The Effect of Foreign Cash Holdings on Internal Capital Markets and Firm Financing

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Abstract

Prior to 2018, U.S. repatriation taxes motivated companies to retain cash offshore. Using confidential jurisdiction-specific data from the Bureau of Economic Analysis, we find that firms with high tax-induced foreign cash have approximately 3.3 percent higher domestic liabilities relative to other multinationals, equivalent to $152.2 million more domestic debt per firm, or approximately $98.9-$141.9 billion in aggregate. We next examine motives for firms with tax-induced foreign cash to borrow domestically, finding this behavior is associated with shareholder payouts and some domestic investment spending. Finally, repatriations and intercompany loans from foreign subsidiaries act as substitutes and complements, respectively, to external borrowings.

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1. Introduction

At the end of 2016, U.S. multinational corporations (MNCs) held over $2.5 trillion in foreign earnings overseas (Barthold, 2016), of which approximately $850 billion to $1.2 trillion was estimated to be held in cash and other financial assets (Blouin, Krull, and Robinson, 2016; Dobridge and Landefeld, 2017). One explanation for the large foreign cash holdings is that the U.S. tax system, which until January 2018 deferred the U.S. taxation of active foreign subsidiary earnings until repatriation to the U.S., motivated firms to retain cash offshore (Foley, Hartzell, Titman, and Twite, 2007). We address three open questions related to repatriation tax effects in this paper. First, we first quantify to what extent U.S. MNCs with significant offshore cash attributable to repatriation tax liabilities ("tax-induced foreign cash" or "TIFC") borrowed domestically to avoid incurring the repatriation tax. Second, we systematically examine three possible motivations for firms to engage in this domestic borrowing, including domestic investment, employment, and shareholder payout needs. Third, we test whether some MNCs access their foreign cash via repatriation or internal borrowing from their foreign subsidiaries as alternative channels for domestic financing. The collective evidence documents the effects of the repatriation tax on both external borrowing and internal capital market decisions, thereby informing expectations of how firms will respond to the 2017 tax law.

Theory and prior empirical work show that using internal capital to fund operations within a firm is generally less costly than external capital (Alchian, 1969; Williamson, 1975; Myers, 1984; Myers and Majluf, 1984; Gertner, Scharfstein, and Stein, 1994; Stein, 1997; Shyam-Sunders and Myers, 1999; Leary and Roberts, 2010). Nonetheless, eBay (with 90 percent of cash offshore) issued $3 billion in debt in July 2012 (Mead and Kucera, 2012); Apple (with 79 percent of cash offshore in 2013) satisfied investor demands for return of capital by borrowing $17 billion in 2013

(Lattman and Eavis, 2013); and Microsoft (with 85 percent of cash offshore for its fiscal year ending June 2011) sold $4.75 billion in bonds in September 2010 to finance dividends and share repurchases and announced a new borrowing of $17 billion in January 2017 (Abramowicz, 2017). Frictions created by repatriation taxes may explain the use of external debt financing by these cash-rich firms and other U.S. MNCs: repatriation taxes increased MNCs' internal cost of capital, making external debt financing more attractive. Indeed, firms state that they avoided the repatriation tax liability by issuing U.S. debt (Mead and Kucera, 2012)[1] and that, if they repatriated, the cash would be used in part to pay down these borrowings (Graham, Hanlon, and Shevlin, 2010). Prior work on the relation between the repatriation tax and domestic debt primarily focuses on the extensive margin, finding that the probability of a U.S. MNC issuing public debt is positively related to the amount of foreign subsidiary earnings designated as permanently reinvested, a financial accounting assertion that reduces deferred taxes and increases reported net income (Albring, 2006; Petzel and Salbador, 2016).

We first extend these prior findings by precisely quantifying to what extent tax-induced foreign cash is associated with domestic borrowing. Because foreign cash and domestic liabilities necessary to quantify these effects are otherwise unobservable using publicly available data, we use jurisdiction-specific data from the Bureau of Economic Analysis (BEA). We combine these data with Compustat data for a sample of U.S. multinational corporations for the period 1999 through 2012. Following Hanlon, Lester, and Verdi (2015), we first estimate tax-induced foreign cash, defined as the amount of foreign cash attributable to the firm's repatriation tax liability. To then quantify the magnitude of domestic liabilities attributable to tax-induced foreign cash, we

[1] For example, eBay's CFO stated that the domestic debt issuances were intended to "get the wonderful benefit of an extremely low tax rate, but also get our cash geographically where we would like it to be to enable us to acquire and redistribute cash effectively" (Mead and Kucera, 2012).

regress a measure of total domestic liabilities on a firm's total worldwide cash, an indicator for firms with high amounts of tax-induced foreign cash, and their interaction, controlling for other determinants of corporate financing decisions such as domestic cash holdings, size, investment spending, fixed assets, growth opportunities, the cost of debt capital, and performance.[2] We estimate that firms with high tax-induced foreign cash borrow approximately 5.4 percentage points more than other multinational firms, holding cash and other firm characteristics constant. We then decompose a firm's worldwide cash holdings into its components: domestic cash, tax-induced foreign cash, and other foreign cash and find an effect of similar magnitude: domestic liabilities of firms in the top quartile of tax-induced foreign cash are 3.3 percentage points higher relative to those of other U.S. MNCs in the sample. Given average domestic liabilities of $4.6 billion, this effect is equivalent to approximately $152.2 million in higher borrowings per firm in the top quartile of TIFC and $98.9 billion in aggregate for this sub-sample of high-TIFC companies. Extrapolating to a larger sample of publicly-traded multinational firms with the highest level of repatriation taxes, this is equivalent to approximately $141.9 billion in aggregate.[3]

We also quantify the magnitude of additional domestic liabilities using domestic debt issuances obtained from Mergent and Dealscan, which we expect to be a subset of total domestic liabilities measured above. We estimate that firms with high tax-induced foreign cash have issuances that are 7.5-10.0 percentage points higher than other firms. Given average domestic debt issuances of $672.6 million in the full sample, this effect is equivalent to $67.3 million of

[2] The measure of domestic debt from BEA data is total domestic liabilities, including external debt as well as trade notes/accounts payable and related party loans. We discuss this measure in Section 2. In Sections 4 and 5, we discuss the robustness of results to excluding trade notes and accounts payable in the three years with requisite data.

[3] The estimated $98.9 billion is based on our sample of firms with requisite data at the intersection of the BEA and Compustat datasets. However, there are publicly-traded MNCs with high estimated repatriation tax costs in Compustat that are missing requisite data or that we are unable to observe in the BEA dataset. Consequently, we use publicly-available data to estimate the number of all publicly-traded U.S. MNCs with high (top quartile) estimated repatriation taxes, and then we extrapolate our estimates to this sample. We discuss this calculation in Section 3.

additional issuances per high-TIFC firm; conditioning the analysis on firms that issue domestic debt, this amount increases to $142.7 million per firm in the top quartile of TIFC. Extrapolating to all publicly-traded MNCs with high estimated repatriation taxes, this is equivalent to approximately $61.9 billion in aggregate.

We next test why firms engage in this repatriation tax-motivated domestic borrowing behavior. Prior literature shows that the large amounts of locked-out foreign cash affect firm payout policies (Nessa, 2017; Beyer, Downes, and Rapley, 2016) and motivate foreign (but not domestic) investment spending (Hanlon et al., 2015; Edwards, Kravet, and Wilson, 2016). Further, significant rhetoric surrounding the earlier repatriation tax holiday in the American Jobs Creation Act of 2004, and the new U.S. tax law passed in 2017 pertained to redeploying foreign cash to increase domestic investment and employment (Faulkender and Petersen, 2012). We therefore identify and separately test three possible drivers of a firm's demand for domestic cash: a firm's payout policy, domestic investment spending, and domestic employment needs. Our tests show that domestic liabilities are increasing in tax-induced foreign cash for firms with payout obligations, which must be remitted out of the U.S. parent entity. These firms have domestic liabilities (issuances) that are 4.2 (5.0) percentage points higher relative to other MNCs. Given average domestic liabilities (issuances) of $4.6 billion ($672.6 million), this effect is equivalent to approximately $193.7 million in additional liabilities ($33.6 million in additional issuances) per payout firm. This differential association is driven by firms engaging in discretionary payouts, defined as share repurchases, special dividends, or dividend increases. In contrast, we find no differential association between domestic liabilities and tax-induced foreign cash for firms paying regular, static dividends.

Tests examining domestic R&D expenses and domestic acquisitions also provide evidence of a differential association between domestic liabilities and tax-induced foreign cash. Domestic liabilities are increasing in tax-induced foreign cash for firms with the highest level (top quartile) of domestic R&D expense; these firms have domestic borrowings (issuances) that are 7.4 (9.3) percentage points higher relative to other multinational firms not in the top quartile. Given average domestic liabilities (issuances) of $4.9 billion ($704.6 million) for the subsample of firms reporting domestic R&D expense, this effect is equivalent to approximately $367.9 million in additional liabilities ($65.8 million in additional issuances) per high-R&D firm. Domestic liabilities are also increasing in tax-induced foreign cash for firms that engage in at least one all-cash acquisition during the sample period; these firms report domestic liabilities that are 2.4 percentage points higher relative to non-M&A firms, or approximately $110.7 million in additional liabilities per M&A firm. We also find a positive, albeit insignificant, effect when using domestic debt issuances.

Although we find that domestic R&D and M&A activity motivates firms with locked-out foreign cash to borrow domestically, we find no differential association for firms identified as the most under-invested domestically in capital equipment (measured following Biddle, Hilary, and Verdi (2009) as extended in Harford, Wang, and Zhang (2017)). Furthermore, we find no evidence that domestic borrowing is increasing in tax-induced foreign cash for firms with a high proportion of domestic employees or compensation expense. In summary, the results suggest that firms borrow more domestically to fund discretionary payouts, domestic R&D, and domestic cash acquisitions, but not to increase capital expenditures, hire additional workers, or increase compensation. Falsification tests show that the cost of debt financing does not affect the relation

between tax-induced foreign cash and domestic liabilities, thus ruling out this possible alternative explanation for the observed results.

Finally, we study two alternative internal channels through which firms may obtain necessary domestic cash. We first examine whether some firms choose to repatriate cash from their foreign subsidiaries during the sample period, measured using dividend payments from foreign affiliates as reported on the BEA surveys. Consistent with Desai, Foley, and Hines (2007), we find that approximately 26.6 percent of MNCs repatriate each year. Repatriating firms report approximately 3.0 percent lower domestic liabilities relative to other MNCs in the sample, evidence that the repatriated capital substitutes for external domestic financing. We also examine the association between domestic borrowing and the likelihood and level of intercompany borrowing by the U.S. parent from its foreign subsidiaries. We find that the level of intercompany borrowing is associated with 2.1 percent higher domestic debt, suggesting that firms view these as complementary financing sources. In additional tests, we find that tax-induced foreign cash is positively associated with the level of intercompany liabilities, evidence that at least some intercompany lending is related to tax-induced foreign cash.

Our findings contribute to the literature by using precise data on foreign cash and domestic liabilities to conduct a systematic investigation how the U.S policy of worldwide taxation with deferral affected firms' internal capital markets, external debt financing, domestic investment, and shareholder payout decisions. First, we contribute to the corporate finance literature by quantifying firms' responses to a geographic constraint imposed by the U.S. repatriation tax. Specifically, we extend prior literature that has documented – but not quantified – the domestic borrowing behavior by measuring the extent that this activity has occurred.

Second, we add to the literature examining how the repatriation tax affects MNC financing, payout, and investment decisions by providing a systematic study of how the motivations for large cash-rich MNCs to borrow domestically. Our results complement work documenting the role of tax-induced foreign cash in investment decisions (Hanlon et al., 2015; Edwards et al., 2016; Bird, Edwards, and Shevlin, 2017), payout policies (Nessa, 2017; Beyer et al., 2016), and corporate borrowing (Albring, 2006; Petzel and Salbador, 2016; Blaylock et al., 2016; Ma, Stice, and Wang, 2017; Beyer et al., 2016), as well as the broader financed payout phenomenon (Farre-Mensa, Michaely, and Schmalz, 2018) by providing a more nuanced conclusion about the sources driving demand for domestic financing. Specifically, we show that firms engaging in the most domestic R&D activity borrow on average approximately $367.9 more relative to other multinationals, and that this effect is larger than the estimated average $193.7 million and $110.7 million of additional borrowing by payout firms and domestic M&A firms, respectively.

Third, we use proprietary data to examine additional internal financing channels, which are often unobservable and thus omitted from most papers studying multinational operations and repatriation tax effects specifically. Our results quantify the extent that firms use these alternative internal sources of financing and show that the relation between these internal capital market channels and domestic borrowing differs, with repatriations (intercompany loans) acting as substitutes (complements) to domestic debt.

Finally, our analyses inform expectations of responses to the recent tax law, commonly referred to as the Tax Cuts and Jobs Act of 2017. Among other provisions, key features of this law included a reduction in the U.S. corporate income tax rate to 21 percent, the repeal of the repatriation tax on future active foreign source income, a required repatriation tax on the balance of foreign earnings previously untaxed in the U.S., and limits on the amount of interest expense

that can be deducted.[4] Much of the discussion regarding the tax law relates to stimulating domestic investment and employment, but prior literature documents that, although some amount will be spent on these outcomes (Faulkender and Petersen, 2012; Lester, 2018), a significant portion of the repatriated capital will likely be spent on share repurchases (Blouin and Krull, 2009; Dharmapala, Foley, Forbes, 2011; De Simone, Piotroski, and Tomy, 2018). Although in the first quarter of 2018 share repurchases doubled relative to the same quarter of 2017, with cash-rich MNCs such as Apple, Cisco, and Oracle leading the charge (Wang, 2018), our evidence suggests that some U.S. MNCs could increase domestic R&D or acquisition spending. In addition, we provide empirical evidence quantifying another important outcome of the tax law: the reduction in domestic debt attributable to the change in the U.S. taxation of foreign earnings. Our results are consistent with 65 percent of firms surveyed in December 2017 stating that they would use repatriated cash to pay down debt over time (Garber, 2017) and anecdotal evidence in early 2018 that corporate bond issuances have fallen to 17 percent of their usual level of activity (Smith, 2018; Ahmed, Bakewell, and Natarajan, 2018).

2. Research Design, Empirical Proxies, and Sample Selection

2.1.Research Design

To quantify the relation between cash and domestic firm financing for firms with large amounts of tax-induced foreign cash, we use the following regression specification:

$$DomLiab_{i,t} = \alpha + \beta_1 Cash/Assets_{i,t} + \beta_2 HighTIFC_{i,t} + \beta_3 Cash/Assets_{i,t} * HighTIFC_{i,t} + Controls + \varepsilon_{i,t} \quad (1)$$

[4] The Joint Committee on Taxation released their estimates of the revenue effects of the Tax Cuts and Jobs Act on November 16, 2017. While the effects include revenue increases attributable limited interest deductions and revenue losses related to reduced repatriation taxes under the transition tax, it is unclear whether either of these estimates take into account the reduction in domestic liabilities related to trapped offshore cash. Thus, our evidence offers magnitudes to refine expectations of how costly the legislation is.

where $DomLiab_{i,t}$ is a scaled measure of the dollar amount of domestic liabilities in year t and is described in more detail in Section 2.2.1. $Cash/Assets_{i,t}$ is the firm's total consolidated worldwide cash in year t reported in Compustat (CE), scaled by net assets (AT minus CHE). $HighTIFC_{i,t}$ is an indicator equal to one if $TIFC_{i,t}$ is in the top quartile of MNCs and zero otherwise, where $TIFC_{i,t}$ is the firm's estimated tax-induced foreign cash in year t (following Hanlon et al., 2015 and Foley et al., 2007) as described in Section 2.2.2.[5] We define the controls in Section 2.2.4. Prior literature shows that a firm's cash holdings (whether domestic or foreign) are negatively related to external financing; thus, we expect a negative coefficient on β_1. Based on Albring (2006) and Graham et al. (2010), we predict an attenuation of this effect for firms with large amounts of tax-induced foreign cash; that is, $\beta_3 > 0$.[6]

We also quantify the expected attenuation by decomposing the firm's total worldwide cash into its components – tax-induced foreign cash ($TIFC_{i,t}$), other foreign cash not attributable to the repatriation tax ($OtherForCash_{i,t}$), and domestic cash ($DomCash_{i,t}$) – and examining each component's relation to domestic liabilities by estimating the following regression specification:

$$DomLiab_{i,t} = \alpha + \beta_1 TIFC_{i,t} + \beta_2 OtherForCash_{i,t} + \beta_3 DomCash_{i,t} + Controls + \varepsilon_{i,t} \qquad (2)$$

[5] Results are robust to alternatively defining $HighTIFC_{i,t}$ based on the top quintile of tax-induced foreign cash holdings.

