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Repatriation Tax Costs and U.S. Multinational Companies' Shareholder Payouts

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ABSTRACT: This paper examines whether and to what extent repatriation tax costs constrain U.S. multinational companies' (MNCs) distributions to shareholders. During the 1987–2004 sample period, I find that repatriation tax costs decrease U.S. MNCs' dividend payments, and the economic magnitude of the effect is substantial. I do not find evidence that repatriation tax costs decrease U.S. MNCs' share repurchases, on average. I find cross-sectional variation in the effect of repatriation tax costs on share repurchases based on U.S. MNCs' opportunities to fund repurchases through external borrowing and to minimize the incremental U.S. cash tax cost of repatriations. I do not observe an association between repatriation tax costs and U.S. MNCs' dividend payments or share repurchases during a more recent time period (2009–2014). This study contributes to our understanding of the impact of the current U.S. worldwide tax system on U.S. MNCs' real decisions and of the determinants of firms' payout policies.

Keywords: repatriation taxes; dividends; repurchases.

I. INTRODUCTION

This study examines whether and to what extent potential repatriation tax costs imposed by the U.S. worldwide tax system constrain U.S. multinational companies' (MNCs) cash distributions to shareholders. The record levels of cash held by U.S. companies have intensified claims that the U.S. tax and financial reporting treatment of foreign earnings distorts U.S. MNCs' investing and financing decisions.[1] The U.S. tax and financial reporting treatment of foreign earnings is often claimed to be a driver of large foreign cash balances and a reason foreign cash cannot be distributed to shareholders (e.g., Jannarone and Silver 2009; Casselman and Lahart 2011; Winkler 2011; Zweig 2011; Denning 2012; Murphy 2012; Moody's Investor Services [Moody's] 2015). However, there has been a "staggering upsurge" in aggregate payouts by U.S. firms since the early 2000s (Floyd, Li, and Skinner 2015). Academic research, lawmakers, and the financial press have drawn attention to structures and transactions used by U.S. MNCs to access their foreign cash without triggering U.S. repatriation taxes (e.g., Altshuler and Grubert 2003; Martin, Rabier, and Zur 2015; U.S. Permanent Subcommittee on Investigations [U.S. PSI] 2012; Bulkeley 2007; Drucker 2010; Linebaugh 2013). In addition, anecdotal evidence indicates that some U.S. MNCs facing potential repatriation taxes issue debt to fund shareholder payouts. For example, Apple Inc. completed bond offerings in 2013 and 2015 to help fund its shareholder payouts because much of its cash is held overseas (Apple Inc. [Apple] 2013; Cherney 2015). Examining whether and to what extent repatriation tax costs reduce U.S. MNCs' dividend payments and share repurchases sheds light on these conflicting accounts of U.S. MNCs' ability to fund shareholder payouts. I also provide evidence regarding the economic magnitudes of the observed effects.

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[1] U.S. nonfinancial companies rated by Moody's held $1.73 trillion in cash at the end of 2014, with an estimated $1.1 trillion held overseas (Moody's 2015).

The U.S. taxes the earnings of U.S. MNCs' foreign subsidiaries when those earnings are repatriated (i.e., paid as a dividend) to the U.S. parent.[2] As a result, some U.S. MNCs have incentives to delay repatriation of their foreign earnings in order to defer payment of the U.S. tax. In addition, some firms have financial reporting incentives to keep foreign earnings reinvested abroad. By designating foreign earnings as permanently reinvested,[3] firms are able to report higher after-tax net income in their financial statements. If potential repatriation tax costs stemming from the U.S. worldwide tax system and financial reporting treatment of foreign earnings discourage some U.S. MNCs from repatriating foreign earnings (e.g., Hines and Hubbard 1990; Altshuler and Newlon 1993; Desai, Foley, and Hines 2001, 2007; Graham, Hanlon, and Shevlin 2011; Blouin, Krull, and Robinson 2012), then their foreign cash is potentially not available to distribute to shareholders. Thus, I hypothesize that potential U.S. repatriation tax costs are negatively associated with U.S. MNCs' dividend payments and share repurchases.

If, however, U.S. MNCs obtain the economic use of their foreign cash without triggering incremental U.S. taxes through tax planning or borrowing, then potential repatriation tax costs may not significantly affect U.S. MNCs' dividend payments or share repurchases, especially if the costs associated with such transactions are small relative to the benefits they provide. In addition, repurchases are a more flexible payout vehicle than dividends (Brav, Graham, Harvey, and Michaely 2005).[4] If this flexibility enables U.S. MNCs to more easily employ tax planning strategies or borrow to access their foreign cash to fund repurchases without triggering U.S. repatriation taxes, then potential repatriation tax costs will likely be less of a constraint on share repurchases than on dividend payments.

Prior research has attempted to link actual repatriations from foreign subsidiaries with distributions to shareholders. Several studies examined how firms used funds repatriated under the American Jobs Creation Act of 2004 (AJCA), which temporarily reduced the maximum tax rate on repatriations (Blouin and Krull 2009; Graham, Hanlon, and Shevlin 2010; Dharmapala, Foley, and Forbes 2011; Faulkender and Petersen 2012; Brennan 2014). These studies reached differing conclusions regarding the extent to which repatriations under the AJCA led to increases in shareholder payouts. Faulkender and Petersen (2012) attribute the difference in their results and the results in Blouin and Krull (2009) and Dharmapala et al. (2011) to differences in how sample firms are classified into treated and untreated groups in the three studies.[5] These studies provide important evidence regarding firms' responses to a temporary repatriation tax holiday and the extent to which the AJCA achieved its policy objectives. Other evidence in these studies indicates that some U.S. MNCs' responses to the AJCA were more complex than simply accessing cash "trapped" abroad because of potential repatriation taxes (e.g., Graham et al. 2010; Dharmapala et al. 2011), which makes it difficult to infer how repatriation tax costs affect U.S. MNCs' shareholder payouts outside of a repatriation tax holiday.[6] My objective is to understand whether, in the absence of a temporary repatriation tax holiday, potential U.S. repatriation tax costs discourage U.S. MNCs from distributing cash to shareholders, or whether, on average, U.S. MNCs are able to obtain the economic use of their foreign cash to fund shareholder distributions.

I test my hypotheses using a sample of U.S. MNCs over the period 1987 through 2004. The sample period ends in 2004 to avoid the possible impact of the AJCA repatriation tax holiday. To test my hypotheses, I regress measures of dividend payments and share repurchases on a measure of potential repatriation tax costs, controlling for other determinants of dividend payments and share repurchases. I predict a negative association between repatriation tax costs and U.S. MNCs' dividend payments and share repurchases. I utilize a hurdle model (Cragg 1971) that allows me to examine the association between repatriation tax costs and: (1) the decision to pay a dividend/repurchase shares, (2) the magnitude of the dividend payment/share repurchase, conditional on the decision to pay a dividend/repurchase shares, and (3) the overall unconditional level of dividend payments/share repurchases.

I find that repatriation tax costs are significantly negatively associated with the probability that a U.S. MNC pays a dividend, the magnitude of dividend payments conditional on the decision to pay a dividend, and the overall unconditional level of

[2] Throughout the remainder of the paper, I will use the term "dividend" when referring to dividends paid by a U.S. parent to its shareholders, and "repatriation" when referring to dividends paid (or deemed paid) by a foreign subsidiary to its U.S. parent.

[3] Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 740-30-25-17 (hereafter referred to as the Indefinite Reversal Exception) defines permanently reinvested earnings as earnings of foreign subsidiaries that have been invested abroad indefinitely or will be remitted in a tax-free liquidation.

[4] Regular dividend payments are accompanied by an implicit commitment to similar recurring future dividends, but repurchases do not implicitly commit the firm to future payouts. Special dividends, like repurchases, offer more flexibility than regular dividends. Special dividends were relatively rare during my sample period. See footnote 19 for additional discussion.

[5] While Blouin and Krull (2009), Graham et al. (2010), and Dharmapala et al. (2011) conclude that U.S. MNCs significantly increased payouts to shareholders as a result of the AJCA, Faulkender and Petersen (2012) conclude that the AJCA had minimal impact on distributions to shareholders. Section II provides further discussion of these studies.

[6] Hines and Hubbard (1990), Altshuler and Newlon (1993), and Desai et al. (2007) examine the effect of U.S. parents' dividend policy on actual repatriations from foreign subsidiaries, which is a different research question from the research question examined in this paper. The findings in Hines and Hubbard (1990), Altshuler and Newlon (1993), and Desai et al. (2007) are mixed, and the mixed findings are due, in part, to differences in estimation methods and the inclusion or exclusion of controls for parent firm characteristics.

dividends paid by U.S. MNCs. The probability of paying a dividend is 4.35 (2.00) percentage points lower for a U.S. MNC facing the mean (median) level of positive repatriation tax costs than for a U.S. MNC without potential repatriation tax costs, and the overall level of dividends paid is 14.32 (6.57) percent lower. The significant negative associations between repatriation tax costs and U.S. MNCs' dividend payments are robust to controlling for prior-year dividends. Thus, I find that potential repatriation tax costs constrain U.S. MNCs' dividend payments to shareholders and demonstrate the economic magnitude of the effect.

When I examine U.S. MNCs' share repurchases, I also find a significant negative association between repatriation tax costs and the probability that a U.S. MNC repurchases shares. The probability of repurchasing shares is 1.74 (0.80) percentage points lower for a U.S. MNC facing the mean (median) level of positive repatriation tax costs than for a U.S. MNC without potential repatriation tax costs.[7] I do not, however, find a significant association between repatriation tax costs and either the magnitude of share repurchases conditional on the decision to repurchase shares or the overall unconditional level of share repurchases. Inferences are unchanged when controls for prior-year repurchases are included. Thus, while I find that potential repatriation tax costs decrease the probability that a U.S. MNC repurchases shares, I do not find evidence that repatriation tax costs reduce the amount of cash U.S. MNCs distribute to shareholders through share repurchases.

U.S. MNCs could occasionally incur costs (e.g., borrowing, utilizing tax attributes, engaging in complex transactions) that allow them to access the wealth represented by their foreign cash without triggering U.S. repatriation taxes. If these cash inflows to the U.S. parent are non-recurring, then they are likely to be distributed through share repurchases because share repurchases do not implicitly commit the firm to similar future payouts. To further investigate the association between potential repatriation tax costs and U.S. MNCs' share repurchases, I conduct cross-sectional analyses based upon U.S. MNCs' opportunities to fund repurchases without incurring incremental U.S. taxes.

