Measuring the Cost of Trapped Foreign Earnings: Evidence from New Bond Issuances

Bradley S. Blaylock
Spears School of Business
Oklahoma State University
bradley.blaylock@okstate.edu

Jimmy F. Downes
College of Business Administration
University of Nebraska-Lincoln
downes@unl.edu

Mollie E. Mathis
Spears School of Business
Oklahoma State University
mollie.mathis@okstate.edu

Scott D. White
Spears School of Business
Oklahoma State University
scott.d.white@okstate.edu

January 2016

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Abstract

A recent stream of literature analyzes how capital market participants (primarily equity) view cash that is trapped overseas. We investigate this question from a lender's perspective by examining borrowing costs for multinational firms. We find that the public debt market assigns a greater credit spread to foreign earnings when firms face greater repatriation costs. This result complements prior literature in the equity market, which finds that equity investors discount foreign resources that are subject to repatriation costs. In supplemental analysis, we consider two alternative explanations for our results: tax costs and agency costs. We show that the impact of repatriation tax costs on the cost of debt is stronger when management discloses the tax liability associated with permanently reinvested earnings. We find no evidence that agency costs associated with free cash flows explain our results. Taken together, these results suggest that the tax cost of accessing foreign earnings affects firms' cost of debt. Our results are timely given the Security and Exchange Commission's recent interest in firms' permanently reinvested earnings and the related disclosures surrounding foreign operations.

1. Introduction

According to Bloomberg News, multinational corporations (MNCs) hold approximately $2.1 trillion in profits overseas.[1] These firms often incur significant tax costs if they choose to repatriate the earnings generated by foreign subsidiaries. However, how stakeholders interpret repatriation tax costs is not well understood. Firms are not required to disclose foreign cash holdings. Additionally, while they are required to disclose cumulative foreign earnings designated as permanently reinvested and the associated tax liability if those earnings were repatriated, in practice 77% of firms either do not disclose this tax liability or say that it is impractical to calculate (Ayers et al. 2015). Prior studies examine equity holders' perceptions of foreign earnings and find that investors discount the positive valuation of permanently reinvested earnings (PRE) (Collins et al. 2001; Bryant-Kutcher et al. 2008; Bauman and Shaw 2008) and cash holdings (Campbell et al. 2014; Harford et al. 2014; Chen 2015) when U.S. MNCs face future repatriation taxes. Despite evidence that firms with access to the public debt market have the most flexibility to time the repatriation of foreign earnings under a tax holiday (Albring et al. 2011), little evidence exists regarding debt holders' assessment of repatriation tax costs. The effect of repatriation taxes on the cost of debt is interesting for several reasons. First, repatriation taxes can substantially reduce the portion of a firm's cash holdings that are available to creditors in the event of a liquidation.[2] Second, equity holders and debt holders have divergent incentives. For example, repatriation tax costs are potentially more relevant for debt holders

[1] "Foreign Tax Surprise like Disney's Have SEC Seeking Sunlight" by David Michaels and Alan Katz, Bloomberg News, 5 March 2015.

[2] The classic Merton (1974) model suggests that debt holders require compensation for exposure to asset volatility risk which is affected by both systematic and unsystematic risk factors (Shevlin et al. 2014). Repatriation taxes are inherently risky because they are not known with certainty and are likely to affect asset volatility through its impact on future firm cash flows.

concerned with downside risk relative to equity investors. Finally, analyzing the bond market provides a cleaner test than studies which rely on equity pricing models (Dhaliwal et al. 2008; Mansi et al. 2004). This study investigates how the cost of accessing foreign earnings affects firms' cost of debt.[3] Specifically, we examine the impact of repatriation tax costs on the association between foreign earnings and credit spreads for new bond issuances.

Both current U.S. tax laws and U.S. financial reporting laws contribute to the growing levels of trapped foreign earnings. Though the U.S. follows a worldwide tax system, it only taxes foreign earnings repatriated to the U.S. parent company from the foreign subsidiary.[4] Foley et al. (2007) demonstrate that repatriation taxes are a significant factor in explaining MNCs' growing cash balances over the last 20 years. The incentive to keep foreign earnings abroad is exacerbated by the financial reporting option to designate foreign earnings as PRE under APB Opinion 23 (Accounting Principles Board 1972, para. 12).[5] APB Opinion 23 allows U.S. MNCs to avoid recognizing the deferred tax liability and deferred income tax expense associated with foreign earnings included in the financial statements by designating foreign earnings as invested abroad indefinitely or by stating the earnings will be remitted to the U.S. in a tax-free liquidation. Blouin et al. (2014) find that 95 percent of PRE is held in countries with effective tax rates lower than the U.S., creating incentives to keep foreign earnings abroad in order to avoid the cost of repatriation taxes. These financial reporting incentives and tax

[3] We measure foreign earnings using multiple proxies including pretax foreign income, permanently reinvested earnings, and estimated foreign cash.
[4] U.S. MNCs are only subject to U.S. taxation on foreign earnings if foreign taxes paid are less than the U.S. statutory rate multiplied by foreign earnings because of the foreign tax credit. In addition, Subpart F income, typically passive income, is subject to U.S. taxation immediately and cannot be deferred through the permanently reinvested designation although check-the-box regulations allow a significant reduction in both foreign taxes paid and Subpart F income.
[5] Permanently reinvested foreign earnings are also called "indefinitely reinvested earnings".

reporting incentives are significant factors in explaining the more than $2.1 trillion in cash held abroad by MNCs.

This study uses a sample of new corporate bond issues over a 15-year period from 2000-2014. We measure repatriation tax costs as the minimum of zero or the difference between foreign pretax income multiplied by 35 percent and current foreign income tax expense (Foley et al. 2007).[6] We use several measures of foreign income, including foreign pretax income, cumulative PRE balances as disclosed in firms' 10K filings, and estimated foreign cash (using a similar methodology to Campbell et al. (2014)), to proxy for foreign resources available to satisfy firms' debt obligations.

We find a negative association between our measures of foreign resources and the interest spread on new bond issuances consistent with control variables in prior research (Shevlin et al. 2014). However, for firms facing greater repatriation tax costs, the negative association between foreign resources and the spread on new bond issuances is eliminated. The results are also economically significant. For firms expecting low repatriation tax costs, a one standard deviation increase in foreign income results in a 12.5 percent reduction in the cost of new debt issuances. However, for firms facing high repatriation costs, this reduction in the cost of debt decreases to less than 1 percent. Thus, repatriation costs result in a nearly 12.5 percent increase in the mean weighted average spread. In other words, while firms with foreign operations enjoy lower borrowing costs, firms with high repatriation tax costs have borrowing costs that are similar to firms with no foreign operations. Our results are robust to our alternative measures of foreign resources available, including cumulative PRE and estimated foreign cash.

[6] Results are robust to using a 3- and 5-year cumulative measure of repatriation costs. Additionally, conclusions remain the same when using the Bauman and Shaw (2008) estimate of repatriation tax liability.

This evidence is consistent with bond holders discounting the value of foreign earnings subject to high repatriation tax costs. We explore two potential alternative explanations for our results. First, that repatriation tax costs are a direct cost paid upon liquidation and reduce the assets available to bondholders in the event of bankruptcy. Second, that repatriation costs are a signal of agency costs between management and firm stakeholders leading to an inefficient investment of foreign resources. Hanlon et al. (2015) and Edwards et al. (2015) provide evidence that MNCs facing greater repatriation tax costs make worse foreign acquisitions than firms with lower repatriation costs. Therefore, a positive association between repatriation costs and the cost of debt could signal debt holder perceptions of inefficient foreign investments.

Prior literature examines the equity valuation of PRE and demonstrates that investors view firms' disclosure of the tax liability associated with PRE as a credible signal of the tax savings associated with PRE (Collins et al. 2001; Bryant-Kutcher et al. 2008). Therefore, we use the disclosure of the tax liability as a proxy for firms' levels of tax savings in order to isolate a setting where tax considerations would drive our results. If the positive association between repatriation costs and the cost of debt is a result of repatriation tax costs, then we expect our results to be stronger for firms that disclose the tax liability associated with PRE. To test whether agency costs explain the positive relation between borrowing costs and repatriation tax costs, we also partition our sample based on strong governance versus weak governance, using the Bebchuk et al. (2009) entrenchment index. If bondholders increase credit spreads on foreign earnings facing high repatriation tax costs because of agency costs, then we would expect our results to be stronger for weakly governed firms than for strongly governed firms.

We find that the positive association between repatriation tax costs and the cost of debt holds only for firms that disclose the potential tax liability associated with PRE. Additionally, we

find that the positive association between repatriation tax costs and the cost of debt does not vary based on strongly versus poorly governed firms. Overall, the evidence suggests that the positive association between repatriation tax costs and the cost of debt is due to the tax costs of accessing foreign earnings and not the agency costs associated with inefficient foreign investment of foreign earnings.

