Aggressive Income Shifting and Debt Contracting

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Abstract

An abundant literature has examined the tax benefits of shifting income across jurisdictions. However, there is noticeably less literature on the costs of this practice—particularly on the nontax costs. We examine one such cost in this study: borrowing costs in the syndicated loan market. We predict that aggressive income shifting increases a firm's cost of debt through agency costs and risk shifting. We develop and validate a new industry level measure of income shifting based on an estimate of how foreign sales are related to uncertain tax benefits. Using this measure, we find evidence consistent with borrowing costs and restrictive covenants increasing in the level of income shifting.

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1. Introduction

Academics, policy makers, and the media have all examined multinational firms' practice of shifting income across jurisdictions.[1] Much of the extent literature has focused on the benefits of shifting (e.g., Klassen, Lang, and Wolfson 1993; Collins, Kemsley, and Lang 1998; Klassen and Laplante 2012; Markle 2016) or the mechanisms that facilitate it (e.g., Maydew 1997; Dyreng, Lindsey, and Thornock 2013; De Simone 2016). However, less research has examined the costs of this practice. The purpose of this study is to examine one such cost. We examine the extent to which aggressive income shifting influences a firm's cost of debt in the syndicated loan market. In this context, we define aggressive income shifting as activities that have a high probability of being challenged by U.S. tax authorities.

We focus on the cost of debt in the private debt market for several reasons. First, the private debt market is important because around 80% of U.S. companies finance their operations with debt issued in the syndicated loan market (Sufi, 2009). Second, compared to equity markets, the debt market setting allows us to employ a relatively clean and observable measure of the cost of debt: loan spreads at contract initiation. Easton and Monahan (2005) evaluate a number of proxies for the cost of equity capital and conclude that most available proxies are unreliable and typically do not have a positive association with realized returns, even after controlling for the bias and noise in returns. Finally, because managers can privately communicate information to debtors that cannot be privately communicated to investors, we avoid complications that arise from proprietary or reputational costs of public disclosure and focus on more basic mechanisms by which aggressive income shifting could influence borrowing costs.

[1] Income shifting is generally defined to include transactions that manipulate the amount of income reported in a jurisdiction so that it does not equal the amount of income expected given the productive factors in that jurisdiction. Income is generally shifted into high-tax jurisdictions and out of low-tax jurisdictions.

There are several possible channels by which aggressive, cross-border income shifting could influence a firm's borrowing cost. First, aggressive income shifting generally requires a complex or opaque environment, which may exacerbate agency costs due to the borrower's increased ability to engage in undetected activities that might hurt lenders (Desai and Dharmapala 2006; Desai, Dyck, and Zingales 2007; Balakrishnan, Blouin, and Guay 2013). Second, because of grey areas in the law, aggressive income shifting (e.g., the use of transfer prices that deviate from arms' length) can increase uncertainty about the total amount of tax that a firm will pay (e.g., Hanlon et al. 2007, 2017). Third, income shifting could exacerbate agency costs in firms' internal capital markets by distorting internal performance information, which might affect firms' overall performance. To the extent that aggressive income shifting accentuates the risk of opportunistic behavior by the borrower, increases tax uncertainty, or increases intrafirm agency costs, then the cost of debt would be greater for firms that engage in income shifting.

Notwithstanding our predictions, there are several arguments in support of a credible null result. First, lenders could explicitly limit the amount of income shifting by borrowers. Hand collected evidence from several debt contracts suggests banks impose restrictions on activities that facilitate income shifting.[2] Second, to the extent that income shifters have high levels of cash (albeit trapped), they may enjoy more favorable lending terms because of the security provided by the large cash cushion that could be repatriated (if needed) to service the debt

[2]Consistent with this being a concern for lenders, some loan contracts restrict the ability of borrowers to transact with affiliates. For example, PC Services entered a loan agreement in March 1999 that prohibits the borrower to "Directly or indirectly, purchase, acquire or lease any property from, or sell, transfer or lease any property to, or otherwise deal with, any Affiliate, except transactions disclosed in the ordinary course of business, on an arm's-length basis on terms no less favorable than terms which would have been obtainable from a Person other than an Affiliate."

(Albring, Mills, and Newberry 2011).[3] Whether income shifting firms have higher costs of debt capital is ultimately an empirical question and the central focus of this study.

To empirically test our hypothesis that income shifting affects the cost of debt, we start by developing an annual industry-level measure of aggressively shifted income. Many prior studies on income shifting use jurisdiction-specific productive factors (labor and capital or total assets) to construct an estimate of "unshifted" or "true" income attributable to a jurisdiction and then calculate the difference between reported income and this "true" estimate as their measure of "shifted" income. A challenge with these measures is that they rely on numerous model assumptions that complicate interpretation. In contrast to these prior studies, we exploit the recent requirement that SEC registrants disclose estimates of their uncertain tax benefits (UTBs, described below), which became effective in 2007 with the enactment of a rule known as FIN 48.[4] Lisowsky et al. (2013) show that UTBs relate to tax shelter involvement, documenting that UTBs reflect some measure of tax aggressiveness. Moreover, Ciconte et al. (2016), Robinson et al. (2015), and Hanlon et al. (2017) find that there is a positive relation between the UTB and future cash tax outflows and show that UTBs are positively correlated with future IRS audit settlements. More importantly, Towery (2017) finds that aggressive transfer prices are the most commonly reserved for item in firms' Schedule UTP (which decomposes and rank orders firms' UTB balances). These UTB disclosures are particularly relevant for our paper because firms frequently disclose that their UTB balances are significantly the result of transfer pricing (we discuss this in more detail in Section 3).

[3] Despite Subpart F rules not allowing firms to pledge foreign assets as collateral for U.S. loans without triggering a deemed distribution, some lenders may lend generously and favorably to income shifters if their shifting activities result in additional liquid reserves. This practice would mute the association between income shifting and the cost of debt.

[4] FIN (FASB Interpretation Number) 48 was enacted by the Financial Accounting Standards Board and has since been codified as part of ASC 740. We discuss this in more detail below.

We calculate our measure by industry and year, and estimate the average portion of foreign sales that are reserved for in the UTB and use this as our estimate of shifted income. Rather than relying on models that try to generate a counterfactual to reported income that captures "appropriate" transfer prices, we rely on the financial reporting process and disclosures of uncertain tax benefits to isolate and identify aggressive or non-arm's length income shifting.Next, we validate several version of our measure of aggressive income shifting and find that firms with greater levels of income shifting (per our measures) generally report higher UTBs and have lower cash effective tax rates. They also are more likely to have a subsidiary in a tax haven and have more subsidiaries in tax havens. We discuss the strengths and weaknesses of the measures more in Section 3.1.