First, I partition the sample based upon a measure of financial constraints. Prior analytical research demonstrates that U.S. MNCs can use external debt financing to extract cash from low-tax foreign subsidiaries without triggering U.S. repatriation taxes (Altshuler and Grubert 2003), and anecdotal evidence indicates that some U.S. MNCs, including Apple and Microsoft, have issued debt to fund shareholder distributions because much of their cash is held abroad (Maheshwari 2010; Apple 2013; Cherney 2015). Consistent with financially constrained firms being less able to borrow to fund repurchases without triggering repatriation taxes, I observe a significantly negative (insignificant) association between potential repatriation taxes and share repurchases among financially constrained (unconstrained) U.S. MNCs. I also partition the sample based upon actual net debt issuance and find evidence consistent with U.S. MNCs facing repatriation tax costs using debt to fund repurchases. These results are consistent with U.S. MNCs facing potential repatriation taxes incurring costs of borrowing to fund repurchases. In further cross-sectional tests, I partition the sample based upon the presence of net operating loss carryforwards (NOLs) and find evidence consistent with U.S. MNCs utilizing valuable tax attributes to minimize the incremental U.S. cash tax costs of repatriating to fund repurchases.

Next, I examine the effect of repatriation tax costs on the form of U.S. MNCs' shareholder payouts and find evidence consistent with U.S. MNCs facing repatriation tax costs making more extensive use of repurchases relative to dividends to distribute cash to shareholders. Finally, I examine whether repatriation tax costs constrain U.S. MNCs' shareholder payouts in the post-AJCA and post-financial crisis period (2009–2014). I do not find evidence of a negative association between repatriation tax costs and either U.S. MNCs' dividend payments or share repurchases during the post-AJCA period. Floyd et al. (2015, 300) observe "a staggering upsurge in the magnitude of payouts" beginning near the end of my main sample period. I look forward to future research that sheds lights on the forces driving this change and the role of potential repatriation taxes in shaping U.S. MNCs' shareholder payouts in the post-AJCA period.

This study makes several contributions to the literature. First, I contribute to our understanding of the effects of the U.S. worldwide tax system and financial reporting treatment of foreign earnings on U.S. MNCs' decisions. While existing research provides evidence that repatriation tax costs are associated with greater foreign cash holdings (Foley, Hartzell, Titman, and Twite 2007) and foreign acquisition activity (Edwards, Kravet, and Wilson 2016; Hanlon, Lester, and Verdi 2015), comparatively little empirical evidence exists regarding the effect of repatriation tax costs on U.S. MNCs' investing and financing decisions at home.[8] I advance this literature by providing evidence of the impact of repatriation tax costs on U.S. MNCs' payout policies,[9] which is important because payout policy interacts with firms' other investing and financing decisions

[7] The effects of repatriation tax costs on the probability of paying a dividend and on the probability of repurchasing shares are significantly different (untabulated).

[8] Albring (2006) finds that the U.S. tax and financial reporting treatment of foreign earnings is associated with a higher likelihood of issuing domestic debt.

[9] Several concurrent working papers examine the valuation of cash holdings and the channels that contribute to any observed differential value of foreign and domestic cash holdings (e.g., Chen 2015; Harford, Wang, and Zhang 2015; Campbell, Dhaliwal, Krull, and Schwab 2014; Thakor 2013; Yang 2015). These studies provide evidence regarding investors' perceptions of costs associated with future repatriation taxes and/or suboptimal investment of foreign cash holdings. I provide direct evidence regarding the association between potential U.S. repatriation taxes and the dividend payments and share repurchases of U.S. MNCs, and I quantify the economic magnitudes of the observed effects. I also provide evidence suggestive of U.S. MNCs incurring costs (e.g., borrowing, utilizing tax attributes, engaging in complex transactions) to avoid paying U.S. repatriation taxes.

and is at the core of many questions in corporate finance (Allen and Michaely 2003; Farre-Mensa, Michaely, and Schmalz 2014). The results also indicate that some U.S. MNCs incur costs (e.g., borrowing, utilizing tax attributes, engaging in complex transactions) to avoid U.S. repatriation taxes when repurchasing shares. Understanding how the current U.S. tax and financial reporting treatment of foreign earnings affects U.S. MNCs' decisions is critical as policymakers consider reforms to the current U.S. worldwide tax system. The results suggest that moving to a territorial tax system could increase U.S. MNCs' dividend payments and the share repurchases of U.S. MNCs with limited resources or opportunities to employ complex tax planning strategies or to obtain external financing to fund repurchases.

Second, I contribute to the finance literature that examines the determinants of firms' payout policies. This study provides evidence of the importance of repatriation tax costs in explaining the incidence, amount, and form of payouts to shareholders by U.S. MNCs and quantifies the economic magnitude of the effect of repatriation taxes on U.S. MNCs' dividend payments and share repurchases. In doing so, this study responds to calls to use insights from fields outside of corporate finance to improve our understanding of corporate payout policy (Farre-Mensa et al. 2014).

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

U.S. Tax and Financial Reporting Treatment of Foreign Earnings

Under the U.S. worldwide tax system, all income of a U.S. corporation is subject to U.S. taxation, regardless of where the income is earned. In general, the U.S. tax on a U.S. corporation's foreign earnings is deferred until those earnings are repatriated. The U.S. grants foreign tax credits for foreign taxes paid to mitigate double taxation. The foreign tax credit is calculated on a worldwide basis, which enables U.S. MNCs to use excess credits associated with repatriations from high-tax foreign subsidiaries to reduce the U.S. tax due on repatriations from low-tax foreign subsidiaries. As a result, U.S. corporations with average foreign tax rates below the U.S. tax rate generally owe U.S. tax upon repatriation at a rate approximately equal to the difference between the foreign and U.S. tax rates.[10]

U.S. tax law determines when firms must pay the U.S. tax on their foreign earnings, while U.S. financial reporting rules determine when firms must record income tax expense in their financial statements. In general, for financial reporting purposes, U.S. firms are required to record deferred tax expense for the estimated U.S. repatriation tax in the period the foreign profits are earned. However, the Indefinite Reversal Exception allows U.S. firms to avoid recording the deferred tax expense associated with foreign earnings designated as "permanently reinvested" abroad,[11] which leads to higher after-tax net income reported in the financial statements.

Hypothesis Development

The U.S. worldwide tax system and financial reporting treatment of foreign earnings potentially discourage some firms from repatriating their foreign profits.[12] Prior empirical research has found a negative association between repatriations and the estimated U.S. repatriation tax cost (Hines and Hubbard 1990; Altshuler and Newlon 1993; Desai et al. 2001, 2007) and financial reporting incentives (Graham et al. 2011; Blouin et al. 2012).

Firms can distribute cash to their shareholders by paying dividends or repurchasing shares. If the U.S. worldwide tax system and financial reporting treatment of foreign earnings discourage U.S. MNCs from repatriating, then their foreign cash is potentially not available to U.S. parents to distribute to shareholders. Thus, I hypothesize that U.S. repatriation tax costs are negatively associated with U.S. MNCs' dividend payments and share repurchases:

H1: Repatriation tax costs are negatively associated with the level of dividend payments by U.S. MNCs.

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[10] U.S. corporations with average foreign tax rates above the statutory U.S. tax rate are generally in an excess credit position and do not owe U.S. tax upon the repatriation. These excess foreign tax credits may be carried forward (back) to offset (recover) taxes due (paid) in future (prior) years.

[11] A U.S. MNC's assertion that foreign earnings will be indefinitely reinvested abroad should be supported by specific plans for reinvestment in its foreign operations. A U.S. MNC may designate all or only a portion of its foreign earnings as indefinitely reinvested. The Indefinite Reversal Exception requires a U.S. MNC to continuously assert that foreign earnings are indefinitely reinvested and, thus, it is possible that changes in facts and circumstances could lead to a change in the indefinitely reinvested designation. The Securities and Exchange Commission (SEC) has issued comment letters seeking additional details regarding U.S. MNCs' indefinitely reinvested foreign earnings (Chasan 2014; Kubick, Lynch, Mayberry, and Omer 2016).

[12] Hartman (1985) concludes that the U.S. tax on foreign earnings should be irrelevant to the decision to reinvest or repatriate. The Hartman (1985) tax indifference result assumes: (1) the choice set of the foreign subsidiary is limited to reinvestment in its own operations or repatriation to the U.S. parent, and (2) the U.S. repatriation tax is an unavoidable fixed cost. Subsequent theoretical research has relaxed these assumptions and demonstrated that the U.S. repatriation tax can affect U.S. MNCs' repatriation decisions (e.g., Hines and Rice 1994; Altshuler and Grubert 2003; De Waegenaere and Sansing 2008; Altshuler and Fulghieri 1994; Blouin and Krull 2009).

H2: Repatriation tax costs are negatively associated with the level of share repurchases by U.S. MNCs.

However, if U.S. MNCs devise tax planning strategies or borrow to access the wealth represented by their foreign cash without incurring U.S. repatriation taxes, then potential repatriation tax costs stemming from the U.S. worldwide tax system may not significantly affect U.S. MNCs' dividend payments or share repurchases. Edward Kleinbard, a law professor at the University of Southern California, asserts, "Sophisticated U.S. companies are routinely repatriating hundreds of billions of dollars in foreign earnings and paying trivially small U.S. taxes on those repatriations" (Drucker 2010). An example of a strategy some U.S. MNCs have used to achieve the economic equivalent of tax-free repatriation is explained in Appendix B. Martin et al. (2015) provide empirical evidence of U.S. MNCs' use of such strategies to bring cash back to the U.S. Altshuler and Grubert (2003) demonstrate that U.S. MNCs can use external debt financing to extract cash from low-tax foreign subsidiaries without triggering U.S. repatriation taxes. For example, Microsoft and Apple have issued bonds with the stated intention to use some of the proceeds to make distributions to shareholders because much of their cash is held abroad (Maheshwari 2010; Apple 2013; Cherney 2015). While the transaction costs associated with these strategies are non-zero, if the transaction costs are small relative to the benefits they provide, then potential repatriation tax costs stemming from the U.S. worldwide tax system may not deter U.S. MNCs' dividend payments or share repurchases to a large extent.