We make several contributions to the literature. First, we contribute to the literature that examines how capital providers view constraints on access to foreign resources. Prior studies examine how constraints on access to foreign cash affect firm value (Campbell et al. 2014; Chen 2015; Harford et al. 2014), payout policy (Beyer et al. 2016; Nessa 2015) foreign investment (Edwards et al. 2015; Hanlon et al. 2015), and domestic investment (Downes et al. 2015). Regarding the supply of capital, evidence suggests that equity holders primarily discount foreign resources either because foreign resources remain invested in financial assets (Campbell et al. 2014) or are wastefully spent on foreign acquisitions (Edwards et al. 2015; Hanlon et al. 2015). We contribute to this stream of literature by identifying the impact of repatriation tax costs on the cost of debt. Dhaliwal et al. 2008 suggest that the bond market provides cleaner inferences relative to the equity market. We find evidence consistent with debt holders requiring compensation for exposure to risk associated with repatriation tax costs.

Second, we contribute to calls for tax research on financial statement users other than equity holders. Graham et al. (2012) state, "the majority of this literature deals only with the use of the tax information by equity market participants…It would be interesting to examine the extent to which and the accuracy with which tax information in the financial statements is used by other groups." The U.S. corporate bond market provides a large source of capital to corporations and therefore is a good starting place for focusing on financial statement users other

than the equity market. According to the Securities Industry and Financial Markets Association (SIFMA 2015), the average annual corporate bond issuance in the U.S. over the last six years approached $1.2 trillion whereas the average common equity issuance was $245 billion.

Third, these findings are useful for regulators as they debate how to address the $2.1 trillion in foreign earnings held abroad, and the impact trapped foreign earnings have on various financial statement users. To achieve higher transparency in PRE disclosures to ensure investors' ability to properly value PRE, the Securities and Exchange Commission (SEC) issued 113 comment letters requesting additional PRE-related disclosure from 2010 to 2012 versus ten letters from 2004-2005 (Ayers et al. 2015). Also, the SEC is discussing the need for increased transparency surrounding overseas tax fluctuations, which they say make it difficult for investors to predict earnings (Bloomberg News). We provide evidence that, in addition to equity investors, debt holders are aware of the effect that repatriation costs have on the value of trapped foreign earnings and foreign cash holdings.

The remainder of the paper proceeds as follows. Section 2 outlines institutional details and relevant prior literature. Section 3 develops hypotheses. Section 4 discusses our methodology. Section 5 presents our results, and Section 6 concludes the paper.

2. Institutional Details and Prior Literature

2.1 U.S. Taxation and Financial Reporting of Foreign Earnings

The U.S. has a world-wide tax system, which taxes corporations' domestic earnings immediately but defers taxation of foreign subsidiaries' earnings until those earnings are "brought back" or repatriated to the U.S. parent or when the subsidiary is sold or liquidated. Although several repatriation methods exist, the most common method for bringing foreign

earnings back to the U.S. parent is through a dividend from the subsidiary to the parent (Martin et al. 2015). Repatriated earnings are "grossed up" to the amount of earnings before foreign taxes. The U.S. statutory rate is applied to the gross foreign earnings amount, and this U.S. tax liability is reduced by taxes paid in other countries through the foreign tax credit. Unremitted foreign earnings for U.S. MNCs topped $2.1 trillion in 2014, resulting in the deferral of the associated repatriation tax costs (Bloomberg News). The repatriation decision has no impact on financial reporting unless the earnings are designated as permanently reinvested.

In addition to the repatriation decision, U.S. Generally Accepted Accounting Principles (GAAP) include the current earnings of foreign subsidiaries in MNCs' net income. The timing difference between when foreign earnings are earned and when they are repatriated results in deferred income tax expense and deferred tax liability equal to the future taxes payable on these earnings. The decision to designate unremitted foreign earnings as PRE generates financial statement benefits for U.S. MNCs because APB Opinion 23 allows firms to avoid reporting deferred income tax expense and deferred tax liabilities while still including PRE in net income. APB Opinion 23 permits firms to use the PRE designation if the parent company can demonstrate that the subsidiary has or will invest undistributed earnings indefinitely or the earnings will be repatriated in a tax-free liquidation. However, Statement of Financial Accounting Standards No. 109 (SFAS No. 109), *Accounting for Income Taxes* (FASB 1992, para. 44) requires that firms disclose both the cumulative amount of indefinitely reinvested earnings, and the related amount of unrecognized tax liability, if practicable, to estimate.[7] The SEC has recently begun issuing comment letters surrounding the required SFAS No. 109 disclosures to ensure that firms are meeting APB Opinion 23 requirements for the PRE

[7] In practice, 77% of firms either fail to disclose or state the tax liability on PRE is "impracticable" calculate.

designation as well as discussing the need for increased transparency regarding foreign tax fluctuations (Bloomberg News).

Hartman (1985) and (Scholes et al. 2014) show that the decision to repatriate should compare the after tax rate of return in the home country with the after tax rate of return in the foreign jurisdiction. Both models demonstrate that the repatriation decision is independent of the level of repatriation taxes on the investment horizon; however, they rely on two assumptions. First, all foreign earnings will eventually be repatriated and taxed in the home jurisdiction when repatriation occurs. Second, that home country tax rates are constant over time. However, as seen during the AJCA tax holiday from 2004-2005, the home country (i.e., the U.S.) tax rate has not been constant due to changes in tax laws and temporary relief for firms wishing to repatriate.[8]

De Waegenaere and Sansing (2008) show that the repatriation decision is more complex than a comparison of after tax returns in different jurisdictions in some settings. The authors allow for a higher degree of specificity in investment opportunities, and they vary repatriation tax rates. They also model the repatriation decision when a subsidiary may have an indefinite life, allowing for the indefinite deferral of repatriation taxes. They find that when faced with lower after tax returns on operating investment opportunities in the foreign jurisdiction, firms may choose to invest foreign earnings in financial assets instead of repatriating the earnings as predicted by Hartman (1985) and Scholes et al. (2014). This study provides theoretical justification for why firms choose to hold trapped foreign earnings in cash instead of repatriating to the U.S.

[8] We do not examine the AJCA tax holiday separate from the main time period because there were only 67 debt issuances during that time period. Additionally, the cost to access foreign earnings remains the same throughout the tax holiday time period for those firms that do not repatriate foreign earnings, and thus repatriation costs still make a difference in the event of liquidation.

2.2 The Valuation of Tax-Induced Foreign Earnings and Cash Holdings

Prior empirical studies focus on the equity market's ability to incorporate repatriation tax costs into firm value. Collins et al. (2001) demonstrate that the disclosure of a potential tax liability related to PRE results in a lower PRE value for disclosing firms than for non-disclosing firms. Bryant-Kutcher et al. (2008) highlight that the lower PRE value for disclosing firms in Collins et al. (2001) is concentrated among firms with excess cash. The Bryant-Kutcher et al. (2008) findings provide evidence that the lower PRE valuation for disclosing firms is dependent on the type of assets comprising PRE. Bauman and Shaw (2008) demonstrate that while estimated repatriation taxes help explain share prices of non-disclosing firms, these estimates are less value relevant than firm-disclosed amounts in explaining share prices of disclosing firms. They believe this difference is due to estimated repatriation taxes underestimating actual repatriation tax costs associated with PRE. Furthermore, Chen (2015) finds that investors' valuation of total cash holdings is negatively associated with repatriation tax costs for three reasons: agency costs associated with large foreign cash holdings, less accessible funds, which increase internal financing frictions, and excessive investment in financial assets. Harford et al. (2014) find a negative relationship between large foreign cash holdings and firm value; these large foreign cash holdings decrease MNCs' financial and investment flexibility in the domestic market and create agency problems associated with the use of foreign cash. Additionally, Campbell et al. (2014) find that investors place a lower value on an incremental dollar of cash when firms have high levels of foreign cash holdings, and this relationship is associated with cash held in tax haven countries but is unrelated to political instability, corruption, or weak legal protections. Furthermore, Nessa et al. (2015) show that there is a significant difference in the earnings response coefficient on changes in foreign earnings of firms with low versus high

average foreign tax rates. Prior research also shows that agency costs resulting from the free cash flow problem (Jensen 1986) are associated with trapped foreign earnings. Repatriation tax costs and agency frictions affect payout policy (Beyer et al. 2016; Nessa 2015) and both foreign investment (Edwards et al. 2015; Hanlon et al. 2015) and domestic investment (Downes et al. 2015; Martin et al. 2015).