We next examine whether aggressive income shifters incur higher loan spreads on new borrowings in the syndicated loan market. Using a specification that includes a large number of control variables to account for borrowers' performance and credit risk, we find that aggressive income shifters pay a higher loan spread than other firms. We find that firms in the highest quintile of shifters firms pay 6%-10% higher interest rates relative to other firms in the sample. The average loan spread of sample firms is 250 basis points. Therefore, a 6%-10% increase implies that, all things being equal, loan spreads increase by approximately 15 to 25 basis points.

We conduct two additional tests. First, we examine the extent to which lenders protect themselves against additional agency costs associated with lending to firms that shift income by increasing the number of covenants in their debt contracts. We find that covenant usage is increasing in income shifting, which suggests that lenders not only price protect but also restrict aggressive income shifters' flexibility to engage in actions without prior lenders' approval. Second, we investigate the extent to which providing collateral alleviates lenders' concerns

related to aggressive income shifting. Collateral protects lenders against a borrower's default and is considered to be one of lenders' mechanisms for protecting against agency costs. Consistent with collateral reducing income shifting risk, we find that the positive relation between income shifting and borrowing costs is driven by the subsample of loans that do not require collateral.

Our study makes two primary contributions. First, we provide evidence that firms face meaningful costs when making income shifting decisions. Though prior research documents significant tax savings from income shifting (e.g., Clausing 2016), we find that aggressive income shifters are penalized with a higher cost of debt despite the potential cash savings from the practice. As a result, our findings suggest that firms need to carefully evaluate different trade-offs before making shifting decisions.

Second, our study suggests a new and specific mechanism through which tax planning decisions can affect debt financing costs. Although prior research documents a general association between tax avoidance activities and the cost of debt (Crabtree and Maher 2009; Ayers, Laplante, and McGuire 2010; Shevlin, Urcan, and Vasvari 2013; Hasan, Hoi, Wu, and Zhang 2014; Saavedra 2017), it is less clear the exact mechanism driving this result.[5] We complement this research by providing evidence that aggressive income shifting is a partial explanation for the result presented in previous research.

Finally, we propose a new measure of income shifting that is intuitive and easy to calculate. As a result, we do not have to rely on model assumptions as in prior research. Rather, our measure relies on firms' UTB disclosures, which are widely available since 2007.

[5] For example, an argument often made by these studies is that low ETR firms are more likely to make large future tax payments because of IRS litigation. However, Saavedra (2017) finds that low ETR firms are actually less likely to make large future tax payments.

2. Hypothesis development and institutional background

2.1 Hypothesis development

Traditional finance theory says that as residual claimants of the firm, providers of equity capital have a greater relative preference for risky cash flows while a firm's lenders have a preference for more stable cash flows (Jensen and Meckling 1976). These fundamental differences in risk preferences suggest that debt holders should have a relative preference for less risky forms of tax avoidance.

Several studies document that tax planning ranges from the benign (e.g., investing in municipal bonds and purchasing assets in times of more accelerated depreciation) to the aggressive (e.g., investing in a tax shelter). Within that spectrum, Towery (2017) documents that aggressive transfer pricing positions are the most common and frequent form of tax avoidance that firms don't anticipate will be maintained upon audit by the IRS based strictly on existing tax law and the merits of the actual position. Within the realm of traditional thought, aggressive income shifting via manipulation of transfer prices could preserve profits for shareholders, but would not typically benefit debt holders because of increased agency costs due to risk shifting.

Aggressive income shifting could hurt debt holders in a number of ways. Shifting income between jurisdictions requires a certain level of complexity or opacity because the jurisdiction from which the income is shifted has tax and other economic incentives to retain the income. The existence of competent authority agreements to resolve disputes among jurisdictions over income allocations is revealing of jurisdictions' incentives to preserve their tax bases.[6] To the extent that the increased information asymmetry needed to shift income also

[6] Taxpayers can apply competent authority, which is an arbitration-like procedure, if they feel that the U.S. and another country with a tax treaty are taking positions that will result in a situation not intended by the treaty (usually

increases the risk of opportunistic behavior by the borrower, lenders may protect themselves by charging a higher interest rate. In the spirit of Desai and Dharmapala (2006) and Balakrishnan, Blouin, and Guay (2013), even if the complexity can be explained to lenders, there still is the risk of IRS detection and increased monitoring costs.

Besides facilitating diversion or rent extraction, income shifting could increase uncertainty about the nature and timing of future cash flows. Given lenders asymmetric payoff function, they prefer less risky tax strategies. Lenders benefit relatively little from increased income shifting given that interest rates are not linked to potential tax savings, so there is no upside potential. In contrast, if aggressive income shifting activities make the borrower more risky, then lenders' downside risk increases.

Finally, aggressive income shifting has the potential to create information asymmetries and agency costs in internal capital markets. Klassen, Lisowsky, and Mescall (2017) report that more than 80% of surveyed executives indicated that they don't use "decoupled" transfer prices—in other words, they use the same transfer prices for all internal purposes (e.g., tax calculations, assessing subsidiary performance, compensation, etc.). Within firms that use coupled transfer pricing, manipulating transfer prices for tax savings will result in distorted or biased internal information signals for other non-tax decisions. Unless these tax planning manipulations are known and perfectly understood by all parties within a firm, then they will exacerbate agency costs that exist between central management and division heads. The typical two-tiered agency model supposes that division managers will engage in rent-seeking behavior in the form of seeking preferential capital budgeting (Scharfstein and Stein 2000). It is also possible that if division managers know that their performance is being evaluated based on

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double taxation). According to the IRS, "there [also] exist some competent authority agreements between the United States and other countries that involve issues other than those normally found in income tax treaties."

distorted signals that mask true effort, then their incentive to shirk may increase. To the extent that the increase in internal agency costs that result from using coupled transfer are not diversifiable by lenders offering debt capital to multiple borrowers, then the coupled transfer prices could be another reason that firms that aggressively shift income could face higher borrowing costs.

However, there are reasons for a credible null that we might find no effect on interest rates if lenders mitigate this risk contractually. For instance, Enesco Group signed a credit agreement that limits revenues generated by subsidiaries to 25% unless additional collateral is posted.[7] In this case, lenders attempt to directly prevent the risk associated with shifting income away from the parent firm. Lenders impose even more restrictions if a significant portion of firm's assets or revenues are held by foreign subsidiaries. While this particular lender tried to mitigate risk arising from income shifting by imposing a covenant, it is possible others may simply demand a higher interest rate. In a related example, the PC Services agreement cited previously prohibits the borrower from transacting with any affiliate or related party "…except transactions [are] disclosed in the ordinary course of business, on an arm's-length basis on terms no less favorable than terms which would have been obtainable from a Person other than an Affiliate." To the extent that lenders protect against risky behavior by including loan provisions that restrict aggressive income shifting, lenders may not need to adjust the cost of debt capital to compensate for the additional risk. Additionally, income shifting might favorably affect a firm's cost of debt if the increased complexity results in cash savings that are retained within the firm.