[6] External debt can add value to the firm by generating tax-reducing, and therefore income-increasing, interest deductions (Modigliani and Miller, 1958, 1963; Miller, 1977; DeAngelo and Masulis, 1980; for a review of this literature, see Graham, 2003). This literature on firm capital structure and the tax benefits of debt also motivates a negative association between debt financing and tax-induced foreign cash holdings attributable to relatively lower foreign statutory tax rates; the lower a firm's marginal tax rate (reflective of lower foreign statutory rates), the lower the benefit of the tax benefits of debt. Our full sample of U.S. MNCs face a relatively high 35 percent corporate income tax rate in the U.S. during the sample period and therefore likely respond to tax incentives by leveraging U.S. operations (Faulkender and Smith, 2016). Specifically, Faulkender and Smith (2016) revisit the relation between leverage and taxes by refining the measurement of a firm's tax rate. They use BEA data to construct a worldwide weighted-average firm-specific tax rate, calculated as the sum of the proportion of firm income earned in each foreign affiliate's country, multiplied by the corresponding country's statutory tax rate. They find that firm debt is increasing in the estimated worldwide weighted-average tax rate. This result also holds when measuring debt using only domestic borrowings; however they do not test the relation between domestic debt and tax-induced foreign cash, which is the focus of our paper. Our tests exploit cross-sectional differences in *TIFC* to identify the association between domestic debt and repatriation tax costs.

We estimate Equation (2) both on the full sample of MNCs and on the sub-sample of MNCs with large amounts of estimated tax-induced foreign cash (i.e., firm-years for which $HighTIFC_{i,t}$ equals one). We define the three components of cash in Section 2.2.2.

Next, to test the economic motivations for these tax-related domestic borrowings, we use the following regression specification:

$$DomLiab_{i,t} = \alpha + \beta_1 TIFC_{i,t} + \beta_2 DomDemand_{i,t} + \beta_3 TIFC_{i,t} * DomDemand_{i,t} + \beta_4 OtherForCash_{i,t} + \beta_5 Dom\_Cash_{i,t} + Controls + \varepsilon_{i,t} \quad (3)$$

where $DomDemand_{i,t}$ is an indicator equal to one if the firm has a high demand for domestic cash in year *t* relative to other firms in the sample, or zero otherwise; we describe the measurement of this variable in Section 2.2.3. The other variables are the same as in Equation (2) and are described in Sections 2.2.2 and 2.2.4. We predict the negative relation between domestic liabilities and tax-induced foreign cash is attenuated for firms with a domestic demand for cash, i.e., $\beta_3 > 0$.

All regressions include industry and year fixed effects to control for underlying time trends and industry-specific characteristics that affect firm financing decisions unrelated to tax-induced foreign cash. Variables are winsorized at the 1st and 99th percentiles. Finally, we report standard errors that are clustered by firm and by year.[7]

2.2.Empirical Proxies

2.2.1. Measures of Financing

Firms generally disclose in their financial statements (and report in Compustat) the total amount of liabilities after consolidating on a worldwide basis and eliminating intercompany obligations. To construct measures of domestic liabilities for our sample of multinational firms, we use two other data sources. First, we calculate $DomLiab_{i,t}$ using the total amount of liabilities

[7] Results are robust to clustering only by firm.

reported by the U.S. parent company on the BEA surveys from 1999 through 2012. This amount captures all domestic liabilities, including short-term payables and trade credit, bank debt, publicly traded debt, intercompany loans, and other long-term liabilities.[8] Following Faulkender and Smith (2016), $DomLiab_{i,t}$ is calculated as total domestic liabilities divided by the sum of domestic liabilities and the market value of equity (CSHO*PRCC_F).[9] Second, we use a measure of marginal debt financing, $DomIss_{i,t}$. This variable is the sum of all U.S. dollar-denominated debt issuances reported in the Mergent and Dealscan datasets, scaled by the sum of total domestic liabilities and the market value of equity.

2.2.2. Cash Variables: Tax-Induced Foreign Cash Holdings, Other Foreign Cash, and Domestic Cash

To estimate the amount of foreign cash held due to repatriation taxes ($TIFC_{i,t}$), we use Foley et al.'s (2007) firm-year measure of repatriation taxes. We first calculate the total U.S. tax due on foreign earnings (before a foreign tax credit) by multiplying a firm's foreign income (PIFO) by the U.S. statutory rate (35 percent).[10] From this amount, we subtract the amount of foreign taxes paid (TXFO) as an estimate of the foreign tax credit. The higher of the net tax due and zero is the repatriation tax cost, or $REPAT_{i,t-1}$. As in prior papers, we acknowledge that this measure reflects three assumptions: i) foreign reported earnings are an approximation of unobservable foreign taxable income, ii) use of annual foreign earnings is proportional to the total stock of foreign

[8] The BEA "annual" surveys conducted in 2000-2003, 2005-2008, and 2010-2012 request the amount of "Total Liabilities" for the U.S. parent but do not include additional details as to the type of liability (i.e., trade credit versus long-term debt). The "benchmark" surveys conducted in 1999, 2004, and 2009 include separate line-items for trade accounts/notes payable and other liabilities. In additional untabulated tests that use data from these three benchmark years, we confirm that results are robust to excluding trade credit and intercompany loans from the measure of $DomLiab_{i,t}$.

[9] Our results are generally robust to scaling by the sum of domestic debt and the book value of equity, and to scaling by the sum of worldwide debt and either the market value of equity or the book value of equity. We do not test results using net leverage measures from Faulkender and Smith (2016) (i.e., total domestic liabilities less domestic cash) because we separately control for domestic cash in Equations (2) and (3).

[10] Foley et al. (2007) use both the statutory tax rate and a firm's marginal tax rate and arrive at similar empirical results.

earnings that have not yet been repatriated, and iii) foreign tax rates applicable at the time foreign taxes are paid will be similar to actual foreign rates at the time of repatriation.

To estimate $TIFC_{i,t}$, we follow Hanlon et al. (2015) and regress a measure of total foreign cash in year t on *REPAT* and control variables (all measured in year t-1). Because foreign cash data are unavailable from publicly available sources for a large sample of firms, we also obtain data on foreign cash holdings from the BEA.[11] We present the results of this estimation in Appendix B and, for comparison purposes, also present Column (1) from Appendix B in Hanlon et al. (2015). The similarity in the size and economic significance of the coefficients confirms that the relation between foreign cash and repatriation tax costs has persisted through our more recent sample period. We then use these coefficients to predict out-of-sample values for the amount of foreign cash attributable to the repatriation tax, or tax-induced foreign cash ($TIFC_{i,t}$), for purposes of estimating Equations (1) through (3).[12] To estimate Equation (1), we set the indicator variable $HighTIFC_{i,t}$ equal to one if $TIFC_{i,t}$ is in the top quartile of the sample, and zero otherwise.

We also use this first-stage regression to measure $OtherForCash_{i,t}$, the amount of foreign cash not attributable to the repatriation tax cost. Specifically, we use the coefficients on the control variables presented in Appendix B to construct two variables: i) the predicted amount of foreign cash held attributable to other non-repatriation-tax factors ($PredForCash\text{-}Controls_{i,t}$), and ii) the remaining amount of foreign cash not otherwise explained by the Foley et al. (2007) model ($ResidualForCash_{i,t}$).

[11] Faulkender, Hankins, and Petersen (2017) find that taxes have more explanatory power for foreign cash holdings than precautionary motives, motivating the conclusion that "domestic and foreign cash are not substitutes for each other" (p. 21). Thus, our ability to observe foreign cash is critical to estimating TIFC and quantifying the relation with domestic debt.

[12] Beginning in 2009, the BEA surveys did not include a separate line for foreign affiliates' cash holdings. Thus, we estimate tax-induced foreign cash for the period 1998 through 2008 using observed foreign cash data and then estimate out-of-sample values for the remaining sample period. Results are robust to excluding 2009 through 2012 (the years for which foreign cash data are not directly observable).

We measure $DomCash_{i,t}$ as the difference between $Cash/Assets_{i,t}$ and foreign cash, measured as the unlogged sum of $TIFC_{i,t}$, $PredForCash\text{-}Controls_{i,t}$, and $ResidualForCash_{i,,t}$, scaled by net assets.[13]

2.2.3. Measures of Domestic Demand for Cash

We measure the demand for domestic cash ($DomDemand_{i,t}$) in several ways to reflect a firm's domestic payout, investment, and employment cash needs.[14] First, we construct *Payout* $Ind_{i,t}$, an indicator variable equal to one if the firm repurchases shares or pays a dividend in year t, and zero otherwise. Payout behavior constitutes a domestic demand for cash because dividends are distributed and repurchases are made by the entity in which shareholders have a direct ownership interest. Given that we focus on the behavior of U.S.-incorporated firms with a publicly-traded U.S. parent, the U.S. parent entity is the primary entity through which U.S. multinational firms distribute capital to its shareholders. In subsequent tests, we break out payouts into regular dividends and discretionary payouts, which includes special dividends, dividend increases, and share repurchases.

Second, we construct *Invest* $Ind_{i,t}$, an indicator equal to one if the firm needs cash for domestic investment in year *t*, and zero otherwise. We measure this investment-related demand for domestic cash in three ways. First, we identify firms that engage in an all-cash domestic M&A transaction using SDC data ($DomM\&A\ Ind_{i,t}$). Second, we construct an indicator, $DomR\&D\ Ind_{i,t}$, equal to one for firms in the highest quartile of domestic R&D expense scaled by total sales. Third, we identify firms that are domestically underinvested using the worldwide firm-level investment

[13] We eliminate observations with $DomCash_{i,t}$ less than zero, resulting in a decrease in sample size from the regression to estimate $TIFC_{i,t}$ in Appendix B (n=5,777) to the sample presented in Column (1) of Table 3 Panel B (n=5,376).

[14] Ideally we would construct a measure of domestic operating cash flows to determine if domestic borrowing is associated with day-to-day operational cash needs. However, the BEA data do not provide sufficient detail on firms' domestic working capital accounts, or on certain non-cash domestic expenses (such as depreciation and amortization), to construct such a measure.

specification from Biddle et al. (2009), adapted for domestic operations by Harford et al. (2017). Specifically, we regress domestic capital expenditures scaled by domestic assets in year *t-1* on foreign and domestic measures of sales growth, return on sales, and size, all of which are measured in year *t-2* using BEA data. We then use the residual from this regression to construct *DomUnderinvest* $Ind_{i,t-1}$, which is equal to one if the residual is in the bottom quartile of the sample in that year. These firms have the greatest demand for domestic cash to fund domestic capital expenditure investment.

Third, we measure the amount of domestic cash needed to fund domestic employment, as compensation and hiring of additional domestic employees may be other important reasons that firms need domestic cash. Specifically, we construct an indicator (*DomEmployment* $Ind_{i,t}$) equal to one if the firm is in the highest quartile based on the number of domestic employees as a share of worldwide employment in a firm-year, and zero otherwise. We also construct a similar indicator using the proportion of domestic compensation.

2.2.4 Control Variables

The control variables include constructs that prior literature has shown to be related to firm financing, including cash holdings, firm size, financial performance, investment spending, and shareholder payout policies (Rajan and Zingales, 1995; Frank and Goyal, 2003; Leary and Roberts, 2010; Rauh and Sufi, 2010; Naranjo, Saavedra, and Verdi, 2017). We follow Faulkender and Smith (2016) to create the empirical proxies for these constructs. We first include $Ln(Sales)_{i,t}$, measured as the logarithm of a firm's total sales, to control for the firm's demand for external financing. We control for the cost of debt by including *Rating* $Ind_{i,t}$, an indicator variable equal to one if the firm has a bond rating, and zero otherwise. We control for $Tangibility_{i,t}$, defined as the sum of the firm's fixed assets (PPENT), scaled by the firm's total assets, and $ROA_{i,t}$, defined as pre-tax income (PI) scaled by total assets. We include *Dividend* $Ind_{i,t}$, an indicator equal to one if

the firm pays a dividend, and zero otherwise. We also control for the firm's investment spending and growth opportunities by including $R\&D/Assets_{i,t}$, the total amount of consolidated research and development expense (XRD) divided by the firm's assets, and $Advertising/Assets_{i,t}$, the total amount of advertising expense (XAD) divided by the firm's assets. Due to a significant number of missing values, we set $R\&D/Assets_{i,t}$ and $Advertising/Assets_{i,t}$ equal to zero if missing. $MTB_{i,t}$ is the ratio of market value of equity (CSHO*PRCC_F) plus total firm debt (DLTT+DLC) to total assets. To control for the variability in firm performance and cash flow affecting the firm's demand for external financing, we calculate $\sigma(CF)_{i,t}$, the standard deviation of a firm's operating cash flows (OANCF) over the five preceding years; we also control for $Depreciation/Assets_{i,t}$, measured as total depreciation (DP) scaled by total assets.

2.3. Sample Selection and Descriptive Statistics

We select all U.S. C Corporations in the intersection of Compustat and the BEA for the period 1999 through 2012 (n=12,284 firm-years). We eliminate observations for firms not incorporated in the U.S. (n=664 firm-years) and in the financial or utilities industries (n=1,264) because they are subject to different regulatory provisions. We require data to estimate $TIFC_{i,t}$, as well as the measures of domestic liabilities and control variables, resulting in a loss of an additional 1,594 observations. Specifically, we require positive, non-missing data for total assets (AT), consolidated cash (CE and CHE), pre-tax income (PI), and sales (SALE). We also require non-missing data to construct measures of the book value and market value of equity (CEQ, CSHO, PRCC_F), capital expenditures (CAPX), consolidated debt (DLTT and DLC), domestic liabilities from the BEA, ordinary income (OIBDP), and fixed assets (PPENT). This results in a sample of 8,762 firm-year observations. Table 1, Panel A outlines these steps. Table 1, Panel B shows that the sample of firms is evenly distributed across the period.

Table 2, Panel A presents descriptive statistics. Due to limitations on data disclosure, we present only mean values and the standard deviation for variables constructed from BEA data. On average, sample firms have $DomLiab_{i,t}$ of 0.33. Note that this amount is higher than the total worldwide $Market\ Leverage_{i,t}$ of 0.23, calculated using consolidated amounts of long-term debt from the publicly reported financial statements in Compustat. The higher values of domestic liabilities relative to worldwide debt are attributable to two important differences in the construction of these variables. First, we can only observe total liabilities from BEA, as opposed to the domestic equivalent of long-term debt used to measure total worldwide market (book) leverage. However, we also calculate worldwide $Market\ Liab_{i,t}$ using total liabilities from Compustat (LT) instead of long-term debt (DLC+DLTT) to compare to the BEA measures that we use and present descriptive statistics for these variables in Table 2. The worldwide average increases to 0.40 and is (as expected) higher than the analogous domestic measures using BEA data given that it reflects worldwide (not just domestic-only) liabilities. Second, the measures constructed from BEA data include trade payables and intercompany debt between the U.S. operations and foreign affiliates, whereas the consolidated Compustat data eliminate these intercompany loans. In additional analysis, we separately remove trade payables and intercompany loans and find robust results; however, we retain these amounts in our measures of financing because they are an important and often otherwise unobservable potential source of financing. In sum, the BEA measures capture a firm's *total* domestic liabilities and allow for subsequent tests of how tax-induced foreign cash affects the level of both external and internal financing.

Recall that the first stage estimates are obtained by regressing the log of foreign cash scaled by assets on determinants. Thus, the descriptive statistics reflect logged amounts. The average

amount of tax-induced foreign cash ($TIFC_{i,t}$) is 0.17. This amount is greater than the 0.10 average reported in Hanlon et al. (2015), likely due to the more recent sample period during which firms have been earning more amounts of income offshore and retaining (rather than repatriating) larger amounts of corresponding cash in foreign jurisdictions. The average predicted amount of cash holdings attributable to other non-tax factors ($PredForCash\text{-}Controls_{i,t}$) is -4.81, consistent with the value of -4.87 in Hanlon et al. (2015). The mean values of the control variables are very similar to those in Faulkender and Smith (2016), including $Market\ Leverage_{i,t}$ of 0.23 (0.21 in Faulkender and Smith 2016), $Tangibility_{i,t}$ of 0.25 (0.26 in Faulkender and Smith 2016), and $Dividend\ Ind_{i,t}$ of 0.55 (0.59 Faulkender and Smith 2016). Table 2, Panel B presents a correlation matrix.

3. Quantification of Domestic Borrowing

Columns (1)-(4) of Table 3 present results from estimating Equation (1), in which we regress measures of domestic liabilities on $Cash/Assets_{i,t}$, $HighTIFC_{i,t}$, their interaction, and control variables. In Columns (1) and (2), the dependent variable is total domestic liabilities observed from the BEA surveys ($DomLiab_{i,t}$). In Columns (3) and (4), the dependent variable is domestic debt issuances obtained from Mergent and Dealscan data ($DomIss_{i,t}$), where missing values are set equal to zero. Columns (1) and (3) estimate Equation (1) on 5,376 sample years for which we observe foreign cash in the BEA surveys (1999-2008). Columns (2) and (4) include all 8,762 sample years; we use out-of-sample predicted values of $TIFC_{i,t}$ for years in which we do not observe foreign cash (2009-2012) as in Hanlon et al. (2015). Across all four columns, we find a positive and statistically significant coefficient on the interaction term, which means that the overall negative relation between cash and debt is attenuated for firms with large amounts of tax-induced foreign cash.