2.3 Determinants of Bond Issuance Spreads

Structural models beginning with Black and Scholes (1973) provide the framework for identifying the determinants of credit spreads. These models (Briys and de Varenne 1997; Black and Cox 1976; Collin-Dufresne and Goldstein 2001; Goldstein et al. 2001; Leland and Toft 1996; Longstaff and Schwartz 1995; Merton 1974) suggest that equity and debt can be valued using contingent-claims analysis. Contingent claims analysis assumes that default is triggered when the value of the firm falls below a certain threshold, which is a function of debt outstanding. In these structural models, holding a debt claim is the same as holding a risk-free debt claim after selling to equity holders the option to put the firm at the value of the risk-free claim (Collin-Dufresne et al. 2001). This line of theory suggests that there are two related reasons for why credit spreads exist. The first is the risk of default and the second is that in the case of default, bondholders receive only a portion of the amount firms owe them (Collin-Dufresne et al. 2001). The association between repatriation tax costs and the cost of debt relates to the latter. Cash-rich firms should have lower default risk because cash is available if the firm defaults, increasing the portion that bondholders would receive and decreasing the credit spread on new bond issuances, all else equal (Acharya et al. 2012). It is unclear whether the debt

market accounts for the reduction in assets available in case of default due to repatriation tax costs associated with PRE.[9]

3. Hypothesis development

Prior literature demonstrates that the equity market discounts the value of accumulated foreign earnings designated as PRE (Collins et al. 2001; Bryant-Kutcher et al. 2008; Bauman and Shaw 2008) and cash holdings (Chen 2015; Harford et al. 2014; Campbell et al. 2014) when firms face high repatriation tax costs. Studies that examine the cost of debt provide evidence that the risk of default and the amount of proceeds left for bondholders after a potential default determine the credit spread on new bond issuances (Collin-Dufresne et al. 2001). Prior literature provides evidence of a negative association between foreign earnings and the cost of debt (Shevlin et al. 2014, where foreign earnings is a control variable while addressing how lenders view tax avoidance) consistent with foreign earnings representing assets available in the event of default. However, repatriation tax costs decrease this protection source. Because default risk affects debt holders differently than equity holders (Myers 1977) and a part of default risk is the assets available in case of default, this study extends the equity market research to the debt market and examines how the cost to access foreign earnings (i.e., repatriation tax costs) affects the association between foreign earnings and credit spreads. We predict that greater repatriation costs reduce the negative association between foreign earnings and the credit spread on new bond issuances. The attenuation of the negative effect on credit spreads manifests itself through

[9] More recent studies find that while default risk (and assets available in case of default) are the largest component of credit spreads on corporate bonds, illiquidity in the bond market also contributes to credit spreads but is time-varying (Longstaff et al. 2005; Dick -Nielsen et al. 2012). We control for illiquidity as well as macroeconomic trends through bond characteristic controls and year fixed effects.

costly access to potential resources available to satisfy debt obligations. Specifically, we state our first hypothesis as follows:[10]

> ***H1:*** *Greater repatriation costs decrease the negative association between foreign earnings and the cost of debt.*

While we predict that repatriation tax costs increase the association between foreign earnings and credit spreads, it is possible that our predictions will not hold. For example, MNCs have the ability to invest foreign cash in passive assets and borrow against those assets. In this case, foreign earnings held abroad are still available in case of liquidation and therefore, debt holders may not discount foreign earnings subject to repatriation taxes. Additionally, repatriation tax costs can act as a disciplining mechanism to managements' domestic investment (Downes et al. 2015). Given that prior evidence suggests that repatriation tax costs increase domestic investment efficiency, it is possible that debt holders view repatriation tax costs as an increased monitoring mechanism and therefore do not discount foreign earnings subject to repatriation costs. Instead, debt holders may lower the risk associated with future profitability of domestic investment.

While prior studies find that investors discount the value of PRE for repatriation tax costs (Collins et al. 2001), this association is concentrated in firms with excess free cash flow (Bryant-Kutcher et al. 2008). Prior work also finds that investors react negatively to foreign acquisitions (Edwards et al. 2015; Hanlon et al. 2015) due to the agency costs of free cash flow (Jensen 1986). Another stream of literature examines managements' disclosure decisions regarding the tax liability associated with foreign earnings. While firms are required to disclose cumulative foreign earnings designated as PRE and the associated tax liability if those earnings were

[10] A decrease in a negative association implies an association that is closer to zero, not a greater negative association.

repatriated, in practice 77% of firms either do not disclose this tax liability or say that it is impractical to calculate (Ayers et al. 2015). Collins et al. (2001) provide evidence that when firms disclose the tax liability associated with PRE that they have more extensive operations in low tax foreign jurisdictions. Consistent with this finding, they provide evidence that equity investors find managers' disclosures credible with regard to the tax liability. Specifically, equity investors negatively value the tax liability disclosed by managers.

Examining the differences between those firms that disclose the tax liability and those firms that do not disclose provides an ideal setting to determine whether the increase in credit spreads for foreign earnings and cash holdings facing high repatriation tax costs is driven by actual repatriation tax costs or the free cash flow problem. If actual repatriation costs drive the reduction in the association between foreign earnings and credit spreads then we would expect H1 to be stronger within the subsample of firms that disclose the tax liability. This would be consistent with prior literature that provides evidence that the disclosure of the tax liability is a credible signal to the tax benefits occurring in foreign jurisdictions (Collins et al. 2001; Bryant-Kutcher et al. 2008). However, if the free cash flow problem drives this association, there will be no difference in the association between foreign earnings and credit spreads for firms facing high repatriation tax costs regardless of whether or not management discloses the tax liability associated with PRE.

Bondholders could also perceive that repatriation tax costs lead to relatively poor investments for firms with excess free cash flow (Jensen 1986). Dittmar et al. (2003) find that corporations in countries where shareholders rights are not well protected hold up to twice as much cash as corporations in countries with strong shareholder protection. Several studies find that firms with high levels of PRE make value-decreasing acquisitions (Edwards et al. 2015;

Hanlon et al. 2015; Martin et al. 2015), which equity holders perceive as an investment in a negative net present value project. In order to determine whether the relation between repatriation tax costs on foreign earnings and the credit spread on new debt issuances is capturing an agency cost effect instead of or in addition to a tax effect, we examine how corporate governance influences this association. If bondholders perceive repatriation tax costs as a signal of managers' use of foreign resources for inefficient investment, then we expect that the positive effect of repatriation costs on credit spreads will be concentrated in weakly governed firms. However, if the positive effect of repatriation costs is driven by tax considerations, then we would expect there to be no difference based on corporate governance. We present our tax considerations and agency cost motivation hypotheses in the null form.

> ***H2a:*** *The impact of repatriation costs on the negative association between foreign earnings and the cost of debt does not differ between tax liability disclosing and non-disclosing firms.*
>
> ***H2b:*** *The impact of repatriation tax costs on the negative association between foreign earnings and the cost of debt does not differ between firms with strong and weak governance.*

4. Methodology

4.1 Sample Selection

We use the Securities Data Company's (SDC) public debt issuance database and begin with completed non-convertible bond issuances by U.S. firms in excess of $1 million from January 1, 2000 to December 31, 2014. We begin our sample in 2000 because there are few bond issuances for firms with trapped foreign earnings prior to 2000. We exclude bond issuances from the following industries: finance, utilities, and government agencies. These excluded firms issue a large number of bonds to finance their operations (Shevlin et al. 2014). We require firms

to have non-missing values of the spread to the treasury rate on bond issuances, and we collect the following information if available from SDC Platinum: bond rating, put option, call option, subordinate status, time to maturity, and principal amount. The second largest sample restriction is including only those firms where the calculation of repatriation costs is possible (i.e., non-missing values of foreign pretax income in Compustat). We also require firms to have necessary Compustat and I/B/E/S data to compute explanatory variables, resulting in a final sample of 259 firms comprising 964 firm-year observations.

4.2 Research Design

To test our first hypothesis, we begin with the following pooled least squares regression for the years 2000-2014. Firm characteristics are lagged by one year to help address endogeneity concerns. We also control for contemporaneous characteristics of the bond issuance.[11]

$$\begin{aligned} Spread_{i,t} = {} & \alpha_0 + \alpha_1 Foreign\ Income_{i,t-1} + \alpha_2 High\ Repatriation\ Cost_{i,t-1} + \alpha_3 Foreign \\ & Income_{i,t-1} * High\ Repatriation\ Cost_{i,t-1} + \alpha_4 Domestic\ Income_{i,t-1} + \\ & \alpha_5 Leverage_{i,t-1} + \alpha_6 BTM_{i,t-1} + \alpha_7 Ln(Assets)_{i,t-1} + \alpha_8 NOL_{i,t-1} + \alpha_9 \Delta NOL_{i,t-1} + \\ & \alpha_{10} St.\ Dev.\ CF_{i,t-1} + \alpha_{11} Cash_{i,t-1} + \alpha_{12} PPE_{i,t-1} + \alpha_{13} Intangibles_{i,t-1} + \alpha_{14} Rating_{i,t} \\ & + \alpha_{15} Put_{i,t} + \alpha_{16} Call_{i,t} + \alpha_{17} Sub_{i,t} + \alpha_{18} Life_{i,t} + \alpha_{19} Principal_{i,t} + \alpha_{20} Follow_{i,t-1} + \\ & \alpha_{21} Error_{i,t-1} + \alpha_{22} Disp_{i,t-1} + \text{Year Fixed Effects} + \text{Industry Fixed Effects} + \varepsilon \end{aligned} \quad (1)$$

Spread is equal to the weighted average yield of bond issuances for a single firm per year.[12] Specifically, the weighted average is based on the total amount of debt issued during the year. The spread is calculated as the difference between the yield of bond *i* and the associated yield of the Treasury curve at the same maturity from SDC divided by 100. *Foreign Income* is equal to foreign pretax income (PIFO) scaled by total assets (AT). In addition to foreign income, we employ multiple proxies to capture the foreign resources that might be available to satisfy

[11] All variables are also defined in Appendix A.

