore
University of Chicago
john.gallemore@chicagobooth.edu

Brandon Gipper
Stanford University Graduate School of Business
gipperbr@stanford.edu

Edward Maydew
University of North Carolina at Chapel Hill
ed_maydew@kenan-flagler.unc.edu

June 2016

We thank Martin Jacob, Joanna Wu, and workshop participants at University of Amsterdam, University of Rochester, VU University Amsterdam, and WHU Otto Beisheim School of Management for helpful comments. John Gallemore gratefully acknowledges the support of the Harry W. Kirchheimer Faculty Research Fund and the Accounting Research Center at the University of Chicago Booth School of Business. Brandon Gipper gratefully acknowledges the support of Stanford University Graduate School of Business and the Economic Research Fellowship at the Public Company Accounting Oversight Board. Ed Maydew appreciates support from the Kenan-Flagler Business School at the University of North Carolina.

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Abstract

We provide the first large-sample evidence of banks playing an important role in facilitating tax planning by client firms. Capturing bank-client relationships using lending contracts and measuring borrower tax avoidance with the three-year cash effective tax rate and the unrecognized tax benefit balance, we document the extent to which banks are associated with tax avoidance by corporate borrowers. In multivariate analyses, we find that the average tax avoidance of a bank's other borrowers is an economically important determinant of a client firm's own tax avoidance. In additional tests, we find evidence consistent with this result being driven in part by banks acting as tax planning intermediaries. Finally, we find that clients experience meaningful increases in tax avoidance when they begin a new relationship with a bank whose existing borrowers are substantial tax avoiders. Overall, our results suggest that banks, in addition to being financial intermediaries, also act as tax planning intermediaries in facilitating corporate tax planning.

Keywords: banks, borrowers, tax avoidance, tax aggressiveness

JEL Classification Codes: G21, H25, H26

I. Introduction

In recent years, banks have come under intense scrutiny from policymakers, the media, and the public for assisting corporate clients in avoiding taxes. For example, both the OECD and the U.S. Senate have issued extensive reports highlighting banks as important players in the market for corporate tax planning (United States Senate 2005; OECD 2008, 2009), and media accounts are frequent.[1] Despite the scrutiny, there is surprisingly little empirical evidence on the role that banks might play in corporate tax planning. Specifically, we do not know whether the anecdotes are simply one-off cases or whether banks play a systematic and economically important role in facilitating tax planning. This lack of evidence is all the more striking when juxtaposed with the emerging research that finds that banks influence a wide variety of financial decisions by their client firms, including investments, trade finance and exports, takeovers and mergers, share repurchases, accounting method changes, and voluntary disclosures.[2]

Moreover, if banks do influence their client firms' tax planning, it is far from clear *ex ante* which direction the influence would take. Given banks' primary function as lenders to firms, banks may discourage their clients from engaging tax avoidance in the first place, particularly more aggressive kinds of tax avoidance that have uncertain outcomes. In general, lenders have an incentive for their clients to engage in safe projects, and they take actions (e.g., require debt covenants) to encourage safe behavior by their clients. If banks affect client tax planning, then the question is what role they play.

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1 Examples of media coverage of banks' role in corporate tax avoidance: "IBM's Under-the-Wire Tax Break", Wall Street Journal, June 7, 2007; "Banks Cash In on Inversion Deals Intended to Elude Taxes", New York Times, July 28, 2014; "Bank of America's U.S. Deposit-Taking Unit Financed Tax Trades", Wall Street Journal, February 11, 2015. We provide additional examples of media coverage in Section 2.

2 See Ivashina et al. (2009), Ivashina and Scharfstein (2010), Chava and Purnanandam (2011), Amiti and Weinstein (2011), Amiti and Weinstein (2013), Beatty and Weber (2003), Lo (2014), and Chen and Vashishtha (2015).

We examine two potential roles in this study. First, we consider whether banks act as tax planning intermediaries.[3] Banks' status as financial intermediaries puts them at the center of important financial relationships, a position that could allow them to also act as tax planning intermediaries by facilitating both the implementation of tax strategies and the spread of tax planning strategies across firms. Tax strategies are often complex affairs, involving an array of advisors, including law firms and accounting firms. Banks often recommend advisors and coordinate activity among them. To use a football analogy, banks often act as the coach, selecting who gets to play and directing the activity on the field. Furthermore, because of their lending function, banks have access to private information about borrowers and their operations. This puts banks in a special position to identify clients that are not fully utilizing tax planning opportunities available to them and then connect those clients with advisors who can help them. Banks also have a unique feature in facilitating tax avoidance that is not available to law firms and accounting firms; they can take a financial position in the transaction (e.g., lending, structured finance, underwriting), rather than only providing professional services at an hourly rate (OECD 2008; Donohoe 2015).

The second role that banks could play in corporate tax planning is by selecting borrowers in part based on the borrower's tax avoidance or tax aggressiveness. Banks might prefer clients that are aggressive tax avoiders, since tax avoidance will lead to greater cash flows with which to service debt payments (Kim et al. 2010). On the other hand, banks could prefer clients that are not tax aggressive, since tax strategies can be risky activities (Rego and Wilson 2012; Hasan et al. 2014). In addition, being associated with aggressive tax avoidance could subject the bank to reputational costs, which can be particularly problematic for banks given that they are subject to

[3] By banks, we refer to financial institutions that provide lending and other banking services to clients. Thus, our definition captures various types of banks, including commercial banks and investment banks.

regulation (United States Senate 2005; OECD 2009). As suppliers of capital, banks' preferences can exert an influence on borrower behavior. In the selection role, banks could indirectly encourage certain kinds of tax planning (i.e., less risky planning) while at the same time discouraging other tax planning (i.e., more risky tax planning). It is important to note that these explanations are not mutually exclusive: a bank could choose its borrowers based on their tax avoidance and then affect their tax planning choices.[4]

To investigate the role that banks play in the tax planning of their clients, we follow prior research and capture bank-client relationships using corporate lending contracts (Billett et al. 1995; Ivashina et al. 2009; Amiti and Weinstein 2011; Bushman and Wittenberg-Moerman 2012). We examine two different but overlapping aspects of tax planning: general tax avoidance using the three-year cash effective tax rate (*CASHETR3*) and aggressive tax avoidance using the unrecognized tax benefit balance disclosed under FIN 48 (*UTB*). Using a sample of 96 banks and 4,494 borrowers from 1993 to 2014 when employing *CASHETR3* and 66 banks and 2,475 borrowers from 2006 to 2014 when employing *UTB*, we investigate several questions: (1) whether there is heterogeneity in borrower tax planning across banks, (2) whether a borrower's tax planning is associated with the tax planning of the bank's other borrowers, (3) whether bank size is associated with borrower tax planning, and (4) whether a borrower increases its tax avoidance after pairing with a bank whose extant borrowers are substantial tax avoiders.

First, we examine whether there is heterogeneity in client tax planning across banks. While there is anecdotal evidence that banks assist corporate clients with tax avoidance, it is not clear whether these are one-off cases, or whether some banks are associated with greater tax

[4] Another potential role of banks is that they are necessary but passive participants in tax avoidance strategies. This would be the case if banks' services are needed to implement various tax strategies but that they are not actively assisting clients with their tax planning. While this could be the case for many types of tax planning, it cannot explain any variation in tax avoidance in our analyses, since each firm in our sample has at least one significant banking relationship.

avoidance on average across all of their borrowers. For the largest 25 banks in our sample, the average borrower *CASHETR3* is 28.0 percent, yet for individual banks the average *CASHETR3* of their borrowers varies widely, from 19.5 percent to 31.7 percent. We find similar heterogeneity for *UTB*; while the average borrower *UTB* for the largest 25 banks is 0.6 percent of assets, there is a fivefold difference across these banks, ranging from 0.2 to 1.0 percent of assets. When examining the share of bank borrowers that are aggressive tax avoiders (bottom quintile of *CASHETR3* or top quintile of *UTB* in a given year), we again find significant variation, with the proportion ranging from 16 to 48 percent when measuring tax planning using *CASHETR3* and 8 to 30 percent when measuring tax planning using *UTB*. There is even heterogeneity across different types of banks; we find investment banks, universal banks, and foreign banks at both the high tax avoidance and low tax avoidance ends of the *CASHETR3* and *UTB* distributions. These findings suggest that banks vary in the extent to which they either act as tax planning intermediaries and/or select borrowers based on tax avoidance.

In multivariate analyses, we continue to find evidence consistent with banks playing an important role in borrower tax avoidance. Specifically, we find that a firm's *CASHETR3* (*UTB*) is strongly associated with the average *CASHETR3* (*UTB*) of the bank's other borrowers. The effect is economically significant: moving from the 25th percentile to the 75th percentile in the average *CASHETR3* (*UTB*) of the bank's other borrowers is associated with an increase in a firm's *CASHETR3* (*UTB*) of 3.1 percent (5.0 percent) of the sample mean. Additionally, we find that a firm's tax planning exhibits a positive, albeit weaker, association with bank size, suggesting that clients of larger banks are more likely to engage in aggressive tax avoidance. Both of these results are robust to a number of alternative specifications.

To shed light on the mechanism(s) driving these findings, we conduct several additional tests. First, we find that, when using *CASHETR3* as our tax planning proxy, the relation between the borrower's tax planning and the tax planning of the bank's other borrowers is stronger for same-industry other borrowers. Since tax strategies are often industry specific (Dyreng et al. 2008; McGuire et al. 2012), this result suggests that some banks either assist in implementing or spreading industry-specific tax strategies across borrowers. Furthermore, it is less consistent with a selection story, which would predict that the positive association between a firm's tax planning and the other borrowers' tax planning should hold for both same-industry and different-industry borrowers. However, we find that a firm's *UTB* is associated with both the average *UTB* of borrowers in the same industry as well as those in different industry, consistent with both tax planning intermediary and selection explanations. Second, within firms with multiple significant banking relationships, we find that the association between the firm's tax avoidance and the tax avoidance of other borrowers is driven primarily by the firm's primary lender (which we define as the lender with the largest share of the firm's outstanding bank debt). This finding is consistent with the tax planning intermediary story, since the primary bank will likely be better able to assist with the firm's tax planning due to its superior information about the borrower's tax planning opportunities and because it stands to gain or lose the most from the changes in the borrower's tax planning activities, relative to the firm's other lenders.[5]

Finally, we examine whether a borrower's tax avoidance changes when forming a new banking relationship. The tax planning intermediary mechanism, unlike the selection story, suggests that borrower tax avoidance might change after pairing with a new bank. We find that when a borrower begins a new relationship with a bank whose existing borrowers are substantial

[5] On the other hand, the selection explanation suggests that the firm's tax planning should be strongly related to both the borrower tax planning of its primary bank as well as of its other banks.

tax avoiders (a "tax planning intermediary" bank), the borrower's tax avoidance increases on average. This result is robust to various matching procedures designed to minimize differences between treatment and control firms (borrowers who start a relationship with a bank whose borrowers are not substantial tax avoiders). Furthermore, the effect of starting a relationship with a "tax planning intermediary" bank is stronger for borrowers with foreign income, consistent with banks being better able to assist with tax planning activities of new borrowers that have greater tax avoidance opportunities. While the pairing of banks and borrowers is clearly endogenous, these results are consistent with some banks actively assisting tax planning by new borrowers.

Our primary contribution is to provide the first large-sample empirical evidence on the role that banks play in the tax avoidance of their clients. In doing so, we contribute to the emerging literature on the effects that banks have on the financial decision-making of their client firms. For example, studies have examined banks' effect (either directly or indirectly) on specific decisions of their clients, including investments (Ivashina and Scharfstein 2010; Chava and Purnanandam 2011; Amiti and Weinstein 2013), trade finance and exports (Amiti and Weinstein 2011), takeovers and mergers (Ivashina et al. 2009; Ivashina and Scharfstein 2010), share repurchases (Ivashina and Scharfstein 2010), accounting method changes (Beatty and Weber 2003), and voluntary disclosures (Lo 2014; Chen and Vashishtha 2015).[6] We add to this body of research by providing evidence of banks affecting the tax planning choices of their borrowers, answering call in Hanlon and Heitzman (2010) for research on tax planning by financial institutions.

[6] A number of studies have linked banks to the overall performance of their clients, finding that banks are associated with borrower profitability (Hori 2005; Kroszner et al. 2007; Chava and Purnanandam 2011; Bushman and Wittenberg-Moerman 2012) and stock returns (Billett et al. 1995; Dahiya et al. 2003; Ongena et al. 2003; Billett et al. 2006; Bao and Edmans 2011; Chava and Purnanandam 2011; Norden et al. 2013).

Our study also contributes to the collective understanding of how banks and other capital providers view tax avoidance. Prior research has examined how equity investors perceive aggressive tax planning by examining the public revelation of tax shelter participation (Hanlon and Slemrod 2009; Gallemore et al. 2014). Recent studies have expanded this line of inquiry to examine how creditors perceive tax avoidance, with conflicting results. For example, Kim et al. (2010) examine bank loans and find that banks charge lower loan spreads and have fewer covenant restrictions when tax avoidance is greater, suggesting a positive view of tax avoidance. Other studies have found that spreads for both bank loans and public bonds are increasing in borrower tax avoidance, consistent with creditors perceiving tax avoidance as a risky endeavor (Shevlin et al. 2013; Hasan et al. 2014). Our evidence points to one possible explanation for these conflicting results: there is heterogeneity in the extent to which banks act as tax planning intermediaries for borrowers or select borrowers based on their tax planning characteristics.

We contribute to the literature on corporate tax avoidance in two additional ways. First, our study adds to the extant literature on how external parties, such as auditors (McGuire et al. 2012), supply chain partners (Cen et al. forthcoming.), and the Internal Revenue Service (Hoopes et al. 2012), affect firm tax avoidance by documenting the role of banks as tax planning intermediaries. Second, we contribute to the line of research exploring how tax avoidance and tax strategies spread across firms, which has found evidence suggesting that auditors, board interlocks, and regional proximity play an important role in the transmission of tax avoidance (Brown 2011; Brown and Drake 2014; McGuire et al. 2012). Our findings are consistent with banks acting as a channel through which tax avoidance spread across firms.

In the next section, we develop the conceptual framework of our study. We begin with examples of banks acting as tax planning intermediaries, then discuss reasons why banks might

or might not act as tax planning intermediaries, and culminate with the hypotheses that we test. Section 3 lays out the research design, Section 4 presents the results, and Section 5 concludes.

2. Conceptual Framework

2.1. Examples of banks as tax planning intermediaries

In this section we provide some actual examples of the roles that banks play in their client's tax avoidance. For expositional purposes we keep the descriptions of the strategies at a high level. In many cases, banks are directly involved in the underlying transactions that give rise to tax planning opportunities.

When acting as tax planning intermediaries, the OECD reports that banks view tax as a front-office, profit making activity (OECD 2008). In one example, banks helped clients in avoiding taxes by developing and implementing a strategy called "dividend arbitrage", in which banks transfer ownership of shares that are about to receive dividend payments to clients in low tax jurisdictions.[7] This strategy enables clients to pay lower dividend taxes on those investments. Furthermore, this strategy requires banks to employ their own funds, of which they have a cheap and plentiful source thanks to their deposit networks.

Oftentimes the lending by banks is integral to the tax avoidance. Banks provided financing for IBM's famous "Killer B" transaction in 2007, which reportedly generated $1.6 billion of tax savings.[8] Banks also advise and provide financing in so-called "inversion" transactions in which a U.S. firm is acquired by a foreign firm located in a country with more

[7] Media mentions of the dividend arbitrage strategy: "Fed Questions Bank Maneuver to Reduce Hedge Funds' Dividend Taxes", Wall Street Journal, September 28, 2014; "European Probe Widens Into Tax Maneuver", Wall Street Journal, October 29, 2015; "Bank of America's U.S. Deposit-Taking Unit Financed Tax Trades", Wall Street Journal, February 11, 2015.