[7] In particular, the credit agreement states that, "At no time shall more than twenty-five percent (25%) in the aggregate of the Borrower's Consolidated Total Assets be owned by Subsidiaries, or more than twenty-five percent (25%) in the aggregate of the Borrower's Consolidated Total Revenue be generated by Subsidiaries unless such Subsidiaries have either guaranteed the Obligations or, in the case of Foreign Subsidiaries, not less than sixty-five (65%) of the total issued and outstanding capital stock of such Foreign Subsidiaries has been pledged to the Bank as security for the Obligations upon terms acceptable to the Bank" (Credit agreement signed August 2000).

Although Subpart F rules prohibit firms from pledging foreign cash or assets as collateral on a loan, lenders are nonetheless aware this asset is available, net a repatriation tax, if a firm started performing poorly domestically.

Because of these potentially offsetting effects, we present our primary hypothesis in null form as follows:

Hypothesis: Multinationals that engage in aggressive income shifting face the same borrowing costs as other multinationals.

2.2 Background on the syndicated loan market

The syndicated loan market is a primary source of financing for corporations (Gorton and Winton (2003). Since the late 1980s, this market has experienced exponential growth (Sufi 2007; Wittenberg Moerman 2008). A typical loan is provided by a group of lenders or syndicate. The lead arranger, or lead arrangers, establishes and maintains a relationship with the borrower and takes on the primary information collection and monitoring responsibilities (see Sufi 2007 and Standard & Poor's (2014) for more detail about due diligence at loan inception). The lead arranger and the borrower negotiate an information memorandum that includes *the list of terms and conditions*, which is a term sheet describing the pricing, structure, collateral, covenant package, and other terms of credit. Once the loan is closed and the lead arranger sells parts of the loan to participant lenders, the final terms are then documented in detailed credit and security agreements (Standard & Poor's 2014). The lead arranger typically holds a larger share of the loan than any of the participants. Sufi (2007) indicates that in a syndicated loan, the average percentage kept by the lead arranger is 28.5%.

3. Measurement of income shifting

3.1 Measurement definitions

To test our predictions, we develop a new measure that uses the recent requirement that SEC registrants disclose estimates of their uncertain tax benefits (UTBs). This requirement became effective in 2007 with the enactment of a rule known as FIN 48 and is now codified as part of ASC 740-10. These data and recent research examining FIN 48 disclosures show that tax uncertainty is an important economic phenomenon (e.g., Robinson et al. 2015; Blouin and Robinson 2014; Hanlon et al. 2017). For instance, Lisowsky et al. (2013) show that UTBs relate to tax shelter involvement, documenting that UTBs reflect some measure of tax aggressiveness. Moreover, Hanlon et al. (2017) show that firms with higher UTBs hold precautionary cash holdings to settle future tax disputes with the IRS.

These UTB disclosures are particularly relevant for our paper because firms frequently disclose that their UTB balances are significantly the result of transfer pricing. For instance, Microsoft notes in its 2013 financial statements that "*Tax contingencies and other tax liabilities were $9.4 billion and $7.6 billion as of June 30, 2013 and 2012, respectively, and are included in other long-term liabilities. This increase relates primarily to transfer pricing, including transfer pricing developments in certain foreign tax jurisdictions, primarily Denmark. While we settled a portion of the I.R.S. audit for tax years 2004 to 2006 during the third quarter of fiscal year 2011, we remain under audit for those years.*" Moreover, Facebook states in its 2016 financials that "*We recognize tax benefits from uncertain tax positions only if we believe that it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. These uncertain tax positions include our estimates for transfer pricing that have been developed based upon analyses of appropriate arms-length prices.*"

To measure aggressive income shifting, we take the intuition from the above disclosures and estimate the following model:

$$UTB_{it} = \beta_0 + \beta_{1K} FOREIGN\ SALES_{it} + \varepsilon_{it} \quad (1)$$

The interpretation of β_{1K} is that it is an estimate of how much of every dollar of foreign sales is recognized as part of the UTB for firms in industry *k* in a particular year. Because transfer pricing is the most frequently reported component of UTBs, we use β_{1K} as our proxy for aggressive income shifting and call it *SHIFTER 1*. The intuition behind this measure is that firms that have a stronger correlation between their foreign sales and unrecognized tax benefits, are more aggressive income shifters.

We estimate a second version of the model where we regress only current year UTB increases on foreign sales. Specifically, we estimate the following:

$$UTB\ CURRENT\ INCREASE_{it} = \delta_0 + \delta_{2K} FOREIGN\ SALES_{it} + \varepsilon_{it} \quad (2)$$

The estimate of δ_{2K} can be interpreted as an annual, industry-level, average estimate of the amount of every dollar of foreign sales in a given year that is concurrently reported as an additional uncertain tax benefit. We call this measure *SHIFTER 2*.[8]

Several features of this measure are worth noting. First, this measure captures aggressive income shifting and ignores benign shifting that might happen (i.e., with a reasonable distance from arm's length). Rather it captures income shifting positions that firms do not believe are "more likely than not" to withstand tax authority scrutiny based on their own merits. Second, the measure is not based on profitability which means we do not have to exclude loss firms from our

[8] In empirical tests, we operationalize these two variables using two digit SIC industry codes. In untabulated robustness tests, we repeat the analyses using Fama French 48 industry categorizations.

analysis to generate meaningful income shifting estimates. It also means that we don't have to rely on the simplifying assumption that cross jurisdictional profitability differences are due, on average, to income shifting. Third, the measure is not likely to be contaminated by the income shifting that results from real activities (e.g., moving real productive factors to low-rate countries). It is also not likely to be contaminated by implicit taxes.

Despite these positive features, this measure is not without its own limitations. First, it is measured only at the industry level and therefore lacks the firm-level granularity that is useful in many studies. Second, constructing the measure requires that firms disclose foreign sales and UTBs. Third, it is possible that the estimate of β_{1K} also captures aggressive foreign tax positions taken in other jurisdictions that have nothing to do with income shifting (e.g., aggressive foreign tax credit calculations in Germany). That said, Towery (2017) reports that aggressive foreign tax positions are less frequently reported as components of UTB and much less material than transfer pricing positions. Finally, despite the stated intent of FIN 48 to increase the comparability with which firms account for uncertain tax positions, firms account for the same transactions differently (De Simone, Robinson, and Stomberg 2014), which increases measurement error in our estimate.