To estimate the economic magnitude of these results, we standardize all independent variables to have a mean of zero and a standard deviation of one (untabulated). The coefficient on

Cash/Assets of -0.034 in Column (1) means that a one-standard-deviation increase in a firm's worldwide cash is associated with a 4.2 percentage point decrease in domestic borrowing. Given the average domestic liabilities ratio of 0.33 (Table 2, Panel A), this is equivalent to a 12.7 percent decrease in domestic borrowing. The coefficient of 0.018 on the interaction of $Cash/Assets_{i,t}$ and $HighTIFC_{i,t}$ means that, for firm-years with high tax-induced foreign cash, a one standard deviation increase in $Cash/Assets_{i,t}$ is associated with only a 2.4 percentage point decrease in domestic borrowing. This translates to a 7.3 percent decrease in domestic liabilities for firms with high tax-induced foreign cash, a difference of approximately 5.4 percentage points relative to firms not in the top quartile of tax-induced foreign cash.[15] The effects are similar in Column (2), suggesting a difference of 5.7 percentage points (decrease in domestic borrowing of 8.2 percent for the high tax-induced foreign cash firms, relative to a 13.9 percent decrease for other multinationals in the sample).[16]

We similarly find a positive and statistically significant interaction term in Columns (3) and (4) when the dependent variable is domestic debt issuances ($DomIss_{i,t}$). The coefficient on $Cash/Assets_{i,t}$ of -0.017 in Column (3) means that a one-standard-deviation increase in a firm's worldwide cash is associated with a 2.2 percentage point decrease in domestic debt issuances.

[15] The standardized coefficient on $Cash/Assets_{i,t}$ in Column (2) is -0.042 using the BEA domestic liabilities ratio; the coefficient on the interaction term $Cash/Assets_{i,t}*HighTIFC_{i,t,}$ is equal to 0.018, making the net effect for firms with high tax-induced foreign cash 2.4 percentage points (=-0.042+0.018). We calculate the 12.7 and 7.3 percent changes for each group by dividing the coefficient for each group (0.042 and 0.024, respectively) by the sample mean domestic liabilities ratio (0.33).

[16] We obtain similar results using the 1999-2008 sample with observable foreign cash and the expanded sample that uses predicted foreign cash for 2009-2012, suggesting that our predicted values of tax-induced foreign cash for firm-years that do not report foreign cash are reasonable. We therefore use this sample in all further tests. For robustness, we re-estimate Equation (1) with alternative measures of domestic liabilities (untabulated). Using the ratio of total domestic liabilities to total assets, we continue to find a positive and statistically significant coefficient on the interaction term of 0.012 (t = 2.090). We also observe a positive, albeit insignificant, coefficient using the ratio of domestic liabilities to the sum of the liabilities and the book value of equity, possibly due to relatively small amounts of book equity for these firms. Results are also robust to excluding intercompany payables from the measure of domestic liabilities for years we are able to observe these amounts (1998-2008). Finally, we also re-estimate Equation (1) defining $HighTIFC_{i,t}$ based upon the firms in the highest quintile of $TIFC_{i,t}$ and find consistent results.

Given the average domestic debt issuances of 0.08 (Table 2, Panel A), this is equivalent to a 27.5 percent decrease in domestic issuances. In contrast, the coefficient of 0.008 on the interaction of $Cash/Assets_{i,t}$ and $HighTIFC_{i,t}$ means that, for firm-years with high tax-induced foreign cash, a one standard deviation increase in $Cash/Assets_{i,t}$ is associated with a 1.4 percentage point decrease in domestic debt issuances. This translates to a 17.5 percent decrease in domestic issuances for firms with high tax-induced foreign cash rather than the 27.5 percent decrease for other multinationals, an effect that is approximately 10.0 percentage points lower relative to other multinationals in the sample. Similarly, the coefficients in Column (4) imply an effect that is 7.5 percentage points lower relative to other sample MNCs.

Columns (5)-(8) of Table 3 presents results from estimating Equation (2), in which we regress measures of domestic liabilities on the components of worldwide cash as an additional way to quantify the effect of TIFC on domestic borrowing. Columns (5)-(6) use $DomLiab_{i,t}$ as the dependent variable, and Columns (7)-(8) use $DomIss_{i,t,}$. These columns use out-of-sample predicted values for all years from 1999 through 2012; Columns (6) and (8) present results for the firms with the most TIFC (highest quartile).

To estimate the economic magnitude of the results, we again standardize all independent variables to have a mean of zero and a standard deviation of one (untabulated) and compare results across Column (5), which is for the full sample, and Column (6), which is for the sample of firms with the most TIFC. The coefficients in Column (5) of -0.035 on $TIFC_{i,t}$, -0.099 on $PredForCash\text{-}Controls_{i,t}$, and -0.016 on $DomCash_{i,t}$ mean that a one-standard-deviation increase in each of these components of cash holdings is associated with a 1.1 percentage point, 7.1 percentage point, and 2.4 percentage point decrease in domestic borrowing, respectively. Using the average domestic liabilities ratio of 0.33 (Table 2, Panel A), these are equivalent to an approximately 3.3 percent,

21.5 percent, and 7.2 percent decrease in domestic borrowing, respectively.[17] In contrast, in Column (6) we observe no relation between tax-induced foreign cash and domestic liabilities for the subsample of firms in the top quartile by TIFC. The statistically insignificant coefficient of -0.009 (standardized coefficient of -0.000) on $TIFC_{i,t}$ suggests that this foreign cash is not viewed as accessible by firms, consistent with it being "locked out." This result means that the firms in the highest quartile have domestic liabilities that are 3.3 percentage points higher relative to other MNCs. Given average domestic liabilities of $4.6 billion, this effect is equivalent to approximately $152.2 million in higher borrowings for the average high-TIFC firm and $98.9 billion in aggregate for this subsample of firms in the top quartile. Extrapolating to publicly-traded multinational firms in Compustat with similarly high levels of estimated repatriation taxes (top quartile of repatriation taxes), this is equivalent to approximately $141.9 billion in aggregate.[18]

Columns (7) and (8) present results from testing the relation between TIFC and domestic debt using domestic debt issuances. We find similar inferences. Specifically, the results show positive and statistically significant coefficients on $TIFC_{i,t}$ across both columns, with a larger coefficient in the sample of firms in the top quartile of TIFC (0.018 in Column (8)). A one-standard-deviation increase in $TIFC_{i,t}$ for the firms in this top quartile is associated with a 1.0 percentage point increase in domestic debt issuances, equivalent to a 12.5 percent increase in the amount of borrowing. For comparison, we estimate a 2.5 percent increase for the sample in

[17] The standardized coefficients on $TIFC_{i,t}$ in Columns (5), (6), (7), and (8) are -0.011, 0.000, 0.002, and 0.010, respectively. We calculate the percent decrease by dividing the standardized coefficient by the mean value of the dependent variable (i.e., 0.33 for the domestic liabilities ratio and 0.08 for the domestic issuances ratio).

[18] Magnitudes are calculated as follows: The standardized coefficient on *TIFC* for the full sample is -0.011; divided by the sample average of 0.33 for *DomLiab*, this is equivalent to a 3.33 percent decrease in domestic liabilities. We compare this to the effect for high-TIFC firms (standardized coefficient of 0.00), for a difference among the highest quartile of 3.33 percent. We multiply the average level of total domestic liabilities for the sample by this coefficient to arrive at the $152.2 million value (3.33% x $4,565.77). To calculate the aggregate statistics, we multiply this amount by the number of distinct firms with a high *TIFC* value in the highest quartile subsample (n=650). Because the sample includes a subset of all multinational firms, we extrapolate this to the broader sample of publicly-traded MNCs in Compustat that report the highest quintile of repatriation tax costs calculated following Foley et al. (2007).

Column (7). Given the average domestic debt issuance of $672.6 million, this suggests that firms in top quartile of TIFC issue $67.3 million of additional external financing relative to other firms; conditioning the analysis to firms that issue domestic debt, this amount increases to $142.7 million per firm. Extrapolating to all publicly-traded MNCs with the highest level of repatriation taxes, this is equivalent to approximately $61.9 billion in aggregate.

Collectively, the results in Table 3 using both total domestic liabilities (domestic debt issuances) suggest that firms with large amounts of tax-induced foreign cash borrow 3.3 to 5.4 percentage points (issue 7.5 to 10.0 percentage points) more domestically relative to other firms, equivalent to approximately $141.9 billion ($61.9 billion) in aggregate.

4. Motives for Domestic Borrowing

Table 4 presents results of estimating Equation (3), which tests why firms with tax-induced foreign cash seek domestic financing. In Panel A, we examine firms requiring domestic cash for shareholder payouts. To test the extent that these payout obligations affect the relation between $TIFC_{i,t}$ and domestic borrowing, we replace the control variable *Dividend* $Ind_{i,t}$ with the variable *Payout* $Ind_{i,t}$ and interact this variable with $TIFC_{i,t}$. In Columns (1) and (5), *Payout* $Ind_{i,t}$ is an indicator variable equal to one if the firm-year observation either pays a dividend or repurchases shares, and zero otherwise. We refine the payout indicator variable based on whether (i) the firm distributes regular dividends ($RegDividends_{i,t}$) in Column (2), (ii) engages in discretionary payouts including special dividends or dividend increases ($OthDividends_{i,t}$) in Column (3), or (iii) repurchases shares ($Repurchases_{i,t}$) in Column (4). In Columns (1)-(4), the dependent variable is domestic liabilities ($DomLiab_{i,t}$), and in Column (5) the dependent variable is domestic issuances ($DomIss_{i,t}$).

In Column (1), we observe a coefficient of -0.068 on the main effect of $TIFC_{i,t}$; after standardizing, this means that a one-standard-deviation increase in tax-induced foreign cash for

non-payout firms is associated with a 2.2 percentage point decrease in domestic borrowing. This translates into a 6.7 percent decrease in domestic borrowing for non-payout firms. In Columns (2) through (4), we continue to find negative and statistically significant coefficients that imply similar magnitudes. A one-standard-deviation increase in tax induced foreign cash is associated with a 1.1 to 2.1 percentage point decrease in domestic borrowing.

We find a positive coefficient on the interaction of $Payout\ Ind_{i,t}$ and $TIFC_{i,t}$ across four out of five columns, consistent with an attenuation of the negative relation between tax-induced foreign cash and domestic borrowing for firms that need domestic cash to distribute funds to shareholders. The positive coefficient on the interaction of 0.048 in Column (1) means that a one-standard-deviation increase in a payout firm's tax-induced foreign cash is associated with a 0.8 percentage point decrease in domestic borrowing.[19] This translates into a 2.4 percent decrease in domestic borrowing, or an effect that is 4.2 percentage points higher than the estimated effect for non-payout firms. Similarly, the positive coefficient of 0.015 in Column (5), when added to the main effect of $TIFC_{i,t}$, means that a one-standard-deviation increase in a payout firm's tax-induced foreign cash is associated with a 0.3 percentage point increase in domestic borrowing; this translates into a 3.8 percent increase in domestic borrowing when using $DomIss_{i,t}$ and an effect that is 5.0 percentage points higher than the effect for issuing firms. Given average domestic liabilities of $4.6 billion (average domestic issuances of $672.6 million), this effect is equivalent to approximately $193.7 million in additional liabilities ($33.6 million in additional issuances) per payout firm.

[19] This amount is calculated by adding the standardized coefficient of -0.022 from $TIFC_{i,t}$ with the standardized coefficient of 0.014 on the interaction term.

The results in Columns (2) through (4) show that the effect is driven by firms engaging in discretionary payouts, as measured with special dividends, dividend increases, and share repurchases. Tests of differences in the interaction coefficients across these three columns confirm that the results in Columns (3) and (4) are statistically different from the coefficient in Column (2) (untabulated Chi-square statistics of 2.98 and 4.44, respectively), but not statistically different from each other (Chi-square statistic of 0.01). These findings suggest that the cost of external domestic finance for firms that choose to meet shareholder demands for return of capital via discretionary channels is less expensive than incurring the repatriation tax cost to access the firm's own foreign capital on average. Anecdotal evidence in the months since the tax law, which imposes a lower repatriation tax on historical foreign earnings, provides additional validation for these results. Some reports estimate share repurchases have doubled in the first quarter of 2018 relative to the same quarter of 2017, with some of the largest repurchases announced by U.S. MNCs with freed-up foreign cash (Wang, 2018).

In two untabulated tests, we further examine the result that MNCs with tax-induced foreign cash have higher domestic liabilities to fund discretionary shareholder payouts. We first confirm our results using a measure of "financed payout" introduced by recent literature. Specifically, Farre-Mensa et al. (2018) show that a large proportion of firms finance their payouts in the same period, suggesting that firms might otherwise be unable to distribute capital without this externally provided capital. They show that this result is pronounced among firms that engage in discretionary payouts, most notably share repurchases. We construct an indicator variable to measure financed payout behavior, where the variable is equal to one if a firm (i) reports either an increase in total domestic debt or a debt issuance, and (ii) engages in discretionary payout. We then compare the proportion of firms exhibiting this behavior by above- and below-median tax-

induced foreign cash. Consistent with the results presented in Table 4, Panel A, we find that the proportion of high-TIFC firms engaging in financed payouts is 7.0 percent higher than other multinational firms (t=5.97). This test provides additional validation of the results presented in Table 4, Panel A and also demonstrates that the repatriation tax is an important driver of the financed payout phenomenon for this sample of MNCs.

In the second analysis, we study whether this TIFC-related borrowing behavior is in response to shareholder demands for return of capital. Specifically, we test whether the payout-related attenuation varies based on the level of institutional ownership. This test is motivated by anecdotal evidence that certain institutional shareholders pressure companies with large amounts of offshore cash to distribute capital (Ablan and Gupta, 2013). We identify institutional owners as those with greater than $100 million in assets under management as reported on Form 13-F using WhaleWisdom data. We then partition the sample into firms with *High Institutional Ownership* and *Low Institutional Ownership* based on above- or below-median total institutional ownership percentage at the end of the year. We re-estimate Equation (3) separately for each sub-sample. Consistent with expectations, we observe that repurchasing firms with high institutional ownership exhibit a greater attenuation of the negative relation between tax-induced foreign cash and domestic liabilities than repurchasing firms with low institutional ownership (t=2.86).

In Panel B, we study firms requiring domestic cash to fund domestic investment opportunities, including acquisitions, R&D, and capital expenditures. In Columns (1), (3), and (5), the dependent variable is domestic liabilities ($DomLiab_{i,t}$), and in Columns (2), (4), and (6) the dependent variable is domestic issuances ($DomIss_{i,t}$). In Columns (1) and (2), $Invest\ Ind_{i,t}$ is an indicator equal to one if the firm makes an all-cash acquisition of a domestic company in year *t*, and zero otherwise. Specifically, we use Thomson Reuters SDC data to identify domestic M&A

transactions, defined as such if the target country is listed as the United States. Within the sample, there are 1,164 firm-years with domestic all-cash M&A transactions, of which 865 reflect one deal transaction in that year. In Column (1), we observe a coefficient of -0.043 on the main effect of $TIFC_{i,t}$; after standardizing, this means that a one-standard-deviation increase in tax-induced foreign cash for non-M&A firms is associated with a 1.4 percentage point decrease in domestic borrowing. This translates into a 4.2 percent decrease in domestic borrowing for firms that do not engage in an all-cash M&A transaction. On the interaction of $Invest\_Ind_{i,t}$ and $TIFC_{i,t}$, we find a positive coefficient of 0.056, which means that a one-standard-deviation increase in an M&A firm's tax-induced foreign cash is associated with a 0.6 percentage point decrease in domestic borrowing. This translates into a 1.8 percent decrease in domestic borrowing, or a difference of 2.4 percentage points relative to non-M&A firms. This is equivalent to approximately $110.7 million of additional debt for an MNC engaging in an all-cash domestic M&A transaction. In Column (2), we substitute the amount of domestic debt issuances as the dependent variable, and we find a positive, but statistically insignificant, coefficient of 0.014. We conclude that there is weak evidence that firms with tax-induced foreign cash borrow domestically to fund all-cash domestic acquisitions.