Also, prior research linking distributions to shareholders with repatriation tax costs and with actual repatriations has produced mixed results. Hines (1996) does not find a significant association between the estimated U.S. tax cost of repatriations and the level of dividends paid in a sample of U.S. MNCs for the single year 1986. Hines and Hubbard (1990) find a strong positive association between U.S. parents' dividend payments to shareholders and repatriations from foreign subsidiaries, but Altshuler and Newlon (1993) find that this association disappears when parent fixed effects are included. Similarly, when Desai et al. (2007) examine the effect of U.S. parents' dividend payments to shareholders on repatriations, the results are sensitive to the estimation method employed.

Another set of studies examines the effect of repatriations under the AJCA on firms' shareholder payouts. Graham et al. (2010), Blouin and Krull (2009), and Dharmapala et al. (2011) find that repatriations under the AJCA were associated with increased payouts to shareholders, but Faulkender and Petersen (2012) find insignificant or minimal increases in distributions to shareholders.[13] Brennan (2014) also concludes that the degree to which funds repatriated under the AJCA were distributed to shareholders was much lower than estimated by Blouin and Krull (2009) and Dharmapala et al. (2011). Also, Blouin (2011) observes that unless a firm was already planning to repatriate in the near term, the AJCA would have had little impact on its decision to repatriate. Graham et al. (2010) note that approximately 23 percent of their survey respondents' repatriations under the AJCA were funded with borrowed funds, and Dharmapala et al. (2011) find that U.S. MNCs engaged in "round-tripping" during the AJCA (i.e., U.S. parents simultaneously repatriated profits from and injected capital into foreign affiliates). These findings indicate that some U.S. MNCs' responses to the AJCA were more complex than simply accessing cash "trapped" abroad because of potential repatriation tax costs.

Furthermore, because dividends and repurchases are different payout vehicles with different characteristics, it is possible I will observe a different effect of repatriation tax costs on dividend payments than on share repurchases. Firms seek to maintain a stable or increasing stream of dividend payments and are reluctant to cut dividends (Lintner 1956; Brav et al. 2005). As a result, dividends tend to be used to distribute permanent cash flows (Guay and Harford 2000; Jagannathan, Stephens, and Weisbach 2000). Brav et al. (2005) find that managers view repurchases as more flexible than dividends. Unlike dividends, repurchases do not implicitly commit the firm to future payouts, so repurchases are useful for distributing transitory cash flows (Guay and Harford 2000; Jagannathan et al. 2000). If the flexibility of repurchases enables U.S. MNCs to match the timing of repurchases with tax planning strategies or borrowing that allow them to access the wealth represented by their foreign cash without triggering U.S. repatriation taxes, then it is possible that repatriation tax costs will be less of a constraint on share repurchases than on dividend payments. Thus, the associations between repatriation tax costs and U.S. MNCs' dividend payments and share repurchases are empirical questions.

[13] Faulkender and Petersen (2012) attribute the differences in their results and the results in Blouin and Krull (2009) and Dharmapala et al. (2011) to differences in how sample firms are classified into treated and untreated groups in the difference-in-differences research designs used in the three studies. Faulkender and Petersen (2012) describe the sample as consisting of three groups of firms: (A) firms with a low probability of repatriating under the AJCA, because, for example, they do not have foreign earnings in low-tax jurisdictions, (B) firms that could have repatriated low-tax foreign earnings under the AJCA, but chose not to do so, and (C) firms that chose to repatriate foreign earnings under the AJCA. They characterize the Blouin and Krull (2009) research design as comparing Group C to Groups A and B, and the Dharmapala et al. (2011) research design as comparing Groups B and C to Group A. Faulkender and Petersen (2012) assert that in order to test whether, conditional on being able to take advantage of the AJCA tax holiday, firms increase shareholder payouts if they repatriate under the AJCA, it is necessary to first differentiate Groups B and C from Group A, and then to differentiate Group C from Group B. My study does not use a difference-in-differences research design where the treatment involves a choice made by the firm.

TABLE 1

Sample Selection and Composition

Panel A: Sample Selection

Compustat firm-years: 1987–2004	183,216
Less: Utilities and financial institutions	(47,219)
Less: Firms incorporated outside of the U.S.	(11,302)
Less: Firm-years with missing or zero foreign pretax income	(101,037)
Compustat U.S. multinational company (MNC) firm-years	23,658
Less: Missing values of Compustat-based regression variables	(9,707)
Less: Missing values of CRSP-based regression variables	(1,507)
U.S. MNC firm-years	12,444

Panel B: Sample Composition

Year	MNCs	Column %	Payers	Row %	Dividend Payers	Row %	Repurchasers	Row %
1987	507	4.07%	377	74.36%	323	63.71%	253	49.90%
1988	523	4.20%	387	74.00%	338	64.63%	239	45.70%
1989	541	4.35%	397	73.38%	347	64.14%	242	44.73%
1990	573	4.60%	420	73.30%	354	61.78%	261	45.55%
1991	596	4.79%	426	71.48%	365	61.24%	233	39.09%
1992	639	5.14%	447	69.95%	379	59.31%	225	35.21%
1993	664	5.34%	440	66.27%	370	55.72%	231	34.79%
1994	712	5.72%	460	64.61%	380	53.37%	260	36.52%
1995	772	6.20%	497	64.38%	396	51.30%	297	38.47%
1996	773	6.21%	515	66.62%	393	50.84%	356	46.05%
1997	784	6.30%	529	67.47%	385	49.11%	392	50.00%
1998	792	6.36%	571	72.10%	374	47.22%	478	60.35%
1999	774	6.22%	549	70.93%	342	44.19%	455	58.79%
2000	703	5.65%	491	69.84%	313	44.52%	412	58.61%
2001	709	5.70%	468	66.01%	292	41.18%	373	52.61%
2002	743	5.97%	460	61.91%	279	37.55%	351	47.24%
2003	792	6.36%	478	60.35%	306	38.64%	357	45.08%
2004	847	6.81%	500	59.03%	345	40.73%	362	42.74%
Total:	12,444	100%	8,412		6,281		5,777	

III. SAMPLE AND RESEARCH DESIGN

Sample Selection

Table 1, Panel A describes the sample selection procedure. The sample includes U.S. MNCs in the Compustat and Center for Research in Security Prices (CRSP) files between 1987 and 2004. The sample ends in 2004 to avoid the effects of the AJCA repatriation tax holiday.[14,15] To identify U.S. MNCs, I require firms to be incorporated in the U.S. and to have non-missing, non-zero values of foreign pretax income.[16] Consistent with prior payout policy research, I exclude financial institutions and

[14] Hanlon et al. (2015) examine a similar sample period. Section V discusses results for the post-AJCA period.

[15] Albring, Dzuranin, and Mills (2005) and Albring, Mills, and Newberry (2011) suggest that some U.S. MNCs were building up permanently reinvested earnings in the years immediately preceding the AJCA in anticipation of a probable repatriation tax holiday. Inferences with respect to H1 and H2 are unchanged when excluding 2002, 2003, and 2004 firm-years from the sample (untabulated).

[16] The Compustat/CRSP universe of U.S. firms can be thought of as consisting of three groups of firms: Group 1 includes firms without foreign operations; Group 2 includes firms with relatively high-tax foreign operations; Group 3 includes firms with relatively low-tax foreign operations. In order for repatriation taxes to have the opportunity to affect a firm's payout policy, the firm must have foreign operations. Thus, my sample includes firms in Groups 2 and 3.

public utilities (Standard Industrial Classification [SIC] codes 4900–4949 and 6000–6999) because these are regulated industries. After requiring non-missing values of the regression variables, the sample includes 12,444 firm-year observations.

Table 1, Panel B presents the number of observations, dividend payers, and repurchasers by year. The number of U.S. MNCs increases over the sample period, which is consistent with the increasing globalization of U.S. firms. The percentage of U.S. MNCs paying dividends declines over time, which is consistent with prior research that has documented a decline in the propensity of U.S. firms to pay dividends during the sample period (e.g., Fama and French 2001; H. DeAngelo, L. DeAngelo, and Stulz 2006). The incidence of repurchases does not exhibit an overall time trend.

Research Design

H1 (H2) predicts a negative association between repatriation tax costs and U.S. MNCs' dividend payments (share repurchases). Dividend payments and share repurchases equal to zero represent corner solution outcomes. Tobit regressions have been used in prior studies of determinants of shareholder payouts (e.g., Fenn and Liang 2001; Cuny, Martin, and Puthenpurackal 2009; Desai and Jin 2011; Young and Yang 2011; Grullon and Michaely 2014), but Tobit models assume that the effect of independent variables on the choice to pay out and on the magnitude of positive payouts are of the same sign and relative magnitude (Wooldridge 2010). Alternative models provide more flexibility by allowing the effect of independent variables on the participation decision (i.e., whether to pay a dividend or repurchase shares) to be estimated separately from their effect on the amount decision (i.e., given the decision to pay a dividend or repurchase shares, how large should the dividend or repurchase be) (Wooldridge 2010). I use one such model, the Cragg (1971) hurdle model, to test my hypotheses.[17]

The Cragg (1971) hurdle model involves the estimation of Equation (1) with a probit model on the full sample, followed by the estimation of Equation (2) with a truncated normal regression model on the subsample of firms with $DistLevel > 0$:

$$\begin{aligned} &Prob(DistIndicator_{it} = 1) \\ &\quad = F\Big(a_0 + \beta_1 REPAT_{it} + \beta_2 eUS_{it} + \beta_3 eFOR_{it} + \beta_4 Size_{it-1} + \beta_5 SGR_{it} + \beta_6 MTB_{it-1} + \beta_7 CAPEX_{it-1} + \beta_8 AGE_{it} \\ &\quad + \beta_9 RE/TE_{it-1} + \beta_{10} LEV_{it-1} + \beta_{11} CASH_{it-1} + \beta_{12}\sigma(eUS)_{it} + \beta_{13}\sigma(eFOR)_{it} + \beta_{14} PastStockRet_{it} + \beta_{15} Options_{it} \\ &\quad + \sum \beta_k YearInd_{it} + \varepsilon_{it}\Big) \end{aligned} \tag{1}$$

$$\begin{aligned} DistLevel_{it} = {} & a_0 + \beta_1 REPAT_{it} + \beta_2 eUS_{it} + \beta_3 eFOR_{it} + \beta_4 Size_{it-1} + \beta_5 SGR_{it} + \beta_6 MTB_{it-1} + \beta_7 CAPEX_{it-1} + \beta_8 AGE_{it} \\ & + \beta_9 RE/TE_{it-1} + \beta_{10} LEV_{it-1} + \beta_{11} CASH_{it-1} + \beta_{12}\sigma(eUS)_{it} + \beta_{13}\sigma(eFOR)_{it} + \beta_{14} PastStockRet_{it} \\ & + \beta_{15} Options_{it} + \sum \beta_k YearInd_{it} + \varepsilon_{it} \end{aligned} \tag{2}$$

The results of estimating Equations (1) and (2) are used to compute average partial effects of the independent variables on the unconditional level of the dependent variable (dividend payments or share repurchases) in the full sample, which are used to draw inferences regarding H1 and H2.[18] In additional (untabulated) specifications, I also include the lagged value of the dependent variable as a control variable.