[8] "IBM's Under-the-Wire Tax Break", Wall Street Journal, June 7, 2007.

favorable taxation than the U.S.[9] For example, banks were involved in Tim Horton's 2014 acquisition of Burger King and Covidien's 2014 acquisition of Medtronic. Without mentioning the name of the bank, the OECD reported a strategy in which a UK bank developed a strategy to turn a large non-bank corporation's accumulated tax losses into cash. The strategy used a stock-lending arrangement that created taxable interest for the corporation and tax-deductible interest for the bank (OECD 2008). The tax savings were reportedly €300 million, of which the bank kept approximately one-half. Finally, in an examination of more aggressive tax activities, the U.S. Senate found that certain banks provided billions of dollars of lending that facilitated potentially abusive tax shelters (United States Senate 2005). For example, banks have been parties to so-called "foreign tax credit generator" strategies. These complex strategies are described in some detailed by the OECD (2009, Annex A) and have been the subject of extensive litigation with U.S. tax authorities (Dolan 2013).

In other cases, direct lending by the bank is not necessary, but the bank is well-positioned to develop and implement the strategy by virtue of their role in underwriting and structured finance. For example, banks played a central role in the development and underwriting of tax-favored debt-equity hybrid securities (Engel et al. 1999).

2.2. Why banks are well-positioned to act as tax planning intermediaries

The above examples reveal several factors that make banks well-positioned to act as tax planning intermediaries. First, tax planning often involves the use of financial instruments such as loans, repurchase agreements, and derivatives, and these instruments are largely obtained from banks (OECD 2008). Beyond simply providing access to the financial instruments, banks have

[9] Media mentions of banks' involvement in corporate inversions: "Banks Cash In on Inversion Deals Intended to Elude Taxes", New York Times, July 28, 2014; "Global Web of Financial Connections in Burger King's Deal for Tim Hortons", New York Times, August 26, 2014; "Treasury's Inversion Crackdown Will Sting Investment Bankers", Wall Street Journal, April 6, 2016.

expertise developing and implementing complex structured financing transactions for their clients. These structured finance groups assist firms with achieving certain regulatory, accounting, and commercial outcomes, including tax avoidance. These groups typically include deal-makers as well as tax and other professionals. The bank can earn substantially greater fees in tax advantaged structured transactions than in a plain vanilla transaction. For example, the OECD (2008) notes that a bank might earn a margin of 15 basis points on a plain vanilla lending arrangement but might earn 75 basis points on a structured transaction that exploits tax law differences between two countries. In doing so, the bank and the client essentially share the tax savings from the arrangement.

Second, banks can potentially be a transmission mechanism through which tax avoidance strategies are passed from firm to firm. Prior research has shown that banks may transmit information collected from one borrower to another (Ivashina et al. 2009). Other studies outside of banking have shown that connections between firms, such as board interlocks and a shared auditor, can lead to tax strategies being spread from one firm to another (Brown 2011; Brown and Drake 2014; McGuire et al. 2012). Banks are well suited to spread tax planning strategies across firms, since they are connected to multiple firms and are likely aware of the tax strategies being implemented by clients.

Third, some banks have a global presence, which enables them to route transactions and funds through various entities across multiple jurisdictions (OECD 2009). One of the main areas of tax planning involves shifting income from high tax jurisdictions to low tax jurisdictions (Dyreng and Lindsey 2009; Scholes et al. 2014). In some cases, the strategies take advantage of differences in tax laws across countries to produce what is known as a ‘double dip.’ Banks can help in the creation of “hybrid” instruments or entities that are treated differently for tax

purposes by the countries involved. For example, a financial product may be treated as debt by one country, generating tax-deductible interest, while being treated as equity in the other country, with the dividends being exempt from taxation (OECD 2008). For clients with operations in multiple countries, large banks that also have a global presence can have a particular advantage in assisting with such cross-border tax planning.

Fourth, banks have detailed knowledge of their clients' and their needs. This knowledge, gained in part through assisting firms with financing, allows banks to better customize tax planning to their particular circumstances (OECD 2009).

In addition to the direct benefits (e.g., fees) from helping clients avoid taxes, banks may have other incentives as well. Tax avoidance increases the borrower's net cash flows, which in turn improves its ability to service its debt and reduces its credit risk (Kim et al. 2010). Furthermore, banks may be able to generate additional revenue by selling products that help borrowers implement their tax avoidance schemes. Finally, the ability and willingness to help firms avoid taxes may be a selling point for banks when trying to attract new clients.

2.3. Why banks might not act as tax planning intermediaries

However, there are several reasons to expect that banks might not want to help clients avoid taxes. First, banks can incur penalties and fines for helping clients with tax avoidance. In recent years, governments around the world have begun a crackdown on banks' role in tax evasion, including the Foreign Account Tax Compliance Act (FATCA) in the United States and the Savings Tax Directive in the European Union.[10] This has led to massive penalties for some banks; prominent examples include Swiss banks such as Credit Suisse and BSI and the French

[10] Media mentions of crackdowns on banks' role in tax evasion: FATCA: "The New Rules of Offshore Accounts", Wall Street Journal, June 5, 2015; EU Savings Tax Directive: "Austria, Luxembourg Accept EU Bank-Secrecy Law", Wall Street Journal, March 20, 2014.

giant Société Générale.[11] UBS currently faces the threat of the largest ever penalty for allegedly helping clients hide money from taxing authorities.[12] The threat of penalties can even encourage banks to cooperate with taxing authorities by volunteering information, as was the case with Julius Baer Group in May 2015.[13]

Second, banks' reputation could be negatively affected by aiding others in avoiding taxes. Reputational concerns are often cited as a reason for why firms avoid aggressive tax avoidance (Graham et al. 2014). Reputational costs may arise because of the risk that the tax strategy is ultimately found to be not in accordance with a country's tax laws, which the OECD calls "tax risk" (OECD 2009). Even if the strategy complies with the tax law, banks nevertheless may be concerned that by helping clients avoid taxes, they could expose themselves to negative publicity and media attention. Bank regulators have expressed concern about the potential negative reputational effects banks could incur from assisting clients with avoiding taxes, as was reportedly the case with Bank of America in 2014.[14]

Third, aggressive tax avoidance is often considered a risky activity (Rego and Wilson 2012). Banks may be reluctant to encourage borrowers to increase their risk as this could lead to them being unable to service their debt payments. Some prior research finds that banks charge aggressive tax avoiders higher spreads, consistent with banks perceiving tax avoidance as a risky activity (Hasan et al. 2014).

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[11] Media mentions of penalties and fines for banks: Credit Suisse: "Credit Suisse Pleads Guilty in Criminal Tax Case", Wall Street Journal, May 19, 2014; BSI: "Swiss Bank BSI to Pay $211 Million Penalty in U.S. Tax Case", Wall Street Journal, March 30, 2015; Société Générale: "Société Générale Unit Joins Other Banks in U.S. Tax Evasion Pact", Bloomberg, March 28, 2015.

[12] Media mentions of UBS: "Swiss Bank UBS Could Face a Record-Breaking Tax-Evasion Fine", Bloomberg, October 3, 2014; "UBS Faces a New Tax-Evasion Probe", Wall Street Journal, February 4, 2015.

[13] Media mention of Julius Baer Group case: "Julius Baer May Get Lighter U.S. Penalty", Wall Street Journal, May 25, 2015.

[14] Media mentions of Bank of America: "Fed Questions Bank Maneuver to Reduce Hedge Funds' Dividend Taxes", Wall Street Journal, September 28, 2014; "Bank of America's U.S. Deposit-Taking Unit Financed Tax Trades", Wall Street Journal, February 11, 2015.

Finally, prior research suggests that tax avoidance can reduce firm transparency (Balakrishnan et al. 2012). Banks rely on high quality information to monitor borrowers, often charging higher interest rates and requiring tighter non-price loan terms for firms that are less transparent (Bharath et al. 2008; Graham et al. 2008; Jeong-Bon et al. 2011; Costello and Wittenberg-Moerman 2011). If tax avoidance leads to reduced firm transparency, then it could inhibit the bank's ability to monitor the borrower and thus increase the risk of the loan.

In summary, banks are well-positioned to encourage borrower tax avoidance by either implementing or spreading tax strategies across borrowers. Furthermore, banks could even benefit from aiding clients with tax avoidance if it reduces borrower risk, increases bank earnings, and leads to additional business. On the other hand, there are multiple reasons why banks may avoid playing an important role in client tax avoidance, including penalties, reputational costs, increased borrower risk, and decreased borrower transparency. To the extent that banks vary in their perceived benefits and costs of client tax avoidance, there could be heterogeneity in how banks are associated with borrower tax avoidance.

2.4. Hypotheses

In multivariate analyses, we examine the association between a borrower's tax avoidance and the average tax avoidance of the bank's other borrowers. There are three potential mechanisms that could cause a firm's tax avoidance to be associated with the tax avoidance of the bank's other borrowers. First, a bank could assist clients in implementing tax strategies. Second, banks may act as an information intermediary by spreading tax planning strategies from one borrower to another. In these first two channels, banks are acting as "tax planning intermediaries" in that they are causally affecting the tax planning of their clients. Alternatively, banks may simply be selecting their borrowers based in part on their tax avoidance. If banks are

acting as tax planning intermediaries for clients or selecting borrowers based on their tax avoidance, then we expect a positive association between a firm's tax avoidance and the tax avoidance of the bank's other borrowers. Alternatively, if a bank is not an economically important determinant of client tax planning choices or does not choose clients based on tax avoidance, then we should find no association between firm tax avoidance and the tax avoidance of other borrowers.

We also examine the association between a borrower's tax avoidance and bank size. The prediction on bank size is less clear. Larger banks would have more resources at their disposal to implement tax strategies on behalf of their clients. Furthermore, larger banks have more clients, increasing the likelihood that a tax planning strategy can be passed from one client to another. On the other hand, there are reasons to expect that bank size will be negatively associated with client tax avoidance. Larger banks may be more concerned about the potential reputational costs to assisting clients with aggressive tax avoidance. Additionally, larger banks tend to rely more on hard information about the borrowers' creditworthiness, whereas smaller banks have a comparative advantage in using soft information (Petersen and Rajan 2002; Berger et al. 2005). To the extent that aggressive tax avoidance decreases firm transparency, it can negatively impact larger banks' ability to monitor their borrowers, and thus make larger banks more reluctant to assist clients in avoiding taxes. Therefore, it is unclear whether bank size will be positively or negatively associated with client tax avoidance.

3. Research design

3.1. Measuring bank-borrower relationships

We follow prior research by measuring bank-borrower relationships using debt contracts (Billett et al. 1995; Ivashina et al. 2009; Amiti and Weinstein 2011; Bushman and Wittenberg-Moerman 2012). In addition to following prior literature, we believe that using corporate debt contracts to measure bank-client relationships likely captures a broader relationship between a bank and a client.[15] A borrower in a lending relationship is apt to take advantage of other services at that bank (including treasury and other investment banking services). Consistent with this notion, prior research has shown that the existence of a lending relationship significantly increases the likelihood that the bank and borrower have other interactions, such as future lending or investment banking business (Bharath et al. 2007). Furthermore, a bank's role as a lender allows it access to otherwise private information on the borrower (Billett et al. 1995; Bushman and Wittenberg-Moerman 2012), which could include its current tax strategies. Banks can use this information to identify opportunities to assist the borrower with greater tax avoidance and/or select borrowers based on their current tax planning. Even if the lending arm of the bank is not directly involved with implementing tax strategies, a lending relationship enables the overall bank to actively be involved with the borrowers' tax planning.

We use data from Dealscan to pair borrowers to lead lenders.[16] For all Dealscan facilities, we classify a bank as having a relationship with a borrower if the bank is identified as a lead lender for that borrower using either the approach in Sufi (2007) or the approach in Bharath et al. (2011).[17] The relationship lasts for any fiscal year during which the facility is observable,

[15] If bank-borrower relationships are a poor proxy for a greater banking relationship, and if the lending arm has nothing to do with borrower tax avoidance, we expect that this would weaken our ability to find any evidence of an association between banks and the tax avoidance of their borrowers.

[16] Since we use Dealscan to identify bank-borrower relationships and Compustat to measure tax avoidance, we are only able to capture banks' publicly traded borrowers. However, as Ivashina et al. (2009) note, the clients / loans captured by Dealscan are likely the largest and most important clients / loans for banks.

[17] Sufi (2007) requires a lead lender to be either indicated in the Dealscan data field LeadArrangerCredit or the "Lead bank" in the Dealscan data field LenderRole. Bharath et al. (2011) require a lead lender to be either

including any Dealscan maturity amendments. Since a borrower can have multiple lead lenders in a given year, the final unit of analysis in our study is a borrower-bank-year.

3.2. Tax planning proxies

We employ two proxies of tax planning. First, following Dyreng et al. (2008), we measure overall tax avoidance using the cash effective tax rate over a three year period. Specifically, we define *CASHETR3* as the sum of cash taxes paid each year over the current three-year period, divided by the sum of pre-tax income over the same period. A lower *CASHETR3* is indicative of greater tax avoidance. Consistent with prior tax research (Dyreng et al. 2008), we discard observations with negative denominators and winsorize *CASHETR3* at 0 and 1. The advantage to using the cash effective tax rate rather than the book effective tax rate is that, unlike the latter, the former reflects the effect of strategies that defer tax payments (Hanlon and Heitzman 2010). We choose a three-year period to balance two competing objectives. First, a shorter time window allows the tax avoidance proxy to change over time as a firm potentially implements new tax planning strategies and/or switches banks. Second, using a longer time window has several advantages: (1) it reduces the timing mismatch between the numerator and denominator, (2) it avoids year-to-year volatility in tax rates that may be attributable to factors other than tax planning, and (3) it minimizes the reduction in sample size from eliminating observations with negative denominators.

We also examine a measure of aggressive tax planning, the unrecognized tax benefit balance disclosed under FIN 48. We define *UTB* as the unrecognized tax benefit scaled by total assets. *UTB* captures the liability the firm has recognized for taxes not yet paid on uncertain tax positions. A higher *UTB* could suggest that a firm is taking riskier tax positions. However, a firm

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indicated as "Sole Lender" in the Dealscan data field DistributionMethod or the "Lead bank", "Admin agent", "Agent", or "Arranger" in the Dealscan data field LenderRole.

that takes aggressive tax positions will not necessarily have a high *UTB* if it is also aggressive for financial reporting purposes (Hanlon and Heitzman 2010). Thus, a high *UTB* may not be perfectly indicative of aggressive tax avoidance.

3.3. Bank characteristics

In our univariate analyses, we examine whether banks differ in terms of the tax planning of their borrowers. For both tax planning proxies (*CASHETR3* and *UTB*) we calculate the average tax avoidance across all borrowers that have a relationship with that particular bank. We also examine each bank's share of the most aggressive tax avoiders by ranking all borrowers into quintiles each year based on their *CASHETR3* and *UTB*. We label a borrower as being an aggressive tax avoider if the *CASHETR3* (*UTB*) is in the bottom quintile (top quintile) of all borrowers in that year. We then examine the proportion of the bank's borrowers that are considered aggressive tax avoiders (*AGGR_CASHETR3* and *AGGR_UTB*).

In our multivariate analyses, we examine whether two bank characteristics are associated with an individual firm's tax planning outcomes. First, we calculate the average tax avoidance of the bank's borrowers. *BANK_BORR_CASHETR3* (*BANK_BORR_UTB*) is the mean value of *CASHETR3* (*UTB*) for all of the bank's borrowers with non-missing values of these variables within a given fiscal year. In creating this variable, we exclude the firm from the mean calculation. Second, we examine the effect of bank size on firm tax planning by including *BANK_SIZE*, the natural logarithm of the bank's total assets.

3.4. Regression approach and control variables

To examine the effect of banks on borrower tax avoidance in a multivariate analysis, we estimate the following equation using OLS:

$$TAXPLAN_{i,j,t}=\beta_0 + \beta_1 BANK\_BORR\_TAXPLAN_{i,j,t} + \beta_2 BANK\_SIZE_{j,t} + \Sigma_k \beta_k CONTROLS_{i,t} + \varepsilon_{i,j,t} \quad (1)$$

In this equation, i indexes firms, j indexes banks, and t indexes years. The dependent variable *TAXPLAN* is either *CASHETR3* or *UTB*. The two variables of interest are *BANK_BORR_TAXPLAN* (either *BANK_BORR_CASHETR3* or *BANK_BORR_UTB*) and *BANK_SIZE*. Following the discussion in section 2, we expect that the coefficient on *BANK_BORR_TAX*, β_1, will be positive, consistent with either banks acting as tax planning intermediaries for clients or selecting borrowers based on their tax avoidance. We make no prediction for the coefficient on *BANK_SIZE* (β_2).