In Columns (3) and (4), $Invest\ Ind_{i,t}$ is an indicator equal to one for firms with high domestic R&D-intensity, measured as the top quartile of total R&D expense reported by the U.S. parent in the BEA surveys scaled by worldwide sales, or zero otherwise. To construct a more powerful test of R&D as a driver for domestic cash needs, we exclude observations with missing domestic R&D expense from this analysis. In Column (3), we observe a coefficient of -0.066 on the main effect of $TIFC_{i,t}$; after standardizing, this means that a one-standard-deviation increase in tax-induced foreign cash is associated with a 2.1 percentage point decrease in domestic borrowing, or a 6.7

percent decrease in domestic borrowing for firms not in the top quartile of domestic R&D expense. We observe a positive and significant coefficient on the interaction term $TIFC_{i,t}$*$Invest\ Ind_{i,t}$ of 0.087, which means that a one-standard-deviation increase in a high R&D firms' tax-induced foreign cash is associated with a 0.2 percentage point increase in domestic borrowing.[20] This translates into a 0.6 percent increase in domestic borrowing, for a difference of 7.4 percentage points. Based on average domestic liabilities of $4.9 billion for the subsample of firms reporting domestic R&D expense, this effect is equivalent to approximately $367.9 million in additional liabilities per high-R&D firm. We find similar effects when using domestic issuances in Column (4); the standardized coefficients translate to domestic debt issuances that are 9.3 percentage points higher, or approximately $65.8 million higher, per high R&D firm.[21] We therefore conclude that firms with tax-induced foreign cash and domestic R&D intensity increase domestic debt.

In Columns (5) and (6), $Invest\ Ind_{i,t}$ is an indicator equal to one if the firm is domestically underinvested in year *t-1,* and zero otherwise. To identify these firms, we first estimate domestic capital expenditures as a function of foreign and domestic sales growth, return on sales, and size (all measured using BEA data), following Biddle et al. (2009) and adapted by Harford et al. (2017). This untabulated analysis shows that domestic investment is positively associated with a firm's domestic assets, domestic sales growth, and domestic return-on-sales, and is negatively associated with foreign assets, consistent with the predicted effects from Harford et al. (2017).[22] We use the residual from this regression to then identify whether a firm is underinvested domestically in that

[20] We calculate this amount by adding the standardized coefficient of -0.022 from $TIFC_{i,t}$ with the standardized coefficient of 0.014 on the interaction term.

[21] Results are robust to using an indicator variable based on the highest quartile of domestic R&D scaled by domestic sales. Results for total domestic liabilities are robust to estimating on the full sample (setting missing values equal to zero); for this sample, results using domestic issuances are positive but statistically significant only at one-tailed values (t=1.466).

[22] These results reflect estimating investment in year *t-1* (relative to year *t* when the amount of domestic liabilities are measured) using determinants in year *t-2*. Results are similar if we examine investment in year *t* using determinant measures from year *t-1*.

year and thus has some need for domestic cash to fund future projects. Following Harford et al. (2017), we characterize a firm-year as domestically underinvested if the residual is in the bottom quartile of the sample. We find no relation between domestic underinvestment and domestic liabilities in Columns (5) and (6) based on the statistically insignificant coefficients on the interaction term. It therefore appears that firms with tax-induced foreign cash do not issue external debt domestically to address domestic underinvestment in fixed assets. These results also reflect mixed anecdotal evidence on whether U.S. firms plan to increase capital expenditures following the 2017 tax law change, with some reports suggesting only 35 percent of surveyed managers expect to spend freed up foreign cash and other tax savings on fixed investments (Bryan, 2017).

In Table 4, Panel C, we test whether the relation between domestic borrowing and $TIFC_{i,t}$ is attenuated for firms requiring domestic cash for employment. In Columns (1) and (3), the dependent variable is domestic liabilities ($DomLiab_{i,t}$), and in Columns (2) and (4) the dependent variable is domestic issuances ($DomIss_{i,t}$). In Columns (1) and (2), $DomEmployment\ Ind_{i,t}$ is an indicator variable equal to one if the firm is in the highest quartile based on the proportion of domestic employees to the firm's total employees, or zero otherwise; in Columns (3) and (4), it is equal to one if the firm is in the highest quartile based on the proportion of domestic compensation expense to total compensation expense. We find no evidence of an attenuated negative relation between $TIFC_{i,t}$ and domestic liabilities for firms with a relatively high proportion of domestic employees or domestic compensation expense. We conclude that U.S. MNCs with tax-induced foreign cash do not appear to access domestic financing to hire employees or to fund employment compensation. Our results align with anecdotal evidence suggesting a majority of U.S. firms surveyed just after the 2017 tax law was passed would not use freed up foreign cash to increase hiring (Bryan, 2017).

Taken together, Table 4 shows an attenuated negative relation between domestic borrowing and $TIFC_{i,t}$ for firms with a greater domestic demand for cash domestically. This result appears driven by firms with shareholder payout obligations and R&D investments, with weaker evidence that domestic all-cash M&A transactions may also play a role in this relation. We find no evidence of an attenuation for firms in need of domestic cash to for domestic employment. Based on these results, we conclude that some firms with tax-induced foreign cash borrow domestically to subsequently distribute cash to shareholders, to acquire domestic target firms, or to engage in domestic R&D.

It is possible that some firms have a lower cost of borrowing rather than a high domestic demand for cash relative to other firms and that this drives our results.[23] To mitigate this concern, our main tests attempt to control for the cost of debt (*Rating* $Ind_{i,t}$). In Table 5, we also perform a falsification test to address this alternative explanation. Specifically, we construct a variable $LowDebtCost_{i,t}$, which we define in two ways. In Columns (1) and (2), $LowDebtCost_{i,t}$ is *Rating* $Ind_{i,t}$, an indicator equal to one if the firm-year has a bond rating, and zero otherwise.[24] In Columns (3) and (4), $LowDebtCost_{i,t}$ is $Rating\_Cat_{i,t}$, a categorical variable equal to zero if the firm has no rating, or equal to one, two, or three if the firm's bond rating is in the C range, B range, or A range, respectively, in year *t*. We re-estimate Equation (3) by replacing this indicator for $DomDemand_{i,t}$.

[23] Prior literature provides an ordering for the use of internal versus external capital, exclusive of tax costs. By adding in tax costs, the cost to access internal capital should increase. However, this does not necessarily mean that information asymmetry with external capital providers will also increase. In fact, external capital providers may know and understand that the firm seeks external capital due to the repatriation tax. Therefore, we assume that the external cost of capital is constant (assuming no incremental information asymmetry between the capital providers and the firm due to the repatriation tax and therefore no additional price protection). Ma et al. (2017) and Blaylock et al. (2016) interpret their empirical results as evidence of a positive relation between repatriation tax costs and the cost of external debt financing; Ma et al. (2017) further show that the higher interest spreads occur within firms with lower profitability and higher financial constraints, and that these debt contracts contain more financial covenants and are more likely to require collateral.

[24] We include this variable in the specifications in Tables 3 and 4 as a control variable; in this test, we now consider this a variable of interest and interact it with $TIFC_{i,t}$.

In Columns (1) through (4) of Table 5, we find a positive association between the main effect of $LowDebtCost_{i,t}$ and domestic financing, suggesting that firms that can access external capital at a lower cost do so. However, in two out of the four columns, we find an insignificant coefficient on the interaction between $LowDebtCost_{i,t}$ and $TIFC_{i,t}$, meaning that there is no statistical difference in the relation between tax-induced foreign cash and domestic liabilities for firms with a lower cost of debt. In Columns (1) and (3), we find negative and significant coefficients on the interaction, suggesting that firms with a low cost of debt have *lower* domestic liabilities. We conclude that our main results are not driven by borrowing behavior of firms that can more inexpensively access the capital markets.

5. Alternative Sources of Domestic Financing

In this last section, we test whether firms access their foreign cash via two internal channels – repatriations and intercompany loans from foreign subsidiaries.

5.1 Repatriations

First, we study the subset of firms that repatriate foreign cash and test whether these repatriations substitute for external borrowing. We use data from BEA survey form BE-10B on repatriations of foreign cash to the U.S. parent. We identify a firm as repatriating if a foreign affiliate of a U.S. multinational reports a decrease in its retained earnings due to a current year dividend to its owner. If firms choose to repatriate because they have a repatriation tax cost less than their cost of external capital (either because they are able to strategically reduce their repatriation tax liability or because they face high borrowing costs), then we expect these firms to borrow less from the external capital markets. Descriptive statistics (untabulated) show that approximately 26.6 percent of the firm-years in our sample include a repatriation, consistent with the 30.2 percent and 31.0 percent reported in Desai, Foley, and Hines (2001) and Desai et al.

(2007), respectively. While this percentage of repatriating firms in our sample is higher in 2005 (33.0 percent) due to the repatriation tax holiday provided by the American Jobs Creation Act of 2004, the remaining years report relatively similar proportions.[25]

Univariate tests presented in Table 6, Panel A confirm that repatriating firms have lower domestic borrowings, measured using either domestic liabilities or domestic issuances, than non-repatriating firms. Repatriating firms report average total domestic liabilities, measured with $DomLiab_{i,t}$, of 0.32 as compared to 0.34 for non-repatriating firms, and this difference is statistically significant (t = -2.87). Similarly, repatriating firms report lower amounts of domestic debt issuances relative to non-repatriating firms (t = -3.51). Thus, while both groups have domestic debt, repatriating firms appear to have lower amounts because of their choice to use internal foreign capital. For robustness, we also present results after excluding 2005, the year in which a higher proportion of firms repatriate due to the repatriation tax holiday. We continue to find similar results, confirming that the repatriation tax holiday does not drive the lower levels of debt observed for the full sample.

In Panel B, we provide results from testing the association between repatriations and the level of external debt to assess whether firms view these financing sources as substitutes or

[25] Several related papers focus on firm behavior following the repatriation tax holiday enacted by the American Jobs Creation Act of 2004, which temporarily reduced the internal capital market tax friction by decreasing repatriation taxes. Blouin and Krull (2009) and Dharmapala et al. (2011) find that the majority of funds (50 percent and 90 percent, respectively) were paid out to shareholders. Faulkender and Petersen (2012) challenge these results, correcting methodological concerns with the research design to find that only a small portion was paid out to shareholders and that financially constrained firms used this cash for investment. Laplante and Nesbitt (2017) use repatriations under the AJCA as a proxy for tax-induced foreign cash and examine the likelihood and determinants of these repatriations. De Simone et al. (2018) examine excess cash holding behavior following the AJCA and proposals in Congress for another (temporary or permanent) repatriation tax reduction. In other work, Chen (2014) examines the effect of repatriation tax costs on investors' valuation of cash holdings and finds a negative relation. In subsequent tests, she finds that this relation is pronounced in firms with limited domestic borrowing capacity. Harford et al. (2017) also investigate the valuation of foreign cash and discuss how tax costs constrain the internal capital market. Recent evidence suggests that the proportion of earnings repatriated decreases significantly after 2009 (Gaertner, Laplante, and Lynch, 2016).

complements. In Columns (1)-(2), we regress the level of domestic borrowings on an indicator equal to one if the firm repatriates in a particular year, and zero otherwise; in Columns (3)-(4), we replace the indicator with the level of repatriations scaled by total assets. We control for total cash in Columns (1) and (3) and the components of cash in Columns (2) and (4), as these are significant determinants of the level of domestic debt. In Column (1), we observe a negative and statistically significant coefficient of -0.012, meaning that the likelihood of repatriating is negatively associated with the level of domestic borrowing; a one-standard-deviation increase in the likelihood of repatriating is associated with 1.0 percentage point lower level of domestic liabilities, or approximately 3.0 percent less domestic debt. In Column (2), we observe a similar magnitude of the estimated coefficient, although it is not statistically significant (t=-1.477). In Columns (3)-(4), we again find negative, albeit statistically insignificant coefficients, for the association between the level of repatriations and domestic liabilities. These results build on the univariate results from Panel A, providing some evidence that multinational firms view repatriations as substitutes for external domestic financing sources.

5.2 Intercompany Loans

Short-term intercompany loans are an alternative mechanism through which U.S. MNCs may access their tax-induced foreign cash. In general, U.S. tax rules prevent firms from circumventing the repatriation tax by restricting long-term lending from foreign subsidiaries to domestic entities. Specifically, Internal Revenue Code Section 956 prohibits the use of intercompany loans as a way to deploy foreign cash in domestic operations by recasting long-term borrowings as deemed dividends, thereby subjecting these loans to repatriation taxes.[26] However,

[26] IRC Section 956 recasts certain uses of foreign subsidiary cash as deemed dividend payments to the U.S. parent, triggering repatriation taxes. These uses include i) purchase of tangible property in the U.S.; ii) purchase of a material share of a domestic corporation; iii) an obligation of a U.S. person; or iv) the right to the use of U.S. intangibles

short term loans made by a foreign subsidiary to a related U.S. entity are not subject to deemed dividend treatment if they are repaid within 30 days and if all outstanding loans made by the foreign subsidiary at quarter end are outstanding for less than 60 days total.[27]

We use data from the 1999-2008 BEA surveys to measure the total intercompany payable due from the U.S. to foreign affiliates, scaled by the sum of domestic debt and the market value of equity ($IntercoPay_{i,t}$).[28] Untabulated statistics show that approximately 88.5 percent of the firm-year observations for this sample period report a non-zero balance of $IntercoPay_{i,t}$; for this sample, the average amount of $IntercoPay_{i,t}$ is 1.4 percent of total debt and equity. The BEA data do not distinguish whether these loans are short-term or long-term in nature.

Univariate statistics presented in Table 7, Panel A suggest that firms view these two financing sources as complements. We find that firms reporting an above-median level of intercompany loans due to foreign subsidiaries have domestic liabilities that are 2.8 percentage points higher (t=4.46). Similarly, these firms report domestic issuances as a percentage of total domestic debt and equity of 0.087 as compared to 0.082 for firms with below-median levels of intercompany loans, but the difference is not statistically significant (t=1.64). The univariate statistics are similar when dropping 2005 (consistent with the results shown in Table 6, Panel A).

Table 7, Panel B tests the relation between intercompany loans and domestic liabilities similar to that presented in Table 5, Panel B. Because almost all observations report some level

developed by a foreign subsidiary. Associated Treasury Regulations elaborate that foreign assets used as collateral or foreign guarantees on U.S. obligations are also subject to repatriation taxes.

[27] The rules apply to foreign subsidiaries that are Controlled Foreign Corporations ("CFCs"). Briefly, a CFC is any foreign corporation more than 50 percent owned by U.S. shareholders who at least own ten percent each. In response to the financial crisis, the 30/60 day periods were extended to 60/180 days for fiscal years ending after October 3, 2008 and before January 1, 2011 to help firms suffering from domestic liquidity problems. Companies can exploit the tax rules so that these loans are effectively long-term borrowings if the U.S. entity settles the loan with one foreign subsidiary and takes out a loan with another foreign subsidiary on the same day. HP employed such a "revolving loan program" between subsidiaries in Belgium and the Cayman Islands (Permanent Subcommittee, 2012).

[28] These data were not included on the BEA surveys from 2009 to 2012.

of intercompany payables, we regress the level of domestic liabilities on an indicator equal to one for firm-years with above-median levels of borrowing from the foreign subsidiaries in Columns (1)-(2); we find no statistically significant effect. However, in Columns (3)-(4), we regress the total amount of domestic liabilities on $IntercoPay_{i,t}$ and find a positive and statistically significant association; specifically, a one-standard-deviation increase in the level of intercompany loans to foreign subsidiaries is associated with domestic liabilities that are 0.7 percentage points higher, or approximately 2.1 percent higher domestic debt. Results are also robust to estimating in the BEA benchmark years of 1999 and 2004 using refined measures of domestic liabilities that include only external debt financing as the dependent variable.

The results in Panel B control for the level of worldwide cash in Columns (1) and (3), and for the components of cash in Columns (2) and (4). In untabulated tests, we directly test the relation between TIFC and the firm's intercompany borrowing to determine whether trapped foreign cash is associated with intercompany borrowing. We find a positive coefficient of 0.010 on TIFC (t=4.021), indicating that the use of intercompany loans is increasing in tax-induced foreign cash.

6. Conclusion and Implications of the New Tax Law

In summary, this paper quantifies how much U.S. repatriation taxes and tax-induced foreign cash affect external financing decisions and examines the domestic uses of cash driving this tax-induced domestic borrowing behavior. The academic literature has documented the economic effects of the U.S. repatriation tax, but there are open questions about how the large amount of foreign cash holdings, partially induced by repatriation tax liabilities, affected firms and the U.S. economy. We find that firms with high tax-induced foreign cash have domestic liabilities that are approximately 3.3 percentage points higher relative to other MNCs, equivalent to $152.2

million more of domestic debt per firm, or approximately $98.9-$141.9 billion in aggregate. We extend this literature by examining the important decision of why cash-rich U.S. MNCs access external financing. Further, we show the domestic borrowing is increasing in tax-induced foreign cash for firms that engage in discretionary payout policies, domestic R&D activities, and – to a certain extent – all-cash domestic acquisitions.