Table 1, Panel A reports descriptive statistics for all firm years that report non-missing UTBs and also disclose geographic segment data.[9] The average UTB in our sample is 1.4% of assets and the average amount of foreign sales is approximately 41% of assets. The average single year increase in UTB in a given year is approximately 0.2% of assets. Table 1, Panel B reports the univariate correlations among the variables used to construct the shifting measures.

[9] We exclude financial firms and firms in regulated industries. We also exclude firms from industry-years where there are not at least ten observations to estimate our regressions.

Columns 1 and 2 of Table 2 present the results of estimating equations (1) and (2), respectively, pooling the entire sample of Compustat firms with sufficient observations. The regression presented in Column 1 uses *UTB* as the dependent variable. The estimated coefficient on *FOREIGN SALES* is positive and statistically significant. It suggests that for every additional dollar of foreign sales, UTBs goes up by .006 dollars. The regression presented in Column 2 uses *UTB INCREASES* as the dependent variable and suggests that for every dollar of foreign sales in a particular year, 0.0004 dollars will be reported as a UTB increase related to the current year.

For our actual measure of income shifting, we re-estimate Equations 1 and 2 by industry-year. We use two-digit SIC codes to define our industries and require an industry-year to have ten observations to be in our sample. Table 3 reports the ten highest observations for both measures. For *SHIFTER 1* (estimate of UTB regressed on foreign sales), the highest betas come from industrial machinery and equipment (2015), miscellaneous manufacturing industries (2010), and oil & gas extraction (2007). For *SHIFTER 2* (estimate of UTB increases regressed on foreign sales), the highest betas are from miscellaneous manufacturing industries (2007), leather and leather products (2011), and transportation equipment (2007).

3.2 Measure validation

Before moving to our main empirical tests, we examine univariate correlations to help validate the measure. Table 4 presents univariate correlations among *SHIFTER 1*, *SHIFTER 2*, and a variety of tax-related outcomes or attributes. Specifically, we examine uncertain tax benefits (*UTB*), cash effective tax rates (*CASH ETR*), an indicator set equal to one if a firm has a subsidiary in a tax haven (*HAVEN INDICATOR*), and a count of the number of subsidiaries a firm has in tax havens (*HAVEN COUNT*).

The directions of nearly all univariate associations are consistent with the *SHIFTER 1* and *SHIFTER 2* capturing some element of aggressive income shifting via transfer pricing. On average, we expect that aggressive income shifting should be positively correlated with reported uncertain tax benefits (Towery 2017), negatively correlated with cash effective tax rates (Klassen and Laplante 2012), and positively associated with having a subsidiary in a tax haven and with the number of subsidiaries in tax havens. The positive association between *SHIFTER 1* and *UTB* is statistically significant. The negative association between *SHIFTER 2* and *CASH ETR* is significant, as is the positive associations between *SHIFTER 2* and *HAVEN INDICATOR* and *HAVEN COUNT*.

The shifting measures capture a construct different than that construct which tax avoidance proxies attempt to capture. Similarly, the measures rely on different assumptions and methods than other ways of identifying income shifting. Hence, we do not expect a complete overlap or perfect correlation with other proxies. Rather, these tests simply give some assurance that our income shifting measures behave in a way that makes sense.

4. Sample selection and research design - loan tests

4.1 Sample selection

Our sample period begins in 2007 because of the availability of UTB data. We require firms to be incorporated in the U.S. and have non-missing industry classification information. In addition, we require firms to have sufficient information to calculate our income shifting variables. We merge this sample with DealScan using the Roberts DealScan–Compustat link (August 2012 vintage, see Chava and Roberts 2008). We further require firms to have sufficient data to calculate different loan terms (e.g., Sufi 2007; Graham et al. 2008). The result is a final sample of 1,844 loans issued between 2007 and 2012.

4.2 Research design

To test our hypothesis that income shifting is associated with higher borrowing costs, we regress the interest rate at the time that firms obtain new loans on our proxy for firms engaged in aggressive income shifting. Specifically, we estimate the following model:

$$LOAN\ SPREAD_{it} = \beta_1 SHIFTER_{\ it} + \Sigma\beta_c Control_{cit} + \beta_{fe} + \varepsilon_{it} \quad (3)$$

LOAN SPREAD is the logarithm of the all-in spread drawn as provided in the DealScan database. All-in spread drawn is defined as the amount the borrower pays in basis points over LIBOR or the LIBOR equivalent for each dollar drawn down (e.g., Graham et al. 2008). This measure adds the borrowing spread of the loan over LIBOR to any annual fee paid to lenders. Our variables of interest, *SHIFTER 1 and SHIFTER 2* are industry estimates of the strength of the association between unrecognized tax benefits and foreign sales as described in detail before. An estimated coefficient $\beta_1 > 0$ would be consistent with the notion that lenders view firms that aggressively shift income as risky borrowers.

The specification includes controls for several variables that have been shown to affect loan spreads (e.g., Graham et al. 2008):

1. *Repatriation*. Following Hanlon et al. (2017), we calculate a long-run measure of repatriation tax cost as the difference between the tax payments that would have been due if foreign earnings were taxed at the U.S. rate (i.e., foreign pretax income (PIFO) times 35%) and foreign income taxes paid (TXFO) over the previous five years. We then scale the difference by total assets:

$$5 - year\ Repatriation\ tax\ cost_{it} = \frac{\sum_{k=t-4}^{t}[(PIFO\ x\ 35\%) - TXFO]_{ik}}{AT}.$$

To avoid losing observations, we do not impose restrictions on the number of previous foreign tax payments that need to be available for the calculation. The measure is winsorized at zero (similar to the annual measure in Foley et al. 2007) when it is negative.

2. *Size* is defined as the logarithm of total assets in year t. Larger firms are likely to receive better terms from banks because these firms have easier access to external financing.
3. *Tangibility* is defined as property, plant, and equipment (PP&E) in year t scaled by total assets in year t. Tangible assets are easier to use as collateral for new loans.
4. *Leverage* is equal to long-term debt plus debt in current liabilities in year t divided by total assets in year t. Firms with higher leverage are expected to have higher default risk.
5. *Profitability* is equal to pre-tax income in year t scaled by total assets in year t. Firms with higher profitability are likely to receive more favorable loan terms.
6. *Market-to-Book* is equal to the ratio of the market value of equity plus the book value of liabilities in year t to total assets in year t. We use *Market-to-Book* as a proxy for a firm's growth opportunities.
7. Altman's *Z-score* is an additional proxy for default risk. We use a modified Altman (1968) Z-score as in Graham et al. (2008). In particular, Z-score=1.2 (Working Capital/Total Assets) + 1.4 (Retained Earnings/Total Assets) + 3.3 (EBIT/Total Assets) + (Sales/Total Assets). All variables are measured in year t. Firms with lower Z-scores have a higher probability of default.
8. *Sales Growth* is measured as the growth rate of sales in year t. This is an additional variable to control for growth opportunities.