[12] Results are qualitatively and quantitatively similar if we use the yield of the first bond issuance during the year instead of the weighted average yield for all bond issuances during the period.

firms' debt obligations. As a second proxy for foreign resources, we use *Pre* measured as the cumulative amount of permanently reinvested earnings MNCs report in their 10K scaled by total assets. *Pre* is available from 2007 through 2014 in the tax footnote section of Audit Analytics. As a third proxy for foreign resources, we estimate foreign cash holdings (*Estimated Foreign Cash*) using a methodology similar to Campbell et al. (2014).[13] *High Repatriation Costs* is an indicator variable equal to one when a firm's repatriation costs fall above the year median and zero otherwise. Repatriation costs are measured as the minimum of zero or foreign pretax income (PIFO) multiplied by 35 percent minus current foreign income tax expense (Foley et al. 2007). When the firm has zero foreign pretax income and foreign taxes paid, repatriation costs are equal to zero.[14] Hypothesis 1 predicts that repatriation costs restrict lenders' access to foreign resources and therefore reduce the negative association between trapped foreign earnings and the cost of debt ($\alpha_3>0$).

Domestic Income is equal to domestic pretax income (PIDOM) scaled by total assets (AT). We predict a negative association between *Leverage* is equal to total long term debt (DLTT) scaled by total assets. The higher a firm's leverage ratio is, the higher the chance the firm will default, so we expect a positive relation between *Leverage* and credit spread. *BTM* is the book-to-market ratio, which is equal to the value of common equity, CEQ divided by price times

[13] Foreign cash is estimated using the following equation:

$$CASH_{i,t} = \sum\beta_k DA_{i,t}*COUNTRY_{k,i,t} + \sum\gamma_k FA_{i,t}*COUNTRY_{k,i,t}$$

Where *CASH* is total worldwide cash; *DA* is domestic assets calculated as total worldwide assets minus foreign assets; *COUNTRY* is a vector of all countries where the firm has foreign subsidiaries located, and *FA* is total foreign assets. *CASH*, *DA*, and *FA* are scaled by worldwide assets. Each γk represents the increase in cash per dollar of foreign assets for firms with a material subsidiary in country k. As such, the total estimated foreign cash is a sum of the estimated coefficients multiplied by the foreign assets and the vector of country indicator variables. Specifically, total foreign cash is estimated as follows: $FA_{i,t}*\sum(\gamma_k*\text{Country}_{k,i,t})$.

[14] Results (untabulated) are qualitatively and quantitatively similar if we use a 3- or 5-year cumulative repatriation costs measure. In addition, results (untabulated) are robust to using the Bauman and Shaw (2008) measure of repatriation costs.

common shares outstanding, PRICE*CSHO. We utilize the book-to-market ratio to capture MNCs' growth opportunities. If high-growth firms pursue high risk activities, the firm's book-to-market ratio should be positively associated with its cost of debt, but Fama and French (1995) argue that high book-to-market ratios signal persistent earnings performance, implying the relation could be negative (Shevlin et al. 2014). *Ln(Assets)* is equal to the natural log of total assets, AT. Larger firms should have more favorable lending terms, so we expect a negative relation between assets and credit spread. *NOL* is an indicator variable equal to one if the firm has a loss carry forward, TLCF, zero otherwise. *ΔNOL* is equal to the change in the firm's loss carry forward from year *t-2* to year *t-1*, scaled by lagged total assets. Loss carry forwards can reduce future tax payments and can be viewed positively by debt holders (Shevlin et al. 2014). *St. Dev. CF* is equal to the five-year standard deviation of the firm's net operating cash flows, OANCF, scaled by total assets. Higher cash flow volatility is associated with a higher risk of default (Minton and Schrand 1999), so we expect a positive relation between the standard deviation of cash flows and the credit spread. *Cash* is the cash (CHE) divided by total assets. We expect greater cash holdings to reduce firms' credit spreads. *PPE* is equal to firm *i*'s property, plant and equipment (PPENT) scaled by total assets. Property, plant, and equipment can be used as collateral, so we expect a negative relation between *PPE* and the cost of debt. *Intangibles* is equal to intangible assets (INTAN) scaled by total assets. Intangible assets are often held in foreign subsidiaries which results in greater foreign income. Therefore, we expect a negative association between *Intangibles* and the cost of debt consistent with the association between foreign income and the cost of debt.

We also control for characteristics of the bond issuance itself with data available through SDC Platinum. *Rating* measures the credit quality of the bond issuance through the two credit

rating agencies available in SDC (Standard and Poors or Moody's). Prior research shows that credit ratings provide additional information on bonds' default risk (Ederington et al. 1987; Ziebart and Reiter 1992). We follow Shevlin et al. (2014) and convert the letter ratings retrieved from SDC into numbers so that a "AAA" bond is a 1, a "AA+" bond is a 2, etc. We expect a positive relation between the credit rating and credit spread. *Put* is an indicator variable equal to one if the bond is putable, zero otherwise. Because putable bonds minimize downside risk to bondholders, we expect a negative relation between credit spread and putable bonds. *Call* is an indicator variable equal to one if the bond is callable and zero otherwise. Because callable bonds have prepayment risk, bondholders are likely to demand higher yields for bonds with a call provision (Datta et al. 1999), so we expect a positive relation between callable bonds and credit spread. *Sub* is an indicator variable equal to one if the bond is subordinated to other debt securities, zero otherwise. Subordinated bonds are junior debt and as a result, riskier (Ziebart and Reiter 1992). Therefore, we expect a positive relation between subordinated bonds and the credit spread. *Life* is the maturity of the bond in years. Bonds with longer maturities are usually exposed to higher interest rate volatility and credit risk and are therefore expected to be priced at higher yields (Ziebart and Reiter 1992), so we expect *Life* to be positively related to credit spreads. *Principal* is the natural log of the total dollar face value of the bond issue. Sengupta (1998) argues that larger issues are more liquid and marketable and therefore might receive lower yields, but Shi (2003) argues that a larger issue might also imply a higher debt burden and therefore a higher probability of default. As a result, we make no prediction on the direction of the relation between *Principal* and the cost of debt.

Furthermore, we control for the information quality of the firm because prior research demonstrates that tax planning is associated with less transparent financial reporting and

information environments (Balakrishnan et al. 2012). *Follow* is the log of one plus the number of analysts following the firm in the latest I/B/E/S consensus analyst forecast. We predict a negative relation between *Follow* and *Spread* consistent with higher information quality decreasing the transparency of financial reporting. *Error* is the analyst forecast error calculated as the difference between actual reported earnings and the latest I/B/E/S median consensus analyst forecast (reported before the earnings announcement) scaled by the value of the latest I/B/E/S median consensus analyst forecast. Because a larger error represents decreased information quality, we expect a positive relation between *Error* and *Spread*. *Disp* is the standard deviation of analyst forecasts from I/B/E/S scaled by the absolute value of the latest I/B/E/S median consensus forecast. We also expect a positive relation between *Disp* and *Spread*. Equation (1) includes industry (based on two-digit SIC codes) and year fixed effects. We use robust standard errors (White 1980) in order to control for heteroscedasticity and autocorrelation of the error term.[15]

To test H2a, we utilize equation (1) but partition the sample into those firms that disclose and those firms that do not disclose the tax liability associated with PRE. If tax considerations drive the positive association between repatriation tax costs and the cost of debt, then we expect α_3, the effect of high repatriation tax costs on foreign earnings and bond issuance spreads, will be insignificant for those firms that withhold the disclosure of the tax liability but positive and significant for those firms that disclose the tax liability.

Finally, to test H2b, we use equation (1) but partition the sample on above and below median entrenchment index scores (Bebchuk et al. 2009). If repatriation tax costs signal bondholders'

[15] Standard errors are not clustered by firm due to the small sample size and small reoccurring rate of firm-issuances (i.e., the sample is comprised of 259 firms). However, in untabulated results, results remain qualitatively similar when standard errors are clustered by firm.

perception of agency considerations then we expect to see a significant difference in α_3, the association between repatriation tax costs on foreign earnings and new bond issuances, for well versus poorly governed MNCs.

5. Empirical Findings

5.1 Descriptive Statistics

Table 1 details our sample distribution. Panel A provides the sample distribution by year. The sample increases throughout the sample period due to both an increase in the number of bond issuances and an increase in foreign operations of MNCs. Given that firms have become more global with their operations in the past 15 years, the sample distribution by year appears reasonable. We include year fixed effects within all regressions in order to control for the time effects on credit spreads. Panel B provides the sample distribution by two-digit SIC codes. The industries with the largest representation include chemical products (19.92%) and computer equipment and services (13.49%), but our sample is not concentrated primarily in one or two industries.

Table 2 provides descriptive statistics for firms in our sample. We winsorize all continuous variables at the top and bottom 1 percent in order to mitigate the influence of outliers. The average issuer in our sample has a weighted-average spread on bond issuances during a given year of 1.643, which is 164 basis points above the treasury yield for bonds with similar maturities. This spread is consistent with Shevlin et al. (2014) and Franco et al. (2013) who use samples with average spreads of 129 and 143 basis points, respectively. The small difference is most likely a result of the sample composition given that our sample includes 964 firm-year observations and Shevlin et al. (2014) and Franco et al. (2013) include over 6,000 firm-year

observations.[16] Bond issuances in our sample have an average rating of 8.5 and a median bond rating of 8, which is similar to Shevlin et al. (2014) and indicates a Standard and Poor's bond rating of "BBB". The average bond in our sample has 8.4 years until maturity.