Our study adds to both the capital markets literature and to analyses of the recent tax law. Specifically, we quantify potential consequences of tax legislation passed in December of 2017. First, beginning in 2018, the so-called Tax Cuts and Jobs Act ends repatriation taxes on new foreign earnings. Our findings suggest this change should reduce both foreign cash holdings and domestic borrowings of U.S. MNCs moving forward. Second, the new law imposes a "transition tax" on all unrepatriated foreign earnings accumulated before the end of 2017; these earnings are treated as if they are repatriated and taxed at 15.5 percent to the extent they are held in cash and financial assets or 8.0 percent otherwise. Although this provision increases the cost in the short term of having accumulated locked-out foreign cash, the long-term benefit is a reduction in the internal capital market friction caused by repatriation taxes. Our results corroborate evidence from prior literature and recent press accounts that foreign cash will likely be spent on domestic investment or distributed to shareholders in the form of stock repurchases. We further quantify the extent to which repatriated capital can be expected to be used to pay down domestic debt. Finally, we also expect to see a decrease in domestic debt because the new tax law reduces the tax benefit of debt by (i) lowering the tax rate (and therefore lowering the value of interest deductions) and (ii) capping interest deductions at 30 percent of earnings. We look forward to future research that studies these outcomes and the implications of the new tax legislation.

Appendix A

Variable Definitions

Variables are constructed from Compustat and BEA data. The data codes from Compustat are provided for each variable constructed from this public data source.

Advertising/Assets	Total advertising expense (XAD), scaled by total assets (AT). This variable is set equal to zero if missing.
BTM	The ratio of the book value of equity (SEQ) to the market value of equity (PRCC_F*CSHO).
Capex/Assets	Total capital expenditures (CAPX), scaled by total assets (AT).
Cash/Assets	The ratio of total consolidated worldwide cash (Compustat CE) to net assets (AT minus CHE).
Depreciation/Assets	Depreciation expense (DP), scaled by total assets (AT).
Dividend Ind	Indicator variable equal to one if the firm pays a dividend (DV), or zero otherwise.
DomCash	The ratio of domestic cash (measured as Compustat total cash (CE) less the unlogged sum of *TIFC*, *PredForCash-Controls*, and *ResidualForCash*) to net assets (AT minus CHE).
DomCapex/Assets	The ratio of domestic capital expenditures (measured using BEA data) to total domestic assets.
DomEmployment Ind	Indicator equal to one if the firm is in the top quartile based on the proportion of domestic employees to total employees (both measured using BEA data) or zero otherwise. Alternatively constructed as an indicator equal to one if the firm is in the top quartile based on the proportion of domestic compensation to total compensation, or zero otherwise.
DomIncome/Assets	Pre-tax domestic income (PIDOM), scaled by total assets (AT). Missing values are set equal to zero.
DomM&A Ind	Indicator equal to one if the firm announces an all-cash domestic acquisition in the current year, zero otherwise.
DomLiab	Total domestic liabilities (measured using BEA data), scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F).
DomNet Liab	Total domestic liabilities less domestic cash (both measured using BEA data); this amount is scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F).
DomR&D Ind	Indicator equal to one if the firm is in the top quartile by domestic R&D expense scaled by total sales in the current year, zero otherwise, where missing values of domestic R&D are dropped from the sample.

DomROS	Total domestic net income scaled by domestic sales (both measured using BEA data).
DomSalesGrowth	The difference in domestic sales from year *t-1* to *t*, scaled by domestic sales in year *t-1* (both measured using BEA data).
DomUnderinvest Ind	Indicator equal to one if the firm is in the bottom quartile from the domestic investment model following Biddle et al. (2009) and Harford et al. (2017), zero otherwise.
ForROS	Total foreign net income scaled by foreign sales (both measured using BEA data).
ForSalesGrowth	The difference in foreign sales from year *t-1* to *t*, scaled by foreign sales in year *t-1* (both measured using BEA data).
HighTIFC	Indicator variable equal to one for firms in the top quartile by $TIFC_{i,t}$, and zero otherwise
IntercoPay	Total intercompany payable due from the U.S. to foreign affiliates, scaled by the sum of domestic debt and the market value of equity (measured using BEA data).
IntercoPay Ind	Indicator equal to one if the firm-year has above-median *IntercoPay.*
Ln(Assets)	The natural logarithm of total assets (AT).
Ln(DomAssets)	The natural logarithm of total domestic assets (measured using BEA data).
Ln(ForCash/Assets)	The natural logarithm of the ratio of foreign cash (measured using BEA data) to net assets (AT minus CHE).
Ln(Sales)	The natural logarithm of total sales (SALE).
LowDebtCost	This variable is defined in three ways: first, as an indicator equal to one if the firm has a bond rating; second, as a categorical variable equal to 1, 2, or 3 if the firm's bond rating is in the C range, B range, or A range, respectively; and third, as an indicator equal to one based on the Whited-Wu index.
Market Leverage	The ratio of total debt (DLTT+DLC) to the sum of total debt and the market value of equity (CHSO*PRCC_F).
Market Liab	The ratio of total worldwide liabilities (LT) to the sum of total worldwide liabilities and the market value of equity (CHSO*PRCC_F).
MTB	The sum of the market value of equity and total long-term debt (DLTT+DLC) scaled by total assets (AT).
Payout Ind	Indicator equal to one if the firm either pays dividends or repurchases shares in year *t*, or zero otherwise.
PredForCash-Controls	Estimated amount of foreign cash attributable to non-tax factors, estimated following Foley et al. (2007) and Hanlon et al. (2015). This estimation is reported in Appendix B.
Repatriate/Assets	The level of dividend from the foreign subsidiary reported by the U.S. Reporter on BEA survey form BE-10B, scaled by total assets, if a foreign affiliate of a U.S. multinational reports a

	decrease in its retained earnings due to a current year dividend to its owner.
Repatriate Ind	Indicator equal to one if the *Repatriate/Assets* is greater than zero, or zero otherwise.
ResidualForCash	Residual from estimating the Foley et al. (2007) and Hanlon et al. (2015) tax-induced foreign cash model; the residual captures the unexplained portion of foreign cash holdings. This estimation is reported in Appendix B.
Rating Cat	A categorical variable equal to 1, 2, or 3 if the firm's bond rating is in the C range, B range, or A range, respectively in year *t*.
Rating Ind	Indicator equal to one if the company has a bond rating, or zero otherwise.
REPAT	Measures the incremental U.S. tax due upon repatriation of cash from foreign subsidiaries. This measure is calculated by multiplying foreign earnings (PIFO) by the statutory U.S. tax rate of 35%. From this, foreign taxes (TXFO) are subtracted as an estimate of the allowable foreign tax credit. The remaining liability is the estimated U.S. tax due upon repatriation. The maximum of this difference or zero is scaled by total assets (AT).
R&D/Sales	Total R&D expenses (XRD), scaled by total sales (SALE). This variable is set equal to zero if missing.
R&D/Assets	Total R&D expenses (XRD), scaled by total assets (AT). This variable is set equal to zero if missing.
ROA	Pre-tax income (PI) scaled by total assets (AT).
σ(CF)	Standard deviation, over the preceding five years, of the firm's operating cash flow (OANCF) to total assets (AT).
σ(OpInc)	Standard deviation, over the sample period, of the ratio of the firm's EBITDA (OIBDP) to total assets (AT).
Tangibility	Total plant, property, and equipment (PPENT) scaled by total assets (AT).
TIFC	Estimated tax-induced foreign cash estimated by regressing total foreign cash on *REPAT* and control variables following Foley et al. (2007) and Hanlon et al. (2015). This estimation is reported in Appendix B.

Appendix B

First-Stage Estimation of Tax-Induced Foreign Cash
1998 through 2008

This table presents estimated coefficients from regressing a firm's foreign cash holdings (observed from BEA data) on $REPAT_{i,t-1}$, the estimated amount of a firm's repatriation tax liability, and control variables. This specification permits estimation of $TIFC_{i,t}$, the amount of tax-induced foreign cash, for the period 1998 through 2008. The columns present estimated coefficients and t-statistics from the following model following Foley et al. (2007) and Hanlon et al. (2015):

$$Ln(ForCash/Assets)_{i,t} = \alpha + \beta_1 * REPAT_{i,t-1} + \beta_2 * DomIncome/Assets_{i,t-1} + \beta_3 * Ln(Assets)_{i,t-1} + \beta_4 * Dividend\ Ind_{,t-1} + \beta_5 * BTM_{i,t-1} + \beta_6 * \sigma(OpInc)_{i,t-1} + \beta_7 * R\&D/Assets_{i,t-1} + \beta_8 * Capex/Assets_{i,t-1} + \beta_9 * Market\ Leverage_{i,t-1} + IndustryFE + YearFE$$

The dependent variable $Ln(ForCash/Assets)_{i,t}$ is the natural logarithm of the ratio of foreign cash to net assets (total assets minus cash). The variable of interest, $REPAT_{i,t-1}$, is the maximum of foreign earnings (PIFO) times the U.S. statutory tax rate of 35 percent less foreign taxes (TXFO), or zero, scaled by total assets. The estimated coefficient on $REPAT_{i,t-1}$ is used to calculate $TIFC_{i,t}$ as follows: $TIFC_{i,t} = \hat{\beta}_1 * REPAT_{i,t-1}$. The estimated coefficients on the other variables are used to calculate $PredForCash\text{-}Controls_{i,t}$ as follows: $PredForCash\text{-}Controls_{i,t} = \sum_{j=1}^{n} \widehat{\beta_n} * Controls_{i,t-1}$. $PredForCash\text{-}Residual_{i,t}$ is the residual from the regression. All variables are defined in Appendix A. The regression specification includes year and industry fixed effects. t-statistics are presented in parentheses. Standard errors are clustered by firm. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

	Dependent Var: Ln(ForCash/Assets)$_{i,t}$	
	Hanlon et al. (2015) Appendix B, Col. (1) 1989-2003	1998-2008
REPAT$_{t-1}$	**45.29*** **	**43.20*** **
	(5.29)	**(8.17)**
DomIncome/Assets$_{t-1}$	-0.70	-0.72*
	(-0.97)	(-1.73)
Ln(Assets)$_{t-1}$	-0.14***	-0.02
	(-2.99)	(-0.60)
Dividend Ind$_{t-1}$	-0.19	-0.07
	(-1.32)	(-0.76)
BTM$_{t-1}$	-0.04	-0.01
	(-0.67)	(-1.38)
σ(OpInc)$_{t-1}$	2.80	2.78**
	(1.50)	(2.04)
R&D/Assets$_{t-1}$	2.04	6.05***
	(1.39)	(6.27)
Capex/Assets$_{t-1}$	1.77	-1.56
	(1.30)	(-1.54)
Market Leverage$_{-1}$	-0.66**	-1.11***
	(-2.08)	(-5.71)
Industry and Year FE?	Y	Y
Observations	3,012	5,779
R-squared	0.112	0.186

References

Ablan, J. and Gupta, P. 2013. Einhorn sues Apple, marks biggest investor challenge in years. *Reuters*, February 7.

Abramowicz, L. 2017. Tech companies to Trump: Show us the tax break. *Bloomberg*, January 30.

Ahmed, N., S. Bakewell, and S. Natarajan. Apple cuts back on bond buying in advance of bringing cash home. Bloomberg Technology, February 6, 2018.

Albring, S. 2006. The Effects of the cost of foreign internal funds on the probability that a firm issues domestic debt. *Journal of the American Taxation Association* 28: 25-41.

Alchian, A.A. 1969. Corporate management and property rights in H. Manne, ed., Economic Policy and the Regulation of Corporate Securities. *American Enterprise Institute* 337-360.

Barthold, T. 2016. Joint Committee on Taxation letter to Chairman Brady and Mr. Neal dated August 3, 2016.

Beyer, B., Downes, J., and Rapley, E. 2016. Internal capital market inefficiencies, shareholder payout, and abnormal leverage. *Journal of Corporate Finance* 43: 39-57.

Biddle, G., Hilary, G., and Verdi, R. 2009. How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics* 48: 112-131.

Bird, A., Edwards, A., and Shevlin, T. Does U.S. Foreign Earnings Lockout Advantage Foreign Acquirers? *Journal of Accounting and Economics*, forthcoming.

Blaylock, B. S., Downes, J. F., Mathis, M. E., and White, S. D. 2016. Measuring the cost of trapped foreign earnings: Evidence from new bond issuances. Working paper.

Blouin, J. L., and Krull, L. K. 2009. Bringing it home: A study of the incentives surrounding the repatriation of foreign earnings under the American Jobs Creation Act of 2004. *Journal of Accounting Research* 47: 1027–59.

Blouin, J., L., Krull, L. K., and Robinson, L. 2016. The location, composition, and investment implications of permanently reinvested earnings. Working paper.

Bryan, B. Here's how the newly passed GOP tax bill will impact the economy, businesses, the deficit, and your wallet. *Business Insider,* December 20, 2017.

Chen, N. 2014. Repatriation taxes and the value of cash holdings. Working paper.

De Simone, L., Piotroski, J., and Tomy, R. 2018. Repatriation taxes and foreign cash holdings: The impact of anticipated tax policy. Forthcoming, *Review of Financial Studies*.

DeAngelo, H., and Masulis, R. 1980. Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics* 8: 3-29.

Desai, M., Foley, F. and Hines, J. 2001. Repatriation taxes and dividend distortions. *National Tax Journal* 54: 829-851.

Desai, M., Foley, F. and Hines, J. 2007. Dividend policy inside the multinational firm. *Financial Management* 36: 5-26.

Dharmapala, D., Foley, C. F., and Forbes, K. 2011. Watch what I do, not what I say: The unintended consequences of the Homeland Investment Act. *Journal of Finance* 66: 753–87.

Dobridge, C. and Landefeld, P. 2017. Is the Cash Locked Out? Evidence from U.S. Multinational Tax Filings. Working paper.

Edwards, A., Kravet, T., and Wilson, R. 2016. Trapped cash and the profitability of foreign cash acquisitions. *Contemporary Accounting Research* 33: 44-77.

Farre-Mensa, J., Michaely, R., and Schmalz, M. 2018. Financing payouts. Working paper.

Faulkender, M., Hankins, K., and Petersen, M. 2017. Understanding precautionary cash at home and abroad. Working paper.

Faulkender, M. and Petersen, M. 2012. Investment and capital constraints: Repatriations under the American Jobs Creation Act. *Review of Financial Studies* 25: 3351-3388.

Faulkender, M. and Smith, J. 2016. Taxes and leverage at multinational corporations. *Journal of Financial Economics* 122: 1-20.

Foley, F., Hartzell, J., Titman, S., Twite, G. 2007. Why do firms hold so much cash? A tax-based explanation. *Journal of Financial Economics* 86: 579-607.

Frank, M.Z., and Goyal, V.K. 2003. Testing the pecking order theory of capital structure. *Journal of Financial Economics* 67: 217-248.

Garber, J. Here's what America's biggest companies plan to do with all that cash come back to the U.S. *Business Insider,* December 20, 2017.

Gaertner, F., Laplante, S., and Lynch, D. 2016. Trends in the source of permanent and temporary book-tax differences during the Schedule M-3 era. *National Tax Journal* 69: 785-808.

Gertner, R., Scharfstein, D., and Stein, J. 1994. Internal versus external capital markets. *Quarterly Journal of Economics* 109: 1211-1230.

Graham, J. 2003. Tax and corporate finance: A review. *Review of Financial Studies* 16: 1075-1129.

Graham, J., Hanlon, M., and Shevlin, T. 2010. Barriers to mobility: The lockout effect of U.S. taxation of worldwide corporate profits. *National Tax Journal* 63: 1111–44.

Hanlon, M., Lester, R., and Verdi, R. 2015. The effect of repatriation tax costs on firm investment. *Journal of Financial Economics* 116: 179-196.

Harford, J., Wang, C., and Zhang, K. 2017. Foreign cash: Taxes, internal capital markets, and agency problems. *Review of Financial Studies* 30: 1490-1538.

Laplante, S. and Nesbitt, W. 2017. Estimating the likelihood that a U.S. multinational firm has cash trapped in foreign subsidiaries. Working paper.

Lattman, P. and Eavis, P. 2013. To satisfy its investors, cash-rich Apple borrows money. *New York Times*, April 30.

Leary, M.T. and Roberts, M.R. 2010. The pecking order, debt capacity, and information asymmetry. *Journal of Financial Economics* 95: 332-355.

Lester, R. 2018. Made in the U.S.A.? A Study of Firm Responses to Domestic Production Incentives. Working paper.

Ma, Z., Stice, D., and Wang, D. 2017. U.S. worldwide taxation and bank loan contracting. Working paper.

Mead, C. and Kucera, D. 2012. EBay skirts cash repatriation with bond issue: Corporate finance. *Bloomberg.*

Miller, M. H. 1977. Debt and taxes. *Journal of Finance* 32: 261-275.

Modigliani, F., and Miller, M. H. 1958. The cost of capital, corporation finance and the theory of investment. *American Economic Review* 48: 261-297.

Modigliani, F., and Miller, M. H. 1963. Corporate income taxes and the cost of capital: A correction (in communications). *American Economic Review* 53: 433-443.