To test H1, the dependent variables are an indicator variable for whether the firm paid dividends to common shareholders (*DivIndicator*) and dividends scaled by lagged total assets (*DivLevel*).[19] To test H2, I use dependent variables based on *Repurchases,* measured as purchases of common and preferred stock by firm i in year t less any decrease in the redemption value of preferred stock from year t–1 to t.[20]

[17] Inferences with respect to H1 and H2 are unchanged using a Tobit model (untabulated). I use the Cragg (1971) model because a likelihood-ratio test strongly rejects the Tobit model against the Cragg (1971) model, and the Cragg (1971) model allows me to observe the effect of repatriation tax costs (and the other independent variables) on the participation decision and the amount decision, as well as on the corner solution response variable. Dikolli, Kulp, and Sedatole (2009) also use the Cragg (1971) model.

[18] Equations (1) and (2) are estimated using the craggit Stata command. Average partial effects are computed following Burke (2009).

[19] This measure captures regular and special dividends paid to common shareholders. Although special dividends are an alternative to repurchases for making transitory cash distributions, special dividends were rare during my sample period. To illustrate, H. DeAngelo, L. DeAngelo, and Skinner (2000) find that during the 1980s (1990s through 1995), only 2.2 (1.8) percent of NYSE dividend-paying firms paid special dividends, and special dividends accounted for only 0.2 (0.1) percent of all dividends paid by NYSE firms. To the extent that the measures include special dividends, this will bias against finding stronger effects for dividends versus repurchases.

[20] Banyi, Dyl, and Kahle (2008) examine the accuracy of estimates of share repurchases and conclude that this measure is the most accurate of the CRSP- and Compustat-based measures they consider. However, this measure potentially overestimates the dollar volume of cash payouts to investors by, for example, failing to adjust for repurchases undertaken to offset share issuance from stock option exercises. I include the control variable *Options* to proxy for firms' anti-dilution incentives.

The variable of interest in Equations (1) and (2) is *REPAT*, which is a measure of potential repatriation tax costs imposed by the U.S. worldwide tax system constructed similar to Foley et al. (2007) and Hanlon et al. (2015).[21] Specifically, *REPAT* equals foreign pretax income multiplied by the difference between the U.S. statutory tax rate and the firm's three-year average foreign current effective tax rate, scaled by lagged total assets.[22,23] *REPAT* equals 0 for firm-years with a three-year average foreign current effective tax rate above the U.S. statutory rate or a current or cumulative three-year foreign pretax loss, because these firms should not face incremental U.S. taxes upon repatriation.[24] Observing $\beta_1 < 0$ in Equation (1) is consistent with potential repatriation tax costs decreasing the probability that a U.S. MNC pays a dividend or repurchases shares, and observing $\beta_1 < 0$ in Equation (2) is consistent with potential repatriation tax costs decreasing the magnitude of dividend payments or share repurchases of U.S. MNCs that pay dividends or repurchase shares. H1 (H2) predicts that the overall unconditional average partial effect of *REPAT* on dividend payments (share repurchases) is negative and significant.

The remaining variables in Equations (1) and (2) are control variables commonly used in prior payout policy research (e.g., Chay and Suh 2009; Cuny et al. 2009; Grullon, Paye, Underwood, and Weston 2011; Desai and Jin 2011; Young and Yang 2011; Hoberg, Phillips, and Prabhala 2014). I expect that more profitable firms (*eUS* and *eFOR*), larger firms (*SIZE*), and more mature firms (*AGE* and *RE/TE*) will make larger distributions to shareholders. Because Hines (1996) finds that firms pay dividends out of foreign earnings at a higher rate than out of domestic earnings, I include separate controls for domestic pretax income (*eUS*) and foreign pretax income (*eFOR*). Firms with greater growth opportunities, highly levered firms (*LEV*), and firms with more volatile earnings ($\sigma(eUS)$) and ($\sigma(eFOR)$) should make smaller distributions to shareholders. The annual percentage change in sales (*SGR*), lagged market-to-book ratio (*MTB*), and lagged capital expenditures scaled by total assets (*CAPEX*) control for growth opportunities.[25] I also control for lagged cash holdings (*CASH*). Large cash holdings could indicate resources held for precautionary reasons to fund future investment opportunities, which would predict a negative association with shareholder distributions, or a build-up of excess funds that should be distributed to shareholders, which would predict a positive association (DeAngelo et al. 2006). I include the firm's stock return over the current and prior year (*PastStockRet*) to control for firms' tendency to repurchase stock when it is undervalued (Stephens and Weisbach 1998; Brav et al. 2005). Prior research finds that firms use repurchases to offset earnings-per-share dilution that results from stock option usage (Bens, Nagar, Skinner, and Wong 2003), so I include *Options*, constructed following Cuny et al. (2009), as a proxy for firms' anti-dilution incentives and expect it to be positively associated with share repurchases. Equations (1) and (2) also include year fixed effects (*YearInd*). In additional untabulated specifications, I include controls for the lagged values of *DistIndicator* and *DistLevel* because of the recurring nature of dividend payments, and expect to observe a strong positive association between prior-year and current-year dividend payments. Appendix A provides complete variable definitions. All continuous variables are winsorized at the 1st and 99th percentiles.

IV. DESCRIPTIVE STATISTICS AND RESULTS

Descriptive Statistics

Table 2 presents descriptive statistics. Fifty percent of firm-years paid dividends (*DivIndicator*), and 46 percent of firm-years repurchased shares (*RepIndicator*). The mean levels of dividends (*DivLevel*) and share repurchases (*RepLevel*) are 1.21 and 1.75 percent of lagged total assets, respectively. The mean value of potential repatriation tax costs (*REPAT*) is 0.23 percent of lagged total assets.

Table 3 presents the correlations among the regression variables. The Pearson correlations of *REPAT* with *DivIndicator* and *DivLevel* are negative and significant, while the correlation with *RepIndicator* (*RepLevel*) is insignificant (positive and

[21] Inferences with respect to H1 and H2 are unchanged if *REPAT* is constructed as in Foley et al. (2007), using only year *t* current foreign tax expense (i.e., *REPAT* equals the maximum of 0 and foreign pretax income multiplied by the U.S. statutory tax rate less foreign current tax expense of firm *i* in year *t*).

[22] I am interested in the effect of the U.S. worldwide tax system and financial reporting treatment of foreign earnings on U.S. MNCs' shareholder payouts. *REPAT* is intended to capture potential repatriation tax costs imposed by the U.S. worldwide tax system. It does not take into account complex tax planning undertaken by a U.S. MNC to avoid repatriation taxes imposed by the U.S. worldwide tax system or tax attributes associated with the U.S. tax return that lower a particular firm's marginal cost of repatriating foreign earnings in a given year.

[23] *REPAT* is a proxy for incremental U.S. tax imposed by the U.S. worldwide tax system if the firm repatriates foreign earnings in year *t*. I use current tax expense to construct *REPAT* because foreign taxes paid by the subsidiary before and during year *t* are included in the foreign tax pool used to determine the foreign tax credit. Thus, the timing of tax payments is important, and current foreign tax expense reflects this timing to a greater extent than total tax expense. Inferences with respect to H1 and H2 are unchanged if *REPAT* is constructed using total tax expense (untabulated).

[24] Inferences with respect to H1 and H2 are unchanged if firm-years with negative current-year foreign pretax income or with negative three-year cumulative foreign pretax income are excluded from the sample (untabulated).

[25] Inferences with respect to H1 and H2 are similar when Compustat segment data are used to construct separate controls for U.S. and foreign sales growth (untabulated).

TABLE 2

Descriptive Statistics

Variable	n	Mean	Std. Dev.	10th Pctl.	25th Pctl.	50th Pctl.	75th Pctl.	90th Pctl.
$DivIndicator_{it}$	12,444	0.5047	0.5000	0.0000	0.0000	1.0000	1.0000	1.0000
$RepIndicator_{it}$	12,444	0.4642	0.4987	0.0000	0.0000	0.0000	1.0000	1.0000
$DivLevel_{it}$	12,444	0.0121	0.0183	0.0000	0.0000	0.0009	0.0191	0.0344
$RepLevel_{it}$	12,444	0.0175	0.0386	0.0000	0.0000	0.0000	0.0163	0.0560
$REPAT_{it}$	12,444	0.0023	0.0058	0.0000	0.0000	0.0000	0.0015	0.0072
eUS_{it}	12,444	0.0455	0.1133	−0.0755	−0.0037	0.0470	0.1030	0.1734
$eFOR_{it}$	12,444	0.0269	0.0453	−0.0110	0.0029	0.0173	0.0445	0.0826
$Size_{it-1}$	12,444	6.2061	1.8526	3.8038	4.8611	6.1125	7.4909	8.7131
SGR_{it}	12,444	0.0951	0.2200	−0.1239	−0.0110	0.0732	0.1715	0.3255
MTB_{it-1}	12,444	2.7097	2.7890	0.7859	1.2384	1.9724	3.2259	5.4169
$CAPEX_{it-1}$	12,444	0.0591	0.0435	0.0165	0.0294	0.0484	0.0763	0.1140
AGE_{it}	12,444	2.7008	0.9456	1.3652	2.0149	2.8332	3.3816	4.0013
RE/TE_{it-1}	12,444	0.3886	1.2811	−0.3678	0.2016	0.5993	0.8801	1.1090
LEV_{it-1}	12,444	0.2200	0.1731	0.0024	0.0741	0.2046	0.3282	0.4495
$CASH_{it-1}$	12,444	0.1284	0.1531	0.0096	0.0223	0.0650	0.1762	0.3498
$\sigma(eUS)_{it}$	12,444	0.0702	0.0769	0.0139	0.0244	0.0448	0.0845	0.1538
$\sigma(eFOR)_{it}$	12,444	0.0219	0.0247	0.0033	0.0066	0.0139	0.0269	0.0499
$PastStockRet_{it}$	12,444	0.3290	0.8513	−0.4979	−0.1942	0.1677	0.6021	1.2444
$Options_{it}$	12,444	0.0428	0.1016	−0.0118	0.0007	0.0129	0.0441	0.1263
$FinCon_{it}$	7,806	0.2499	0.4330	0.0000	0.0000	0.0000	0.0000	1.0000
$NetDebt_{it}$	12,444	0.1736	0.3788	0.0000	0.0000	0.0000	0.0000	1.0000
NOL_{it-1}	12,444	0.3078	0.4616	0.0000	0.0000	0.0000	1.0000	1.0000