The specification also controls for loan characteristics that have been shown to affect the pricing of debt. Loan *MATURITY* is measured in months. Banks charge higher interest rates

when the duration of the loan increases. *FACILITY AMOUNT* is the amount of the loan and measured in millions of dollars. Banks can achieve economies of scale when lending larger amounts. *SYNDICATION* is an indicator variable equal to one if the loan has been syndicated to multiple lenders, zero otherwise. β_{fe} is a set of fixed effects that includes industry, year, loan type, loan purpose, and credit rating fixed effects. Loan *TYPE* is a set of fixed effects for the type of loan, including term loans, revolving loans, 364-day facilities, institutional investors, etc. Loan *PURPOSE* is a set of fixed effects for loan purpose, including takeover, working capital, etc. Finally, *CREDIT RATING* fixed effects control for the borrower's S&P senior debt rating (e.g., AAA, AA, A, etc.). The appendix provides detailed definitions of all variables.[10] We winsorize all continuous variables at the 1% level to limit the influence of outliers. Finally, we cluster standard errors at the firm level, consistent with previous studies.

5. Empirical results

5.1. Descriptive statistics

We start by presenting descriptive statistics for our sample of firms with syndicated loans. The mean values of *SHIFTER 1* and *SHIFTER 2* are 0.0046 and 0.0002, respectively. These are close to the estimates presented in Table 2 from the pooled sample of all Compustat firms. This suggests that the shifting activities within firms with syndicated loans does not differ systemically from the larger population of public firms. The average loan spread in our sample is approximately 252 basis points. Within firms with available data, the average loan contains 2.022 covenants. The average tax repatriation cost is 1.6%.

[10] To ensure that we use only accounting information that is publicly available at the time of a loan, we employ the following procedure (see, e.g., Bharath et al. [2007]): for those loans made in calendar year t, if the loan activation date is four months or later than the fiscal year ending month in calendar year t, we use the data from that fiscal year. If the loan activation date is less than four months after the fiscal year ending month, we use the data from the fiscal year ending in calendar year t−1.

5.2. Loan spreads and aggressive income shifting

Table 6 reports regression results for our main hypothesis, namely, whether firms that aggressively shift income face a higher cost of debt in the syndicated loan market. Columns 1 and 2 present the results when using *SHIFTER 1* and *SHIFTER 2* as our main explanatory variable, respectively. We find that both measures are significantly and positively associated with *LOAN SPREAD*.

Columns 3 and 4 present the results when using a quintile ranked variable for *SHIFTER 1* and *SHIFTER 2* as our main explanatory variable, respectively. In our ranked analysis using *SHIFTER 1*, we continue to find that lenders penalize income shifters. The evidence from using *SHIFTER 2* quintiles is directionally consistent with other estimates, but not significant at traditional levels.

Finally, in columns 5 and 6 we use an indictor variable for firms in the top quintile of *SHIFTER* 1 and *SHIFTER 2*, respectively. The intuition is that these dummy variable capture the most aggressive income shifters. We find that both *SHIFTER 1* and *SHIFTER 2* are significantly and positively associated with *LOAN SPREAD*. For instance, the coefficient of 0.10 (t-stat 2.63) suggests that income shifting firms pay a 10.0% higher interest rate relative to other firms in the sample.[11] The average loan spread of sample firms is 251 basis points. Therefore, a 10.0% increase implies that, all things being equal, loan spreads increase by approximately 25 basis points. In sum, the results presented in Table 6 suggest that lenders view aggressive income shifters as more risky.

The effects of control variables on loan spreads are intuitive. Large firms with high sales growth and better financial health have lower default risk and thus are associated with a lower

[11] Because the dependent variable is expressed in logarithmic form, the coefficient estimates represent percentage change effects of the independent variables on the dependent variable.

loan spread. Loan size is negatively related to loan spread because banks can achieve economies of scale when lending larger amounts. Interestingly, repatriation costs are negatively and significantly associated with loan spreads. This means that our measure of income shifting is capturing the effects of income shifting on loan spreads incremental to a potential cash flow effect created by repatriation taxes.

5.3. Loan spreads, income shifting, and collateral

Table 7 reports regression results for aggressive income shifters based on whether loans have collateral. Columns 2 and 4 present the results for loans *without collateral* when using *SHIFTER 1* and *SHIFTER 2*, respectively. We find that both *SHIFTER 1* and *SHIFTER 2* are significantly and positively associated with *LOAN SPREAD*. This suggests that firms aggressively shifting income that do not post collateral pay higher interest rates relative to other firms in the no collateral subsample. Columns 1 and 3 present the results for loans *with collateral* when using *SHIFTER 1* and *SHIFTER 2*, respectively. We find that neither *SHIFTER 1* nor *SHIFTER 2* are significantly associated with *LOAN SPREAD*. This suggests that firms shifting income out of the U.S. that do post collateral do not pay higher interest rates relative to other firms in the collateral subsample. This result is consistent with the notion that imposing collateral requirements on borrowers is a form of managing agency costs.

5.4. Covenants and income shifting

If aggressive income shifting makes the firm more risky, lenders might incorporate this information into debt contracts by altering not only the loan rate, but also other contract terms, such as covenants. Covenants serve to mitigate agency conflicts between debt holders and equity holders (Smith and Warner 1979, Watts and Zimmerman 1986), but they may also limit the

flexibility of the borrower to engage in value-enhancing corporate decisions. Following Bradley and Roberts (2005), we track the total number of covenants (*COVENANTS*) included in the loan agreement. Table 8 presents estimates of the coefficient on different variation of our *SHIFTING* measure and shows that they are positive across all six columns and significant at traditional levels using the proxies presented in Columns 1, 2, and 4. The reported regression results are generally consistent with the notion that firms that aggressively shift income face more financial covenants in the syndicated loan market.

6. Conclusions

We examine the association between aggressive income shifting and debt contracting outcomes. We posit that aggressive income shifting requires complexity in operational and financial structures that could create agency costs between lenders and managers, increases uncertainty about future cash flows, and distorts internal information signals that could create agency costs between managers and division heads. We also acknowledge, however, that these predicted agency costs may not affect borrowing costs if such costs are diversifiable, if lenders explicitly restrict activities that facilitate income shifting, or if lenders actively promote structures that facilitate income shifting and develop an expertise that reduces information asymmetries.