Myers, S. 1984. The capital structure puzzle. *Journal of Finance* 39: 574-592.

Myers, S. and Majluf, N. 1984. Corporate financing decisions when firms have investment information that investors do not. *Journal of Financial Economics*, 13: 187-221.

Naranjo, P., Saavedra, D. and Verdi, R. 2017. Financial reporting regulation and financing decisions. Working paper.

Nessa, M. 2017. Repatriation tax costs and U.S. multinational companies' shareholder payouts. *The Accounting Review* 92: 217-241.

Petzel, T., and Salbador, H. 2016. Do tax holidays increase expectations of future tax holidays: An examination of debt issuances pre- and post-AJCA. Working paper, Virginia Polytechnic Institute & State University.

Rajan, R.G., and Zingales, L. 1995. What do we know about capital structure? Some evidence from international data. *Journal of Finance* 50: 1421-1460.

Rauh, J. and Sufi, A. 2010. Capital structure and debt structure. *Review of Financial Studies* 23: 4242-4280.

Shyam-Sunders, L. and Myers, S. 1999. Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics* 51: 219-244.

Smith, M. 2018. Tax changes force cash-hoarding companies to sell bonds. Bloomberg. May 15, 2018.

Stein, J.C. 1997. Internal capital markets and the competition for corporate resources. *Journal of Finance* 52: 111-133.

U.S. Senate Permanent Subcommittee on Investigations – Committee on Homeland Security and Governmental Affairs. 2012. Offshore Profit Shifting and the U.S. Tax Code.

Wang, L. 2018. Record buybacks put shareholder payouts on pace for $1 Trillion. Bloomberg, May 17, 2018.

Whited, T., and Wu, G. 2006. Financial constraints risk. *Review of Financial Studies* 19: 531-559.

Williamson, O.E. 1975. *Markets and hierarchies: Analysis and antitrust implications.* Collier Macmillan Publishers, Inc.

Table 1
Sample Selection

This table summarizes the sample selection procedures. Panel A lists the data requirements imposed, and Panel B provides the number of firm observations by year. In Panel A, we retain observations for all non-financial, non-utility, U.S.-incorporated firms at the intersection of BEA and Compustat datasets with data to calculate the necessary variables. Specifically, we require positive, non-missing Compustat data on assets (AT), cash (CHE), pre-tax income (PI), and sales (SALE). We also require non-missing data for Compustat equity (CEQ, CSHO, PRCC_F), capex (CAPEX), debt (DLTT, DLC), ordinary income (OIBDP), and fixed assets (PPENT), as well as non-missing BEA data for domestic debt to construct variables used in the empirical tests. All variables are defined in Appendix A.

Panel A: Sample Selection

	No. of obs. dropped	**No. of obs. remaining**
BEA firm-years joined with Compustat data, 1999-2012		12,284
Less: non-U.S. incorporated firm-years	(664)	11,620
Less: financial/utility firms	(1,264)	10,356
Less: firm-years missing data to calculate variables	(1,594)	**8,762**

Panel B: Observations by Year

Year	**Total Firm-Years**
1999	655
2000	688
2001	643
2002	645
2003	625
2004	594
2005	628
2006	645
2007	583
2008	562
2009	710
2010	645
2011	588
2012	551
Total	**8,762**

Table 2

Descriptive Statistics

This table presents descriptive statistics (Panel A) and correlations (Panel B) for key variables. All variables are defined in Appendix A. Due to disclosure requirements, we are restricted from reporting firm-specific median, 5%, and 95% values for the variables constructed from BEA data. In Panel B, Pearson (Spearman) correlations are presented above (below) the diagonal. Bolded values in Panel B indicate statistical significance at the 5% level.

Panel A: Descriptive Statistics

Variable	# Obs.	Mean	Median	Std. Dev.	5%	95%
Variables from BEA Data						
$DomLiab_{i,t}$	8,762	0.33		0.23		
$TIFC_{i,t}$	8,762	0.17		0.33		
$PredForCash\text{-}Controls_{i,t}$	8,762	-4.81		0.71		
$PredForCash\text{-}Residual_{i,t}$	5,376	-0.09		1.56		
$DomCash_{i,t}$	8,762	-2.93		1.48		
Other Variables						
$DomIss_{i,t}$	8,762	0.08	0.01	0.20	0.00	0.36
$Market\ Leverage_{i,t}$	8,762	0.23	0.18	0.22	0.00	0.70
$Market\ Liab_{i,t}$	8,762	0.40	0.37	0.22	0.08	0.81
$Sales_{i,t}$	8,762	7,363.44	1,981.27	16,244.67	207.96	34,599.98
$Ln(Sales)_{i,t}$	8,762	7.70	7.59	1.52	5.34	10.45
$Rating\ Ind_{i,t}$	8,762	0.61	1.00	0.49	0.00	1.00
$Tangibility_{i,t}$	8,762	0.25	0.20	0.19	0.04	0.66
$ROA_{i,t}$	8,762	0.06	0.07	0.12	-0.12	0.22
$Dividend\ Ind_{i,t}$	8,762	0.55	1.00	0.50	0.00	1.00
$R\&D/Assets_{i,t}$	8,762	0.04	0.01	0.07	0.00	0.19
$Advertising/Assets_{i,t}$	8,762	0.01	0.00	0.03	0.00	0.07
$MTB_{i,t}$	8,762	1.44	1.13	1.06	0.50	3.43
$Depreciation/Assets_{i,t}$	8,762	0.04	0.04	0.03	0.01	0.09
$\sigma(CF)_{i,t}$	8,762	0.04	0.04	0.03	0.01	0.11

Table 2
Descriptive Statistics (cont'd.)

Panel B: Correlation Matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)	*DomLiab*$_{i,t}$	1.00	**0.26**	**-0.25**	**-0.43**	**-0.06**	**-0.35**	**0.07**	**0.25**	**0.23**	**-0.46**	**-0.04**	**-0.32**	**-0.07**	**-0.48**	**0.12**	**-0.05**
(2)	*DomIss*$_{i,t}$	**0.24**	1.00	**-0.06**	**-0.15**	**-0.05**	**-0.16**	**-0.03**	**0.13**	**0.06**	**-0.13**	**-0.03**	**-0.13**	-0.01	**-0.16**	0.01	-0.02
(3)	*TIFC*$_{i,t}$	**-0.25**	**-0.05**	1.00	**0.19**	0.01	**0.17**	0.00	**-0.05**	**-0.08**	**0.16**	**-0.05**	**0.22**	**0.04**	**0.22**	**-0.07**	**0.06**
(4)	*PredForCash-Controls*$_{i,t}$	**-0.42**	**-0.18**	**0.21**	1.00	**0.02**	**0.42**	**-0.14**	**-0.25**	**-0.38**	**0.06**	**-0.16**	**0.55**	**-0.04**	**0.24**	**-0.11**	**0.20**
(5)	*ResidualForCash*$_{i,t}$	**-0.08**	**-0.03**	**0.03**	0.00	1.00	**0.11**	0.01	-0.02	**-0.08**	**0.03**	-0.01	0.01	**0.04**	**0.04**	-0.01	**0.03**
(6)	*DomCash/Assets*$_{i,t}$	**-0.37**	**-0.23**	**0.10**	**0.43**	**0.11**	1.00	**-0.19**	**-0.27**	**-0.34**	**0.06**	**-0.22**	**0.36**	**0.02**	**0.21**	**-0.10**	**0.23**
(7)	*Ln(Sales)*$_{i,t}$	**0.07**	**0.17**	**0.04**	**-0.14**	**0.05**	**-0.21**	1.00	**0.55**	**0.07**	**0.20**	**0.35**	**-0.16**	**0.12**	**0.05**	**-0.10**	**-0.27**
(8)	*Rating Ind*$_{i,t}$	**0.25**	**0.26**	0.01	**-0.24**	0.00	**-0.28**	**0.54**	1.00	**0.20**	0.01	**0.24**	**-0.18**	**0.08**	**-0.06**	-0.01	**-0.22**
(9)	*Tangibility*$_{i,t}$	**0.22**	**0.11**	**-0.10**	**-0.36**	**-0.05**	**-0.35**	**0.08**	**0.18**	1.00	**-0.05**	**0.14**	**-0.30**	**-0.12**	**-0.12**	**0.50**	**-0.11**
(10)	*ROA*$_{i,t}$	**-0.55**	**-0.09**	**0.21**	**0.12**	**0.04**	**0.08**	**0.23**	0.02	**-0.04**	1.00	**0.23**	**-0.13**	**0.08**	**0.32**	**-0.29**	**-0.11**
(11)	*Dividend Ind*$_{i,t}$	-0.01	**0.07**	**0.04**	**-0.14**	-0.01	**-0.25**	**0.35**	**0.24**	**0.21**	**0.25**	1.00	**-0.26**	**0.06**	0.00	**-0.09**	**-0.25**
(12)	*R&D/Assets*$_{i,t}$	**-0.30**	**-0.11**	**0.18**	**0.58**	**0.03**	**0.30**	**-0.10**	**-0.11**	**-0.29**	-0.00	**-0.11**	1.00	**-0.04**	**0.32**	**0.05**	**0.18**
(13)	*Advertising/Assets*$_{i,t}$	**-0.09**	-0.01	**0.03**	**0.03**	**0.04**	**0.08**	**0.20**	**0.04**	**-0.15**	**0.11**	**0.01**	**0.03**	1.00	**0.16**	**-0.05**	-0.01
(14)	*MTB*$_{i,t}$	**-0.63**	**-0.14**	**0.20**	**0.29**	0.01	**0.24**	**0.08**	**-0.03**	**-0.13**	**0.52**	**0.09**	**0.31**	**0.17**	1.00	0.01	**0.07**
(15)	*Depreciation/Assets*$_{i,t}$	**0.09**	0.00	**-0.11**	**-0.14**	0.00	**-0.13**	**-0.09**	-0.01	**0.60**	**-0.16**	-0.01	0.00	**-0.05**	-0.01	1.00	**0.08**
(16)	$\sigma(CF)_{i,t}$	**-0.09**	**-0.06**	-0.01	**0.15**	0.01	**0.25**	**-0.26**	**-0.20**	**-0.14**	**-0.08**	**-0.25**	**0.09**	0.00	0.00	**0.05**	1.00

Table 3

Domestic Liabilities and Worldwide Cash

This table presents estimated coefficients and t-statistics (in parentheses) from the following domestic leverage models:

$$DomLiab_{i,t} = \alpha + \beta_1 * Cash/Assets_{i,t} + \beta_2 * HighTIFC_{i,t} + \beta_3 * Cash/Assets_{i,t} * HighTIFC_{i,t} + \beta_4 * Ln(Sales)_{i,t} + \beta_5 * Rating\ Ind_{i,t} + \beta_6 * Tangibility_{i,t} + \beta_7 * ROA_{i,t} + \beta_8 * Dividend\ Ind_{i,t} + \beta_9 * R\&D/Assets_{i,t} + \beta_{10} * Advertising/Assets_{i,t} + \beta_{11} * MTB_{i,t} + \beta_{12} * \sigma(CF)_{i,t} + \beta_{13} * Depreciation/Assets_{i,t} + IndustryFE + YearFE$$

$$DomLiab_{i,t} = \alpha + \beta_1 * TIFC_{i,t} + \beta_2 * PredForCash\text{-}Controls_{i,t} + \beta_3 * DomCash_{i,t} + \beta_4 * Ln(Sales)_{i,t} + \beta_5 * Rating\ Ind_{i,t} + \beta_6 * Tangibility_{i,t} + \beta_7 * ROA_{i,t} + \beta_8 * Dividend\ Ind_{i,t} + \beta_9 * R\&D/Assets_{i,t} + \beta_{10} * Advertising/Assets_{i,t} + \beta_{11} * MTB_{i,t} + \beta_{12} * \sigma(CF)_{i,t} + \beta_{13} * Depreciation/Assets_{i,t} + IndustryFE + YearFE$$

In Col. (1), (2), (5), and (6) the dependent variable is $DomLiab_{i,t}$, measured as total domestic liabilities (using BEA data) scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F). In Col. (3), (4), (7), and (8) the dependent variable is $DomIss_{i,t}$, measured as total U.S. debt issuances (using Mergent and Dealscan data) scaled by the sum of total domestic liabilities and the market value of equity; missing values for issuances are set equal to zero. $TIFC_{i,t}$ is estimated tax-induced foreign cash following Foley et al. (2007) and Hanlon et al. (2015), presented in Appendix B. $HighTIFC_{i,t}$ is an indicator variable equal to one for firms in the top quartile by $TIFC_{i,t}$, and zero otherwise. Col. (1) and (3) present results for sample years for which we observe foreign cash (1999 through 2008). Col. (2), (4), (5) and (7) use out-of-sample predicted values for all years from 1999 through 2012. Col. (4) and (8) limit the sample to firm-years in the top quartile of $TIFC_{i,t}$. We define all variables in Appendix A. The regression specification includes industry and year fixed effects. Standard errors are clustered by firm and year. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels.

Dependent Variable:	$DomLiab_{i,t}$		$DomIss_{i,t}$		$DomLiab_{i,t}$		$DomIss_{i,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Cash/Assets_{i,t}$	-0.034***	-0.037***	-0.017***	-0.015***				
	(-9.967)	(-11.542)	(-10.395)	(-7.630)				
$HighTIFC_{i,t}$	0.022	0.019	0.024***	0.016**				
	(1.385)	(1.533)	(2.920)	(2.449)				
$Cash/Assets*HighTIFC_{i,t}$	**0.018*** **	**0.019*** **	**0.008*** **	**0.006** **				
	(3.334)	**(4.014)**	**(2.660)**	**(2.304)**				
$TIFC_{i,t}$					**-0.035*** **	**-0.009**	**0.007***	**0.018*** **
					(-4.903)	**(-0.854)**	**(1.890)**	**(3.519)**
$PredForCash\text{-}Controls_{i,t}$					-0.099***	-0.081***	-0.015***	-0.009**
					(-9.180)	(-8.367)	(-3.595)	(-2.366)
$DomCash_{i,t}$					-0.016***	-0.013***	-0.008***	-0.003
					(-6.815)	(-3.374)	(-5.777)	(-1.169)
$Ln(Sales)_{i,t}$	0.009	0.009*	-0.010***	-0.009***	0.009*	0.004	-0.009***	-0.003
	(1.540)	(1.866)	(-4.985)	(-6.283)	(1.850)	(0.849)	(-6.277)	(-1.010)
$Rating\ Ind_{i,t}$	0.065***	0.068***	0.038***	0.040***	0.056***	0.055***	0.039***	0.031***
	(5.067)	(6.917)	(8.160)	(8.322)	(5.870)	(4.576)	(8.298)	(4.915)
$Tangibility_{i,t}$	0.134***	0.099***	-0.004	-0.008	0.076**	-0.040	-0.010	0.005
	(3.680)	(2.826)	(-0.238)	(-0.779)	(2.282)	(-0.954)	(-0.946)	(0.241)
$ROA_{i,t}$	-0.729***	-0.742***	-0.100***	-0.120***	-0.698***	-0.670***	-0.118***	-0.200***
	(-12.884)	(-14.569)	(-4.319)	(-5.054)	(-14.862)	(-9.910)	(-4.949)	(-6.092)
$Dividend\ Ind_{i,t}$	-0.052***	-0.046***	-0.018**	-0.016***	-0.047***	-0.020*	-0.016***	-0.010
	(-4.813)	(-5.249)	(-2.288)	(-3.271)	(-5.563)	(-1.669)	(-3.317)	(-1.604)
$R\&D/Assets_{i,t}$	-0.664***	-0.685***	-0.133***	-0.182***	-0.359***	-0.334***	-0.152***	-0.130***
	(-10.363)	(-11.669)	(-3.758)	(-4.495)	(-5.102)	(-4.528)	(-3.427)	(-2.770)

Advertising/Assets$_{i,t}$	-0.158	-0.087	-0.010	0.044	-0.131	-0.362***	0.032	-0.067
	(-1.289)	(-0.785)	(-0.149)	(0.790)	(-1.189)	(-3.118)	(0.575)	(-0.771)
MTB$_{i,t}$	-0.057***	-0.055***	-0.011***	-0.010***	-0.050***	-0.036***	-0.009***	-0.010***
	(-7.937)	(-8.714)	(-4.947)	(-4.414)	(-7.399)	(-5.614)	(-4.129)	(-4.091)
$\sigma(CF)_{i,t}$	0.214*	0.303**	0.055	0.030	0.458***	0.688***	0.035	-0.089
	(1.757)	(2.452)	(0.914)	(0.610)	(3.606)	(5.062)	(0.777)	(-0.908)
Depreciation/Assets$_{i,t}$	-0.588**	-0.403	-0.206*	-0.175**	-0.319	0.151	-0.160*	-0.390***
	(-2.122)	(-1.542)	(-1.814)	(-2.026)	(-1.182)	(0.399)	(-1.784)	(-2.846)
Ind & Year FE?	Y	Y	Y	Y	Y	Y	Y	Y
Observations	5,376	8,762	5,376	8,762	8,762	2,185	8,762	2,185
R-squared	0.517	0.516	0.099	0.097	0.538	0.540	0.096	0.115