Complete variable definitions are provided in Appendix A.

significant). These correlations indicate that the associations of repatriation tax costs with dividend payments and share repurchases examined in H1 and H2 could differ. Many of the control variables are significantly correlated with the payout variables in the expected directions.

Results of the Tests of H1

Table 4 reports the results of estimating Equations (1) and (2) to test whether repatriation tax costs are negatively associated with dividends. Column (1) presents the coefficient estimates from the first-stage probit, and Column (3) presents the coefficient estimates from the truncated normal regression using the subsample of observations with $DivLevel > 0$. Columns (2) and (4) provide the average partial effects from the probit and truncated normal regressions. Column (5) reports the overall unconditional average partial effects of the independent variables on U.S. MNCs' dividend payments, which are used to draw inferences regarding H1.

The coefficients on *REPAT* in Table 4, Columns (1) and (3) are negative and significant, indicating that repatriation tax costs are negatively associated with both the probability that a U.S. MNC pays a dividend and the magnitude of dividend payments when a U.S. MNC pays a dividend. The average partial effect of *REPAT* in Column (2) indicates that the probability of paying a dividend is 4.35 (2.00) percentage points lower for a U.S. MNC with the mean (median) level of positive *REPAT* relative to a U.S. MNC with $REPAT = 0$, which represents 8.62 (3.96) percent of the base probability of paying a dividend.[26] As predicted in H1, the overall unconditional average partial effect in Column (5) is negative and significant. For a U.S. MNC with the mean (median) level of positive *REPAT,* the level of dividends paid is 0.17 (0.08) percent of lagged total assets lower than for a U.S. MNC with $REPAT = 0$, which represents 14.32 (6.57) percent of the mean level of dividends paid. Thus, I document an economically significant effect of potential repatriation tax costs on the level of U.S. MNCs' dividend payments.

[26] The mean (median) value of *REPAT* for sample firm-years with $REPAT > 0$ is 0.0061 (0.0028) (untabulated).

TABLE 3

Pearson (Spearman) Correlations Below (Above) the Diagonal

Panel A: Correlation Variables *DivIndicator* to *CAPEX*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) $DivIndicator_{it}$		**0.235**	**0.924**	**0.221**	**0.032**	**0.241**	**0.178**	**0.432**	**−0.035**	**0.136**	**0.166**
(2) $RepIndicator_{it}$	**0.235**		**0.274**	**0.939**	**0.062**	**0.214**	**0.153**	**0.227**	**−0.039**	**0.186**	**0.057**
(3) $DivLevel_{it}$	**0.655**	**0.251**		**0.274**	**0.034**	**0.316**	**0.221**	**0.408**	**−0.029**	**0.222**	**0.179**
(4) $RepLevel_{it}$	**0.084**	**0.488**	**0.173**		**0.088**	**0.269**	**0.190**	**0.235**	**−0.029**	**0.252**	**0.059**
(5) $REPAT_{it}$	**−0.082**	0.017	**−0.026**	**0.112**		**0.044**	**0.473**	**0.118**	**0.128**	**0.120**	**0.050**
(6) eUS_{it}	**0.224**	**0.200**	**0.296**	**0.242**	**0.026**		**0.189**	**0.063**	**0.373**	**0.392**	**0.108**
(7) $eFOR_{it}$	**0.137**	**0.145**	**0.241**	**0.190**	**0.557**	**0.201**		**0.200**	**0.251**	**0.277**	**0.099**
(8) $Size_{it-1}$	**0.432**	**0.228**	**0.295**	**0.134**	**0.023**	**0.085**	**0.166**		**−0.039**	**0.232**	**0.128**
(9) SGR_{it}	**−0.064**	**−0.063**	**−0.034**	*−0.022*	**0.164**	**0.304**	**0.228**	**−0.051**		**0.240**	0.013
(10) MTB_{it-1}	**0.051**	**0.124**	**0.240**	**0.243**	**0.146**	**0.242**	**0.235**	**0.159**	**0.161**		**0.129**
(11) $CAPEX_{it-1}$	**0.094**	0.009	**0.065**	−0.007	**0.048**	**0.054**	**0.053**	**0.085**	**0.026**	**0.053**	
(12) AGE_{it}	**0.463**	**0.157**	**0.380**	**0.052**	**−0.061**	**0.091**	**0.071**	**0.425**	**−0.131**	−0.001	0.011
(13) RE/TE_{it-1}	**0.307**	**0.182**	**0.256**	**0.112**	0.008	**0.218**	**0.152**	**0.239**	−0.004	**−0.174**	**0.069**
(14) LEV_{it-1}	**0.040**	**−0.139**	**−0.097**	**−0.164**	**−0.087**	**−0.172**	**−0.113**	**0.217**	**−0.071**	**−0.083**	0.010
(15) $CASH_{it-1}$	**−0.304**	**0.028**	**−0.120**	**0.150**	**0.143**	0.009	**0.047**	**−0.252**	**0.126**	**0.176**	**−0.137**
(16) $\sigma(eUS)_{it}$	**−0.361**	**−0.131**	**−0.234**	−0.016	0.016	**−0.231**	**−0.147**	**−0.279**	**0.035**	**0.103**	**−0.043**
(17) $\sigma(eFOR)_{it}$	**−0.271**	**−0.107**	**−0.173**	*−0.020*	**0.278**	**−0.209**	**0.125**	**−0.206**	**0.031**	**0.085**	0.011
(18) $PastStockRet_{it}$	−0.008	**−0.027**	0.009	**0.051**	**0.170**	**0.370**	**0.252**	*−0.021*	**0.363**	**0.158**	**−0.054**
(19) $Options_{it}$	**−0.173**	**−0.106**	**−0.128**	*0.019*	**0.054**	**−0.058**	0.000	**−0.066**	**0.302**	**0.026**	**−0.051**
(20) NOL_{it-1}	**−0.199**	**−0.089**	**−0.196**	**−0.062**	−0.010	**−0.176**	**−0.071**	**−0.044**	**−0.028**	**−0.029**	**−0.081**
(21) $FinCon_{it}$	**−0.180**	**−0.087**	**−0.115**	*−0.028*	0.009	**−0.227**	**−0.084**	*0.026*	**−0.072**	0.004	**−0.107**
(22) $NetDebt_{it}$	**0.033**	0.011	0.009	**0.037**	0.017	−0.007	0.013	**0.029**	**0.133**	**0.039**	**0.125**

Panel B: Correlation Variables *AGE* to *NetDebt*

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) $DivIndicator_{it}$	**0.481**	**0.497**	**0.100**	**−0.263**	**−0.409**	**−0.267**	**0.122**	**−0.178**	**−0.199**	**−0.180**	**0.033**
(2) $RepIndicator_{it}$	**0.157**	**0.271**	**−0.122**	**0.042**	**−0.153**	**−0.097**	**0.030**	**−0.041**	**−0.089**	**−0.087**	0.011
(3) $DivLevel_{it}$	**0.495**	**0.531**	**0.025**	**−0.203**	**−0.392**	**−0.253**	**0.135**	**−0.186**	**−0.220**	**−0.174**	**0.027**
(4) $RepLevel_{it}$	**0.145**	**0.273**	**−0.160**	**0.086**	**−0.132**	**−0.079**	**0.053**	0.008	**−0.096**	**−0.078**	0.016
(5) $REPAT_{it}$	*0.018*	**0.074**	*−0.019*	**0.026**	**−0.096**	**0.096**	**0.120**	**0.035**	**−0.045**	*−0.045*	**0.036**
(6) eUS_{it}	**0.077**	**0.271**	**−0.203**	**0.054**	**−0.175**	**−0.205**	**0.444**	**0.062**	**−0.181**	**−0.223**	0.012
(7) $eFOR_{it}$	**0.098**	**0.217**	**−0.086**	**0.077**	**−0.212**	**0.217**	**0.285**	**0.049**	**−0.071**	**−0.099**	*0.022*
(8) $Size_{it-1}$	**0.443**	**0.317**	**0.265**	**−0.255**	**−0.326**	**−0.185**	**0.083**	**−0.036**	**−0.041**	0.017	**0.036**
(9) SGR_{it}	**−0.119**	**−0.045**	**−0.094**	**0.113**	**−0.043**	*0.018*	**0.404**	**0.283**	**−0.035**	**−0.094**	**0.131**
(10) MTB_{it-1}	*0.019*	**0.034**	**−0.144**	**0.167**	−0.007	**0.063**	**0.218**	**0.117**	**−0.078**	−0.019	**0.072**
(11) $CAPEX_{it-1}$	**0.072**	**0.142**	0.006	**−0.120**	**−0.072**	−0.001	**−0.035**	**−0.075**	**−0.101**	**−0.132**	**0.102**
(12) AGE_{it}		**0.433**	**0.151**	**−0.206**	**−0.329**	**−0.209**	**0.091**	**−0.153**	**−0.086**	**−0.084**	*−0.020*
(13) RE/TE_{it-1}	**0.232**		**0.030**	**−0.147**	**−0.335**	**−0.209**	**0.104**	**−0.248**	**−0.227**	**−0.172**	−0.001
(14) LEV_{it-1}	**0.090**	−0.010		**−0.573**	**−0.195**	**−0.149**	**−0.068**	**−0.030**	**0.058**	**−0.072**	**0.084**
(15) $CASH_{it-1}$	**−0.260**	**−0.168**	**−0.465**		**0.306**	**0.263**	**0.049**	**0.114**	**0.038**	**0.200**	**−0.139**
(16) $\sigma(eUS)_{it}$	**−0.334**	**−0.277**	**−0.157**	**0.390**		**0.281**	**−0.166**	**0.107**	**0.130**	**0.255**	**−0.053**
(17) $\sigma(eFOR)_{it}$	**−0.236**	**−0.193**	**−0.094**	**0.266**	**0.324**		**−0.044**	**0.096**	**0.156**	**0.116**	*−0.022*
(18) $PastStockRet_{it}$	0.004	−0.002	**−0.079**	**0.076**	*−0.018*	0.012		**0.243**	**−0.066**	**−0.112**	−0.010
(19) $Options_{it}$	**−0.162**	**−0.160**	**0.068**	**0.076**	**0.147**	**0.126**	**0.150**		**0.078**	**0.067**	**0.026**
(20) NOL_{it-1}	**−0.082**	**−0.169**	**0.069**	**0.045**	**0.100**	**0.149**	*−0.021*	**0.081**		**0.087**	−0.016
(21) $FinCon_{it}$	**−0.079**	**−0.141**	**−0.053**	**0.215**	**0.255**	**0.117**	**−0.064**	**0.054**	**0.087**		**−0.062**
(22) $NetDebt_{it}$	**−0.025**	−0.002	**0.069**	**−0.136**	**−0.041**	*−0.020*	−0.007	**0.044**	−0.016	**−0.062**	