We include a number of control variables that prior research has shown to be correlated with firm tax planning outcomes (Dyreng et al. 2008; Rego and Wilson 2012; Gallemore and Labro 2015). Specifically, we include *SIZE, PPE, ΔPPE, LEVERAGE, INTANGIBLES, R&D EXPENSE, NOL DUMMY, ΔNOL, EXTRAORDINARY ITEMS, FOREIGN INCOME DUMMY, FOREIGN INCOME, RETURN ON ASSETS, MARKET-TO-BOOK, SALES GROWTH*, and *AGE*. All variables are defined in the appendix. Finally, we include industry (using the Fama-French 48 industry classification) and year fixed effects to capture differences in tax planning across industries and time. When *CASHETR3* is the dependent variable, the independent variables are defined over the same three-year window. All continuous variables (except for *CASHETR3)* are winsorized within each fiscal year at the 1st and 99th percentiles.

3.5. Data sources, sample selection, and descriptive statistics

We gather financial accounting data from Compustat, and we employ Thompson-Reuters' Dealscan to measure bank-borrower relationships. We use the Chava and Roberts (2008) matching file (August 2012 version) to link Dealscan to Compustat. We hand code a similar matching file so that banks are matched to Compustat data, using Dealscan's "companyid" (and associated parent and ultimate parent information, as available). We relied

primarily on bank names and other descriptive information in making matches, using banks' websites and other regulatory filings (e.g. SEC) when feasible. When banks changed names through time (e.g. Chemical Bank to J.P. Morgan), we attempted to match to the Compustat bank with the appropriate identifier in the appropriate time period. We made use of other sources, such as the FFIEC National Information Center, to track name changes through time.

Following Dyreng and Lindsey (2009), we set the following variables to zero if they are missing in Compustat: advertising expense, research and development expense, tax loss carryforwards, intangible assets, special items, and long-term debt. Additionally, we employ their method to correct for errors in foreign tax expense, foreign pre-tax income, pre-tax domestic income, total pre-tax income, federal current tax expense, and worldwide current tax expense.

Panel A (panel B) of table 1 describes the composition of our *CASHETR3* (*UTB*) sample. Our *CASHETR3* sample period spans 1993 to 2014, while our *UTB* sample spans 2006 to 2014. We begin our *CASHETR3* sample period in 1993 with the enactment of SFAS No. 109 to have consistent accounting for income taxes throughout the sample. Furthermore, Chava and Roberts (2008) find that Dealscan covers 50 to 75 percent of private loans in the early 1990s and that coverage increases in the mid-1990s, suggesting that starting our sample in 1993 should result in a relatively accurate measurement of bank-borrower relationships. We start our *UTB* sample in 2006, coinciding with the implementation of FIN48.

We require observations to have non-missing data for that particular tax planning measure and all control variables in order to be included in our sample. We exclude non-U.S. firms and all financial firms (SIC codes 6000-6999). Finally, for a borrower-bank-year to be included in our sample, we require that there be at least ten other borrower-years for that bank

with non-missing *CASHETR3* (for the *CASHETR3* sample) or *UTB* (for the *UTB* sample). We institute this requirement in order to make sure there are a sufficient number observations with which to assess the average tax avoidance of the bank's other borrowers. Our final *CASHETR3* sample includes 65,922 borrower-bank-year observations, representing 96 banks and 4,494 borrowers. Our final *UTB* sample contains 37,373 borrower-bank-year observations, representing 66 banks and 2,475 borrowers.

Table 2 contains descriptive statistics for the tax planning proxies, bank characteristics, and control variables that are used in our univariate and multivariate analyses. Panel A provides descriptive statistics for the *CASHETR3* sample, and panel B provides the descriptive statistics for the *UTB* sample. The average *CASHETR3* during our sample period is 29.7 percent and the average *UTB* is 0.7 percent of assets. The average *BANK_BORR_CASHETR3* is 28.7 percent, and the average *BANK_BORR_UTB* is 0.6 percent of assets.

4. Results

4.1. Variation in borrower tax planning across banks

We first investigate whether there is heterogeneity in borrower tax avoidance across banks. In Figure 1, we plot the average borrower *CASHETR3* for some of the banks in our sample. Specifically, we focus on the 25 largest banks (by average total assets across our sample period) that have at least 300 firm-year observations that meet our data requirements. Figure 1 suggests that banks vary in their tolerance for substantial tax avoidance by their borrowers. While all banks exhibit an average borrower *CASHETR3* below the U.S. statutory rate of 35 percent, they range from a high of 31.7 percent to a low of 19.5 percent. We do not find evidence that any particular type of financial institution (investment banks, universal banks, or foreign

banks) is more likely to have borrowers that are greater tax avoiders. For example, we find investment banks at both ends of the spectrum, with Lehman Brothers (average of 20 percent) and Morgan Stanley (24 percent) each having relatively low average borrower *CASHETR3*, while J.P. Morgan (32 percent) has a relatively high average borrower *CASHETR3*. We find variation within universal banks, with Royal Bank of Canada at the lower end with 25 percent compared to Bank of America at the higher end with 31 percent. Similarly, we find foreign banks at both the lower end of the spectrum (RBC at 25 percent and Barclays at 28 percent) and at the higher end (ABN AMRO at 30 percent).

In Figure 2, we examine whether the average borrower *UTB* varies across banks. As in Figure 1, we focus on a subset of the banks in our sample. Specifically, we include the largest 25 banks with at least 200 firm-year observations meeting our data requirements.[18] Again, we find substantial variation in aggressive tax avoidance across banks, with average *UTB* as a percentage of assets ranging from a low of 0.2 percent to a high of 1.0 percent. For some banks, the results are consistent with those documented in Figure 1. For example, Wachovia has the lowest average borrower *UTB* at 0.2 percent of assets as well as the fourth highest average *CASHETR3* at 30 percent. Similarly, we find that Citigroup's and Morgan Stanley's borrowers have low *CASHETR3* and high *UTB* on average. However, for some banks we find differences across the two measures of tax avoidance. For example, while Deutsche Bank's borrowers were above the median bank in terms of average *CASHETR3*, they have the second highest average *UTB*.

An alternative approach is to examine whether banks vary in terms of the proportion of their borrowers that are aggressive tax avoiders. In Figure 3, we plot *AGGR_CASHETR3*, the proportion of the bank's borrowers that are in the bottom quintile of *CASHETR3* in a given year. Likewise, in Figure 4, we plot *AGGR_UTB*, which is the proportion of the bank's borrowers that

[18] We employ a smaller count requirement for the *UTB* tests since *UTB* are only reported in 2006 and later.

are in the top quintile of *UTB* in a given year. Again, we find substantial variation across banks in the proportion of borrowers that are aggressive tax avoiders. In Figure 3, we find that the share of borrowers that are aggressive tax avoiders by *CASHETR3* ranges from 16 percent for Bank of America to 48 percent for Lehman Brothers. We document similarly large variation in Figure 4, with the share of borrowers that are aggressive tax avoiders by *UTB* ranging from 8 percent for Wachovia to 30 percent for Morgan Stanley.

Overall, Figures 1 through 4 suggest that there is heterogeneity across banks in their tolerance of client tax avoidance. We believe this is an interesting finding because it adds to the existing anecdotal evidence that some banks assist clients with implementing tax avoidance strategies. Specifically, these findings are consistent with banks having different effects on tax avoidance of their clients, through their willingness or lack thereof to either implement tax strategies or spread tax strategies across borrowers. They are also consistent with banks selecting borrowers in part based on their tax avoidance, with some banks willing to lend to aggressive tax avoiders whereas others preferring firms that engage in less tax avoidance. However, since this is a univariate analysis, there could be other factors that are driving these results. For example, if firms in certain industries or with foreign operations have different levels of tax avoidance, the results in Figures 1 through 4 could also be consistent with variation across banks in lending to certain industries or to firms with foreign operations.

4.2. Multivariate analysis of bank characteristics and borrower tax planning

To better understand whether banks are an economically important determinant of a client firm's tax planning, we investigate the effect of banks on borrower tax planning in a multivariate analysis. In Table 3, we estimate equation 1 using *CASHETR3* as the tax planning proxy. In columns 1 through 3 (4 through 6), we examine the effect of

BANK_BORR_CASHETR3 (*BANK*_SIZE) on *CASHETR3*. With each variable, we first only include the bank characteristics (either *BANK_BORR_CASHETR3* or *BANK_SIZE*) in the regression (columns 1 and 4). Next, we add the borrower-level control variables (columns 2 and 5). Finally, we add industry and year fixed effects (columns 3 and 6). In column 7, we estimate the regression with both *BANK_BORR_CASHETR3* and *BANK_SIZE*, and include borrower-level controls, industry fixed effects, and year fixed effects.

Our findings suggest that a firm's tax avoidance as measured by *CASHETR3* is strongly associated with the average tax avoidance of the bank's other borrowers. The coefficient on *BANK_BORR_CASHETR3* decreases once we add in the industry and year fixed effects, but remains economically and statistically significant. Based on the coefficient estimates in column 7, moving from the 25th to the 75th percentile of *BANK_BORR_CASHETR3* is associated with an approximately 1-percentage point increase in firm ETR (0.132 x 0.07), which is 3.1 percent of the sample mean of *CASHETR3*.

Next we investigate the effect of lender size on *CASHETR3*. The coefficient on *BANK_SIZE* is negative and statistically significant in columns 4 and 5, indicating that larger lenders are associated with greater tax planning on the part of their borrowers. However, the magnitude declines considerably once we include industry and year fixed effects, and the coefficient is no longer statistically significant. Thus it appears that lender size does not have an appreciable effect on *CASHETR3*.

In Table 4, we repeat the same analysis as in Table 3, replacing *CASHETR3* with *UTB* and *BANK_BORR_CASHETR3* with *BANK_BORR_UTB*. Across columns 1 through 3 and column 7, the coefficient on *BANK_BORR_UTB* is positive and statistically significant, supporting the notion that the firm's tax planning is strongly related to the average tax planning

of the bank's other borrowers. Based on the coefficient estimates from column 7, moving from the 25th to the 75th percentile of *BANK_BORR_UTB* is associated with an increase in the firm's *UTB* of 0.03 percent of total assets (0.117 x 0.29), which is 5.0 percent of the sample mean of *UTB*. Additionally, we find that bank size appears to be positively associated with *UTB*. A shift in *BANK_SIZE* from the 25th to the 75th percentile is associated with an increase in *UTB* of 0.03 percent of assets, which is 4.1 percent of the sample mean for *UTB*.

Overall, the results in Tables 3 and 4 are largely consistent with the hypothesis that a firm's tax planning is strongly associated with the tax planning of its bank's other borrowers. This could be driven by either banks acting as tax planning intermediaries or banks selecting borrowers based on their tax planning activities. We explore these mechanisms further in sections 4.4 and 4.5. Additionally, we find evidence that a firm's tax avoidance is increasing in the size of its lender when measuring tax avoidance with *UTB*.

4.3. Robustness

To mitigate concerns that correlated omitted variables and research design choices are responsible for our findings, we examine the robustness of our results in Tables 3 and 4 to different specifications. The robustness analyses using *CASHETR3* as the dependent variable are presented in Table 5, Panel A, and the robustness analyses using *UTB* are presented in Table 5, Panel B.

First, we investigate whether our findings could be explained by industry-wide economic shocks in a given year. If banks specialize in certain industries, and those industries experience economic shocks that lead our tax avoidance proxies to be correlated within that industry-year, then our *BANK_BORR_TAXPLAN* measure may simply capture the effect of industry shocks. To address this concern, we conduct two robustness checks. First, we include two additional control

variables: *DIFFBANK_SAMEIND_CASHETR3* (*DIFFBANK_SAMEIND_UTB*), which is defined as the average *CASHETR3* (*UTB*) of all borrowers of other banks that are in the same industry. The intuition behind these measures is that they should capture any effects of industry-year economic shocks on tax avoidance. We include *DIFFBANK_SAMEIND_CASHETR3* (*DIFFBANK_SAMEIND_UTB*) when *CASHETR3* (*UTB*) is the dependent variable. The results of this analysis are included in column 1 of Table 5. As expected, the coefficient on these additional variables is positive and statistically significant, consistent with a firm's tax avoidance being driven in part by industry shocks. The coefficients on *BANK_BORR_CASHETR3* and *BANK_BORR_UTB* continue to be positive and statistically significant, suggesting that our findings are not driven by industry-wide economic shocks.

An alternative approach to account for industry-wide economic shocks is to include industry-year fixed effects. This method of controlling for unobserved group heterogeneity is suggested by Gormley and Matsa (2014). The downside of this approach is that if a bank implements similar tax planning strategies for borrowers within a certain industry, the effect of the bank on the firm's tax avoidance might be partially captured by the fixed effect and not by *BANK_BORR_TAXPLAN*. In untabulated results, we find that the coefficients on *BANK_BORR_CASHETR3* and *BANK_BORR_UTB* are positive and statistically significant even when we include industry-year fixed effects instead of industry and year fixed effects.[19]

Similarly, our primary findings could be driven by region-specific economic shocks if banks focus corporate lending in particular regions. We consider this explanation to be unlikely since banks in our sample are very large and tend to lend to firms across the Unites States. To ensure that region-specific economic shocks are not responsible for our results, we use similar

[19] In these untabulated analyses, the estimated coefficient on *BANK_BORR_CASHETR3* (*BANK_BORR_UTB*) is 0.088 (0.115) with t-statistic of 2.38 (2.91).

approaches to those for industry shocks described above. First, we include two additional variables: *DIFFBANK_SAMEREG_CASHETR3* (*DIFFBANK_SAMEREG_UTB*), which is defined as the average *CASHETR3* (*UTB*) of all borrowers of other banks that are headquartered in the same state.[20] In column 2 of Table 5, we find that firm tax avoidance is correlated with the tax avoidance of borrowers of other banks that are located in the same state. Our results are robust to the inclusion of this variable. Second, we follow Gormley and Matsa (2014) by including state-year fixed effects in addition to industry fixed effects, and again find that our main inferences are unaffected. In these untabulated analyses, the estimated coefficient on *BANK_BORR_CASHETR3* (*BANK_BORR_UTB*) is 0.108 (0.091) with t-statistic of 2.99 (2.44).

We examine the robustness of our findings to the inclusion of firm fixed effects. While including firm fixed effects can account for both observable and unobservable factors that are constant for a firm across time, it may also reduce our ability to identify the effect of the lender on the firm's avoidance if (1) the firm does not change lenders and (2) the lender's other borrowers' tax planning is relatively constant across time. Column 3 of Table 5 contains the results of our analyses when including firm fixed effects rather than industry fixed effects. While the economic magnitude of the coefficients on *BANK_BORR_CASHETR3* and *BANK_BORR_UTB* predictably weaken, they remain statistically significant. However, the coefficient on *BANK SIZE* in the *UTB* regressions is no longer significant when including firm fixed effects.

We examine the robustness of our results to alternative standard error clustering. In our main analyses, we cluster standard errors by firm. However, if lenders are driving firm tax planning, residuals might be correlated across borrowers for a specific lender. In column 4 of

[20] We use the Compustat headquarter location, which captures the firm's current headquarters and does not vary over time. To the extent that a firm has changed the state of its headquarters, this approach will incorrectly classify the firm's region in prior years.

Table 5, we find our ability to make inferences at conventional levels of statistical significance for coefficients on *BANK_BORR_CASHETR3* and *BANK_BORR_UTB* is unaffected if we cluster standard errors by lender rather than by firm.

Since firms can have multiple lead lenders in a given year, our main analyses employ a firm-lender-year panel. In column 5 of Table 5, we examine the robustness of our results to only including one observation per firm-year. Specifically, we retain the firm-year associated with the lender that provides the largest percentage of the firm's Dealscan debt. We find that our results are similar to those presented in Tables 3 and 4, and if anything appear to be economically larger despite the lower sample size. The one exception is the coefficient on *BANK SIZE* in the *UTB* regressions which, while still positive, is no longer statistically significant at conventional levels.