Table 4
Demand for Domestic Cash

Panel A: Payout Policy – Test of Domestic Liabilities and Tax-Induced Foreign Cash

This table presents results of testing the economic motivations for firms with foreign cash to borrow domestically. Panel A presents estimated coefficients and t-statistics from the following pooled domestic leverage model using the full sample of 8,762 U.S. MNC firm-year observations for 1999 through 2012:

$$DomLiab_{i,t} = \alpha + \beta_1 * TIFC_{i,t} + \beta_2 * Payout_{i,t} + \beta_3 * TIFC_{i,t} * Payout_{i,t} + \beta_4 * PredForCash\text{-}Controls_{i,t} + \beta_5 * DomCash_{i,t} + \beta_6 * Ln(Sales)_{i,t} + \beta_7 * Rating\ Ind_{i,t} + \beta_8 * Tangibility_{i,t} + \beta_9 * ROA_{i,t} + \beta_{10} * R\&D/Assets_{i,t} + \beta_{11} * Advertising/Assets_{i,t} + \beta_{12} * MTB_{i,t} + \beta_{13} * \sigma(CF)_{i,t} + \beta_{14} * Depreciation/Assets_{i,t} + IndustryFE + YearFE$$

The dependent variable in Col. (1)-(4) is domestic market leverage $DomLiab_{i,t}$, measured as total domestic liabilities (using BEA data) scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F). The dependent variable in Col. (5) is U.S. debt issuances $DomIss_{i,t}$, (using Mergent and Dealscan data) scaled by the sum of total domestic liabilities and the market value of equity. $TIFC_{i,t}$ is estimated tax-induced foreign cash following Foley et al. (2007) and Hanlon et al. (2015), presented in Appendix B. In Col. (1) and (5), $Payout_{i,t}$ is an indicator variable equal to one if the firm either pays dividends or repurchases shares in year *t*, and zero otherwise. In Col. (2), $Payout_{i,t}$ is an indicator variable equal to one if the firm pays dividends (without increasing over the prior period) in year *t*, and zero otherwise. In Col. (3), $Payout_{i,t}$ is an indicator variable equal to one if the firm pays a special dividend or increases its dividend (relative to the prior year)in year *t*, and zero otherwise. In Col. (4), $Payout_{i,t}$ is an indicator variable equal to one if the firm repurchases shares in year *t*, and zero otherwise. We exclude $Dividend\ Ind_{i,t}$ due to collinearity with $Payout_{i,t}$. All variables are defined in Appendix A. The regression specification includes industry and year fixed effects. t-statistics are presented in parentheses. Standard errors are clustered by firm and year. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

	$Payout_{i,t}$	$RegDividends_{i,t}$	$OthDividends_{i,t}$	$Repurchases_{i,t}$	$Payout_{i,t}$
Dependent Variable:	$DomLiab_{i,t}$	$DomLiab_{i,t}$	$DomLiab_{i,t}$	$DomLiab_{i,t}$	$DomIss_{i,t}$
	(1)	(2)	(3)	(4)	(5)
$TIFC_{i,t}$	-0.068***	-0.033***	-0.045***	-0.064***	-0.003
	(-4.899)	(-4.908)	(-5.347)	(-4.677)	(-0.343)
Payout $Ind_{i,t}$	-0.069***	-0.009	-0.063***	-0.041***	-0.020***
	(-5.958)	(-1.322)	(-7.161)	(-4.687)	(-2.904)
$TIFC_{i,t}$*Payout $Ind_{i,t}$	**0.048***	**0.004**	**0.047***	**0.049***	**0.015***
	(3.261)	**(0.217)**	**(3.408)**	**(3.048)**	**(1.712)**
$PredForCash\text{-}Controls_{i,t}$	-0.099***	-0.099***	-0.097***	-0.098***	-0.014***
	(-9.196)	(-8.501)	(-8.788)	(-8.694)	(-3.600)
$DomCash_{i,t}$	-0.016***	-0.015***	-0.015***	-0.014***	-0.008***
	(-6.953)	(-6.213)	(-6.643)	(-6.199)	(-5.707)
$Ln(Sales)_{i,t}$	0.008*	0.006	0.009*	0.007	-0.009***
	(1.658)	(1.121)	(1.772)	(1.345)	(-6.805)
$Rating\ Ind_{i,t}$	0.054***	0.056***	0.055***	0.056***	0.038***
	(5.837)	(5.771)	(5.794)	(5.829)	(8.046)
$Tangibility_{i,t}$	0.064*	0.068**	0.070**	0.062*	-0.014
	(1.897)	(2.032)	(2.117)	(1.847)	(-1.270)
$ROA_{i,t}$	-0.686***	-0.723***	-0.683***	-0.701***	-0.116***
	(-14.507)	(-14.912)	(-14.450)	(-14.229)	(-4.961)
$R\&D/Assets_{i,t}$	-0.328***	-0.307***	-0.345***	-0.312***	-0.141***
	(-5.070)	(-4.526)	(-4.931)	(-4.680)	(-3.262)
$Advertising/Assets_{i,t}$	-0.145	-0.141	-0.150	-0.133	0.027
	(-1.362)	(-1.266)	(-1.413)	(-1.221)	(0.473)
$MTB_{i,t}$	-0.050***	-0.051***	-0.048***	-0.050***	-0.010***
	(-7.516)	(-7.108)	(-7.235)	(-7.440)	(-4.180)
$\sigma(CF)_{i,t}$	0.468***	0.523***	0.454***	0.493***	0.042
	(3.949)	(4.212)	(3.637)	(4.094)	(0.960)
$Depreciation/Assets_{i,t}$	-0.306	-0.274	-0.257	-0.263	-0.153*
	(-1.141)	(-0.995)	(-0.975)	(-0.964)	(-1.694)
Ind. & Year FE?	Y	Y	Y	Y	Y
Observations	8,762	8,762	8,762	8,762	8,762
R-squared	0.542	0.531	0.540	0.536	0.096

Table 4

Demand for Domestic Cash (cont'd.)

Panel B: Domestic Investment – Test of Domestic Liabilities and Tax-Induced Foreign Cash

This table presents results of testing the economic motivations for firms with foreign cash to borrow domestically. Panel B presents estimated coefficients and t-statistics from the following pooled domestic leverage model:

$$DomLiab_{i,t} = \alpha + \beta_1 * TIFC_{i,t} + \beta_2 * Invest\ Ind_{i,t} + \beta_3 * TIFC_{i,t} * Invest\ Ind_{i,t-1} + \beta_4 * PredForCash\text{-}Controls_{i,t} + \beta_5 * DomCash_{i,t} + \beta_6 * Ln(Sales)_{i,t} + \beta_7 * Rating\ Ind_{i,t} + \beta_8 * Tangibility_{i,t} + \beta_9 * ROA_{i,t} + \beta_{10} * R\&D/Assets_{i,t} + \beta_{11} * Advertising/Assets_{i,t} + \beta_{12} * MTB_{i,t} + \beta_{13} * \sigma(CF)_{i,t} + \beta_{14} * Depreciation/Assets_{i,t} + IndustryFE + YearFE$$

The dependent variable in Col. (1), (3), and (5) is domestic market leverage $DomLiab_{i,t}$, measured as total domestic liabilities scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F). The dependent variable in Col. (2), (4), and (6) is U.S. debt issuances $DomIss_{i,t}$, (using Mergent and Dealscan data) scaled by the sum of total domestic liabilities and the market value of equity. $TIFC_{i,t}$ is estimated tax-induced foreign cash following Foley et al. (2007) and Hanlon et al. (2015), presented in Appendix B. In Col. (1)-(2), $Invest_{i,t-1}$ is an indicator variable equal to one if the firm has an all-cash domestic M&A transaction in the current year, or zero otherwise. In Col. (3)-(4), $Invest_{i,t-1}$ is an indicator variable equal to one if the firm is in the top quartile of the ratio of domestic R&D expense to total worldwide sales, or zero otherwise, where observations with missing values of domestic R&D are excluded from the sample. In Col. (5)-(6), $Invest\ Ind_{i,t-1}$ is an indicator variable equal to one if the residual from the untabulated domestic investment model is in the bottom quartile of the sample, and zero otherwise, implying that the firm is underinvested domestically. Due to missing data for the domestic investment model, we estimate results for a sample of 4,716 U.S. MNC firm-year observations. All variables are defined in Appendix A. The regression specification includes industry and year fixed effects. t-statistics are presented in parentheses. Standard errors are clustered by firm and year. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

	DomM&A Ind$_{i,t}$		*DomR&D Ind$_{i,t}$*		*DomUnderinvest Ind$_{i,t-1}$*	
Dependent Variable:	DomLiab$_{i,t}$	DomIss$_{i,t}$	DomLiab$_{i,t}$	DomIss$_{i,t}$	DomLiab$_{i,t}$	DomIss$_{i,t}$
	(1)	(2)	(3)	(4)	(5)	(6)
TIFC$_{i,t}$	-0.043***	0.006	-0.066***	-0.001	-0.025**	0.009
	(-5.498)	(1.237)	(-5.177)	(-0.222)	(-2.186)	(1.438)
Invest$_{i,t-1}$	-0.039***	0.008**	-0.023*	-0.017***	0.018**	-0.005
	(-5.824)	(2.012)	(-1.930)	(-2.918)	(1.988)	(-0.787)
TIFC$_{i,t}$*Invest Ind$_{i,t}$	**0.056*** **	**0.014**	**0.087*** **	**0.026*** **	**-0.013**	**0.005**
	(3.696)	**(1.267)**	**(4.111)**	**(2.997)**	**(-0.920)**	**(0.407)**
PredForCash-Controls$_{i,t}$	-0.099***	-0.014***	-0.092***	-0.018***	-0.117***	-0.025***
	(-9.168)	(-3.506)	(-9.069)	(-3.025)	(-6.729)	(-4.965)
DomCash$_{i,t}$	-0.016***	-0.008***	-0.012***	-0.009***	-0.011***	-0.008***
	(-6.837)	(-5.699)	(-4.645)	(-4.167)	(-3.951)	(-6.313)
Ln(Sales)$_{i,t}$	0.010**	-0.009***	0.011*	-0.011***	0.015***	-0.010***
	(2.091)	(-6.480)	(1.812)	(-6.341)	(3.136)	(-5.823)
Rating Ind$_{i,t}$	0.056***	0.039***	0.061***	0.044***	0.050***	0.034***
	(5.945)	(8.421)	(5.262)	(7.270)	(4.275)	(7.227)
Tangibility$_{i,t}$	0.072**	-0.009	0.114***	-0.019	0.067*	-0.032**
	(2.193)	(-0.806)	(2.904)	(-1.388)	(1.753)	(-2.210)
ROA$_{i,t}$	-0.695***	-0.118***	-0.714***	-0.127***	-0.705***	-0.090***
	(-14.936)	(-4.960)	(-13.764)	(-6.183)	(-10.325)	(-3.200)
Dividend Ind$_{i,t}$	-0.047***	-0.015***	-0.051***	-0.018***	-0.051***	-0.016**
	(-5.502)	(-3.263)	(-5.036)	(-3.585)	(-4.993)	(-2.202)
R&D/Assets$_{i,t}$	-0.351***	-0.159***	-0.450***	-0.094*	-0.386***	-0.111***
	(-5.056)	(-3.600)	(-6.164)	(-1.917)	(-4.561)	(-2.956)
Advertising/Assets$_{i,t}$	-0.135	0.034	-0.274**	0.030	-0.118	-0.022
	(-1.232)	(0.618)	(-2.140)	(0.426)	(-0.919)	(-0.347)
MTB$_{i,t}$	-0.050***	-0.010***	-0.046***	-0.009***	-0.055***	-0.010***
	(-7.445)	(-4.142)	(-6.027)	(-3.262)	(-6.951)	(-3.713)
σ(CF)$_{i,t}$	0.446***	0.042	0.502***	0.076	0.540***	0.064
	(3.623)	(0.937)	(3.111)	(1.260)	(3.820)	(1.057)
Depreciation/Assets$_{i,t}$	-0.332	-0.154*	-0.557**	-0.175*	-0.122	0.082
	(-1.237)	(-1.716)	(-2.189)	(-1.694)	(-0.412)	(0.786)
Ind and Year FE?	Y	Y	Y	Y	Y	Y
Observations	8,762	8,762	5,805	5,805	4,716	4,716
R-squared	0.541	0.096	0.563	0.112	0.544	0.100

Table 4

Demand for Domestic Cash (cont'd.)

Panel C: Domestic Employment and Compensation – Test of Domestic Liabilities and Tax-Induced Foreign Cash

This table presents results of testing the economic motivations for firms with foreign cash to borrow domestically. Panel C presents estimated coefficients and t-statistics from the following pooled domestic leverage model using the full sample of 8,762 U.S. MNC firm-year observations for 1999 through 2012:

$$DomLiab_{i,t} = \alpha + \beta_1 * TIFC_{i,t} + \beta_2 * DomEmployment\ Ind_{i,t} + \beta_3 * TIFC_{i,t} * DomEmployment\ Ind_{i,t} + \beta_4 * PredForCash\text{-}Controls_{i,t} + \beta_5 * DomCash_{i,t} + \beta_6 * Ln(Sales)_{i,t} + \beta_7 * Rating\ Ind_{i,t} + \beta_8 * Tangibility_{i,t} + \beta_9 * ROA_{i,t} + \beta_{10} * R\&D/Assets_{i,t} + \beta_{11} * Advertising/Assets_{i,t} + \beta_{12} * MTB_{i,t} + \beta_{13} * \sigma(CF)_{i,t} + \beta_{14} * Depreciation/Assets_{i,t} + IndustryFE + YearFE$$

The dependent variable in Col. (1) and (3) is domestic market leverage $DomLiab_{i,t}$, measured as total domestic liabilities (using BEA data) scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F). The dependent variable in Col. (2) and (4) is U.S. debt issuances $DomIss_{i,t}$, (using Mergent and Dealscan data) scaled by the sum of total domestic liabilities and the market value of equity. $TIFC_{i,t}$ is estimated tax-induced foreign cash following Foley et al. (2007) and Hanlon et al. (2015), presented in Appendix B. In Col. (1)-(2), $DomEmployees\ Ind_{i,t}$ is an indicator variable equal to one if the firm's ratio of domestic employees to total worldwide employees in year *t* is in the top quartile of the sample, and zero otherwise. In Col. (3)-(4), $DomCompensation\ Ind_{i,t}$ is an indicator variable equal to one if the firm's ratio of domestic compensation to total worldwide compensation in year *t* is in the top quartile of the sample, and zero otherwise. All variables are defined in Appendix A. The regression specification includes industry and year fixed effects. t-statistics are presented in parentheses. Standard errors are clustered by firm and year. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

	DomEmployees Ind$_{i,t}$		*DomCompensation Ind$_{i,t}$*	
Dependent Variable:	DomLiab$_{i,t}$	DomIss$_{i,t}$	DomLiab$_{i,t}$	DomIss$_{i,t}$
	(1)	(2)	(3)	(4)
TIFC$_{i,t}$	-0.027***	0.008**	-0.027***	0.007*
	(-3.812)	(2.014)	(-3.508)	(1.680)
DomEmployment Ind$_{i,t}$	0.036***	0.007	0.035***	0.007
	(4.628)	(1.612)	(5.011)	(1.562)
TIFC$_{i,t}$*DomEmployment Ind$_{i,t}$	**-0.010**	**0.007**	**-0.013**	**0.010**
	(-0.427)	**(0.511)**	**(-0.718)**	**(0.850)**
PredForCash-Controls$_{i,t}$	-0.099***	-0.014***	-0.098***	-0.014***
	(-9.446)	(-3.623)	(-9.416)	(-3.597)
DomCash$_{i,t}$	-0.016***	-0.008***	-0.016***	-0.008***
	(-6.822)	(-5.729)	(-6.868)	(-5.815)
Ln(Sales)$_{i,t}$	0.009*	-0.009***	0.009*	-0.009***
	(1.862)	(-6.325)	(1.832)	(-6.258)
Rating Ind$_{i,t}$	0.056***	0.039***	0.056***	0.039***
	(5.939)	(8.305)	(5.901)	(8.307)
Tangibility$_{i,t}$	0.071**	-0.011	0.070**	-0.012
	(2.137)	(-1.043)	(2.092)	(-1.082)
ROA$_{i,t}$	-0.698***	-0.118***	-0.698***	-0.118***
	(-14.531)	(-4.912)	(-14.640)	(-4.924)
Dividend Ind$_{i,t}$	-0.049***	-0.016***	-0.049***	-0.016***
	(-5.840)	(-3.418)	(-5.835)	(-3.430)
R&D/Assets$_{i,t}$	-0.370***	-0.155***	-0.379***	-0.159***
	(-5.257)	(-3.466)	(-5.429)	(-3.565)
Advertising/Assets$_{i,t}$	-0.144	0.030	-0.140	0.031
	(-1.319)	(0.547)	(-1.286)	(0.577)
MTB$_{i,t}$	-0.050***	-0.010***	-0.050***	-0.010***
	(-7.306)	(-4.052)	(-7.336)	(-4.122)
σ(CF)$_{i,t}$	0.447***	0.033	0.448***	0.034
	(3.541)	(0.735)	(3.614)	(0.766)
Depreciation/Assets$_{i,t}$	-0.279	-0.151*	-0.279	-0.147*
	(-1.032)	(-1.699)	(-1.024)	(-1.653)
Industry and Year FE?	Y	Y	Y	Y
Observations	8,762	8,762	8,762	8,762
R-squared	0.542	0.096	0.542	0.096