To empirically test the association between aggressive income shifting and debt contracting outcomes, we develop a new measure that captures *aggressive* income shifting. The industry-level measure is based on examining how much of every dollar of foreign sales ends up being reported as an unrecognized tax benefit. The totality of the empirical evidence that comes from using the new measure is consistent with the prediction that lenders price protect against agency costs due to shifting. Firms in industries that shift income face higher borrowing costs

and have more covenants. Moreover, this association is most pronounced among uncollateralized loans.

These findings add to our understanding of the costs and benefits of income shifting. In contrast to much of the prior literature on income shifting that focuses on the tax benefits of income shifting, this study examines a non-tax cost of the practice: higher cost of debt capital. In today's environment where many jurisdictions aggressively use tax policy to compete for investment, a more complete and nuanced understanding of the costs and benefits of income shifting should be useful to those policymakers interested in incentivizing growth and retaining domestic investment.

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Appendix: Variable Definitions

Firm Characteristics

SHIFTER 1	β_{1K} coefficient from estimating equation 1 in the paper.
SHIFTER 2	β_{2K} coefficient from estimating equation 2 in the paper.
REPATRIATION:	Difference between the tax payments that would have been due if foreign earnings were taxed at the U.S. rate (i.e., foreign pretax income (PIFO) times 35%) and foreign income taxes paid (TXFO) over the previous five years; all scaled by total assets.
SIZE:	The natural logarithm of total assets (AT) in year t.
TANGABILITY:	Property, plant, and equipment (PPENT) in year t scaled by total assets (AT) in year t.
LEVERAGE:	Long-term debt plus debt in current liabilities, divided by total assets (AT)
PROFITABILITY:	Pretax income (PI) in year t scaled by total assets (AT) in year t.
MARKET-TO-BOOK:	The book value of total assets minus the book value of equity plus the market value of equity as the numerator of the ratio and the book value of assets as the denominator ((CSHO*PRCC_F+(AT-CEQ))/AT). All measured in year t.
Z-SCORE:	Modified Altman (1968) Z-score as in Graham et al. (2008) =1.2*(WCAP/AT)+1.4*(RE/AT)+3.3*(OIBDP/AT)+(Sale/AT)
SALES GROWTH:	The percentage growth rate of sales (SALE) from year t-1 to year t, equal to *(SALESt-SALESt-1)/SALESt-1*.
CREDIT RATING:	Indicator variables for Standard & Poor's senior debt rating, such as AAA, AA, A, etc.
ADVERTISING:	Advertising (XAD) in year t scaled by total assets (AT) in year t.
RESEARCH & DEV:	Research and development (XRD) in year t scaled by total assets (AT) in year t.
INTANGIBLE INTENSITY:	Intangibles (INTAN) in year t scaled by total assets (AT) in year t.
CAPEX:	Capital expenditures (CAPX) in year t scaled by total assets (AT) in year t.
BID-ASK SPREAD:	The natural logarithm of average monthly bid-ask spread where the spread is calculated as (Abs(Bid-Ask))/((Bid+Ask)/2)).
LITIGATION RISK:	$e^{KS}/(1+e^{KS})$ where KS is litigation risk measure in Kim and Skinner (2012)
AB. ACC:	The residual from a modified Jones accruals model estimated by industry-year.
FETR:	Foreign effective tax rate calculated as (TXFO+TXDFO)/PIFO.

Loan Characteristics

LOAN SPREAD:	For each individual loan, this spread is measured as the all-in spread drawn in the DealScan database. All-in spread drawn is defined as the amount the borrower pays in basis points over the London Interbank Borrowing Rate (LIBOR) or the LIBOR equivalent for each dollar drawn down.
COLLATERAL:	Equals one if the loan has collateral, zero otherwise.
LOAN SIZE:	The loan amount measured in millions of dollars.
LOAN MATURITY:	The maturity of the loan, which is measured in months.
SYNDICATION:	Equals one if the loan is syndicated, zero otherwise.
LOAN TYPE:	Indicator variables equal to one for each of the following loan types: revolver, term loan, institutional investor, and bridge loan.
LOAN PURPOSE:	Indicator variables equal to one for each of the following loan purposes: takeover, debt repayment, corporate purposes, and working capital.

Table 1

Descriptive Statistics

Panel A: Summary statistics

VARIABLE	N	MEAN	STDEV	25TH PERC	MEDIAN	75TH PERC
UTB	12,598	0.014	0.022	0.002	0.007	0.017
UTB INCREASES	12,598	0.002	0.003	0.000	0.001	0.002
FOREIGN SALES	12,598	0.411	0.401	0.147	0.312	0.546

Panel B: Correlations

		(1)	(2)	(3)
UTB	(1)	1.0000		
UTB INCREASES	(2)	0.5340*	1.0000	
FOREIGN SALES	(3)	0.1049*	0.0571*	1.0000

Table 1 presents descriptive statistics for the full sample used to generate our industry-year measures of income shifting. The sample covers 2007-2015 and includes all firm-year observations that were not missing (1) UTBs or (2) geographic sales in the Compustat segment file. Panel A presents summary statistics including the number of observations, mean, median, standard deviation, 25th percentile, and 75th percentile for sample observations. Panel B presents the Pearson correlations among sample variables. All continuous variables are winsorized at the 1% level. All variable definitions are presented in the Appendix. In correlation tables, * represents statistical significance at the 5% level.

Table 2
Pooled Regression

	Column 1	**Column 1**
DEPENDENT VARIABLE	*UTB*	*UTB INCREASE*
VARIABLE	**Coefficient**	**Coefficient**
FOREIGN SALES	0.0058***	0.0004***
	(4.55)	(3.48)
INTERCEPT	0.0121***	0.0015***
	(21.41)	(23.36)
FIXED EFFECTS	NONE	NONE
S.E. CLUSTERED BY:	FIRM	FIRM
OBSERVATIONS	12,598	12,598
R-SQUARED	0.011	0.003

Table 2, Column 1 presents the results of estimating Equation 1 using all firms in the Compustat universe. The sample period is 2007-2015. Column 2 presents the results of estimating Equation 2 using the same sample. All continuous variables are winsorized at the 1% level. All variable definitions are presented in the Appendix. ***, **, and * represent statistical significance and the 10%, 5%, and 1% levels respectively (two-tailed).