In our main analyses, we make minimum restrictions on the sample in order to include a broad sample of lenders and borrowers. As a result, our sample ultimately includes a few banks whose borrowers make up the majority of the sample. We examine the robustness of our findings to excluding the four banks with the largest number of observations (Bank of America, Citigroup, J.P. Morgan Chase, and Wells Fargo) in column 6 of Table 5.[21] Despite our sample size dropping considerably (from 61,763 to 30,354 using *CASHETR3* and from 35,052 to 15,785 using *UTB*), our inferences are qualitatively unaffected. Similarly, we examine the robustness of our results to excluding banks with less than 300 firm-year observations across our sample period. These banks tend to be either international banks or smaller U.S. banks with fewer publicly-traded U.S. corporate borrowers, or banks that either were purchased or otherwise disappeared earlier in our sample period. The results from this analysis are presented in column 7 of Table 5. Again, we find that our results are robust to the exclusion of banks with a relatively

[21] We also drop some banks that merged to form these institutions; for example, when dropping JP Morgan Chase, we also drop JP Morgan, Chase Bank, and Chemical Bank; and for Citigroup, we also drop Citibank.

small number of firm-year observations. The one exception is that the coefficient on *BANK SIZE* in the *UTB* regression is no longer significantly positive. This is perhaps not surprising since this test eliminates some of the variation in *BANK SIZE*.

Finally, we examine whether our findings continue to hold when using a lagged value for *BANK_BORR_TAXPLAN*. It could be the case that our findings are in part driven by unobserved shocks that are affecting the borrowers of a particular bank. By using a one-year lagged value for *BANK_BORR_TAXPLAN*, we reduce the emphasis on timing and the likelihood that our results are driven by unobserved shocks. These results using the lagged value for *BANK_BORR_TAXPLAN* are presented in column 8 of Table 5. The coefficients on *BANK_BORR_CASHETR3* and *BANK_BORR_UTB* are similar in terms of economic and statistical significance to those presented in Tables 3 and 4.

4.4. Additional results

Our finding that a firm's tax planning is strongly associated with the average tax planning of its bank's other borrowers could be consistent with either banks acting as tax planning intermediaries (by implementing or spreading tax strategies across clients) or banks selecting borrowers based on tax planning. We attempt to shed light on the mechanisms driving these findings in Table 6.

First, we examine whether the association between a client's tax avoidance or tax aggressiveness and the bank's other borrowers is driven primarily by those borrowers within the same industry. Tax strategies are often industry specific (Dyreng et al. 2008; McGuire et al. 2012). Therefore, finding the association to be stronger within the same industry would be more consistent with some banks acting as tax planning intermediaries, either directly through the implementation of tax strategies or indirectly by spreading tax strategies across borrowers within

the same industry. On the other hand, if banks are simply selecting borrowers based on their tax planning characteristics, we should find that the association between a firm's tax planning and the average tax planning holds for both same-industry and different-industry borrowers.

To test this, we split *BANK_BORR_CASHETR3* and *BANK_BORR_UTB* into two components: (1) the average borrower tax planning for borrowers in the same industry as the firm and (2) the average borrower tax planning for borrowers that are not in the same industry. We present these results in column 1 of Table 6, with *CASHETR3* (*UTB*) as the dependent variable in Panel A (Panel B). In Panel A, we find that a borrower's *CASHETR3* is strongly associated with the average *CASHETR3* of other borrowers within the same industry, but is not associated with the average *CASHETR3* of borrowers in different industries. This result is consistent with banks being tax planning intermediaries, but less so with banks selecting borrowers on tax avoidance. However, in Panel B, we find that a firm's *UTB* is associated with both the average *UTB* of borrowers in the same industry as well as those not in the same industry, consistent with both tax planning intermediary and selection explanations. Overall, the results in column 1 of Panels A and B suggest that both tax planning intermediary and selection stories are contributing to our main findings.

Next, we exploit the fact that some of our firms have key relationships with multiple banks, and explore whether the association between a firm's tax avoidance and the tax avoidance of other borrowers varies depending upon the strength of the relationship. For these firms, we identify the firm's primary bank, which we define as the lead lender that provides the majority of its debt.[22] A firm's relationship with its primary bank will likely be stronger, in terms of the full

[22] For this calculation, we only consider the firm's debt identifiable through Dealscan. We measure the size of all facilities within a borrower-year using Dealscan's "facilityamt" field converted to USD, and consolidate all facilities within a fiscal year. The primary bank is the lead lender that provides the largest share of a firm's total Dealscan debt within a given fiscal year.

set of services being used, than its relationships with other banks. Furthermore, the primary bank will likely have more incentive to assist the firm with its tax planning. We expect that if banks are acting as tax planning intermediaries, they are more likely to affect the tax planning of firms for which they are the primary bank. This suggests that the relationship between a firm's tax planning and the tax planning of other borrowers should be stronger for the firm's primary bank. Alternatively, if banks are simply selecting borrowers based on their level of tax avoidance, we expect that the association between a firm's tax planning and other borrowers' tax planning should be similar across banks.

To test this notion, we focus on the subset of firms that have key relationships with multiple banks. We split *BANK_BORR_CASHETR3* and *BANK_BORR_UTB* into two components: (1) the average borrower tax planning of the firm's primary lender and (2) the average borrower tax planning of the other banks with which the firm has a relationship. The results of this analysis are presented in column 2 of Table 6, with Panel A (Panel B) presenting the results using *CASHETR3* (*UTB*) as the dependent variable. In Panel A, we find that the association between the firm's tax avoidance and the tax avoidance of other borrowers is positive and statistically significant for both the main lender and other lenders. However, in Panel B, we find that the association between the firm's *UTB* and the average *UTB* of other borrowers is only statistically significant for the firm's primary bank. More importantly, across both panels, we find that the association between the firm's tax avoidance and the tax avoidance of other borrowers is economically larger for the firm's primary lender, with the difference in the coefficients being statistically significant when measuring tax planning using *UTB*. Since the incentive to either implement tax strategies or spread tax strategies to its clients is likely stronger for the primary lender, the results in Panel A are consistent with both the tax planning

intermediary and selection explanations, whereas the results in Panel B are more consistent with the tax planning intermediary explanation.

Finally, we examine whether the association between the firm's tax avoidance and the tax avoidance of its bank's other borrowers varies depending on the syndicate size. Sufi (2007) documents that, due to moral hazard in monitoring, the lead bank forms a more concentrated (i.e., smaller) syndicate when a borrower requires more intense monitoring and due diligence. If aggressive tax avoidance can lead to reduced firm transparency (Balakrishnan et al. 2012), then assisting a client with implementing tax strategies can increase the information asymmetry between the lead bank and participating banks. Therefore, banks may prefer to act as a tax planning intermediary only if the syndicate size is relatively small. We test this idea by splitting the sample at the median of the average number of syndicate participants for that borrower-bank-year observation.[23] The results of this test are presented in columns 3 and 4 of table 6, where column 3 (4) contains the results of estimating equation 1 (without *BANK_SIZE*) in the subsample of observations with an average syndicate size below (above) the median. In panel A, we find that the association between the firm's *CASHETR3* and the average *CASHETR3* of the bank's other borrowers is statistically significant when the average syndicate size is below the median (column 3) but not above the median (column 4), consistent with our predictions. However, the difference in the coefficients is not statistically significant at conventional levels. In panel B, we find that the association between the firm's *UTB* and the average *UTB* of the bank's other borrowers is statistically significant in both subsamples. Overall, the results in columns 3 and 4 only weakly support the idea that banks are more willing to act as tax planning intermediaries when the syndicate size is relatively small.

[23] We use the average syndicate size since the borrower may have multiple loans with the same bank, each of which could have a different syndicate size.

Our collective results in tables 3 through 6 are consistent with the idea that banks act as tax planning intermediaries for their clients. However, the research design we employ may be affected by factors other than banks acting as tax planning intermediaries; specifically, shocks that are common to all borrowers of a particular bank and that affect tax avoidance. We employ several approaches that we believe should mitigate the likelihood that we are capturing the effect of common shocks on client tax avoidance (Angrist 2014). First, we include an extensive set of borrower-level control variables as well as industry and year fixed effects in all analyses. These variables will account for shocks that are correlated with firm-level controls, or are constant within an industry across time or across all firms in a given year. Furthermore, we examine the robustness of these results accounting for industry-year (region-year) common shocks, either by including as an additional control variable the average tax avoidance for all borrowers of *other* banks within a given industry (state) or by including industry-year (state-year) fixed effects. We also employ lagged measures of our bank-borrower tax avoidance proxies, which should mitigate the impact of a common shock that occurs in some year. We find that our primary results are robust. However, we cannot fully rule out that there are other common shocks that affect the tax avoidance of borrowers of a given bank, and the results in tables 3 through 6 should be interpreted with that caveat in mind.

4.5. New lending relationships

Finally, we explore how borrower tax avoidance changes when starting a new lending relationship. If some banks act as tax planning intermediaries by implementing tax strategies for borrowers and/or spreading tax strategies across clients, then if a borrower starts a new relationship with one of these banks we would expect that this firm's tax avoidance will increase. On the other hand, the selection story simply suggests that the bank chooses borrowers based on

its existing tax planning strategies and does not predict a change in the tax avoidance outcomes after a new relationship is started.

To test whether a borrower's tax avoidance outcomes change after starting a new lending relationship, we focus on the firms in our sample that start new lending contracts with a bank other than its existing bank.[24] We examine whether clients that pair up with a "tax planning intermediary" bank (treatment firms) exhibit greater tax avoidance in the years after their new relationship begins relative to clients that switch to a non-"tax planning intermediary" bank (control firms).

To test this hypothesis, we estimate the following regression:

$$TAXPLAN_{i,j,t} = \beta_0 + \beta_1 TAX\_INTERMEDIARY\_BANK_{,i,j,t} + \Sigma_k \beta_k CONTROLS_{i,j,t} + \varepsilon_{i,j,t} \quad (2)$$

The dependent variable is *TAX_PLAN*, which is either *CASHETR3* or *UTB*. We classify banks as being "tax planning intermediary" banks if the average tax avoidance of their existing borrowers (as measured by either the borrowers' *CASHETR3* or *UTB*) is above the median across all banks in at least two of the three years prior to the beginning of the new banking relationship. *TAX_INTERMEDIARY_BANK* is an indicator variable that equals one for all years after a firm begins a new relationship with a "tax planning intermediary" bank, and zero for all other firm-years. We predict that if a "tax planning intermediary" bank assists its new clients with tax planning (either by implementing new tax strategies or by spreading tax strategies across borrowers), the coefficient on *TAX_INTERMEDIARY_BANK* will be negative (positive) when *TAX_PLAN* is *CASHETR3* (*UTB*).

We include all of the firm-year-level control variables from analyses in tables 3 through 6. Furthermore, we include several types of fixed effects. First, we include a fixed effect for each

[24] Alternatively, one could examine bank mergers as a change in lending relationship. Unfortunately, there are not a sufficient number of bank mergers that occur between our sample banks during our sample period. This is particularly an issue when using *UTB* as the tax avoidance proxy, as it is only available from 2006 onward.

client-new bank pairing. These effects account for any time-invariant factors that affect the firm's tax planning measure in pairing with this new bank. In a standard firm-year panel, this is generally equivalent to including firm fixed effects. Second, we include year fixed effects to capture any shocks that affect tax avoidance across all sample firms within a given year. Third, we include event-time fixed effects. Because the firms in our sample can initiate multiple new banking relationships at different time periods, this fixed effect captures any systematic changes in tax planning that occurs when a firm pairs with a new bank, regardless of the timing of the pairing and whether the bank is a "tax planning intermediary" bank.

For the purposes of this analysis, we examine a seven-year window around the initiation of the new banking relationship; this include three years before the new relationship begins, the year of the new relationship, and three years after the beginning of the relationship.[25] We examine 6,719 new lender-borrower pairings for our *CASHETR3* sample and 3,271 new lender-borrower pairings for our *UTB* sample. We lose 3,568 (3,756) borrower-bank-year observations due to sample attrition in the years surrounding the new relationship, and we lose an additional 3,445 (381) observations due to missing control variables. Finally, we lose 429 (1,275) observations due to inability to assign a bank an "aggressive" designation for the *CASHETR3* (*UTB*) sample. Primarily, these observations are lost when either (1) the new relationship is identified very early in the series (e.g. in 1994 for the *CASHETR3* sample) or (2) the lender has

[25] We focus on a small window around the initiation of the new lending relationship to minimize unrelated factors potentially influencing our results. We code the year of the change as part of the "post" period. The "year zero" observation is important for making inferences at conventional levels of statistical significance for the *CASHETR3* tests, but not the *UTB* tests. However, because *CASHETR3* and associated control variables are calculated for a rolling three-year window, the importance of this "post" designation from the time series is not intuitive. In untabulated tests, we examine other one year measures of tax avoidance. For one-year book ETRs, we find strong and consistent results with the *CASHETR3* and *UTB* measures. For one-year cash ETRs, we find consistent coefficient signs but with attenuated economic magnitudes, and we are unable to make inferences at conventional levels of statistical significance.

too few other borrowers in years prior to the new relationship to measure average aggressiveness among other borrowers.

The results in column 1 (4) of table 7 contains the results of this analysis using *CASHETR3* (*UTB*) as the dependent variable. In column 1, we find that firms experience a decline in the *CASHETR3* of 1 percentage point after initiating a new relationship with a tax planning intermediary bank. This effect represents an economically meaningful decrease of 3.5% of the sample mean *CASHETR3* of 28.9%. In column 4, we find a similar result using *UTB* as the tax planning proxy; firms initiating new relationships with tax planning intermediary banks experience an increase in the unrecognized tax benefit equal to approximately 9.3 basis points of assets, representing an increase of 12.6% of the sample average of 74.1 basis points of assets. These findings are consistent with certain banks acting as tax planning intermediaries for their clients, leading to increases in tax avoidance after starting a relationship with these banks.

Next, we conduct an alternative approach to assessing the statistical significance of the effect of a borrowing pairing with a "tax planning intermediary" bank. We randomly pair each borrower that is initiating a new lending relationship with any bank observable in this panel, repeating the process 1,000 times to generate the empirical distribution of the pseudo-coefficients under the null hypothesis. We plot the distribution of the pseudo-coefficients on *TAX_INTERMEDIARY_BANK* in Figure 5, with panel A (B) containing the results using *CASHETR3* (*UTB*) as the dependent variable. The distributions are centered very close to zero, as one would expect under the null hypothesis. More importantly, our coefficients using the actual pairings in table 7 are at the extreme ends of these pseudo-coefficient distributions. Specifically, our coefficient in column 1 of table 7 (using *CASHETR3* as the tax planning variable) is lower than all but 29 of the pseudo-coefficients, analogous to a p-value of 0.029.

When we use *UTB* as our tax planning proxy (column 4 of table 7), we find that our actual coefficient is greater than all but four of the pseudo-coefficients, analogous to a p-value of 0.004. Therefore, our findings in table 7 are consistent with banks acting as tax planning intermediaries, and are not consistent with a mechanical change in tax avoidance that occurs when starting a new lending relationship.

One concern with these tests is that pairing of firms and banks is clearly endogenous. Our fixed effect structure captures the effect of any time-invariant factors on the pairing of the firm and the new bank and the firm's tax avoidance. However, there could be time-varying factors (both observable and unobservable) that are correlated with the pairing of the client firm and the bank as well as the firm's tax planning strategies. To mitigate concerns about these correlated omitted variables driving our results, we match our treatment firms to similar control firms using two procedures: propensity score matching (PSM) and coarse exact matching (CEM). The trade-off between these two matching approaches is as follows. With PSM, we eliminate observations that cannot be matched on observables that enter into a probit model with the dependent variable being *TAX_INTERMEDIARY_BANK*. Matched observations are included in an equivalent statistical test as our main model. As a result, only "like" observations enter the regression, giving us some comfort that observable, compositional differences that are related to the endogenous selection are less likely to bias our coefficient of interest. However, because we are limited by "control" observations outnumbering "treated," we see a decline in observations using this method: 20.8% of the sample for *CASHETR3* and 9.5% of the sample for *UTB*. This decline in power could result in economically meaningful changes in tax avoidance being statistically indistinguishable from zero. With CEM, we "coarsen" the data by separating the observations into researcher-defined buckets and estimate weights for the observations so treatment and

control observations in that bucket contribute similarly to a weighted least squares regression test. Similar to PSM, this reduces the compositional differences which might contribute to our coefficient of interest. For CEM, the drawback is up-weighting unique observations.[26]

For both the PSM and CEM tests, we match using variables that are statistically different from each other between the "treated" and "control" groups. For instance, for the *CASHETR3* measure, the groups are different in measures of *SIZE*, *PPE*, *ΔPPE*, *LEVERAGE*, *R&D EXPENSE*, *ΔNOL*, and *ROA*. In untabulated tests, we match on all controls and the economic magnitudes and statistical inferences are similar. The CEM coarsening uses quintile buckets for each of the matching variables, resulting in 1,246 (1,071) populated buckets, of which 801 (700) have observations from both groups for *CASHETR3* (*UTB*). Buckets without sufficient observations for some reweighting across the groups get dropped: 798 (909) observations for *CASHETR3* (*UTB*).