Table 5
Falsification Tests

This table presents estimated coefficients and t-statistics from the following pooled domestic leverage model using the full sample of 8,762 U.S. MNC firm-year observations for 1999 through 2012:

$$DomLiab_{i,t} = \alpha + \beta_1 * TIFC_{i,t} + \beta_2 * LowDebtCost_{i,t} + \beta_3 * TIFC_{i,t} * LowDebtCost_{i,t} + \beta_4 * PredForCash\text{-}Controls_{i,t} + \beta_5 * DomCash_{i,t} + \beta_6 * Ln(Sales)_{i,t} + \beta_7 * Tangibility_{i,t} + \beta_8 * ROA_{i,t} + \beta_9 * R\&D/Assets_{i,t} + \beta_{10} * Advertising/Assets_{i,t} + \beta_{11} * MTB_{i,t} + \beta_{12} * \sigma(CF)_{i,t} + \beta_{13} * Depreciation/Assets_{i,t} + IndustryFE + YearFE$$

The dependent variable in Col. (1) and (3) is domestic market leverage $DomLiab_{i,t}$, measured as total domestic liabilities (using BEA data) scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F). The dependent variable in Col. (2) and (4) is U.S. debt issuances $DomIss_{i,t}$, (using Mergent and Dealscan data) scaled by the sum of total domestic liabilities and the market value of equity. $TIFC_{i,t}$ is estimated tax-induced foreign cash following Foley et al. (2007) and Hanlon et al. (2015), presented in Appendix B. In Col. (1)-(2), $LowDebtCost_{i,t}$ is *Rating Ind,* an indicator variable equal to one if the company has a bond rating, and zero otherwise. In Col. (3)-(4), $LowDebtCost_{i,t}$ is *Rating_Cat,* a categorical variable equal to 1, 2, or 3 if the firm's bond rating is in the C, B, or A range, respectively in year *t*. All variables are defined in Appendix A. The regression specification includes industry and year fixed effects. t-statistics are presented in parentheses. Standard errors are clustered by firm and year. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Cost of Debt:	*Rating Ind*		*Rating Cat*	
Dependent Variable:	$DomLiab_{i,t}$	$DomIss_{i,t}$	$DomLiab_{i,t}$	$DomIss_{i,t}$
	(1)	(2)	(3)	(4)
$TIFC_{i,t}$	-0.016*	0.008**	-0.026***	0.007*
	(-1.788)	(1.971)	(-2.789)	(1.753)
$LowDebtCost_{i,t}$	0.063***	0.039***	0.013***	0.014***
	(6.337)	(7.986)	(3.169)	(6.298)
$TIFC_{i,t}*LowDebtCost_{i,t}$	**-0.037*** **	**-0.001**	**-0.008***	**0.000**
	(-3.082)	**(-0.085)**	**(-1.712)**	**(0.033)**
$PredForCash\text{-}Controls_{i,t}$	-0.099***	-0.015***	-0.103***	-0.016***
	(-9.190)	(-3.593)	(-9.159)	(-3.790)
$DomCash_{i,t}$	-0.016***	-0.008***	-0.017***	-0.008***
	(-6.752)	(-5.779)	(-6.939)	(-5.877)
$Ln(Sales)_{i,t}$	0.009*	-0.009***	0.014***	-0.008***
	(1.818)	(-6.304)	(2.752)	(-5.189)
$Tangibility_{i,t}$	0.076**	-0.010	0.085**	-0.007
	(2.271)	(-0.946)	(2.520)	(-0.605)
$ROA_{i,t}$	-0.698***	-0.118***	-0.714***	-0.125***
	(-14.935)	(-4.949)	(-14.694)	(-5.067)
$Dividend\ Ind_{i,t}$	-0.047***	-0.016***	-0.048***	-0.017***
	(-5.499)	(-3.313)	(-5.612)	(-3.683)
$R\&D/Assets_{i,t}$	-0.361***	-0.152***	-0.354***	-0.155***
	(-5.161)	(-3.431)	(-4.846)	(-3.428)
$Advertising/Assets_{i,t}$	-0.118	0.032	-0.104	0.034
	(-1.082)	(0.571)	(-0.923)	(0.589)
$MTB_{i,t}$	-0.050***	-0.009***	-0.050***	-0.010***
	(-7.427)	(-4.130)	(-7.287)	(-4.211)
$\sigma(CF)_{i,t}$	0.456***	0.035	0.449***	0.038
	(3.615)	(0.779)	(3.547)	(0.840)
$Depreciation/Assets_{i,t}$	-0.320	-0.160*	-0.362	-0.176*
	(-1.176)	(-1.784)	(-1.316)	(-1.912)
Industry and Year FE?	Y	Y	Y	Y
Observations	8,762	8,762	8,762	8,762
R-squared	0.539	0.096	0.531	0.091

Table 6

Alternative Channels of Domestic Financing – Repatriations from Foreign Subsidiaries

Panel A: Univariate Analysis of Domestic Liabilities by Repatriating Firms

This panel presents descriptive statistics comparing the levels of domestic debt and domestic debt issuances for repatriating firms relative to other U.S. multinationals. A firm is identified as a repatriating firm if any foreign subsidiary reports a decrease in its retained earnings due to a current year dividend to its owner on BEA survey form BE-10B. We compare $DomLiab_{i,t}$, measured as total domestic liabilities (using BEA data) scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F), for these two groups of firms. We also compare U.S. debt issuances $DomIss_{i,t}$, (using Mergent and Dealscan data) scaled by the sum of total domestic liabilities and the market value of equity. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

	N	*Repatriating Firms*	N	*Non-Repatriating Firms*	Difference	t-stat
Sample Period 1999-2012						
$DomLiab_{i,t}$	2,175	0.32	6,587	0.34	-0.02	-2.87***
$DomIss_{i,t}$	2,175	0.07	6,587	0.08	-0.01	-3.51***
Dropping 2005 Year						
$DomLiab_{i,t}$	1,979	0.33	6,138	0.34	0.02	-2.58***
$DomIss_{i,t}$	1,979	0.07	6,138	0.08	0.01	-3.71***

Table 6

Alternative Channels of Domestic Financing – Repatriations from Foreign Subsidiaries (cont'd)

Panel B: Regression Specification of Relation between Repatriations and Domestic Liabilities

This panel presents estimated coefficients and t-statistics from the following pooled domestic leverage model using the full sample of 8,762 U.S. MNC firm-year observations for 1999 through 2012:

$$DomLiab_{i,t} = \alpha + \beta_1 * Repatriate_{i,t} + \beta_2 * Cash/Assets_{i,t} + \beta_3 * TIFC_{i,t} + \beta_4 * PredForCash\text{-}Controls_{i,t} + \beta_5 * DomCash_{i,t} + \beta_6 * Ln(Sales)_{i,t} + \beta_7 * Tangibility_{i,t} + \beta_8 * ROA_{i,t} + \beta_9 * R\&D/Assets_{i,t} + \beta_{10} * Advertising/Assets_{i,t} + \beta_{11} * MTB_{i,t} + \beta_{12} * \sigma(CF)_{i,t} + \beta_{13} * Depreciation/Assets_{i,t} + IndustryFE + YearFE$$

The dependent variable is domestic market leverage $DomLiab_{i,t}$, measured as total domestic liabilities (using BEA data) scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F). In Column (1) and (2), $Repatriate_{i,t}$ is an indicator equal to one if the firm reported a decrease in its retained earnings due to a current year dividend to its owner on BEA survey form BE-10B, or zero otherwise. In Columns (3) and (4), $Repatriation/Assets_{i,t}$ is the level of dividend from the foreign subsidiary, scaled by total assets. All variables are defined in Appendix A. The regression specification includes industry and year fixed effects. t-statistics are presented in parentheses. Standard errors are clustered by firm and year. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	$DomLiab_{i,t}$	$DomLiab_{i,t}$	$DomLiab_{i,t}$	$DomLiab_{i,t}$
	(1)	(2)	(3)	(4)
Repatriate Ind$_{i,t}$	**-0.012***	**-0.010**		
	(-1.702)	**(-1.477)**		
Repatriation/Assets$_{i,t}$			**-0.110**	**-0.056**
			(-1.271)	**(-0.700)**
Cash/Assets$_{i,t}$	-0.034***		-0.034***	
	(-10.319)		(-10.226)	
TIFC$_{i,t}$		-0.033***		-0.034***
		(-4.658)		(-4.754)
PredForCash-Controls$_{i,t}$		-0.099***		-0.100***
		(-9.174)		(-9.202)
DomCash$_{i,t}$		-0.016***		-0.016***
		(-6.839)		(-6.800)
Ln(Sales)$_{i,t}$	0.011**	0.010**	0.010**	0.010*
	(2.171)	(2.041)	(1.971)	(1.869)
Rating Ind$_{i,t}$	0.068***	0.056***	0.067***	0.056***
	(6.848)	(5.935)	(6.755)	(5.841)
Tangibility$_{i,t}$	0.099***	0.077**	0.099***	0.077**
	(2.804)	(2.329)	(2.829)	(2.331)
ROA$_{i,t}$	-0.749***	-0.698***	-0.749***	-0.697***
	(-14.735)	(-14.882)	(-14.777)	(-14.943)
Dividend Ind$_{i,t}$	-0.045***	-0.046***	-0.046***	-0.047***
	(-5.071)	(-5.450)	(-5.174)	(-5.524)
R&D/Assets$_{i,t}$	-0.692***	-0.357***	-0.692***	-0.351***
	(-11.947)	(-5.048)	(-11.924)	(-4.997)
Advertising/Assets$_{i,t}$	-0.099	-0.125	-0.099	-0.127
	(-0.868)	(-1.141)	(-0.877)	(-1.159)
MTB$_{i,t}$	-0.056***	-0.050***	-0.056***	-0.050***
	(-8.706)	(-7.380)	(-8.725)	(-7.379)
σ(CF)$_{i,t}$	0.311**	0.455***	0.316**	0.462***
	(2.496)	(3.573)	(2.537)	(3.617)
Depreciation/Assets$_{i,t}$	-0.391	-0.318	-0.392	-0.318
	(-1.501)	(-1.184)	(-1.501)	(-1.178)
Observations	8,762	8,762	8,762	8,762
R-squared	0.512	0.538	0.512	0.539

Table 7

Alternative Channels of Domestic Financing: Intercompany Loans

Panel A: Intercompany Loans

This panel presents descriptive statistics comparing the levels of domestic debt and domestic debt issuances for firms with an above-median level of intercompany payables owed to foreign subsidiaries relative to other U.S. multinationals. The level of intercompany payables is the total amount of receivables owed by the U.S. operations to the foreign subsidiaries as reported on BEA survey form BE-10B for the period 1999 through 2008. We compare $DomLiab_{i,t}$, measured as total domestic liabilities (using BEA data) scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F), for these two groups of firms. We also compare U.S. debt issuances $DomIss_{i,t}$, (using Mergent and Dealscan data) scaled by the sum of total domestic liabilities and the market value of equity. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

	N	*Above-Median Intercompany Loans*	N	*Below-Median Intercompany Loans*	Difference	t-stat
Sample Period 1999-2008						
$DomLiab_{i,t}$	2,865	0.357	2,872	0.329	0.028	4.46***
$DomIss_{i,t}$	2,865	0.087	2,872	0.081	0.006	1.64
Dropping 2005						
$DomLiab_{i,t}$	2,545	0.368	2,550	0.336	0.032	4.67***
$DomIss_{i,t}$	2,545	0.087	2,550	0.082	0.005	1.25

Table 7

Alternative Channels of Domestic Financing: Intercompany Loans (con'td)

Panel B: Regression Specification of Relation between Intercompany Loans and Domestic Liabilities

This panel presents estimated coefficients and t-statistics from the following pooled domestic leverage model using the sample of 5,737 U.S. MNC firm-year observations for 1999 through 2008 with intercompany payables:

$$DomLiab_{i,t} = \alpha + \beta_1 * IntercoPayable_{i,t} + \beta_2 * Cash/Assets_{i,t} + \beta_3 * TIFC_{i,t} + \beta_4 * PredForCash\text{-}Controls_{i,t} + \beta_5 * DomCash_{i,t} + \beta_6 * Ln(Sales)_{i,t} + \beta_7 * Tangibility_{i,t} + \beta_8 * ROA_{i,t} + \beta_9 * R\&D/Assets_{i,t} + \beta_{10} * Advertising/Assets_{i,t} + \beta_{11} * MTB_{i,t} + \beta_{12} * \sigma(CF)_{i,t} + \beta_{13} * Depreciation/Assets_{i,t} + IndustryFE + YearFE$$

The dependent variable is domestic market leverage $DomLiab_{i,t}$, measured as total domestic liabilities (using BEA data) scaled by the sum of total domestic liabilities and the market value of equity (CSHO*PRCC_F). In Column (1) and (2), $IntercoPay\ Ind_{i,t}$ is an indicator equal to one if the firm reported above median intercompany payables due from the U.S. to foreign affiliates, or zero otherwise. In Columns (3) and (4), $IntercoPay_{i,t}$ is the level of intercompany payables from the foreign subsidiary, scaled by the sum of domestic debt and the market value of equity. All variables are defined in Appendix A. The sample includes firm-years with requisite cash to estimate TIFC, and other firm-years from 1999-2008 for which this coefficient can be estimated. The regression specification includes industry and year fixed effects. t-statistics are presented in parentheses. Standard errors are clustered by firm and year. *, **, and *** indicate two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

	$DomLiab_{i,t}$ (1)	$DomLiab_{i,t}$ (2)	$DomLiab_{i,t}$ (3)	$DomLiab_{i,t}$ (4)
$IntercoPay_{i,t}$ Ind	**-0.002**	**-0.002**		
	(-0.304)	**(-0.307)**		
$IntercoPay_{i,t}$			**0.188***	**0.200***
			(1.653)	**(1.936)**
$Cash/Assets_{i,t}$	-0.033***		-0.034***	
	(-9.296)		(-9.349)	
$TIFC_{i,t}$		-0.028***		-0.030***
		(-3.008)		(-3.302)
$PredForCash\text{-}Controls_{i,t}$		-0.101***		-0.101***
		(-13.624)		(-13.676)
$DomCash_{i,t}$		-0.015***		-0.015***
		(-5.673)		(-5.646)
$Ln(Sales)_{i,t}$	0.007	0.008**	0.006	0.008*
	(1.587)	(2.019)	(1.470)	(1.882)
Rating $Ind_{i,t}$	0.063***	0.051***	0.064***	0.052***
	(6.226)	(5.267)	(6.274)	(5.323)
$Tangibility_{i,t}$	0.139***	0.108***	0.138***	0.108***
	(4.113)	(3.393)	(4.085)	(3.379)
$ROA_{i,t}$	-0.751***	-0.689***	-0.747***	-0.685***
	(-19.189)	(-18.111)	(-19.166)	(-18.066)
Dividend $Ind_{i,t}$	-0.048***	-0.050***	-0.048***	-0.049***
	(-4.893)	(-5.288)	(-4.857)	(-5.242)
$R\&D/Assets_{i,t}$	-0.686***	-0.310***	-0.682***	-0.306***
	(-10.792)	(-4.681)	(-10.739)	(-4.626)
$Advertising/Assets_{i,t}$	-0.167	-0.191	-0.170	-0.193
	(-1.298)	(-1.520)	(-1.315)	(-1.532)
$MTB_{i,t}$	-0.054***	-0.048***	-0.054***	-0.047***
	(-12.213)	(-11.345)	(-12.041)	(-11.180)
$\sigma(CF)_{i,t}$	0.263**	0.420***	0.242**	0.397***
	(2.203)	(3.663)	(2.025)	(3.472)
$Depreciation/Assets_{i,t}$	-0.624***	-0.543***	-0.640***	-0.562***
	(-2.946)	(-2.645)	(-3.013)	(-2.738)
Observations	5,737	5,737	5,737	5,737
R-squared	0.521	0.547	0.521	0.547