Correlation coefficients in bold (italics) are significantly different from zero at the 0.01 (0.05) level.
Complete variable definitions are provided in Appendix A.

TABLE 4

Regression Results for Dividend Payments (H1)

		Dependent Variable				
		($DivIndicator_{it} = 1$)		($DivLevel_{it}|DivLevel_{it} > 0$)		($DivLevel_{it}$)
		Choice		Magnitude		Overall Level
Independent Variables	**Pred. Sign**	**Coefficients (1)**	**Partial Effects (2)**	**Coefficients (3)**	**Partial Effects (4)**	**Partial Effects (5)**
Constant	?	−1.8717***		−0.0167***		
		(−9.51)		(−2.87)		
$REPAT_{it}$	−	−30.3978***	−7.1355***	−0.5521*	−0.2373*	−0.2841***
		(−4.40)	(−4.52)	(−1.92)	(−1.88)	(−3.30)
eUS_{it}	+	2.4195***	0.5679***	0.1284***	0.0552***	0.0447***
		(7.74)	(7.92)	(8.44)	(9.14)	(10.32)
$eFOR_{it}$	+	5.2653***	1.2360***	0.2211***	0.0951***	0.0820***
		(5.51)	(5.60)	(6.29)	(6.44)	(7.65)
$Size_{it-1}$	+	0.2727***	0.0640***	−0.0002	−0.0001	0.0012***
		(10.28)	(11.56)	(−0.27)	(−0.27)	(5.42)
SGR_{it}	−	−0.4217***	−0.0990***	−0.0205***	−0.0088***	−0.0073***
		(−4.24)	(−4.22)	(−4.89)	(−5.19)	(−6.12)
MTB_{it-1}	−	0.0375***	0.0088***	0.0026***	0.0011***	0.0009***
		(2.79)	(2.80)	(8.04)	(7.72)	(7.97)
$CAPEX_{it-1}$	−	0.2346	0.0551	−0.0388*	−0.0167*	−0.0091
		(0.33)	(0.33)	(−1.72)	(−1.72)	(−1.38)
AGE_{it}	+	0.4325***	0.1015***	0.0079***	0.0034***	0.0040***
		(10.82)	(11.86)	(5.44)	(5.54)	(9.27)
RE/TE_{it-1}	+	0.2776***	0.0652***	0.0030	0.0013	0.0021***
		(7.68)	(7.82)	(1.57)	(1.55)	(3.54)
LEV_{it-1}	−	−1.1031***	−0.2589***	−0.0448***	−0.0193***	−0.0168***
		(−5.37)	(−5.56)	(−5.99)	(−5.98)	(−7.54)
$CASH_{it-1}$	?	−2.3207***	−0.5448***	0.0062	0.0027	−0.0091***
		(−8.54)	(−8.61)	(0.55)	(0.54)	(−2.96)
$\sigma(eUS)_{it}$	−	−3.2342***	−0.7592***	0.0176	0.0076	−0.0103
		(−4.49)	(−4.62)	(0.66)	(0.64)	(−1.23)
$\sigma(eFOR)_{it}$	−	−5.4119***	−1.2704***	−0.0809	−0.0348	−0.0460**
		(−3.19)	(−3.24)	(−1.24)	(−1.23)	(−2.28)
$PastStockRet_{it}$	?	−0.0878***	−0.0206***	−0.0075***	−0.0032***	−0.0024***
		(−3.69)	(−3.71)	(−6.25)	(−6.67)	(−7.00)
$Options_{it}$	?	−1.0061***	−0.2362***	0.0223***	0.0096***	0.0012
		(−5.00)	(−5.05)	(2.74)	(2.75)	(0.50)
Year Controls		Yes		Yes		
Observations		12,444		6,281		
Pseudo-R^2		0.3999				
Area Under ROC Curve		0.8911				
Wald X^2 Statistic		844.66***		350.32***		
Log Pseudo-Likelihood		−5,175.46		18,726.49		

***, **, * Indicate the regression coefficient or average partial effect is significantly different from zero at the 0.01, 0.05, and 0.10 levels, respectively (two-tailed).

The table presents the results of estimating the Cragg (1971) hurdle model. Column (1) presents the results of a probit regression of the likelihood of paying a dividend (Equation (1)), and Column (2) presents the associated average partial effects ($\partial P(DivLevel > 0)/\partial x_i$). Column (3) presents the results of a truncated normal model estimation of the magnitude of the dividend payment conditional on the decision to pay a dividend (Equation (2)), and Column (4) presents the associated average partial effects ($\partial E(DivLevel|DivLevel > 0)/\partial x_i$). Column (5) presents the overall unconditional average partial effects from the Cragg (1971) hurdle model ($\partial E(DivLevel)/\partial x_i$). z-statistics are presented in parentheses below the regression coefficients and average partial effects. Standard errors were estimated with a bootstrapping procedure using 2,000 reiterations that accounted for clustering by firm.

Complete variable definitions are provided in Appendix A.

The control variables in Table 4 generally behave as expected. In Column (5), the average partial effects of *eUS, eFOR, SIZE, AGE,* and *RE/TE* are positive and significant, and the average partial effects of *SGR, LEV,* and $\sigma(eFOR)$ are negative and significant. The overall average partial effects of *CAPEX* and $\sigma(eUS)$ are also negative, but not significant at conventional levels. The average partial effect of *CASH* is negative and significant, as in other prior payout policy research (e.g., DeAngelo et al. 2006, Chay and Suh 2009, Desai and Jin 2011, Banyi and Kahle 2014). Inferences with respect to H1 are unchanged when lagged values of *DivIndicator* and *DivLevel* are included as additional controls (untabulated).

Results of the Tests of H2

Table 5 reports the results for repurchases. Column (1) indicates that potential repatriation tax costs are negatively associated with the probability that a U.S. MNC repurchases shares. For a U.S. MNC with the mean (median) level of positive *REPAT,* the probability of repurchasing shares is 1.74 (0.80) percentage points lower than for a U.S. MNC with $REPAT = 0$, which represents 3.74 (1.72) percent of the mean probability of a share repurchase. However, the coefficient on *REPAT* in Column (3) is insignificant, indicating that repatriation tax costs are not associated with the *magnitude* of share repurchases conditional on the decision to repurchase. In Column (5) the overall unconditional average partial effect of *REPAT* on the level of share repurchases is insignificant, which is inconsistent with H2. Inferences are unchanged when lagged values of *RepIndicator* and *RepLevel* are included as control variables (untabulated).

In untabulated analyses, I examine the effect of potential repatriation tax costs on U.S. MNCs' total distributions to shareholders (dividends plus repurchases). I find that repatriation tax costs are negatively associated with the probability that a U.S. MNC distributes cash to shareholders, but are not associated with the magnitude of total payout conditional on the decision to pay out. The overall unconditional average partial effect of *REPAT* on the level of total payout is negative and significant, but becomes insignificant when lagged values of total payout are included as controls (two-tailed p-value = 0.179). Thus, I find some evidence that repatriation tax costs are negatively associated with U.S. MNCs' total shareholder payouts.

Overall, I find support for H1, that repatriation tax costs are negatively associated with the level of dividend payments by U.S. MNCs. I find that repatriation tax costs are negatively associated with the probability of paying a dividend, the magnitude of dividend payments conditional on the decision to pay a dividend, and the overall unconditional level of dividend payments. The economic effects are substantial. While I find that repatriation tax costs reduce the probability of repurchasing shares, they do not explain the overall unconditional level of share repurchases. Thus, I do not find support for H2. One possible explanation is that the flexibility of repurchases enables U.S. MNCs to match the timing of repurchases with tax planning strategies or borrowing that allows them to access the wealth represented by their foreign cash without triggering U.S. repatriation taxes. If this is true, then it suggests that some U.S. MNCs incur costs associated with complex tax planning or borrowing to avoid U.S. repatriation taxes when funding repurchases.

V. ADDITIONAL ANALYSES

Cross-Sectional Tests for Share Repurchases

External Debt Financing

Prior analytical research demonstrates that U.S. MNCs can use external debt financing to extract cash from low-tax foreign subsidiaries without triggering U.S. repatriation taxes (Altshuler and Grubert 2003), and anecdotal evidence indicates that some U.S. MNCs have issued debt to fund distributions to shareholders when much of their cash is held abroad (Maheshwari 2010; Apple 2013; Cherney 2015). Because external debt financing could enable U.S. MNCs to fund repurchases without incurring repatriation tax costs, I conduct cross-sectional tests based upon U.S. MNCs' ability to obtain external financing and actual debt issuance.