The results of our matched sample results are contained in columns 2 and 3 (5 and 6) of table 7 when *CASHETR3* (*UTB*) is the dependent variable. Using coarse-exact matched control samples (columns 2 and 5), we continue to find that pairing with a tax planning intermediary bank leads to an economically important increase in the tax avoidance of the client bank. When using the propensity-score matched control samples (columns 3 and 6), we continue to find that pairing with a tax planning intermediary bank leads to an increase in the firm's *UTB*; however, the effect of pairing with a tax planning intermediary bank no longer has a statistically

[26] A common example is if "treated" are public firms and "control" are private firms and size is a coarsening variable, then the very few, large private firms would be bundled with many large public firms. These large private firms would be given a high weight to balance the groups. However, large private firms are unique, and it might be abnormal to allow them to contribute so much to the test. For our sample, both "treated" and "control" firms are public firms with some observable debt on Dealscan starting a new lender-borrower relationship. There are not obvious compositional differences that might cause concern for unique observations to be given undue weight.

significant effect on the firm's *CASHETR3*, the economic point estimate might be considered meaningful at a 1.7% decrease relative to the sample mean.

Next, we examine whether the effect of initiating a new relationship with a tax planning intermediary bank varies in the cross-section. Specifically, we examine whether the effect on tax avoidance is stronger for a firm that has greater tax planning opportunities. We use the existence of foreign income as a proxy for tax planning opportunities. Prior research has shown that firms with foreign operations generally have additional tax avoidance opportunities (Rego 2003; Dyreng and Lindsey 2009; Hanlon and Heitzman 2010; Klassen and Laplante 2012; Cen et al. forthcoming.). Furthermore, banks are well-positioned to help client firms take advantage of global tax planning opportunities, as evidenced by the anecdotes discussed in Section 2.1.

To test this hypothesis, we estimate equation 2 within two different subsamples: one with foreign income and one without foreign income. The results of this analysis are presented in table 8, with columns 1 and 2 (3 and 4) presenting the results of estimating equation 2 using *CASHETR3* (*UTB*) as the dependent variable. In each column pair, the first column (either 1 or 3) contains the results with the foreign-income subsample, and the second column (either 2 or 4) contains the results estimated with the no foreign-income subsample. We find that, using either tax planning proxy, starting a new relationship with a tax planning intermediary bank leads to a stronger increase in tax avoidance for client firms with foreign income – the coefficient in column 1 (3) is greater in absolute magnitude than the coefficient in column 2 (4). Furthermore, the difference in the treatment effect across columns is statistically significant when *CASHETR3* is the dependent variable, with a p-value of 0.076. The p-value for *UTB* test is not significant at conventional levels at 0.250. These findings are consistent with some banks assisting new clients with tax planning opportunities that take advantage of the existence of foreign operations.

Overall, the results in tables 7 and 8 are broadly consistent with the idea that some banks act as tax planning intermediaries for borrowers, either by implementing new tax strategies or spreading tax strategies across borrowers. Pairing with these "tax planning intermediary" banks leads to an economically important increase in observed tax avoidance. This finding is robust to the inclusion of an extensive set of control variables, multiple fixed effects, and various matched-sample approaches designed to mitigate correlated omitted variable concerns. Furthermore, we find that the effect is stronger for firms with foreign income, which are better suited to take advantage of any tax planning services offered by the bank. While the pairing of banks and borrowers is obviously endogenous, we believe that the combination of these findings is broadly consistent with the idea that some banks causally affect the tax planning of their clients.

5. Conclusion

We provide the first large-sample evidence on banks' role in the tax planning of their borrowers. In contrast to anecdotal evidence that suggests that on average banks are promoters of aggressive tax avoidance, we document substantial heterogeneity in borrower tax avoidance across banks. Furthermore, we provide evidence consistent with banks (1) acting as tax planning intermediaries, suggesting that banks affect clients' tax planning and facilitate the transmitting of tax strategies from one borrower to another and (2) selecting borrowers in part based on their tax planning activities. Finally, we find that borrowers exhibit meaningful increases in tax avoidance after pairing with "tax planning intermediary" banks. Overall, our results suggest that banks play an important role in corporate tax avoidance. There is heterogeneity across banks; while some banks may enthusiastically implement tax planning strategies for clients or embrace borrowers who are aggressive tax avoiders, other banks are more conservative in their tolerance for tax

avoidance. These findings help explain why prior research finds conflicting evidence on how capital providers (such as banks) view tax avoidance: not all banks approach client tax planning equally. We encourage future research on how capital providers both view and affect corporate tax avoidance.

References

Amiti, M., and D. E. Weinstein. 2011. Exports and Financial Shocks*. *Quarterly Journal of Economics* 126 (4):1841-1877.

———. 2013. How Much do Bank Shocks Affect Investment? Evidence from Matched Bank-Firm Loan Data. *National Bureau of Economic Research Working Paper Series* No. 18890.

Angrist, J. D. 2014. The perils of peer effects. *Labour Economics* 30:98-108.

Balakrishnan, K., J. Blouin, and W. Guay. 2012. Does Tax Aggressiveness Reduce Transparency? Working paper, London Business School and the University of Pennsylvania.

Bao, J., and A. Edmans. 2011. Do Investment Banks Matter for M&A Returns? *Review of Financial Studies* 24 (7):2286-2315.

Beatty, A., and J. Weber. 2003. The Effects of Debt Contracting on Voluntary Accounting Method Changes. *Accounting Review* 78 (1):119.

Berger, A. N., N. H. Miller, M. A. Petersen, R. G. Rajan, and J. C. Stein. 2005. Does function follow organizational form? Evidence from the lending practices of large and small banks. *Journal of Financial Economics* 76 (2):237-269.

Bharath, S., S. Dahiya, A. Saunders, and A. Srinivasan. 2007. So what do I get? The bank's view of lending relationships. *Journal of Financial Economics* 85 (2):368-419.

Bharath, S. T., S. Dahiya, A. Saunders, and A. Srinivasan. 2011. Lending Relationships and Loan Contract Terms. *Review of Financial Studies* 24 (4):1141-1203.

Bharath, S. T., J. Sunder, and S. V. Sunder. 2008. Accounting Quality and Debt Contracting. *Accounting Review* 83 (1):1-28.

Billett, M. T., M. J. Flannery, and J. A. Garfinkel. 1995. The Effect of Lender Identity on a Borrowing Firm's Equity Return. *Journal of Finance* 50 (2):699-718.

———. 2006. Are Bank Loans Special? Evidence on the Post-Announcement Performance of Bank Borrowers. *Journal of Financial and Quantitative Analysis* 41 (04):733-751.

Brown, J. L. 2011. The Spread of Aggressive Corporate Tax Reporting: A Detailed Examination of the Corporate-Owned Life Insurance Shelter. *Accounting Review* 86 (1):23-57.

Brown, J. L., and K. D. Drake. 2014. Network Ties Among Low-Tax Firms. *Accounting Review* 89 (2):483-510.

Bushman, R. M., 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.

Cen, L., E. L. Maydew, L. Zhang, and L. Zuo. forthcoming. Customer-Supplier Relationships and Corporate Tax Avoidance. *Journal of Financial Economics*.

Chava, S., and A. Purnanandam. 2011. The effect of banking crisis on bank-dependent borrowers. *Journal of Financial Economics* 99 (1):116-135.

Chava, S., and M. R. Roberts. 2008. How Does Financing Impact Investment? The Role of Debt Covenants. *Journal of Finance* 63 (5):2085-2121.

Chen, Q., and R. Vashishtha. 2015. The Effects of Bank Mergers on Corporate Information Disclosure. Working paper, Duke University.

Costello, A. M., and R. Wittenberg-Moerman. 2011. The Impact of Financial Reporting Quality on Debt Contracting: Evidence from Internal Control Weakness Reports. *Journal of Accounting Research* 49 (1):97-136.

Dahiya, S., M. Puri, and A. Saunders. 2003. Bank Borrowers and Loan Sales: New Evidence on the Uniqueness of Bank Loans. *Journal of Business* 76 (4):563-582.

Dolan, K. 2013. The Foreign Tax Credit Diaries - Litigation Run Amok. *Tax Notes International* 71 (August 26, 2013):831-843.

Donohoe, M. P. 2015. Financial Derivatives in Corporate Tax Avoidance: A Conceptual Perspective. *Journal of the American Taxation Association* 37 (1):37-68.

Dyreng, S. D., M. Hanlon, and E. L. Maydew. 2008. Long-Run Corporate Tax Avoidance. *Accounting Review* 83 (1):61-82.

Dyreng, S. D., and B. P. Lindsey. 2009. Using Financial Accounting Data to Examine the Effect of Foreign Operations Located in Tax Havens and Other Countries on U.S. Multinational Firms' Tax Rates. *Journal of Accounting Research* 47 (5):1283-1316.

Engel, E., M. Erickson, and E. Maydew. 1999. Debt-Equity Hybrid Securities. *Journal of Accounting Research* 37 (2):249-274.

Gallemore, J., and E. Labro. 2015. The importance of the internal information environment for tax avoidance. *Journal of Accounting and Economics* 60 (1):149-167.

Gallemore, J., E. L. Maydew, and J. R. Thornock. 2014. The Reputational Costs of Tax Avoidance. *Contemporary Accounting Research* 31 (4):1103-1133.

Gormley, T. A., and D. A. Matsa. 2014. Common Errors: How to (and Not to) Control for Unobserved Heterogeneity. *Review of Financial Studies* 27 (2):617-661.

Graham, J. R., M. Hanlon, T. Shevlin, and N. Shroff. 2014. Incentives for Tax Planning and Avoidance: Evidence from the Field. *Accounting Review* 89 (3):991-1023.

Graham, J. R., S. Li, and J. Qiu. 2008. Corporate misreporting and bank loan contracting. *Journal of Financial Economics* 89 (1):44-61.

Hanlon, M., and S. Heitzman. 2010. A review of tax research. *Journal of Accounting & Economics* 50 (2/3):127-178.

Hanlon, M., and J. Slemrod. 2009. What does tax aggressiveness signal? Evidence from stock price reactions to news about tax shelter involvement. *Journal of Public Economics* 93 (1/2):126-141.

Hasan, I., C. K. 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 (1):109-130.

Hoopes, J. L., D. Mescall, and J. A. Pittman. 2012. Do IRS Audits Deter Corporate Tax Avoidance? *Accounting Review* 87 (5):1603-1639.

Hori, M. 2005. Does bank liquidation affect client firm performance? Evidence from a bank failure in Japan. *Economics Letters* 88 (3):415-420.

Ivashina, V., V. B. Nair, A. Saunders, N. Massoud, and R. Stover. 2009. Bank Debt and Corporate Governance. *Review of Financial Studies* 22 (1):41-77.

Ivashina, V., and D. Scharfstein. 2010. Bank lending during the financial crisis of 2008. *Journal of Financial Economics* 97 (3):319-338.

Jeong-Bon, K., B. Y. Song, and Z. Liandong. 2011. Internal Control Weakness and Bank Loan Contracting: Evidence from SOX Section 404 Disclosures. *Accounting Review* 86 (4):1157-1188.

Kim, J.-B., O. Z. Li, and Y. Li. 2010. Corporate Tax Avoidance and Bank Loan Contracting. Working paper, City University of Hong Kong, National University of Singapore, and Arizona State University.

Klassen, K. J., and S. K. Laplante. 2012. Are U.S. Multinational Corporations Becoming More Aggressive Income Shifters? *Journal of Accounting Research* 50 (5):1245-1285.

Kroszner, R. S., L. Laeven, and D. Klingebiel. 2007. Banking crises, financial dependence, and growth. *Journal of Financial Economics* 84 (1):187-228.

Lo, A. K. 2014. Do Declines in Bank Health Affect Borrowers' Voluntary Disclosures? Evidence from International Propagation of Banking Shocks. *Journal of Accounting Research* 52 (2):541-581.

McGuire, S. T., T. C. Omer, and D. Wang. 2012. Tax Avoidance: Does Tax-Specific Industry Expertise Make a Difference? *Accounting Review* 87 (3):975-1003.

Norden, L., P. Roosenboom, and W. Teng. 2013. The Impact of Government Intervention in Banks on Corporate Borrowers' Stock Returns. *Journal of Financial & Quantitative Analysis* 48 (5):1-45.

OECD. 2008. Study into the role of tax intermediaries. http://dx.doi.org10.1787/9789264041813-en.

———. 2009. Building transparent tax compliance by banks. http://dx.doi.org/10.1787/9789264067851-en.

Ongena, S., D. C. Smith, and D. Michalsen. 2003. Firms and their distressed banks: lessons from the Norwegian banking crisis. *Journal of Financial Economics* 67 (1):81.

Petersen, M. A., and R. G. Rajan. 2002. Does Distance Still Matter? The Information Revolution in Small Business Lending. *Journal of Finance* 57 (6):2533-2570.

Rego, S. O. 2003. Tax-Avoidance Activities of U.S. Multinational Corporations. *Contemporary Accounting Research* 20 (4):805-833.

Rego, S. O., and R. Wilson. 2012. Equity Risk Incentives and Corporate Tax Aggressiveness. *Journal of Accounting Research* 50 (3):775-810.

Scholes, M. S., M. A. Wolfson, M. M. Erickson, M. Hanlon, E. L. Maydew, and T. Shevlin. 2014. *Taxes and Business Strategy: A Planning Approach*. 5th ed: Prentice Hall.

Shevlin, T., O. Urcan, and F. Vasvari. 2013. Corporate Tax Avoidance and Public Debt Costs. Working paper, University of California-Irvine, University of Illinois at Urbana-Champaign, and London Business School.

Sufi, A. 2007. Information Asymmetry and Financing Arrangements: Evidence from Syndicated Loans. *Journal of Finance* 62 (2):629-668.

United States Senate. Permanent Subcommittee on Investigations of the Committee on Homeland Security and Governmental Affairs. The Role of Professional Firms in the U.S. Tax Shelter Industry Report. 109th Congress, 1st session. S. Rept. 109-54. Available from http://purl.access.gpo.gov/GPO/LPS62166.

Appendix: Variable Definitions

Firm Tax Planning Proxies

VARIABLE	DESCRIPTION
CASHETR3	Sum of cash taxes paid (net of taxes refunded) over current and prior 2 fiscal years divided by sum of pre-tax income over current and prior 2 fiscal years. The denominator must be positive. Winsorized at 0 and 1.
UTB	Fiscal year ending unrecognized tax benefit balance divided by ending total assets. Multiplied by 100 for scale.

Bank Characteristics

VARIABLE	DESCRIPTION
BANK_BORR_CASHETR3	Average *CASHETR3* for all other borrowers of the firm's bank in a given year. Calculation excludes the firm's own *CASHETR3*. We require at least 10 other observable borrowers' *CASHETR3* to calculate this variable. The process by which we measure bank-borrower relationships is explained in Section 3.1.
BANK_BORR_UTB	Average *UTB* for all other borrowers of the firm's bank in a given year (where *UTB* is multiplied by 100 for scale). Calculation excludes firm's own *UTB*. We require at least 10 other observable borrowers' *UTB* to calculate this variable. The process by which we measure bank-borrower relationships is explained in Section 3.1.
BANK_SIZE	Natural log of the borrower's bank's total assets. The process by which we measure bank-borrower relationships is explained in Section 3.1.
TAX_INTERMEDIARY_BANK	Indicator variable that equals one for all years after a firm begins a new relationship with a "tax planning intermediary" bank, and zero for all other firm-years. We classify banks as being "tax planning intermediary" banks if the average tax avoidance of their existing borrowers (as measured by either the borrowers' *CASHETR3* (*UTB*) when *CASHETR3* (*UTB*) is the dependent variable) is above the median across all banks in at least two of the three years prior to the beginning of the new banking relationship. The process by which we measure bank-borrower relationships is explained in Section 3.1.