Both foreign income and domestic income average about 4 percent of assets. Firms have average book-to-market ratios of 0.401, long term debt of 27 percent of assets, and cumulative PRE accounts for 20 percent of total assets. Compared to Shevlin et al. (2014), MNCs in our sample have slightly higher book-to-market ratios and slightly lower leverage, but we believe our descriptive statistics are reasonable when compared with prior research.

Table 3 presents the Pearson (Spearman) correlations below (above) the diagonal. All correlations are significant at the 5 percent level except for those in italics. As expected, foreign income has a negative association with credit spreads. Our other proxies of PRE and estimated foreign cash also have a negative association with the cost of debt, albeit the estimated foreign cash coefficient is not statistically significant. Given that our hypotheses focus on the interaction between foreign income and repatriation costs, it is difficult to use univariate analysis to find support for our hypotheses. Therefore, we move to the multivariate analysis in order to test our hypotheses.

5.2 Main Results

Table 4 presents the estimated coefficients from equation (1) used to test H1. T-statistics are presented below the coefficients in parentheses. Column 1 uses *Foreign Income* as our measure of trapped foreign earnings, column 2 uses firm disclosed *PRE* as our proxy for trapped foreign earnings, and column 3 utilizes *Estimated Foreign Cash* (Campbell et al. 2014). The adjusted-R^2

[16] Shevlin et al. (2014) use a sample period of 1990 to 2007 while our sample period spans from 2000 to 2014. Additionally, our sample is restricted by the requirement that firms have foreign income (non-missing, nonzero values of PIFO from Compustat). Franco et al. (2013) have similar sample restrictions.

for our three models range from .5180 to .6892, suggesting that the variables included in our model explain a large portion of the variation in the cost of debt. The coefficient associated with the main effects of *Foreign Income, PRE*, and *Estimated Foreign Cash* are all negative and significant suggesting that, for those firms facing lower repatriation costs, foreign resources reduce the cost of debt.[17] However, we find that α_3, the coefficient for the interaction between *High Repatriation Cost* and the proxy for foreign resources, is positive and statistically significant at the 5 percent level in all three specifications. The results are also economically significant. A one standard deviation increase in foreign income for firms with high repatriation tax costs results in a 12.5 percent increase in the weighted average spread on bond issuances. Consistent with prior research, foreign income decreases credit spreads on new bond issuances. However, when firms face high repatriation tax costs on their trapped foreign earnings, credit spreads are significantly greater on new bond issuances.

These results support H1 and confirm that bondholders discount foreign earnings when the foreign earnings are subject to greater repatriation tax costs. The positive association between repatriation costs and the cost of debt does not provide evidence about why bondholders require higher spreads for firms with high repatriation tax costs. Therefore, we next examine whether explicit tax costs or agency costs are more likely to explain this observed relation.

To examine whether bondholders perceive repatriation costs associated with foreign earnings to primarily be a tax related cost, we partition the sample into firms that disclose the tax liability associated with PRE and those that do not. Our hand collection results in a total of 473 firm-bond issuances that disclose the tax liability associated with PRE. This represents a total of 49 percent

[17] The "NA" for the *Put* coefficient in column (2) is a result of no variation in the *Put* variable for the PRE sample.

of our sample that discloses the tax liability.[18] We use this disclosure as a proxy for firms that have significant tax savings operations in foreign jurisdictions. Table 5 presents the estimated coefficients. Columns (1) and (2) present the estimates for firms that do not disclose and discloses the tax liability, respectively. The positive effect of repatriation costs on the negative association between foreign earnings and credit spreads is concentrated in the subset of firms that disclose the tax liability associated with PRE. These findings provide support for H2a.[19]

In addition to the sample partition results presented in columns (1) and (2), we also have the opportunity to compare our measure of repatriation costs with the actual amount disclosed by management. In untabulated results, our measure of repatriation costs and the actual disclosed tax liability has a correlation coefficient of 0.61 which is significant at the 1 percent level. This simple correlation suggests that our measure of repatriation costs reasonably predicts actual repatriation costs regardless of whether or not the firms discloses the tax liability associated with PRE. To further confirm our findings, we substitute the actual amount of the tax liability that management discloses for our proxy of repatriation costs. *High Actual Repatriation Cost* is a ranked variable that is equal to one when the disclosing firm has an actual tax liability associated with PRE that is greater than the sample median. Otherwise the variable is equal to zero. Column (3) presents the estimated coefficients for the sample of 473 firm-bond issuances that disclose the actual tax liability. Consistent with the prior results, the coefficient associated with the interaction between *High Actual Repatriation Cost* and *Foreign Income* is positive and significant (p-value<0.05).

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[18] Our sample has a larger percentage of disclosing firms than the equity market. Given that size is negatively associated with disclosure of the tax liability on PRE (Ayers et al. 2015), it seems that some characteristic of debt issuing firms drives increased disclosure. One potential explanation would be the bond markets ability to demand this information.

[19] The coefficient associated with the variable *Put* is labeled as "NA" for columns (2) and (3) because there is no variation in this variable for those models, i.e., there are no putable bonds in those samples.

To examine whether or not the positive effect of repatriation costs represents bondholders' perceptions that management will use trapped earnings to make poor investments, we partition the sample based on weak versus strong governance. We use the Bebchuk et al. (2009) entrenchment index to proxy for corporate governance. Firms above (below) the annual median of the entrenchment index are considered firms with weak (strong) governance. Table 6, columns (1) and (2), presents the estimated coefficients for the weak governance and strong governance firms, respectively. The coefficients associated with the interaction between *Foreign Income* and *High Repatriation Cost*, α_3, is positive for both strong governance and weak governance MNCs and this relation is statistically significant for only strong governance MNCs. If agency costs explained the findings in Table 4, we would expect to find the relation is stronger for weak governance MNCs because weak governance MNCs are more susceptible to the free cash flow problem (Jensen 1986) associated with trapped foreign earnings. Instead, we find the opposite. Therefore, we conclude that the results in Table 4 are likely due to repatriation tax costs and not to agency costs associated with trapped foreign earnings.

6. Conclusion

U.S. MNCs continue to stockpile foreign earnings overseas. In 2014, PRE topped $2.1 trillion according to Bloomberg news. The increase in trapped foreign earnings is a result of both U.S. financial reporting and tax reporting rules (Foley et al. 2007). Prior research shows that higher levels of foreign resources are associated with lower credit spreads on new bond issuances (Franco et al. 2013; Shevlin et al. 2014). However, firms with high foreign income often face high repatriation tax costs, which are a real cost associated with repatriating foreign cash holdings in the event of liquidation.

We examine the moderating effect of repatriation tax costs on the association between foreign income and the weighted-average spread on new debt issues for a given firm in a given year. Consistent with prior research, we find a negative relation between foreign income and credit spreads on new bond issuances. However, we also demonstrate that when firms have high repatriation tax costs, the relation between foreign income and credit spreads is significantly less negative. A one standard deviation increase in foreign income for firms with high repatriation tax costs results in a 12.5 percent increase in the weighted average spread on bond issuances. We are the first paper to demonstrate that bondholders consider repatriation tax costs when pricing new bond issuances. We also provide evidence that this association is a tax effect by demonstrating that the positive relation between credit spreads and repatriation tax costs only applies to those firms that disclose the tax liability associated with PRE, a proxy used in the prior literature to identify firms with greater tax savings in foreign jurisdictions. We find no evidence that our results are driven by agency costs because there is no difference in the increase in credit spread for firms with high repatriation tax costs on foreign earnings between firms with high and low governance. In summary, the higher credit spreads associated with trapped foreign cash represent an additional cost to firms from cash becoming trapped overseas.

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Appendix A
Variable Definitions

Spread	Calculated as the difference between the yield of bond *i* and the associated yield of the Treasury curve at the same maturity from SDC divided by 100, weighted by the amount of debt issued during the year.
Foreign Income	Foreign pretax income (PIFO) scaled by total assets (AT)
Pre	Total amount of permanently reinvested earnings the firm reports in its 10K scaled by total assets
Estimated Foreign Cash	Foreign cash is estimated using the following equation: $$CASH_{i,t} = \sum\beta_k DA_{i,t}*COUNTRY_{k,i,t} + \sum\gamma_k FA_{i,t}*COUNTRY_{k,i,t}$$ Where *CASH* is total worldwide cash; *DA* is domestic assets calculated as total worldwide assets minus foreign assets; *COUNTRY* is a vector of all countries where the firm has foreign subsidiaries located and *FA* is total foreign assets. *CASH*, *DA*, and *FA* are scaled by worldwide assets. Each γk represents the increase in cash per dollar of foreign assets for firms with a material subsidiary in country k. As such, the total estimated foreign cash is a sum of the estimated coefficients multiplied by the foreign assets and the vector of country indicator variables. Specifically, total foreign cash is estimated as follows: $FA_{i,t}*\sum(\gamma_k*\text{Country}_{k,i,t})$.
High Repatriation Cost	Equal to one when a firm's repatriation costs fall above the year median and zero otherwise. Repatriation costs are measured as the minimum of zero or foreign pretax income (PIFO) multiplied by 35 percent minus current foreign income taxes expense (TXFO).
High Actual Repatriation Cost	Hand collected level of disclosed tax liability associated with permanently reinvested earnings.
Domestic Income	Domestic pretax income (PIDOM) scaled by total assets (AT)
Leverage	total long term debt (DLTT) scaled by total assets
BTM	Book-to-market ratio, which is equal to the value of common equity, CEQ divided by price times common shares outstanding, PRICE*CSHO
Ln(Assets)	Natural log of total assets, AT
NOL	Indicator variable equal to one if the firm has a loss carry forward, TLCF, zero otherwise