Table 3
Industry Lists

Panel A: SHIFTER 1 – Highest observations

INDUSTRY RANK	*INDUSTRY*	*YEAR*	*EST. BETA*
1	Industrial Machinery & Equipment	2015	0.049
2	Misc Manufacturing Industries	2010	0.045
3	Oil & Gas Extraction	2007	0.038
4	Leather & Leather Products	2011	0.037
5	Oil & Gas Extraction	2009	0.036
6	Oil & Gas Extraction	2010	0.034
7	Instruments & Related Products	2010	0.034
8	Oil & Gas Extraction	2011	0.033
9	Rubber & Misc Plastic Products	2009	0.032
10	Leather & Leather Products	2010	0.031

Panel B: SHIFTER 2 – Highest observations

INDUSTRY RANK	*INDUSTRY*	*YEAR*	*EST. BETA*
1	Misc Manufacturing Industries	2007	0.007
2	Leather & Leather Products	2011	0.007
3	Transportation Equipment	2007	0.006
4	Real estate	2008	0.006
5	Leather & Leather Products	2010	0.006
6	Apparel & Accessory Store	2009	0.005
7	Paper & Allied Products	2007	0.005
8	Rubber & Misc Plastic Products	2009	0.005
9	Misc Manufacturing Industries	2010	0.005
10	Paper & Allied Products	2008	0.004

Table 3 lists the industry-years that have the largest estimates of *SHIFTER 1* and *SHIFTER 2*. *SHIFTER 1* and *SHIFTER 2* are the β_{1K} and β_{2K} estimates from estimating Equations 1 and 2, respectively, by industry-year. These coefficients are the estimates of the average amount of every foreign sales dollar that is reported as a UTB in a given industry and year. Industries are defined by two-digit SIC code.

Table 4
Univariate Correlations

		(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
UTB	*(1)*	1.000					
CASH ETR	*(2)*	-0.0561*	1.000				
HAVEN INDICATOR	*(3)*	0.0688*	0.1123*	1.000			
HAVEN COUNT	*(4)*	0.0706*	0.1199*	0.7125*	1.000		
SHIFTER 1	*(5)*	0.0464*	-0.0050	0.0040	-0.0130	1.000	
SHIFTER 2	*(6)*	0.0160	-0.0297*	0.0664*	0.0337*	0.3334*	1.000

Table 4 presents the Pearson correlations among our two income shifting measures, *SHIFTER 1* and *SHIFTER 2*, as well as several tax outcome variables. All continuous variables are winsorized at the 1% level. All variable definitions are presented in the Appendix. In correlation tables, * represents statistical significance at the 5% level.

Table 5
Descriptive Statistics for Syndicated Loan Firm Sample

Variable	N	Mean	Median	Std Dev	25th Pctl	75th Pctl
SHIFTING 1	1,844	0.0046	0.0028	0.0087	-0.0007	0.0073
SHIFTING 2	1,844	0.0002	0.0002	0.0022	-0.0005	0.0011
LOAN SPREAD	1,844	251.835	225.000	133.085	150.000	307.500
SUM COVENANTS	1,276	2.022	2.000	0.783	1.000	2.000
REPATRIATION	1,844	0.016	0.001	0.031	0.000	0.017
SIZE	1,844	7.887	7.850	1.542	6.868	8.884
TANGIBILITY	1,844	0.225	0.159	0.185	0.090	0.295
LEVERAGE	1,844	0.250	0.239	0.181	0.121	0.338
ROA	1,844	0.026	0.048	0.134	0.009	0.080
MARKET TO BOOK	1,844	1.602	1.342	0.726	1.134	1.778
Z SCORE	1,844	1.932	1.961	1.028	1.392	2.499
SALES GROWTH	1,844	0.027	0.020	0.198	-0.081	0.120
MATURITY	1,844	46.947	49.000	17.857	36.000	60.000
FACILITY AMOUNT	1,844	809.587	350.000	1542.194	125.000	793.555
SYN	1,844	0.984	1.000	0.127	1.000	1.000

Table 5 presents descriptive statistics for the loan sample. All continuous variables are winsorized at the 1% level. All variable definitions are presented in the appendix. ***, **, and * represent statistical significance and the 10%, 5%, and 1% levels respectively (two-tailed).

Table 6
Loan Spreads and Aggressive Income Shifting

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
DEPENDENT VARIABLE	*LOAN SPREAD*	*LOAN SPREAD*	*LOAN SPREAD*	*LOAN SPREAD*	*LOAN SPREAD*	*LOAN SPREAD*
SHIFTING MEASURE	*SHIFTING 1*	*SHIFTING 2*	*SHIFTING 1 QUINTILE*	*SHIFTING 2 QUINTILE*	*HIGH SHIFTING INDICATOR 1*	*HIGH SHIFTING INDICATOR 2*
VARIABLE	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
SHIFTING	9.509***	17.439**	0.048***	0.016	0.100***	0.060*
	(3.29)	(2.11)	(2.81)	(1.38)	(2.63)	(1.70)
REPATRIATION	-1.724**	-1.630**	-1.683**	-1.572*	-1.641**	-1.518*
	(-2.21)	(-2.00)	(-2.16)	(-1.94)	(-2.06)	(-1.87)
SIZE	-0.048***	-0.053***	-0.049***	-0.051***	-0.048***	-0.049***
	(-2.84)	(-3.04)	(-2.88)	(-2.93)	(-2.90)	(-2.94)
TANGIBILITY	0.179	0.212*	0.189*	0.212*	0.085	0.109
	(1.63)	(1.85)	(1.71)	(1.86)	(0.87)	(1.10)
LEVERAGE	0.131	0.130	0.121	0.125	0.076	0.071
	(1.28)	(1.25)	(1.18)	(1.21)	(0.82)	(0.76)
ROA	-0.122	-0.125	-0.123	-0.134	-0.130	-0.103
	(-0.90)	(-0.89)	(-0.92)	(-0.97)	(-0.97)	(-0.76)
MARKET TO BOOK	-0.079***	-0.083***	-0.077***	-0.081***	-0.083***	-0.086***
	(-3.35)	(-3.45)	(-3.24)	(-3.32)	(-3.59)	(-3.70)
Z SCORE	-0.051***	-0.049***	-0.052***	-0.048***	-0.051***	-0.051***
	(-3.31)	(-3.08)	(-3.35)	(-3.03)	(-3.38)	(-3.34)
SALES GROWTH	0.081	0.069	0.075	0.067	0.063	0.068
	(1.38)	(1.20)	(1.30)	(1.14)	(1.09)	(1.17)
MATURITY	0.105**	0.113***	0.102**	0.111**	0.088**	0.088**
	(2.50)	(2.62)	(2.42)	(2.51)	(2.27)	(2.23)
FACILITY AMOUNT	-0.040***	-0.037**	-0.040***	-0.036**	-0.037***	-0.034**
	(-2.74)	(-2.43)	(-2.78)	(-2.41)	(-2.60)	(-2.44)
SYN	0.097	0.078	0.109	0.086	0.112	0.107

	(1.29)	(1.07)	(1.40)	(1.17)	(1.52)	(1.44)
FIXED EFFECTS	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE
S.E. CLUSTERED BY:	FIRM	FIRM	FIRM	FIRM	FIRM	FIRM
OBSERVATIONS	1,844	1,844	1,844	1,844	2,097	2,097
R-SQUARED	0.671	0.667	0.672	0.666	0.660	0.658

Table 6 presents the results of OLS regressions of loan spreads on aggressive income shifting measures. All continuous variables are winsorized at the 1% level. All variable definitions are presented in the appendix. ***, **, and * represent statistical significance and the 10%, 5%, and 1% levels respectively (two-tailed).