Appendix: Variable Definitions (continued)

Control Variables

VARIABLE	DESCRIPTION
SIZE	Natural log of average total assets
PPE	Average property, plant, and equipment divided by average total assets
ΔPPE	Fiscal year-end property, plant, and equipment balance minus beginning property, plant, and equipment balance divided by average total assets
LEVERAGE	Average long-term debt divided by average total assets
INTANGIBLES	Average intangible assets divided by average total assets
R&D EXPENSE	R&D expense divided by average total assets
NOL DUMMY	Indicator variable equal to one when beginning net operating loss carryforward is greater than zero, and zero otherwise
ΔNOL	Fiscal year-end net operating loss balance minus beginning net operating loss balance divided by average total assets
EXTRAORDINARY ITEMS	Extraordinary items divided by average total assets
FOREIGN INCOME DUMMY	Indicator variable equal to one when pre-tax foreign income is non-zero, and zero otherwise
FOREIGN INCOME	Pre-tax foreign income divided by average total assets
RETURN ON ASSETS	Operating income before depreciation divided by average total assets
MARKET-TO-BOOK	Market value (price per share times number of shares outstanding) divided by total shareholders' equity
SALES GROWTH	Current fiscal-year revenue minus lagged fiscal-year revenue divided by lagged fiscal-year revenue
AGE	Natural log of one plus current fiscal-year minus first observable fiscal-year available on Compustat

Figure 1: Average Borrower Long-Run Cash ETR by Bank

Figure 1 presents the average borrower 3-year cash effective tax rate (*CASHETR3*) for banks in our sample. Average borrower *CASHETR3* is calculated as described in the appendix. We include the 25 largest banks by average assets during the sample window (1993 – 2014) where the bank has at least 300 borrower-years in our sample. The banks have been sorted by the average borrower *CASHETR3* to illustrate the cross-sectional variation.

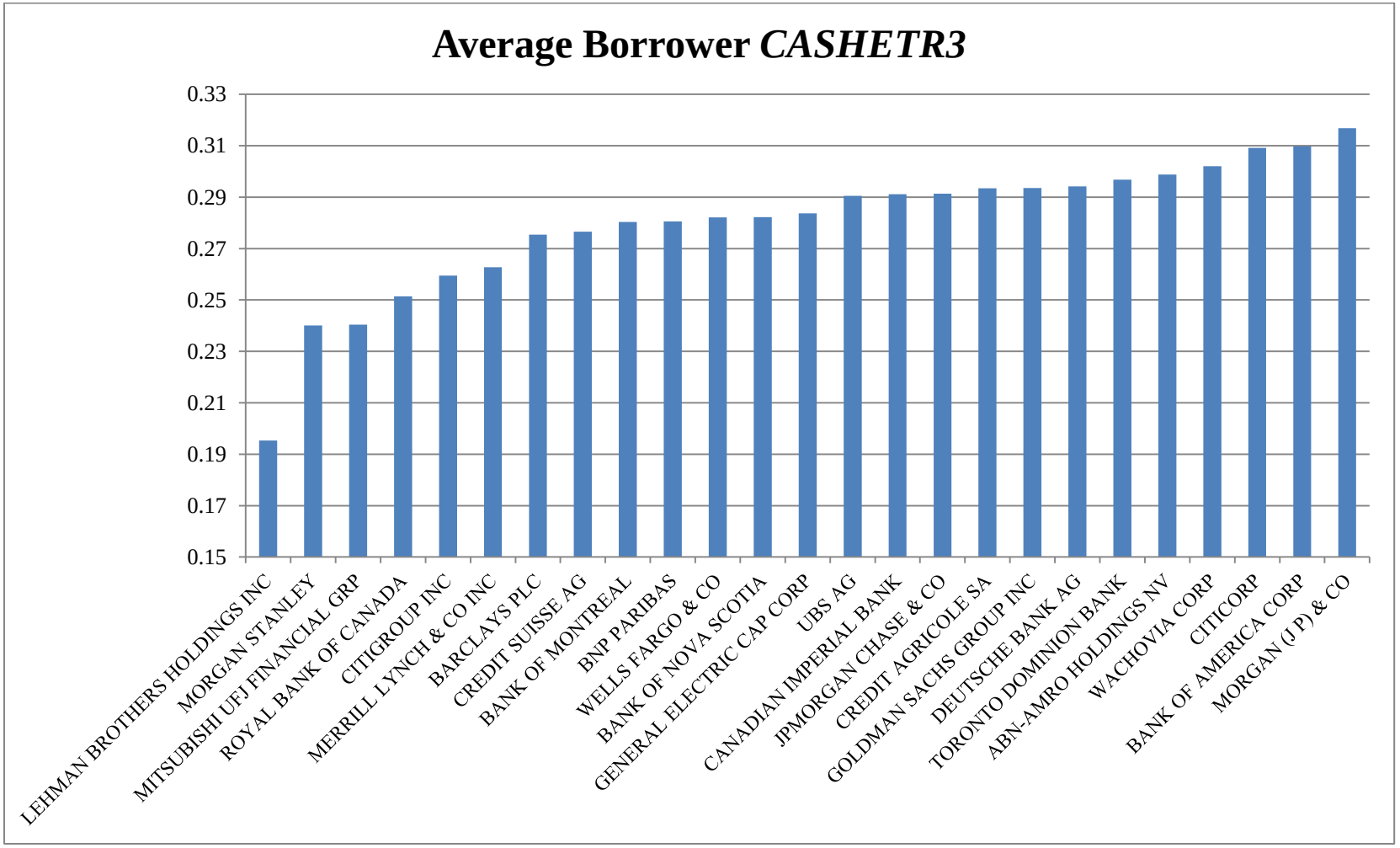

Figure 2: Average Borrower UTB by Bank

Figure 2 presents the average unrecognized tax benefit (*UTB*) for banks in our sample. Average borrower *UTB* is calculated as described in the appendix. We include the 25 largest banks by average assets during the sample window (2006 – 2014) where the bank has at least 200 borrower-years in our sample. The banks have been sorted by the average borrower *UTB* to illustrate the cross-sectional variation.

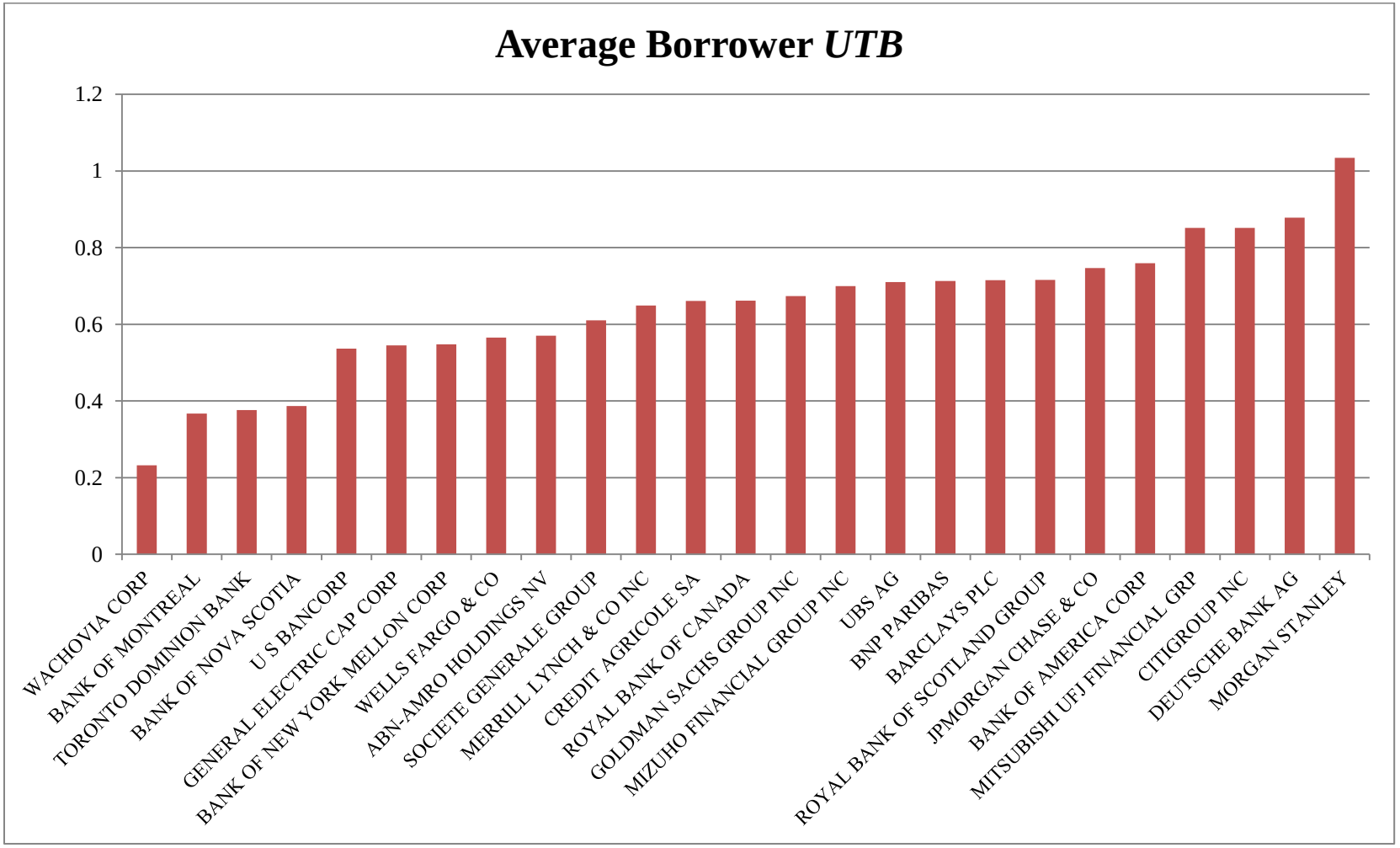

Figure 3: Proportion of Borrowers that are Aggressive Tax Avoiders by Cash ETR

Figure 3 shows the proportion of a bank's borrowers that are in the bottom quintile of all borrowers in our sample in a given fiscal year by *CASHETR3*. *CASHETR3* is calculated as described in the appendix. We include the 25 largest banks by average assets during the sample window (1993 – 2014) where the bank has at least 300 borrower-years in our sample. The banks have been sorted by proportion of borrowers in the bottom quintile to illustrate the cross-sectional variation.

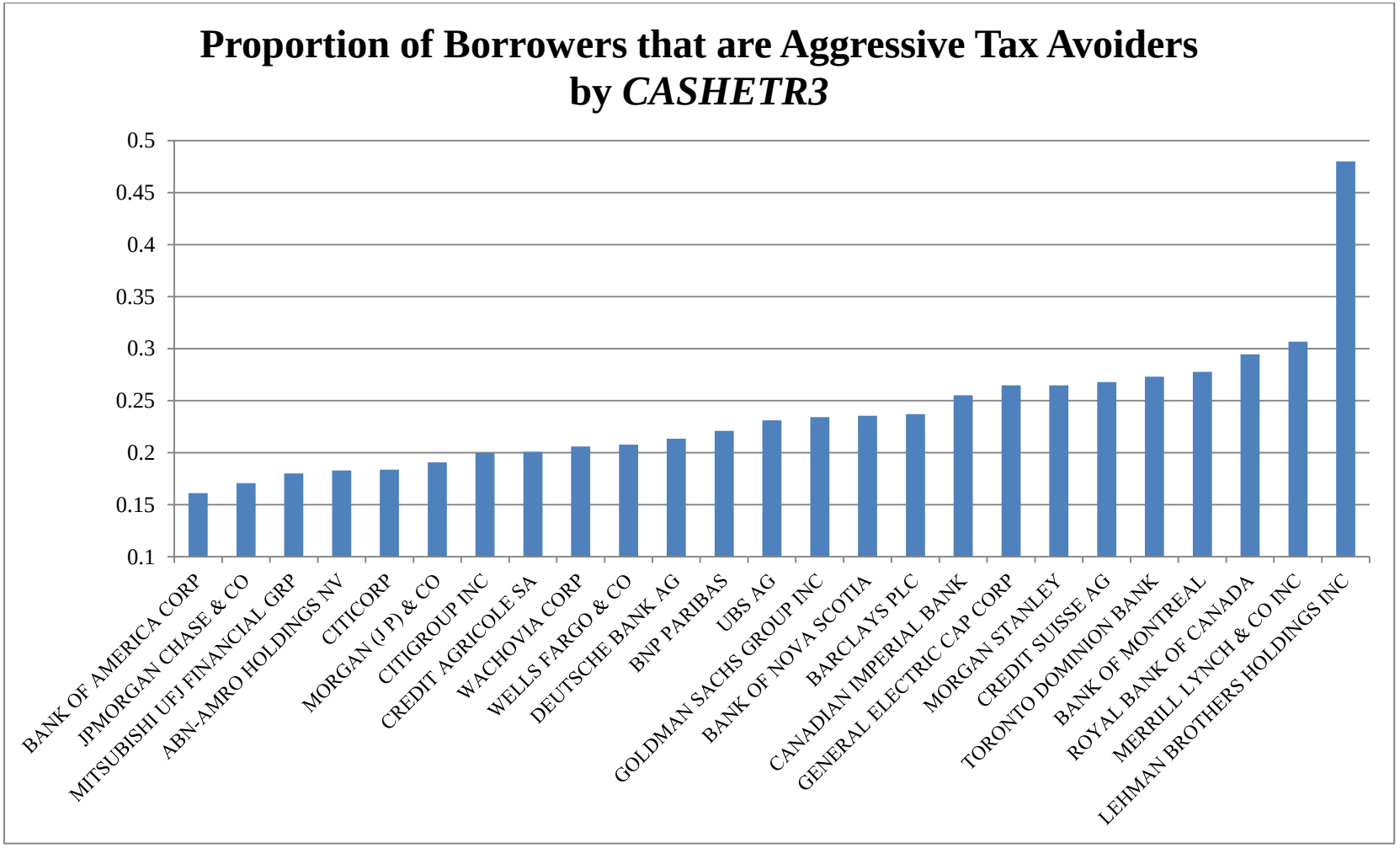

Figure 4: Proportion of Borrowers that are Aggressive Tax Avoiders by UTB

Figure 4 shows the proportion of a bank's borrowers that are in the top quintile of all borrowers in our sample in a given fiscal year by *UTB*. *UTB* is calculated as described in the appendix. We include the 25 largest banks by average assets during the sample window (2006 – 2014) where the bank has at least 200 borrower-years in our sample. The banks have been sorted by proportion of borrowers in the top quintile to illustrate the cross-sectional variation.