ΔNOL	Equal to the change in the firm's loss carry forward from year *t-2* to year *t-1*, scaled by lagged total assets
St. Dev. CF	Five-year standard deviation of the firm's net operating cash flows, OANCF, scaled by total assets
Cash	Cash (CHE) divided by total assets
PPE	Property, plant and equipment (PPENT) scaled by total assets
Intangibles	Intangible assets (INTAN) scaled by total assets
Rating	Measures the credit quality of the bond issuance through the two credit rating agencies available in SDC
Put	Indicator variable equal to one if the bond is putable, zero otherwise
Call	Indicator variable equal to one if the bond is callable and zero otherwise
Sub	Indicator variable equal to one if the bond is subordinated to other debt securities, zero otherwise
Life	Maturity of the bond in years
Principal	Natural log of the total dollar face value of the bond issue
Follow	Log of one plus the number of analysts following the firm in the latest I/B/E/S consensus analyst forecast
Error	Analyst forecast error calculated as the difference between actual reported earnings and the latest I/B/E/S median consensus analyst forecast (reported before the earnings announcement) scaled by the value of the latest I/B/E/S median consensus analyst forecast
Disp	Standard deviation of analyst forecasts from I/B/E/S scaled by the absolute value of the latest I/B/E/S median consensus forecast

Table 1
Sample Distribution

Panel A: Distribution by Year

Year	N	%
2000	29	3.01%
2001	52	5.39%
2002	56	5.81%
2003	56	5.81%
2004	35	3.63%
2005	38	3.94%
2006	43	4.46%
2007	66	6.85%
2008	57	5.91%
2009	100	10.37%
2010	96	9.96%
2011	76	7.88%
2012	93	9.65%
2013	85	8.82%
2014	82	8.51%
	964	

Panel B: Distribution by Industry

Industry	SIC Code	Freq	%
Oil and gas	13, 29	78	8.09%
Food products	20	66	6.85%
Paper and paper products	24-27	77	7.99%
Chemical products	28	192	19.92%
Manufacturing	30-34	67	6.95%
Computer equipment and services	35, 73	130	13.49%
Electronic equipment	36	69	7.16%
Transportation	37, 39, 40-42, 44, 45	55	5.71%
Scientific instruments	38	54	5.60%
Durable goods	50	15	1.56%
Retail	53, 54, 56, 57, 59	40	4.15%
Eating and drinking establishments	58	31	3.22%
Entertainment services	70, 78, 79	15	1.56%
Health	80	6	0.62%
Others		69	7.16%

Total	964	100.00%

Table 1 presents the sample distribution by year (Panel A) and two-digit SIC industry code (Panel B).

Table 2
Descriptive Statistics

	N	Mean	St. Dev.	Q1	Median	Q3
Weighted Avg Spread	964	1.643	1.716	0.470	0.965	2.200
Foreign Income	964	0.043	0.048	0.012	0.032	0.067
PRE	473	0.204	0.160	0.085	0.169	0.294
Estimated Foreign Cash	297	6.919	6.637	1.186	5.663	10.840
Repatriation Cost	964	0.006	0.009	0.000	0.002	0.008
BTM	964	0.401	0.307	0.206	0.344	0.512
Domestic Income	964	0.044	0.065	0.011	0.043	0.079
Leverage	964	0.228	0.136	0.137	0.210	0.291
Ln(Assets)	964	9.181	1.283	8.322	9.158	10.090
NOL	964	0.541	0.499	0.000	1.000	1.000
NOL Change	964	0.006	0.061	0.000	0.000	0.004
St. Dev. CF	964	0.034	0.032	0.016	0.026	0.042
Cash	964	0.100	0.106	0.032	0.066	0.137
PPE	964	0.301	0.221	0.124	0.240	0.415
Intangibles	964	0.235	0.179	0.088	0.203	0.356
Rating	964	8.500	3.962	6.000	8.000	10.000
Put	964	0.001	0.032	0.000	0.000	0.000
Call	964	0.117	0.322	0.000	0.000	0.000
Sub	964	0.027	0.162	0.000	0.000	0.000
Life	964	8.413	5.324	5.078	8.116	10.160
Principal	964	5.989	0.773	5.617	5.991	6.397
Follow	964	2.702	0.549	2.398	2.773	3.091
Error	964	-0.030	0.526	-0.083	0.008	0.070
Disp	964	0.050	0.494	0.012	0.024	0.065

Table 2 presents the descriptive statistics for the variables used to test our hypotheses. See appendix A for variable definitions.

Table 3
Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	*Weighted Avg Spread*		-0.268	-0.303	*-0.081*	-0.189	0.359	-0.311	0.256	-0.504	0.095	*0.197*	0.321	*-0.049*
2	*Foreign Income*	-0.314		0.498	0.330	0.675	-0.308	*-0.025*	-0.205	0.190	-0.098	*-0.031*	*-0.095*	0.298
3	*PRE*	-0.365	0.633		*0.218*	0.489	-0.213	*-0.020*	-0.160	0.199	*-0.075*	*0.027*	*-0.065*	0.352
4	*Estimated Foreign Cash*	*-0.075*	0.383	*0.259*		0.160	-0.185	*-0.042*	*-0.065*	*0.089*	*-0.009*	*-0.018*	*0.008*	0.210
5	*Repatriation Cost*	-0.245	0.714	0.507	0.186		-0.200	-0.095	-0.200	0.207	*-0.033*	*-0.008*	*-0.028*	0.520
6	*BTM*	0.305	-0.315	-0.240	-0.236	-0.196		-0.386	-0.095	-0.106	0.101	*-0.009*	0.142	-0.084
7	*Domestic Income*	-0.296	*-0.050*	*-0.064*	*-0.068*	-0.075	-0.392		*-0.077*	*0.062*	*-0.035*	-0.112	-0.130	*-0.043*
8	*Leverage*	0.213	-0.239	-0.120	*-0.108*	-0.198	-0.119	*-0.063*		-0.194	*0.078*	*0.027*	*0.017*	-0.257
9	*Ln(Assets)*	-0.588	0.215	0.264	*0.085*	0.188	-0.099	*0.083*	-0.171		*-0.061*	*-0.127*	-0.263	*0.053*
10	*NOL*	0.122	-0.071	*-0.091*	*-0.062*	*-0.002*	0.103	*-0.039*	*0.037*	*-0.060*		0.123	*-0.004*	*0.015*
11	*NOL Change*	*0.013*	*-0.057*	*0.021*	*-0.016*	*-0.084*	*0.012*	-0.069	*0.001*	*-0.011*	0.214		*0.217*	*0.022*
12	*St. Dev. CF*	0.229	*-0.059*	*-0.035*	*0.008*	*-0.045*	0.079	-0.124	*-0.041*	-0.268	*-0.014*	*0.020*		0.200
13	*Cash*	-0.085	0.321	0.346	0.198	0.373	-0.095	*-0.088*	-0.308	*0.101*	*0.049*	*-0.007*	0.178	
14	*PPE*	0.067	-0.111	-0.203	-0.260	-0.238	*0.024*	*0.012*	0.251	*-0.020*	-0.096	*-0.009*	*0.014*	-0.375
15	*Intangibles*	-0.155	*0.031*	*0.059*	0.171	*0.094*	-0.086	*0.127*	*0.065*	0.075	0.110	*0.009*	-0.238	*-0.029*
16	*Rating*	0.680	-0.392	-0.362	*-0.177*	-0.321	0.353	-0.312	0.250	-0.581	0.115	*0.036*	0.260	-0.096
17	*Put*	*0.036*	*0.023*	NA	*0.061*	*0.022*	*-0.050*	*-0.052*	*0.050*	*-0.039*	*-0.035*	*-0.006*	*0.030*	*-0.015*
18	*Call*	0.129	*-0.049*	*-0.080*	*0.075*	*-0.062*	0.102	*-0.070*	*0.066*	*-0.040*	*0.025*	*-0.038*	*0.050*	*0.051*
19	*Sub*	0.193	-0.088	*-0.049*	*-0.046*	-0.096	0.075	*-0.061*	0.074	-0.187	*0.012*	*0.010*	*0.098*	-0.078
20	*Life*	0.375	*-0.094*	*-0.150*	*-0.004*	*-0.113*	*0.109*	*-0.042*	0.152	-0.228	*0.064*	*-0.039*	*0.011*	*-0.045*
21	*Principal*	-0.214	0.168	0.124	*0.038*	0.200	-0.100	*0.056*	-0.123	0.612	*0.008*	*-0.008*	-0.133	0.200
22	*Follow*	-0.457	0.210	0.178	*0.113*	0.175	-0.167	0.187	-0.201	0.557	-0.114	*-0.040*	*-0.062*	0.138
23	*Error*	-0.074	0.138	*0.046*	*0.007*	0.154	-0.085	0.182	*-0.113*	*0.057*	*-0.034*	*-0.044*	*0.002*	*0.128*
24	*Disp*	0.257	*-0.135*	*-0.214*	*-0.192*	*-0.109*	0.401	*-0.267*	*-0.092*	*-0.136*	*0.006*	*-0.037*	0.265	*-0.025*