First, I partition the sample using the qualitative measure of financial constraints proposed by Bodnaruk, Loughran, and McDonald (2015) and used in other recent research (e.g., Law and Mills 2015). I designate firm-years in the top quartile of the ratio of negative words to total words in the 10-K filing as financially constrained, and other firm-years as (relatively) unconstrained. I use the Bodnaruk et al. (2015) measure instead of other common measures of financial constraint, such as the KZ Index, WW Index, and HP Index (Kaplan and Zingales 1997; Lamont, Polk, and Saá-Requejo 2001; Whited and Wu 2006; Hadlock and Pierce 2010) because many of the firm characteristics used to construct these indices are also determinants of shareholder payouts. Financially constrained firms will be less able to borrow and/or will face higher borrowing costs than unconstrained firms and, therefore, I expect to observe a stronger negative association between repatriation tax costs and share repurchases among financially constrained firms than among unconstrained firms.

TABLE 5

Regression Results for Share Repurchases (H2)

		Dependent Variable				
		($RepIndicator_{it} = 1$)		($RepLevel_{it}|RepLevel_{it} > 0$)		($RepLevel_{it}$)
		Choice		Magnitude		Overall Level
Independent Variables	**Pred. Sign**	**Coefficients (1)**	**Partial Effects (2)**	**Coefficients (3)**	**Partial Effects (4)**	**Partial Effects (5)**
Constant	?	−0.7750***		−0.6664***		
		(−6.33)		(−4.95)		
$REPAT_{it}$	−	−8.3838**	−2.8472**	1.6704	0.1038	−0.0317
		(−2.13)	(−2.14)	(0.91)	(0.91)	(−0.40)
eUS_{it}	+	2.0421***	0.6935***	1.3945***	0.0867***	0.0734***
		(9.82)	(10.10)	(5.65)	(7.57)	(9.19)
$eFOR_{it}$	+	3.3328***	1.1318***	1.3739***	0.0854***	0.0869***
		(6.12)	(6.21)	(3.66)	(4.07)	(6.29)
$Size_{it-1}$	+	0.1300***	0.0441***	0.0211**	0.0013***	0.0022***
		(8.71)	(9.02)	(2.48)	(2.74)	(6.87)
SGR_{it}	−	−0.7450***	−0.2530***	−0.6931***	−0.0431***	−0.0335***
		(−9.48)	(−9.60)	(−7.03)	(−11.38)	(−13.02)
MTB_{it-1}	−	0.0301***	0.0102***	0.0189***	0.0012***	0.0010***
		(3.78)	(3.81)	(4.24)	(4.77)	(5.56)
$CAPEX_{it-1}$	−	−0.8340*	−0.2832*	0.0082	0.0005	−0.0089
		(−1.68)	(−1.69)	(0.03)	(0.03)	(−0.73)
AGE_{it}	+	0.0565**	0.0192**	−0.0362**	−0.0023**	−0.0007
		(2.13)	(2.14)	(−2.31)	(−2.48)	(−1.15)
RE/TE_{it-1}	+	0.1187***	0.0403***	0.0535***	0.0033***	0.0033***
		(5.99)	(6.07)	(3.52)	(3.75)	(5.57)
LEV_{it-1}	−	−1.1735***	−0.3985***	−0.5662***	−0.0352***	−0.0336***
		(−8.34)	(−8.55)	(−3.55)	(−3.77)	(−5.52)
$CASH_{it-1}$	?	0.5884***	0.1998***	0.3157***	0.0196***	0.0180***
		(3.79)	(3.83)	(3.33)	(3.57)	(4.82)
$\sigma(eUS)_{it}$	−	−0.9190***	−0.3121***	−0.0042	−0.0003	−0.0103
		(−3.13)	(−3.15)	(−0.03)	(−0.03)	(−1.51)
$\sigma(eFOR)_{it}$	−	−2.6343***	−0.8946***	−0.8649	−0.0538	−0.0606**
		(−3.10)	(−3.11)	(−1.43)	(−1.45)	(−2.54)
$PastStockRet_{it}$	−	−0.1334***	−0.0453***	−0.0032	−0.0002	−0.0016***
		(−6.87)	(−6.94)	(−0.25)	(−0.25)	(−3.02)
$Options_{it}$	+	−0.1392	−0.0473	1.3444***	0.0836***	0.0475***
		(−0.93)	(−0.93)	(7.41)	(10.00)	(9.48)
Year Controls		Yes		Yes		
Observations		12,444		5,777		
Pseudo-R^2		0.1388				
Area Under ROC Curve		0.7460				
Wald X^2 Statistic		862.11***		86.92***		
Log Pseudo-Likelihood		−7,401.21		14,069.58		

***, **, * Indicate the regression coefficient or average partial effect is significantly different from zero at the 0.01, 0.05, and 0.10 levels, respectively (two-tailed).

The table presents the results of estimating the Cragg (1971) hurdle model. Column (1) presents the results of a probit regression of the likelihood of repurchasing shares (Equation (1)), and Column (2) presents the associated average partial effects ($\partial P(RepLevel > 0)/\partial x_i$). Column (3) presents the results of a truncated normal model estimation of the magnitude of the share repurchase conditional on the decision to repurchase shares (Equation (2)), and Column (4) presents the associated average partial effects ($\partial E(RepLevel|RepLevel > 0)/\partial x_i$). Column (5) presents the overall unconditional average partial effects from the Cragg (1971) hurdle model ($\partial E(RepLevel)/\partial x_i$). z-statistics are presented in parentheses below the regression coefficients and average partial effects. Standard errors were estimated with a bootstrapping procedure using 2,000 reiterations that accounted for clustering by firm.

Complete variable definitions are provided in Appendix A.

Table 6, Panel A reports the results.[27] The financial constraint measure is only available beginning in 1993, reducing the sample size. I find that repatriation taxes are significantly negatively associated with both the probability of repurchasing shares and the magnitude of repurchases conditional on the decision to repurchase among financially constrained firm-years, but not among unconstrained firms-years, consistent with unconstrained U.S. MNCs' ability to borrow to fund repurchases. In Columns (9) and (10), the overall unconditional average partial effect of *REPAT* on the level of share repurchases is significantly negative among constrained firm-years and insignificant among unconstrained firm-years, and the difference across the groups is statistically significant. The results in Table 6, Panel A suggest that financially constrained U.S. MNCs are less able to use external debt financing to fund repurchases when facing potential repatriation taxes than unconstrained firms.

Next, I partition the sample based upon actual net debt issuance (i.e., long-term debt issuance less long-term debt reduction). I identify firm-years with positive net debt issuance scaled by lagged total assets above the sample median as firm-years with a relatively large net debt issuance during the year. If U.S. MNCs facing potential repatriation taxes use external debt financing to fund share repurchases, then I expect that repatriation tax costs will be less negatively (or more positively) associated with repurchases among firm-years with a relatively large net debt issue.

Table 6, Panel B reports the results. In Columns (1) and (2), I find that the significantly negative association between *REPAT* and the probability of repurchasing shares is concentrated among firm-years without relatively large net debt issues, but the difference across the groups is not significant. In Columns (5) and (6), conditional on the decision to repurchase, repatriation tax costs are not associated with the magnitude of share repurchases for firm-years without relatively large net debt issues, and are significantly positively associated with the magnitude of share repurchases for firm-years with relatively large net debt issues. The difference across the groups is significant. In Columns (9) and (10), the overall unconditional average partial effect of *REPAT* on the level of share repurchases is negative, but insignificant among firm-years without relatively large net debt issues and positive (two-tailed p-value = 0.171) among firm-years with net debt issues, and the difference across the groups is significant. Overall, the results in Table 6, Panel B are consistent with U.S. MNCs using external debt to fund repurchases when facing potential repatriation taxes, which indicates that some U.S. MNCs incur borrowing costs to avoid U.S. repatriation taxes.[28]

Net Operating Loss Carryforwards (NOLs)

I further investigate the association between potential repatriation tax costs imposed by the U.S. worldwide tax system and U.S. MNCs' share repurchases by partitioning the sample based upon the presence of net operating loss carryforwards (NOLs) at the beginning of the year. U.S. MNCs with U.S. NOLs have the opportunity to use NOLs to offset the U.S. taxable income generated by repatriating foreign earnings and, thus, minimize the incremental U.S. cash tax costs of repatriating.[29] I partition the sample into firm-years with and without NOLs and estimate Equations (1) and (2) separately for the two groups.[30]

Table 6, Panel C presents the results. For firm-years without NOLs, repatriation tax costs are negatively associated with the overall unconditional level of share repurchases (two-tailed p-value = 0.150), while for firm-years with NOLs, repatriation tax costs are significantly positively associated with the overall unconditional level of share repurchases (Columns (9) and (10)). The difference across the groups is statistically significant. Overall, these results suggest that NOLs help facilitate the share repurchases of U.S. MNCs facing repatriation tax costs, which indicates that U.S. MNCs utilize valuable tax attributes to avoid paying repatriation taxes.[31]

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[27] Mood (2010) describes problems that arise when trying to compare coefficients from nonlinear models across groups, but notes that average partial effects can be compared across groups. Thus, I present tests of the differences of both the coefficients and average partial effects across groups in Table 6 and focus on the differences in the average partial effects.

[28] In untabulated analyses, I do not find a significant difference in the association between *REPAT* and dividend payments across the financial constraint or net debt issuance partitions. Regular dividend payments are accompanied by an implicit commitment to similar recurring future dividends. If a U.S. MNC facing potential repatriation taxes borrows to fund shareholder dividends, then it will need to find a way to fund similar dividend payments each year in the future. As a result, borrowing may not be as attractive for funding shareholder dividends.

[29] A potential disadvantage of using an NOL to offset the U.S. taxable income generated by repatriating foreign earnings is that the foreign tax credit associated with the foreign income would not be used in the current year and would create a foreign tax credit carryforward (FTC). U.S. MNCs may view NOLs as more valuable than FTCs because NOLs can be used against any type of income, whereas FTCs can only be used against U.S. tax on foreign income. NOLs also have a longer carryforward period than FTCs (Graham et al. 2010). This potential disadvantage should be less important when a U.S. MNC repatriates earnings from low-tax foreign subsidiaries because those foreign earnings will have lower associated foreign tax credits.