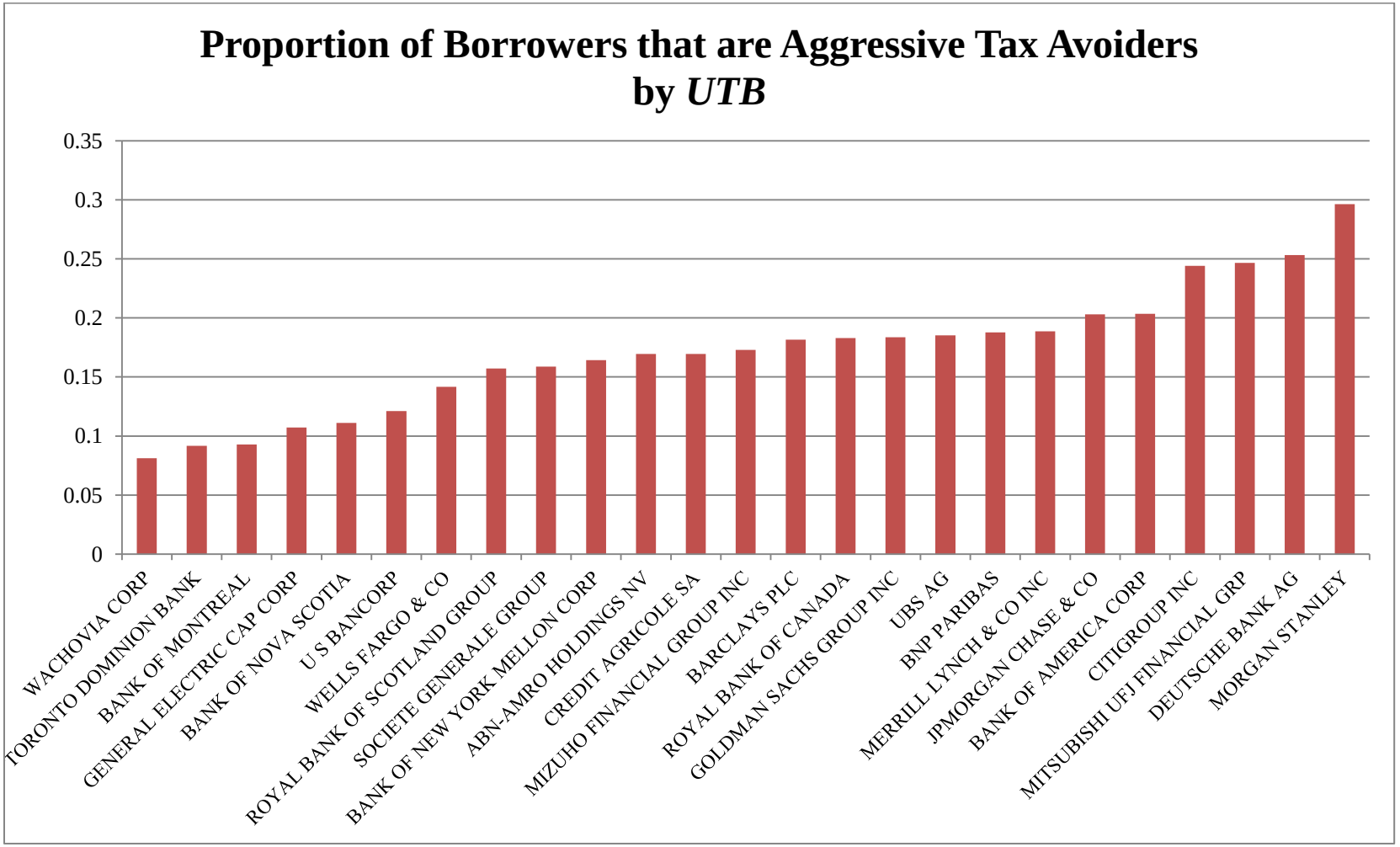

Figure 5: Pseudo-Assignment in New Lending Relationships

Figure 5 shows the results of a falsification test for analyses performed in table 7. We perform 1,000 replications of (A) assigning a borrower in a new relationship-year to a randomly selected bank, (B) performing the one-zero assignment of variable *TAX_INTERMEDIARY_BANK*, and (C) estimating equation 2 using OLS regression analysis (analogous to table 7 columns 1 and 4) to calculate the coefficient of interest. The histograms below present the density of the coefficient of interest for these replications. Panel A gives density when *TAX_PLAN* is *CASHETR3*. Panel B gives density when *TAX_PLAN* is *UTB*. We find that the distributions are not centered on zero (though not significantly different: 433 coefficients are non-negative for panel A and 260 coefficients are non-positive for panel B). We also find that the coefficient measurements for the true assignment represent significant changes in the left-hand side variables relative to the falsified random assignment. The vertical dashed lines represent the coefficients from table 7. For panel A, only 2.9% of the randomized coefficients measure larger declines in *CASHETR3* after entering the new, pseudo relationship; for panel B, only 0.4% of the randomized coefficients measure larger increases in *UTB* after entering the new, pseudo relationship.

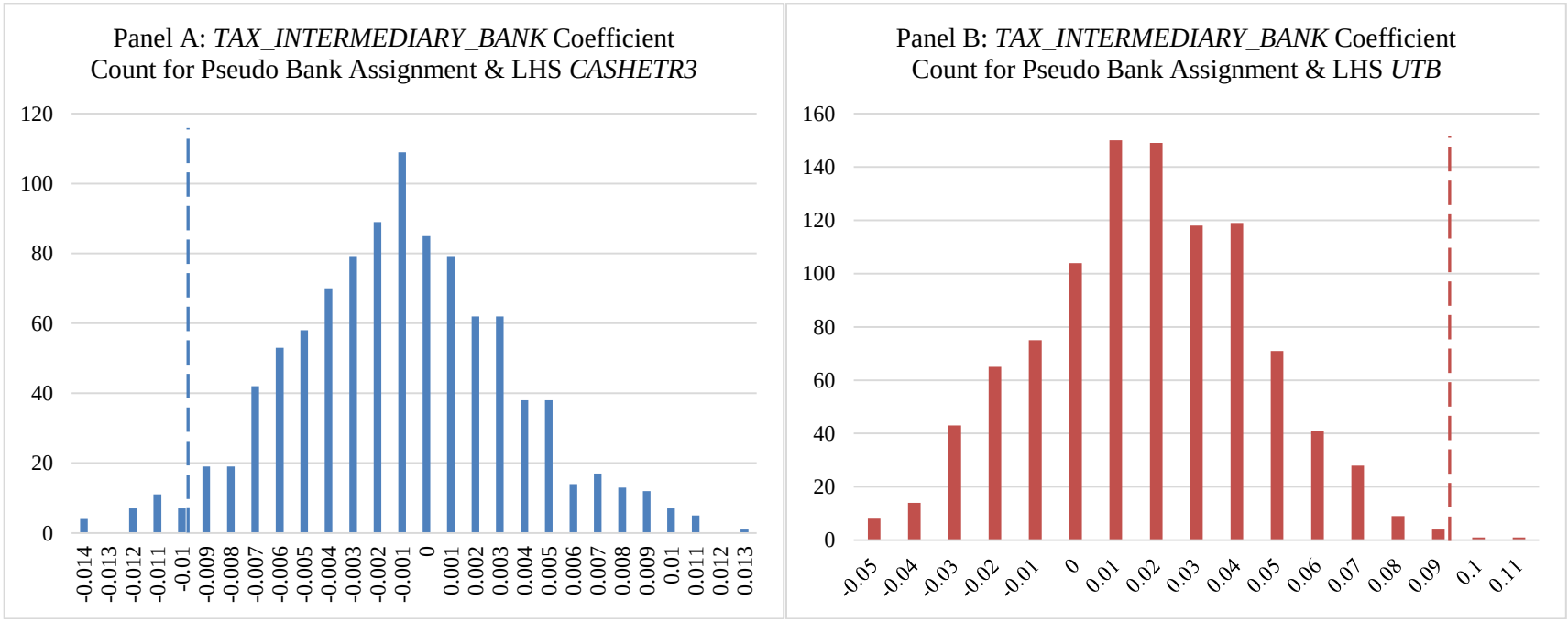

Table 1: Sample Selection

Table 1 presents information on the construction of the borrower-bank-year panel. Panel A presents details specific to 3-year cash effective tax rate (*CASHETR3*) sample, and Panel B presents the details specific to unrecognized tax benefit (*UTB*) sample. For a firm-year to make our sample, it must have non-missing total assets, revenues, and total tax expense. We also eliminate all financial firms (SIC codes 6000-6999) and all non-U.S. firms. These are merged with all facilities from Dealscan where the bank meets either "lead bank" criteria from either Sufi (2007) or Bharath et al. (2011). We consider a relationship to be present if any part of the facility begin-date until the end-date (including modifications) overlaps with any portion of a borrower's fiscal year. We match banks from Dealscan to an observable bank from Compustat and consolidate bank subsidiaries into a single bank. For a borrower-bank-year to make our sample there must be 10 other borrowers with non-missing *CASHETR3* or *UTB*. Our sample period runs from 1993 to 2014 for *CASHETR3* and 2006 to 2014 for *UTB*. Our final *CASHETR3* sample comprises of 65,922 borrower-bank-year observations representing 31,289 unique borrower-years. Our final *UTB* sample comprises of 37,373 borrower-bank-year observations representing 14,321 unique borrower-years.

Panel A: *CASHETR3* sample	**Sample size**	**Removed**
Bank-borrower-year panel meeting initial sample requirements	196,430	
Remove observations with missing *CASHETR3*	112,713	(83,717)
Remove observations with less than $10m in assets	109,852	(2,861)
Remove observations with negative equity	106,239	(3,613)
Remove observations with no identifiable Dealscan loans	84,552	(21,687)
Remove observations with missing lender gvkey	80,420	(4,132)
Firm-lender-year observations with available 3-year firm-year controls	71,112	(9,308)
Remove observations for lender-years with fewer than 10 observable borrower-years to calculate *BANK_BORR_CASHETR.*	65,922	(5,190)

Panel B: *UTB* sample	**Sample size**	**Removed**
Borrower-bank-year panel meeting initial sample requirements	75,719	
Remove observations with missing *UTB*	74,101	(1,618)
Remove observations with less than $10m in assets	68,013	(6,088)
Remove observations with negative equity	61,792	(6,221)
Remove observations with no identifiable Dealscan loans	46,825	(14,967)
Remove observations with missing lender gvkey	44,991	(1,834)
Firm-lender-year observations with available firm-year controls	39,115	(5,876)
Remove observations for lender-years with fewer than 10 observable borrower-years to calculate *BANK_BORR_UTB.*	37,373	(1,742)

Table 2: Descriptive Statistics

Table 2 presents descriptive statistics for the variables used in our analyses. Panel A provides descriptive statistics for the *CASHETR3* sample, and Panel B provides descriptive statistics for the *UTB* sample. Variable definitions are provided in the appendix. Continuous variables are winsorized at 1 and 99 percent within each fiscal year.

Panel A: *CASHETR3* sample

Variable	N	Mean	Std. Dev.	P25	Median	P75
CASHETR3	65,922	0.297	0.231	0.145	0.273	0.377
BANK_BORR_CASHETR3	65,922	0.287	0.048	0.253	0.286	0.323
BANK SIZE	62,384	13.24	1.223	12.39	13.43	14.36
SIZE	65,922	7.519	1.922	6.180	7.532	8.923
PPE	65,922	0.345	0.244	0.141	0.285	0.535
ΔPPE	65,922	0.110	0.202	0.002	0.048	0.150
LEVERAGE	65,922	0.254	0.155	0.141	0.244	0.350
INTANGIBLES	65,922	0.175	0.190	0.016	0.106	0.279
R&D EXPENSE	65,922	0.014	0.031	0	0	0.015
NOL DUMMY	65,922	0.315	0.464	0	0	1
ΔNOL	65,922	0.014	0.137	0	0	0
EXTRAORDINARY ITEMS	65,922	-0.001	0.011	0	0	0
FOREIGN INCOME	65,922	0.016	0.029	0	0	0.022
FOREIGN INCOME DUMMY	65,922	0.457	0.498	0	0	1
RETURN ON ASSETS	65,922	0.150	0.064	0.104	0.138	0.182
MARKET-TO-BOOK	65,922	3.118	5.197	1.475	2.148	3.346
SALES GROWTH	65,922	0.125	0.189	0.021	0.082	0.179
AGE	65,922	3.005	0.825	2.395	3.090	3.784

Panel B: *UTB* sample

Variable	N	Mean	Std. Dev.	P25	Median	P75
UTB	37,373	0.676	1.100	0	0.203	0.881
BANK_BORR_UTB	37,373	0.628	0.303	0.494	0.663	0.783
BANK SIZE	36,073	14.00	0.900	13.64	14.36	14.60
SIZE	37,373	8.058	1.682	6.879	8.054	9.260
PPE	37,373	0.338	0.259	0.116	0.259	0.552
ΔPPE	37,373	0.028	0.083	-0.005	0.007	0.037
LEVERAGE	37,373	0.268	0.171	0.143	0.256	0.373
INTANGIBLES	37,373	0.227	0.214	0.040	0.163	0.368
R&D EXPENSE	37,373	0.014	0.030	0	0	0.014
NOL DUMMY	37,373	0.490	0.500	0	0	1
ΔNOL	37,373	0.008	0.057	0	0	0.002
EXTRAORDINARY ITEMS	37,373	0	0.008	0	0	0
FOREIGN INCOME	37,373	0.019	0.036	0	0	0.030
FOREIGN INCOME DUMMY	37,373	0.565	0.496	0	1	1
RETURN ON ASSETS	37,373	0.129	0.075	0.088	0.123	0.166
MARKET-TO-BOOK	37,373	3.408	6.669	1.332	2.039	3.346
SALES GROWTH	37,373	0.087	0.235	-0.017	0.058	0.148
AGE	37,373	3.151	0.728	2.639	3.135	3.871

Table 3: Effect of Bank Characteristics on Borrower Cash ETR

Table 3 reports the estimation of equation 1 with *CASHETR3* as the dependent variable. The independent variables of interest are *BANK_BORR_CASHETR3* and *BANK_SIZE*. Variable definitions are provided in the appendix. Columns 1 and 4 do not include control variables or fixed effects. Columns 2 and 5 include control variables, but no industry or year fixed effects. Columns 3, 6, and 7 include control variables, industry fixed effects, and year fixed effects. Standard errors (reported in parentheses) are calculated with clustering by borrower. ***, **, and * indicate significance (two-sided) at the 1%, 5%, and 10% confidence levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
BANK_BORR_CASHETR3	**0.727*** **	**0.704*** **	**0.126*** **				**0.133*** **
	(0.052)	**(0.050)**	**(0.037)**				**(0.038)**
BANK SIZE				**-0.019*** **	**-0.019*** **	**-0.001**	**-0.001**
				(0.002)	**(0.002)**	**(0.002)**	**(0.002)**
SIZE		-0.013***	-0.010***		-0.012***	-0.010***	-0.010***
		(0.002)	(0.002)		(0.002)	(0.002)	(0.002)
PPE		-0.128***	-0.094***		-0.137***	-0.097***	-0.097***
		(0.023)	(0.024)		(0.023)	(0.025)	(0.025)
ΔPPE		-0.091***	-0.099***		-0.087***	-0.100***	-0.099***
		(0.016)	(0.016)		(0.016)	(0.016)	(0.016)
LEVERAGE		-0.046*	-0.077***		-0.047*	-0.077***	-0.075***
		(0.027)	(0.026)		(0.026)	(0.026)	(0.026)
INTANGIBLES		0.001	0.037		-0.005	0.031	0.031
		(0.023)	(0.024)		(0.023)	(0.024)	(0.024)
R&D EXPENSE		-0.470***	-0.358***		-0.483***	-0.359***	-0.360***
		(0.086)	(0.099)		(0.089)	(0.101)	(0.101)
NOL DUMMY		-0.020***	-0.017**		-0.021***	-0.016**	-0.016**
		(0.007)	(0.007)		(0.007)	(0.007)	(0.007)
ΔNOL		0.116***	0.122***		0.113***	0.123***	0.123***
		(0.021)	(0.019)		(0.020)	(0.019)	(0.019)
EXTRAORDINARY ITEMS		0.887***	0.794***		0.967***	0.813***	0.817***
		(0.244)	(0.236)		(0.242)	(0.237)	(0.238)
FOREIGN INCOME		-0.543***	-0.498***		-0.531***	-0.496***	-0.493***
		(0.134)	(0.125)		(0.134)	(0.126)	(0.126)
FOREIGN INCOME DUMMY		0.064***	0.055***		0.064***	0.054***	0.054***
		(0.007)	(0.007)		(0.007)	(0.007)	(0.007)
RETURN ON ASSETS		-0.082**	-0.200***		-0.056	-0.194***	-0.196***
		(0.040)	(0.042)		(0.041)	(0.042)	(0.042)
MARKET-TO-BOOK		-0.001*	-0.001		-0.001**	-0.001	-0.001
		(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
SALES GROWTH		-0.072***	-0.079***		-0.077***	-0.080***	-0.079***
		(0.014)	(0.014)		(0.014)	(0.014)	(0.014)
AGE		0.004	0.009**		0.003	0.009**	0.009**
		(0.004)	(0.004)		(0.004)	(0.004)	(0.004)
Observations	65,922	65,922	65,922	62,384	62,384	62,384	62,384
R-squared	0.022	0.104	0.140	0.010	0.094	0.139	0.140
Controls	No	Yes	Yes	No	Yes	Yes	Yes
Fixed Effects	No	No	I, Y	No	No	I, Y	I, Y
Clustering	Borrower	Borrower	Borrower	Borrower	Borrower	Borrower	Borrower