		14	15	16	17	18	19	20	21	22	23	24
1	*Weighted Avg Spread*	0.103	-0.129	0.532	*0.026*	0.081	0.168	0.085	-0.124	-0.422	-0.077	*0.007*
2	*Foreign Income*	-0.115	*-0.058*	-0.330	*0.011*	*-0.045*	-0.066	*-0.021*	0.087	0.203	0.113	*-0.027*
3	*PRE*	-0.224	*0.033*	-0.268	.	*-0.065*	*-0.049*	*-0.074*	0.139	0.203	*0.095*	*-0.044*
4	*Estimated Foreign Cash*	-0.240	0.159	*-0.114*	*0.052*	*0.091*	*-0.011*	*0.101*	*0.047*	*0.140*	*0.032*	*-0.081*
5	*Repatriation Cost*	-0.218	*-0.017*	-0.271	*0.001*	*-0.056*	-0.084	*-0.059*	0.233	0.243	0.073	*-0.015*
6	*BTM*	*0.120*	-0.079	0.266	*-0.037*	0.076	0.081	*0.041*	-0.075	-0.154	-0.070	0.081
7	*Domestic Income*	*0.010*	*0.063*	-0.225	*-0.051*	*-0.047*	*-0.107*	*-0.011*	*0.048*	0.162	0.116	*-0.013*
8	*Leverage*	0.232	*0.054*	0.256	*0.060*	*0.047*	0.099	0.081	-0.112	-0.243	*-0.019*	*-0.051*
9	*Ln(Assets)*	*-0.023*	0.075	-0.592	*-0.032*	*-0.033*	-0.192	-0.124	0.553	0.573	*0.055*	*-0.016*
10	*NOL*	-0.093	0.124	0.094	*-0.035*	*0.025*	*0.012*	*0.042*	*0.028*	-0.111	*-0.042*	*0.038*
11	*NOL Change*	*-0.040*	*0.041*	*0.077*	*-0.003*	*-0.020*	*0.004*	*-0.032*	*-0.042*	*-0.120*	*0.002*	*-0.139*
12	*St. Dev. CF*	*0.062*	-0.196	0.217	*0.011*	*-0.006*	*0.058*	*0.013*	-0.107	*-0.093*	*-0.094*	0.102
13	*Cash*	-0.326	*-0.096*	-0.077	*-0.017*	*0.016*	-0.068	*-0.043*	0.193	0.208	*0.036*	*-0.022*
14	*PPE*		-0.598	0.090	*-0.008*	*0.075*	*0.027*	0.069	*-0.063*	0.105	-0.070	0.104
15	*Intangibles*	-0.608		-0.091	*0.004*	*-0.047*	*-0.010*	-0.081	0.098	*-0.010*	*0.048*	*-0.059*
16	*Rating*	0.079	-0.132		*0.045*	0.127	0.209	0.112	-0.364	-0.433	*-0.058*	*0.011*
17	*Put*	*0.001*	*0.010*	*0.046*		*-0.012*	0.194	*0.010*	*-0.020*	*-0.053*	*0.004*	*0.002*
18	*Call*	*0.063*	*-0.050*	0.162	*-0.012*		*0.039*	0.137	*0.046*	*0.030*	*0.012*	*0.009*
19	*Sub*	*-0.006*	*-0.019*	0.218	0.194	*0.039*		*0.029*	-0.066	-0.158	*0.062*	*0.000*
20	*Life*	0.092	-0.075	0.247	*0.016*	0.210	*0.100*		*-0.031*	-0.107	*0.000*	*0.003*
21	*Principal*	*-0.064*	0.071	-0.307	*-0.035*	*0.051*	-0.100	*-0.063*		0.379	*0.009*	*0.015*
22	*Follow*	0.075	*-0.053*	-0.427	*-0.049*	*0.013*	-0.114	-0.204	0.426		*0.023*	*0.033*
23	*Error*	-0.093	*0.017*	*-0.045*	*0.018*	*0.018*	*0.072*	*0.026*	*0.019*	*0.059*		*-0.420*
24	*Disp*	0.206	*-0.342*	*0.316*	*0.033*	*0.139*	*0.077*	*0.119*	*-0.051*	*-0.014*	*0.012*	

Table 3 presents the correlation matrix. Pearson (Spearman) correlations are presented below (above) the diagonal. All correlations except those in italics are significant at the 5 percent level. See Appendix A for variable definition.

Table 4
Cost of Debt and Repatriation Costs

	Pred.	(1)	(2)	(3)
Foreign Income	-	-4.262***		
		(-2.62)		
PRE	-		-1.412***	
			(-2.66)	
Estimated Foreign Cash	-			-0.038**
				(-2.18)
High Repatriation Cost	?	-0.305**	-0.341**	-0.437**
		(-2.49)	(-1.99)	(-1.97)
Foreign Income * High Repatriation Cost	**+**	**4.019****		
		(2.28)		
PRE * High Repatriation Cost	**+**		**1.299****	
			(2.12)	
Estimated Foreign Cash * High Repatriation Cost	**+**			**0.045*****
				(2.34)
Domestic Income	-	-2.760***	-1.041	-5.653***
		(-2.89)	(-0.88)	(-2.84)
Leverage	+	1.870***	2.541***	1.911**
		(3.43)	(4.78)	(1.92)
BTM	?	0.954***	1.493***	0.004
		(2.94)	(5.72)	(0.01)
Ln(Assets)	-	-0.494***	-0.367***	-0.327***
		(-8.70)	(-4.80)	(-3.87)
NOL	-	-0.062	-0.220**	0.220
		(-0.80)	(-2.25)	(1.62)
NOL Change	-	3.118***	-0.444	2.784
		(3.51)	(-0.41)	(1.17)
St. Dev. CF	+	4.167***	8.179***	2.819
		(2.41)	(3.34)	(0.86)
Cash	-	-0.505	0.539	-1.309
		(-0.91)	(0.90)	(-0.98)
PPE	-	-0.274	-0.379	-0.783
		(-0.61)	(-0.61)	(-1.24)
Intangibles	-	-0.739**	-0.857**	-1.139*
		(-1.94)	(-1.71)	(-1.49)
Rating	+	0.078***	0.114***	0.031*
		(4.44)	(4.41)	(1.37)
Put	-	-0.164	NA	-0.077
		(-0.45)		(-0.18)
Call	+	0.006	-0.122	1.585***
		(0.05)	(-0.94)	(4.57)
Sub	+	0.480**	1.238*	0.449
		(1.76)	(1.54)	(1.26)
Life	+	0.002	0.000	-0.000
		(0.34)	(0.00)	(-0.03)

Principal	?	0.404***	0.343***	0.357***
		(6.43)	(2.87)	(3.91)
Follow	-	-0.208*	-0.260**	-0.251
		(-1.49)	(-1.88)	(-1.14)
ERROR	+	-0.045	-0.152	0.196
		(-0.41)	(-0.97)	(1.13)
DISP	+	0.015	-0.507	-0.919
		(0.11)	(-1.88)	(-1.74)
Intercept	?	2.680***	1.246	3.015**
		(3.35)	(1.13)	(2.27)
Year Fixed Effects		Included	Included	Included
Industry Fixed Effects		Included	Included	Included
N		964	473	297
adj. R^2		0.5792	0.6892	0.5180

Table 4 presents the estimated coefficients from estimating the following OLS regression:

$$Spread_{i,t} = \alpha_0 + \alpha_1 Foreign\ Income_{i,t-1} + \alpha_2 High\ Repatriation\ Cost_{i,t-1} + \alpha_3 Foreign\ Income_{i,t-1} * High\ Repatriation\ Cost_{i,t-1} + \alpha_4 Domestic\ Income_{i,t-1} + \alpha_5 Leverage_{i,t-1} + \alpha_6 BTM_{i,t-1} + \alpha_7 Ln(Assets)_{i,t-1} + \alpha_8 NOL_{i,t-1} + \alpha_9 \Delta NOL_{i,t-1} + \alpha_{10} St.\ Dev.\ CF_{i,t-1} + \alpha_{11} Cash_{i,t-1} + \alpha_{12} PPE_{i,t-1} + \alpha_{13} Intangibles_{i,t-1} + \alpha_{14} Rating_{i,t} + \alpha_{15} Put_{i,t} + \alpha_{16} Call_{i,t} + \alpha_{17} Sub_{i,t} + \alpha_{18} Life_{i,t} + \alpha_{19} Principal_{i,t} + \alpha_{20} Follow_{i,t-1} + \alpha_{21} Error_{i,t-1} + \alpha_{22} Disp_{i,t-1} + \text{Year Fixed Effects} + \text{Industry Fixed Effects} + \varepsilon$$

See Appendix A for variable definitions. All models include year and industry fixed effects. Standard errors are robust standard errors (White 1980) in order to control for heteroscedasticity and autocorrelation of the error term. ***, **, * represent significance at the 1 percent, 5 percent, and 10 percent level, respectively. Predicted direction is identified in the Pred. column. Significance tests are one-sided where predicted, two-tailed otherwise.