Table 7
Loan Spreads, Income Shifting, and Collateral

	Column 1	**Column 2**	**Column 3**	**Column 4**
DEPENDENT VARIABLE	*LOAN SPREAD*	*LOAN SPREAD*	*LOAN SPREAD*	*LOAN SPREAD*
PARTITION	*COLLATERAL=1*	*COLLATERAL=0*	*COLLATERAL=1*	*COLLATERAL=0*
SHIFTING MEASURE	*SHIFTING 1*	*SHIFTING 1*	*SHIFTING 2*	*SHIFTING 2*
VARIABLE	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
SHIFTING	-2.642	17.181***	8.337	29.608***
	(-0.92)	(4.07)	(1.01)	(3.38)
REPATRIATION	-0.405	-2.010*	-0.577	-1.700
	(-0.39)	(-1.95)	(-0.57)	(-1.58)
SIZE	0.026	-0.054*	0.023	-0.065**
	(1.22)	(-1.83)	(1.13)	(-2.22)
TANGIBILITY	-0.191	0.420***	-0.199	0.514***
	(-1.56)	(2.67)	(-1.62)	(3.02)
LEVERAGE	0.201**	0.117	0.206**	0.101
	(2.17)	(0.75)	(2.22)	(0.65)
ROA	-0.118	-0.493*	-0.106	-0.586**
	(-1.02)	(-1.84)	(-0.89)	(-2.21)
MARKET TO BOOK	-0.057**	-0.072*	-0.058**	-0.078*
	(-2.36)	(-1.79)	(-2.38)	(-1.86)
Z SCORE	-0.041**	-0.049**	-0.041**	-0.048**
	(-2.45)	(-2.20)	(-2.43)	(-2.12)
SALES GROWTH	0.034	0.097	0.038	0.070
	(0.47)	(1.08)	(0.52)	(0.78)
MATURITY	-0.021	0.128**	-0.011	0.155**
	(-0.44)	(2.30)	(-0.24)	(2.58)
FACILITY AMOUNT	-0.056***	-0.027	-0.057***	-0.015
	(-3.29)	(-1.32)	(-3.36)	(-0.72)
SYN	0.134	0.168	0.141	0.096
	(1.37)	(1.34)	(1.43)	(0.79)

FIXED EFFECTS	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE
S.E. CLUSTERED BY:	FIRM	FIRM	FIRM	FIRM
OBSERVATIONS	768	1,076	768	1,076
R-SQUARED	0.577	0.697	0.577	0.687

Table 7 presents the results of OLS regressions of loan spreads on aggressive income shifting measures for subsamples with and without collateral.. All continuous variables are winsorized at the 1% level. All variable definitions are presented in the appendix. ***, **, and * represent statistical significance and the 10%, 5%, and 1% levels respectively (two-tailed).

Table 8
Financial Covenants and Income Shifting

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
DEPENDENT VARIABLE	*COVENANTS*	*COVENANTS*	*COVENANTS*	*COVENANTS*	*COVENANTS*	*COVENANTS*
SHIFTING MEASURE	*SHIFTING 1*	*SHIFTING 2*	*SHIFTING 1 QUINTILE*	*SHIFTING 2 QUINTILE*	*HIGH SHIFTING INDICATOR 1*	*HIGH SHIFTING INDICATOR 2*
VARIABLE	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
SHIFTING	14.851**	44.122**	0.032	0.097***	0.098	0.159
	(2.50)	(2.19)	(1.09)	(3.62)	(1.02)	(1.60)
REPATRIATION	-2.494*	-2.411	-2.316	-2.480*	-1.889	-1.835
	(-1.69)	(-1.64)	(-1.56)	(-1.69)	(-1.29)	(-1.25)
SIZE	-0.150***	-0.166***	-0.152***	-0.160***	-0.164***	-0.168***
	(-3.98)	(-4.19)	(-3.95)	(-4.23)	(-4.32)	(-4.44)
TANGIBILITY	0.349	0.378	0.398	0.379	0.259	0.252
	(1.17)	(1.28)	(1.32)	(1.31)	(0.96)	(0.96)
LEVERAGE	0.441	0.478*	0.441	0.458	0.521**	0.511**
	(1.62)	(1.75)	(1.62)	(1.64)	(2.04)	(1.98)
ROA	0.987***	1.021***	0.966***	1.038***	0.910***	0.945***
	(2.99)	(3.11)	(2.90)	(3.12)	(2.78)	(2.88)
MARKET TO BOOK	-0.048	-0.058	-0.049	-0.054	-0.088*	-0.093*
	(-0.95)	(-1.13)	(-0.96)	(-1.06)	(-1.66)	(-1.76)
Z SCORE	-0.029	-0.030	-0.028	-0.023	-0.020	-0.020
	(-0.74)	(-0.75)	(-0.70)	(-0.60)	(-0.53)	(-0.53)
SALES GROWTH	0.198	0.192	0.184	0.216	0.296	0.312*
	(1.22)	(1.16)	(1.10)	(1.31)	(1.64)	(1.72)
MATURITY	-0.160**	-0.140*	-0.156**	-0.137*	-0.070	-0.070
	(-2.11)	(-1.84)	(-2.04)	(-1.83)	(-0.88)	(-0.88)
FACILITY AMOUNT	-0.002	0.002	0.002	-0.004	-0.001	-0.001
	(-0.05)	(0.07)	(0.08)	(-0.13)	(-0.03)	(-0.03)
SYN	0.176	0.202	0.197	0.234	0.262	0.263
	(0.77)	(0.91)	(0.87)	(1.08)	(1.26)	(1.29)

FIXED EFFECTS	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE	INDUSTRY, YEAR, RATING, TYPE, & PURPOSE
S.E. CLUSTERED BY:	FIRM	FIRM	FIRM	FIRM	FIRM	FIRM
OBSERVATIONS	1,276	1,276	1,276	1,276	1,276	1,276
R-SQUARED	0.438	0.437	0.426	0.446	0.426	0.446

Table 8 presents the results of OLS regressions of the number of financial covenants on aggressive income shifting measures. All continuous variables are winsorized at the 1% level. All variable definitions are presented in the appendix. ***, **, and * represent statistical significance and the 10%, 5%, and 1% levels respectively (two-tailed).