Table 4: Effect of Bank Characteristics on Borrower UTB

Table 3 reports the estimation of equation 1 with *UTB* as the dependent variable. The independent variables of interest are *BANK_BORR_UTB* and *BANK_SIZE*. Variable definitions are provided in the appendix. Columns 1 and 4 do not include control variables or fixed effects. Columns 2 and 5 include control variables, but no industry or year fixed effects. Columns 3, 6, and 7 include control variables, industry fixed effects, and year fixed effects. Standard errors (reported in parentheses) are calculated with clustering by borrower. ***, **, and * indicate significance (two-sided) at the 1%, 5%, and 10% confidence levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
BANK_BORR_UTB	**0.754*** **	**0.605*** **	**0.163*** **				**0.137*** **
	(0.041)	**(0.034)**	**(0.037)**				**(0.039)**
BANK SIZE				**0.063*** **	**0.063*** **	**0.035*** **	**0.026*** **
				(0.010)	**(0.010)**	**(0.009)**	**(0.009)**
SIZE		0.078***	0.103***		0.086***	0.104***	0.102***
		(0.014)	(0.015)		(0.014)	(0.015)	(0.015)
PPE		-0.592***	-0.556***		-0.566***	-0.551***	-0.546***
		(0.113)	(0.157)		(0.113)	(0.158)	(0.157)
ΔPPE		-0.354***	-0.022		-0.416***	-0.013	-0.014
		(0.136)	(0.138)		(0.136)	(0.141)	(0.141)
LEVERAGE		-0.312**	-0.312***		-0.258**	-0.294**	-0.301**
		(0.122)	(0.117)		(0.122)	(0.118)	(0.118)
INTANGIBLES		-0.213	-0.370**		-0.182	-0.359**	-0.359**
		(0.138)	(0.157)		(0.139)	(0.158)	(0.157)
R&D EXPENSE		7.919***	6.411***		8.156***	6.586***	6.559***
		(0.921)	(1.060)		(0.933)	(1.064)	(1.061)
NOL DUMMY		0.067	0.015		0.077*	0.014	0.013
		(0.042)	(0.041)		(0.042)	(0.042)	(0.042)
ΔNOL		0.404**	0.222		0.427**	0.212	0.208
		(0.186)	(0.186)		(0.190)	(0.187)	(0.186)
EXTRAORDINARY ITEMS		-2.236*	-1.688		-3.114**	-1.854	-1.840
		(1.350)	(1.244)		(1.395)	(1.259)	(1.257)
FOREIGN INCOME		2.858***	2.647***		2.961***	2.732***	2.725***
		(0.696)	(0.674)		(0.715)	(0.684)	(0.683)
FOREIGN INCOME DUMMY		0.245***	0.150***		0.261***	0.155***	0.154***
		(0.048)	(0.053)		(0.048)	(0.053)	(0.053)
RETURN ON ASSETS		0.131	-0.141		0.076	-0.154	-0.157
		(0.224)	(0.225)		(0.227)	(0.227)	(0.227)
MARKET-TO-BOOK		0.002	0.002		0.002	0.002	0.002
		(0.002)	(0.002)		(0.002)	(0.002)	(0.002)
SALES GROWTH		-0.262***	-0.195***		-0.321***	-0.200***	-0.200***
		(0.050)	(0.048)		(0.054)	(0.048)	(0.048)
AGE		-0.003	0.032		-0.011	0.029	0.031
		(0.029)	(0.030)		(0.030)	(0.030)	(0.030)
Observations	37,373	37,373	37,373	36,073	36,073	36,073	36,073
R-squared	0.043	0.232	0.280	0.209	0.209	0.280	0.280
Controls	No	Yes	Yes	No	Yes	Yes	Yes
Fixed Effects	No	No	I, Y	No	No	I, Y	I, Y
Clustering	Borrower	Borrower	Borrower	Borrower	Borrower	Borrower	Borrower

Table 5: Bank Characteristics and Borrower Tax Planning, Robustness

Table 5 reports the estimation of equation 1 using different specifications. In panel A the dependent variable is *CASHETR3*, and in panel B the dependent variable is *UTB*. The independent variables of interest are *BANK_BORR_CASHETR3* (panel A), *BANK_BORR_UTB* (panel B), and *BANK_SIZE* (panels A and B). Variable definitions are provided in the appendix. All columns include control variables (coefficients not reported). In column 1, we estimate equation 1 including an additional control variable that measures the average *CASHETR3* (panel A) or *UTB* (panel B) for all other borrowers in the same industry that have relationships with different banks. In column 2, we estimate equation 1 including an additional control variable that measures the average *CASHETR3* (panel A) or *UTB* (panel B) for all other borrowers headquartered in the same state that have relationships with different banks. In column 3, we estimate equation 1 including firm fixed effects in addition to control variables and year fixed effects. In column 4, we estimate equation 1, with standard errors calculated with clustering by bank. In column 5, we estimate equation 1 using a borrower-year panel (instead of a borrower-bank-year panel) by only pairing each borrower to the bank that has the largest proportion of its Dealscan debt. In column 6, we estimate equation 1 excluding the borrowers associated with four banks with the largest number observations in our sample: Bank of America, JP Morgan Chase & Co, Citigroup, and Wells Fargo & Co; these banks comprise approximately 49 percent of the sample. In column 7, we estimate equation 1 excluding banks with fewer than 300 borrower-year observations; these banks comprise approximately 7 percent of the sample. In column 8, we estimate equation 1 using a one-year lagged version of either *BANK_BORR_CASHETR3* (panel A) or *BANK_BORR_UTB* (panel B). Standard errors (reported in parentheses) are calculated with clustering by borrower (except for column 4, where standard errors are calculated with clustering by bank). ***, **, and * indicate significance (two-sided) at the 1%, 5%, and 10% confidence levels, respectively.

Panel A: *CASHETR3*

	(1) Industry Tax Avoidance	(2) State Tax Avoidance	(3) Firm Fixed Effects	(4) Lender Clustering	(5) Firm-year Panel	(6) No Big Banks	(7) No Small Banks	(8) Lagged RHS Avoidance
BANK_BORR_CASHETR3	**0.126*** **	**0.131*** **	**0.089*** **	**0.133*** **	**0.181*** **	**0.145*** **	**0.096** **	**0.098** **
	(0.038)	**(0.038)**	**(0.029)**	**(0.046)**	**(0.062)**	**(0.041)**	**(0.046)**	**(0.042)**
BANK SIZE	**-0.001**	**-0.001**	**0.001**	**-0.001**	**-0.001**	**-0.001**	**-0.001**	**-0.001**
	(0.002)	**(0.002)**	**(0.001)**	**(0.002)**	**(0.002)**	**(0.002)**	**(0.002)**	**(0.002)**
DIFFBANK_SAMEIND_CASHETR3	0.207***							
	(0.039)							
DIFFBANK_SAMEREG_CASHETR3		0.141***						
		(0.037)						
Observations	62,373	61,939	62,384	62,384	29,976	31,160	58,281	51,554
R-squared	0.143	0.139	0.498	0.140	0.123	0.150	0.140	0.142
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	I, Y	I, Y	F, Y	I, Y	I, Y	I, Y	I, Y	I, Y
Clustering	Borrower	Borrower	Borrower	Lender	Borrower	Borrower	Borrower	Borrower

Table 5: Bank Characteristics and Borrower Tax Planning, Robustness (continued)

Panel B: *UTB*

	(1) Industry Tax Avoidance	(2) State Tax Avoidance	(3) Firm Fixed Effects	(4) Lender Clustering	(5) Firm-year Panel	(6) No Big Banks	(7) No Small Banks	(8) Lagged RHS Avoidance
BANK_BORR_UTB	**0.137*** **	**0.133*** **	**0.049*** **	**0.137** **	**0.204*** **	**0.101** **	**0.288*** **	**0.143** **
	(0.039)	**(0.039)**	**(0.018)**	**(0.068)**	**(0.077)**	**(0.041)**	**(0.067)**	**(0.049)**
BANK SIZE	**0.026*** **	**0.027*** **	**-0.002**	**0.026***	**0.013**	**0.037*** **	**0.008**	**0.039*** **
	(0.009)	**(0.009)**	**(0.004)**	**(0.014)**	**(0.016)**	**(0.013)**	**(0.012)**	**(0.011)**
DIFFBANK_SAMEIND_UTB	0.101***							
	(0.039)							
DIFFBANK_SAMEREG_UTB		0.239***						
		(0.055)						
Observations	36,069	35,772	36,073	36,073	14,095	16,806	32,101	28,049
R-squared	0.281	0.284	0.721	0.280	0.253	0.285	0.287	0.274
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	I, Y	I, Y	F, Y	I, Y	I, Y	I, Y	I, Y	I, Y
Clustering	Borrower	Borrower	Borrower	Lender	Borrower	Borrower	Borrower	Borrower

Table 6: Bank Characteristics and Borrower Tax Planning, Additional Results

Table 6 reports the estimation of equation 1 with *CASHETR3* as the dependent variable in panel A and *UTB* as the dependent variable in panel B. For the purposes of this table, we modify equation 1 by dropping *BANK_SIZE*. We make several additional modifications in each column. In column 1 of panel A, we calculate *BANK_BORR_CASHETR3* separately for other borrowers of the bank in the same industry (*SAME INDUSTRY*) and other borrowers of the bank in different industries (*DIFF INDUSTRY*). In column 1 of panel B, we calculate *BANK_BORR_UTB* separately for other borrowers of the bank in the same industry (*SAME INDUSTRY*) and other borrowers of the bank in different industries (*DIFF INDUSTRY*). In column 2 of each panel, we limit the sample to firms with more than one major banking relationship (more than one lead lender) and only use a borrower-year panel. In column 2 of panel A, we calculate *BANK_BORR_CASHETR3* separately for other borrowers of the bank with the largest proportion of the firm's outstanding Dealscan debt (*LARGEST BANK*) and all other banks together (*OTHER BANKS*). In column 2 of panel B, we calculate *BANK_BORR_UTB* separately for other borrowers of the bank with the largest proportion of the firm's outstanding Dealscan debt (*LARGEST BANK*) and all other banks together (*OTHER BANKS*). In column 3 of each panel, we only retain those observations where the average number of syndicate participants across all loans for each bank-borrower pair is equal or less than the median in the cross-section (which is 8 (9) syndicate participants for panel A (B)). In column 4 of each panel, we only retain those observations where the average number of syndicate participants across all loans for each bank-borrower pair is greater than the median in the cross-section. Below the coefficient estimates in columns 1 and 2, we present an F-test of the equality (two-sided) of the two coefficients that are reported. Below the coefficient estimates in columns 3 and 4, we present a chi-squared test of equality across regressions of the reported coefficients. All specifications include control variables, industry fixed effects, and year fixed effects. Variable definitions are provided in the appendix. Standard errors (reported in parentheses) are calculated with clustering by borrower. ***, **, and * indicate significance (two-sided) at the 1%, 5%, and 10% confidence levels, respectively.

Panel A: *CASHETR3*

			Average Syndicate Size Relative to the C/S Median	
	(1)	(2)	(3)	(4)
	Industry Composition	Lender Composition	Below	Above
BANK_BORR_CASHETR3 (SAME INDUSTRY)	0.062***			
	(0.012)			
BANK_BORR_CASHETR3 (DIFF INDUSTRY)	-0.050			
	(0.045)			
BANK_BORR_CASHETR3 (LARGEST BANK)		0.184*		
		(0.099)		
BANK_BORR_CASHETR3 (OTHER BANKS)		0.143**		
		(0.056)		
BANK_BORR_CASHETR3			0.123***	0.077
			(0.046)	(0.059)
F-test of difference in coefficients	5.50**	0.13		
Chi-squared test of difference across regressions			0.38	
Observations	57,781	12,096	34,956	30,966
R-squared	0.145	0.131	0.124	0.173
Controls	Yes	Yes	Yes	Yes
Fixed Effects	I, Y	I, Y	I, Y	I, Y
Clustering	Borrower	Borrower	Borrower	Borrower

Table 6: Bank Characteristics and Borrower Tax Planning, Additional Results (continued)

Panel B: *UTB*

	(1) Industry Composition	(2) Lender Composition	Average Syndicate Size Relative to the C/S Median (3) Below	(4) Above
BANK_BORR_UTB (SAME INDUSTRY)	0.032***			
	(0.012)			
BANK_BORR_UTB (DIFF INDUSTRY)	0.112***			
	(0.036)			
BANK_BORR_UTB (LARGEST BANK)		0.394***		
		(0.093)		
BANK_BORR_UTB (OTHER BANKS)		0.006		
		(0.083)		
BANK_BORR_UTB			0.137***	0.147***
			(0.051)	(0.048)
F-test of difference in coefficients	4.45**	11.24***		
Chi-squared test of difference across regressions			0.29	
Observations	34,258	5,633	19,900	17,473
R-squared	0.285	0.265	0.251	0.354
Controls	Yes	Yes	Yes	Yes
Fixed Effects	I, Y	I, Y	I, Y	I, Y
Clustering	Borrower	Borrower	Borrower	Borrower

Table 7: New Lending Relationships and Changes in Tax Planning

Table 7 reports the estimation of equation 2 with *CASHETR3* as the dependent variable for columns 1 through 3 and *UTB* as the dependent variable for columns 4 through 6. The independent variable of interest is *TAX_INTERMEDIARY_BANK*. In columns 1 and 4, we present the base case where all available observations are included and estimated with OLS. In columns 2 and 5, we present the coarsened exact matching case where included observations are weighted based on balance within data-coarsened buckets and estimated with WLS using these weights. Buckets are determined using quintiles of control variables that differ between borrowers that form new relationships with a *TAX_INTERMEDIARY_BANK* and those that do not. Unmatched observations are dropped. In columns 3 and 6, we present the propensity score matching case where included observations are determined by nearest neighbor matching without replacement from a probit model that estimates forming a new relationship with a *TAX_INTERMEDIARY_BANK* using control variables that differ between the two groups. These tests are estimated with OLS. Unmatched observations are dropped. All specifications include control variables, lender-borrower pair fixed effects, event-time fixed effects, and year fixed effects. Variable definitions are provided in the appendix. Standard errors (reported in parentheses) are calculated with clustering by borrower. ***, **, and * indicate significance (two-sided) at the 1%, 5%, and 10% confidence levels, respectively.

LHS: *TAX_PLAN* =	*CASHETR3*			*UTB*		
	(1) Base Case	(2) Matching: CEM	(3) Matching: PSM	(4) Base Case	(5) Matching: CEM	(6) Matching: PSM
TAX_INTERMEDIARY_BANK	-0.010**	-0.009**	-0.005	0.093***	0.064**	0.073**
	(0.004)	(0.004)	(0.004)	(0.032)	(0.028)	(0.033)
Observations	39,591	38,793	31,348	17,485	16,576	15,828
R-squared	0.607	0.620	0.634	0.749	0.775	0.755
Matching	No	Coarsened Exact	Propensity Score	No	Coarsened Exact	Propensity Score
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	L x B, ET, Y	L x B, ET, Y	L x B, ET, Y	L x B, ET, Y	L x B, ET, Y	L x B, ET, Y
Clustering	Borrower	Borrower	Borrower	Borrower	Borrower	Borrower

Table 8: New Lending Relationships, Changes in Tax Planning, and Foreign Operations

Table 8 reports the estimation of equation 2 with *CASHETR3* as the dependent variable for columns 1 and 2 and *UTB* as the dependent variable for columns 3 and 4. The independent variable of interest is *TAX_INTERMEDIARY_BANK*. The tests in this table replicate the design from columns 1 and 4 from table 7. In columns 1 and 3, we include all observations where the control variable indicating foreign income (*FOREIGN_INCOME_DUMMY*) equals one. In columns 2 and 4, we include all observations where the control variable indicating foreign income equals zero. Below the coefficient estimates, we present a chi-squared test of equality across regressions of the reported coefficients. All specifications include control variables, lender-borrower pair fixed effects, event-time fixed effects, and year fixed effects. Due to the split, various foreign income control variables drop out of the tests due to collinearity. Variable definitions are provided in the appendix. Standard errors (reported in parentheses) are calculated with clustering by borrower. ***, **, and * indicate significance (two-sided) at the 1%, 5%, and 10% confidence levels, respectively.

LHS: *TAX_PLAN* =	*CASHETR3*		*UTB*	
	(1) Foreign Income	(2) No Foreign Income	(3) Foreign Income	(4) No Foreign Income
TAX_INTERMEDIARY_BANK	-0.019***	-0.004	0.119**	0.053*
	(0.007)	(0.006)	(0.049)	(0.030)
Chi-squared test of difference across regressions	3.16*		1.23	
Observations	18,248	21,343	9,713	7,772
R-squared	0.590	0.661	0.739	0.713
Controls	Yes	Yes	Yes	Yes
Fixed Effects	L x B, ET, Y	L x B, ET, Y	L x B, ET, Y	L x B, ET, Y
Clustering	Borrower	Borrower	Borrower	Borrower