Table 5
Cost of Debt and Repatriation Costs
The Tax Liability Effect

	Pred.	(1) Disclose Tax Liability=0	(2) Disclose Tax Liability=1	(3) Actual Disclosure Amount of Tax Liability
Foreign Income	-	-3.198	-3.749**	-3.805*
		(-1.16)	(-1.75)	(-1.62)
High Repatriation Cost	?	0.022	-0.203	
		(0.14)	(-1.30)	
High Actual Repatriation Cost	?			-0.195
				(-1.24)
Foreign Income * High Repatriation Cost	**+**	**0.360**	**4.775****	
		(0.12)	**(1.90)**	
Foreign Income * High Actual Repatriation Cost	**+**			**4.275****
				(1.80)
Domestic Income	-	-4.514***	-0.770	-1.039
		(-2.88)	(-0.64)	(-0.88)
Leverage	+	1.329**	2.560***	2.574***
		(1.69)	(4.81)	(4.80)
BTM	?	0.152	1.563***	1.548***
		(0.29)	(5.72)	(5.76)
Ln(Assets)	-	-0.468***	-0.345***	-0.366***
		(-5.45)	(-4.76)	(-4.62)
NOL	-	0.120	-0.209**	-0.230***
		(0.97)	(-2.15)	(-2.40)
NOL Change	-	3.142	-0.648	-0.652
		(4.23)	(-0.62)	(-0.62)
St. Dev. CF	+	4.476**	7.378***	7.637***
		(1.89)	(3.30)	(3.39)
Cash	-	-1.836*	0.325	0.356
		(-1.47)	(0.55)	(0.60)
PPE	-	-0.800*	-0.470	-0.623
		(-1.43)	(-0.75)	(-1.01)
Intangibles	-	-0.920**	-1.024**	-1.053**
		(-1.71)	(-2.07)	(-2.11)
Rating	+	0.059***	0.103***	0.106***
		(2.57)	(4.32)	(4.41)
Put	-	-0.127	NA	NA
		(-0.44)		
Call	+	0.479**	0.032	0.025
		(1.81)	(0.27)	(0.21)

Sub	+	0.488**	1.095*	1.030*
		(1.76)	(1.43)	(1.35)
Life	+	-0.017	-0.018	-0.019
		(-3.41)	(-4.54)	(-4.52)
Principal	?	0.378***	0.373***	0.377***
		(6.01)	(3.36)	(3.38)
Follow	-	-0.214	-0.279**	-0.240**
		(-1.07)	(-2.11)	(-1.79)
ERROR	+	0.130	-0.156	-0.139
		(0.96)	(-1.04)	(-0.91)
DISP	+	0.203**	-0.416	-0.426
		(1.74)	(-1.46)	(-1.52)
Intercept	?	3.915***	1.330	1.540
		(3.54)	(1.34)	(1.49)
Year Fixed Effects		Included	Included	Included
Industry Fixed Effects		Included	Included	Included
N		491	473	473
adj. R^2		0.5438	0.6980	0.6981

Table 5 presents the estimated coefficients from estimating the following OLS regression:

$$Spread_{i,t} = \alpha_0 + \alpha_1 Foreign\ Income_{i,t-1} + \alpha_2 High\ Repatriation\ Cost_{i,t-1} + \alpha_3 Foreign\ Income_{i,t-1} * High\ Repatriation\ Cost_{i,t-1} + \alpha_4 Domestic\ Income_{i,t-1} + \alpha_5 Leverage_{i,t-1} + \alpha_6 BTM_{i,t-1} + \alpha_7 Ln(Assets)_{i,t-1} + \alpha_8 NOL_{i,t-1} + \alpha_9 \Delta NOL_{i,t-1} + \alpha_{10} St.\ Dev.\ CF_{i,t-1} + \alpha_{11} Cash_{i,t-1} + \alpha_{12} PPE_{i,t-1} + \alpha_{13} Intangibles_{i,t-1} + \alpha_{14} Rating_{i,t} + \alpha_{15} Put_{i,t} + \alpha_{16} Call_{i,t} + \alpha_{17} Sub_{i,t} + \alpha_{18} Life_{i,t} + \alpha_{19} Principal_{i,t} + \alpha_{20} Follow_{i,t-1} + \alpha_{21} Error_{i,t-1} + \alpha_{22} Disp_{i,t-1} + \text{Year Fixed Effects} + \text{Industry Fixed Effects} + \varepsilon$$

See Appendix A for variable definitions. Column (1) contains bond issuances for firms that do not disclose the tax liability associated with permanently reinvested earnings. Columns (2) and (3) contains bond issuances for firms that do disclose the tax liability associated with permanently reinvested earnings. All models include year and industry fixed effects. Standard errors are robust standard errors (White 1980) in order to control for heteroscedasticity and autocorrelation of the error term. ***, **, * represent significance at the 1 percent, 5 percent, and 10 percent level, respectively. Predicted direction is identified in the Pred. column. Significance tests are one-sided where predicted, two-tailed otherwise.

Table 6
Cost of Debt and Repatriation Costs
The Governance Effect

	Pred.	(1) Weak Governance	(2) Strong Governance
Foreign Income	-	-4.903**	-4.111**
		(-2.00)	(-1.91)
High Repatriation Cost	?	-0.489***	-0.132
		(-2.73)	(-0.63)
Foreign Income * High Repatriation Cost	**+**	**4.733***	**5.695****
		(1.46)	**(2.26)**
Domestic Income	-	-1.428	-2.108
		(-1.10)	(-1.16)
Leverage	+	2.116***	2.926***
		(2.35)	(3.58)
BTM	?	1.078***	1.383***
		(3.01)	(2.97)
Ln(Assets)	-	-0.510***	-0.421***
		(-3.82)	(-4.06)
NOL	-	-0.195*	-0.138
		(-1.41)	(-0.83)
NOL Change	-	3.560**	-0.323
		(1.79)	(-0.25)
St. Dev. CF	+	1.013	0.706
		(0.27)	(0.22)
Cash	-	-0.062	-1.100*
		(-0.04)	(-1.53)
PPE	-	-0.655	-0.330
		(-0.82)	(-0.44)
Intangibles	-	-0.831*	-1.175**
		(-1.33)	(-1.86)
Rating	+	0.083***	0.101***
		(2.83)	(3.30)
Call	+	0.072	-0.106
		(0.32)	(-0.55)
Sub	+	1.410***	0.385
		(3.69)	(0.67)
Life	+	-0.004	0.004
		(-0.39)	(0.47)
Principal	?	0.403***	0.307***
		(3.47)	(3.32)
Follow	+	-0.022	-0.243
		(-0.09)	(-1.25)
ERROR	-	-0.397***	-0.076
		(-2.17)	(-0.33)
DISP	-	-0.841***	-0.469
		(-3.57)	(-1.05)

Intercept	?	3.338***	2.527*
		(2.75)	(1.89)
Year Fixed Effects		Included	Included
Industry Fixed Effects		Included	Included
N		356	373
adj. R^2		0.5893	0.6256

Table 6 presents the estimated coefficients from estimating the following OLS regression:

$$Spread_{i,t} = \alpha_0 + \alpha_1 Foreign\ Income_{i,t-1} + \alpha_2 High\ Repatriation\ Cost_{i,t-1} + \alpha_3 Foreign\ Income_{i,t-1} * High\ Repatriation\ Cost_{i,t-1} + \alpha_4 Domestic\ Income_{i,t-1} + \alpha_5 Leverage_{i,t-1} + \alpha_6 BTM_{i,t-1} + \alpha_7 Ln(Assets)_{i,t-1} + \alpha_8 NOL_{i,t-1} + \alpha_9 \Delta NOL_{i,t-1} + \alpha_{10} St.\ Dev.\ CF_{i,t-1} + \alpha_{11} Cash_{i,t-1} + \alpha_{12} PPE_{i,t-1} + \alpha_{13} Intangibles_{i,t-1} + \alpha_{14} Rating_{i,t} + \alpha_{15} Put_{i,t} + \alpha_{16} Call_{i,t} + \alpha_{17} Sub_{i,t} + \alpha_{18} Life_{i,t} + \alpha_{19} Principal_{i,t} + \alpha_{20} Follow_{i,t-1} + \alpha_{21} Error_{i,t-1} + \alpha_{22} Disp_{i,t-1} + \text{Year Fixed Effects} + \text{Industry Fixed Effects} + \varepsilon$$

See Appendix A for variable definitions. Column (1) contains bond issuances with below median entrenchment index scores from Bebchuk et al. 2009, and column (2) contains bond issuances with above median entrenchment index scores from Bebchuk et al. 2009. All models include year and industry fixed effects. Standard errors are robust standard errors (White 1980) in order to control for heteroscedasticity and autocorrelation of the error term. ***, **, * represent significance at the 1 percent, 5 percent, and 10 percent level, respectively. Predicted direction is identified in the Pred. column. Significance tests are one-sided where predicted, two-tailed otherwise.