[30] The tax loss carryforward (TLCF) variable in Compustat used to construct the partitioning variable (NOL) identifies U.S. tax return loss carryovers with error (Mills, Newberry, and Novack 2003). Such errors will create noise in the partitioning variable that decreases my ability to detect differences across the groups.

[31] In untabulated analyses, I find a significantly negative association between *REPAT* and dividend payments for firm-years with and without NOLs. The difference across the NOL partition is marginally significant at the $p < 0.10$ level using a one-tailed test, and becomes insignificant when controls for lagged dividends are included.

TABLE 6

Cross-Sectional Regression Results for Repurchases

Panel A: Results of Estimating Equations (1) and (2) with the Sample Partitioned on Financial Constraints ($FinCon_{it}$)

	Dependent Variable									
	Choice ($RepIndicator_{it} = 1$)				Magnitude ($RepLevel_{it}|RepLevel_{it} > 0$)				Overall ($RepLevel_{it}$)	
	Coefficients		Partial Effects		Coefficients		Partial Effects		Partial Effects	
	FinCon = 0 (1)	*FinCon* = 1 (2)	*FinCon* = 0 (3)	*FinCon* = 1 (4)	*FinCon* = 0 (5)	*FinCon* = 1 (6)	*FinCon* = 0 (7)	*FinCon* = 1 (8)	*FinCon* = 0 (9)	*FinCon* = 1 (10)
$REPAT_{it}$	−4.6886	−18.5930**	−1.5973	−5.9064**	3.1125	−6.3739*	0.2759	−0.5017*	0.1239	−0.4966***
	(−0.83)	(−2.13)	(−0.86)	(−2.19)	(1.55)	(−1.74)	(1.51)	(−1.78)	(0.90)	(−2.77)
Difference *FinCon* = 0 less = 1	13.9044		4.3092		9.4865**		0.7776**		0.6204***	
	(1.47)		(1.30)		(2.28)		(2.30)		(2.70)	
Control Variables	Included	Included			Included	Included				
Observations	5,855	1,951			3,043	818				
Pseudo-R^2	0.1375	0.1778								
Area Under ROC Curve	0.7439	0.7730								
Wald X^2 Statistic	482.54***	274.64***			91.75***	24.99				
Log Pseudo-Likelihood	−3,496.32	−1,090.85			7,281.88	1,887.05				

Panel B: Results of Estimating Equations (1) and (2) with the Sample Partitioned on Net Debt Issuance ($NetDebt_{it}$)

	Dependent Variable									
	Choice ($RepIndicator_{it} = 1$)				Magnitude ($RepLevel_{it}|RepLevel_{it} > 0$)				Overall ($RepLevel_{it}$)	
	Coefficients		Partial Effects		Coefficients		Partial Effects		Partial Effects	
	NetDebt = 0 (1)	*NetDebt* = 1 (2)	*NetDebt* = 0 (3)	*NetDebt* = 1 (4)	*NetDebt* = 0 (5)	*NetDebt* = 1 (6)	*NetDebt* = 0 (7)	*NetDebt* = 1 (8)	*NetDebt* = 0 (9)	*NetDebt* = 1 (10)
$REPAT_{it}$	−9.4354**	−4.2376	−3.1848**	−1.4366	0.3377	5.7359**	0.0218	0.5403*	−0.0862	0.2650
	(−2.24)	(−0.54)	(−2.17)	(−0.55)	(0.18)	(1.96)	(0.18)	(1.89)	(−0.98)	(1.37)
Difference *NetDebt* = 0	−5.1977		−1.7482		−5.3982		−0.5185*		−0.3512*	
less = 1	(−0.63)		(−0.59)		(−1.55)		(−1.66)		(−1.66)	
Control Variables	Included	Included			Included	Included				
Observations	10,284	2,160			4,749	1,028				
Pseudo-R^2	0.1427	0.1432								
Area Under ROC Curve	0.7479	0.7522								
Wald X^2 Statistic	825.07***	256.59***			68.85***	59.82***				
Log Pseudo-Likelihood	−6,085.10	−1,280.69			11,723.90	2,443.18				

(continued on next page)

TABLE 6 (continued)

Panel C: Results of Estimating Equations (1) and (2) with the Sample Partitioned on Net Operating Loss Carryforwards (NOL_{it-1})

	Dependent Variable									
	Choice ($RepIndicator_{it} = 1$)				Magnitude ($RepLevel_{it}|RepLevel_{it} > 0$)				Overall ($RepLevel_{it}$)	
	Coefficients		Partial Effects		Coefficients		Partial Effects		Partial Effects	
	$NOL = 0$ (1)	$NOL = 1$ (2)	$NOL = 0$ (3)	$NOL = 1$ (4)	$NOL = 0$ (5)	$NOL = 1$ (6)	$NOL = 0$ (7)	$NOL = 1$ (8)	$NOL = 0$ (9)	$NOL = 1$ (10)
$REPAT_{it}$	−12.1305***	0.2344	−4.1645***	0.0760	−0.0289	7.5492**	−0.0019	0.4951**	−0.1419	0.2755**
	(−2.58)	(0.04)	(−2.62)	(0.04)	(−0.01)	(2.36)	(−0.01)	(2.48)	(−1.44)	(2.09)
Difference $NOL = 0$ less $= 1$	−12.3648*		−4.2405*		−7.5781**		−0.4970**		−0.4174**	
	(−1.66)		(−1.67)		(−1.99)		(2.03)		(−2.55)	
Control Variables	Included	Included			Included	Included				
Observations	8,614	3,830			4,253	1,524				
Pseudo-R^2	0.1321	0.1546								
Area Under ROC Curve	0.7396	0.7617								
Wald X^2 Statistic	668.31***	312.65***			67.61***	51.79**				
Log Pseudo-Likelihood	−5,181.22	−2,176.34			10,208.04	3,910.09				

***, **, * Indicate the regression coefficient or average partial effect is significantly different from zero at the 0.01, 0.05, and 0.10 levels, respectively (two-tailed).

The table presents the results of estimating the Cragg (1971) hurdle model. Columns (1) and (2) present the results of a probit regression of the likelihood of repurchasing shares (Equation (1)), and Columns (3) and (4) present the associated average partial effects ($\partial P(RepLevel > 0)/\partial x_i$). Columns (5) and (6) present the results of a truncated normal model estimation of the magnitude of the share repurchase conditional on the decision to repurchase shares (Equation (2)), and Columns (7) and (8) present the associated average partial effects ($\partial E(RepLevel|RepLevel > 0)/\partial x_i$). Columns (9) and (10) present the overall unconditional average partial effects from the Cragg (1971) hurdle model ($\partial E(RepLevel)/\partial x_i$). z-statistics are presented in parentheses below the regression coefficients and average partial effects. Standard errors were estimated with a bootstrapping procedure using 2,000 reiterations that accounted for clustering by firm.

Complete variable definitions are provided in Appendix A.

Relative Use of Repurchases versus Dividends

Together, the results of the tests of H1 and H2, that repatriation tax costs are negatively associated with the level of dividends paid by U.S. MNCs, but unassociated with U.S. MNCs' share repurchases, suggest it is possible that U.S. MNCs facing potential repatriation tax liabilities utilize repurchases to a greater extent than dividends when making distributions to shareholders. If U.S. MNCs employ tax planning strategies to achieve tax-efficient or *de facto* repatriations, then using repurchases rather than dividends to make payouts to shareholders will better enable U.S. MNCs to match the timing of distributions to shareholders with the tax-efficient or *de facto* repatriations.

I examine this prediction in Table 7, which reports the results of an ordinary least squares (OLS) regression on the subsample of firm-years with payouts where the dependent variable *RepMix* captures the relative use of repurchases and dividends. Specifically, *RepMix* is the difference between *Repurchases* and *Dividends* scaled by lagged total assets, and is analogous to a payout mix variable used in Barclay, Holderness, and Sheehan (2009). Higher values of *RepMix* correspond to more extensive use of repurchases relative to dividends. The control variables are similar to the controls in Equations (1) and (2). I also include controls for the firm's dividend history (*DivHist*). Because large payouts are more likely to be made in the form of repurchases than dividends (Jagannathan et al. 2000), I also include a control for the size of total payout in Columns (2) and (3). The coefficient on *REPAT* is positive and significant in all three specifications, which is consistent with the prediction that U.S. MNCs facing potential repatriation tax costs utilize repurchases to a greater extent than dividends when making distributions to shareholders. The coefficient estimate in Column (3) indicates that *RepMix* is 0.0049 (0.0023) higher for a U.S. MNC with the mean (median) level of positive *REPAT* compared to a U.S. MNC with $REPAT = 0$, which represents 58.18 (26.71) percent of the mean value of *RepMix* (mean $RepMix = 0.0085$).

The results in Table 7 suggest potential U.S. repatriation tax costs affect the form of U.S. MNCs' distributions to shareholders. Because repurchases provide managers more flexibility in their payout policy than do regular dividends, they are potentially less effective than regular dividends at mitigating the agency costs of free cash flow (Allen and Michaely 2003; H. DeAngelo, L. DeAngelo, and Skinner 2007). Thus, this finding suggests that it is possible the U.S. tax and financial reporting treatment of foreign earnings fosters agency costs of free cash flow, which is consistent with the evidence in Edwards et al. (2016) and Hanlon et al. (2015) that U.S. repatriation tax costs are associated with decreased profitability of foreign acquisitions.

Post-AJCA Period

The sample period in the main tests ends in 2004 to avoid any effects of the AJCA repatriation tax holiday. In further analyses, I examine the impact of repatriation tax costs on U.S. MNCs' dividend payments and share repurchases in the post-AJCA period. Specifically, I estimate Equations (1) and (2) for the years 2009 through 2014. I exclude the years 2005 through 2007 to avoid any shareholder distributions funded by repatriations under the AJCA, and I exclude the year 2008 because of the financial crisis.[32]

De Waegenaere and Sansing (2008) demonstrate analytically that the possible arrival of a future repatriation tax holiday can impact U.S. MNCs' repatriation decisions. The AJCA was the first time the U.S. granted a repatriation tax holiday. While I do not find evidence that potential U.S. repatriation tax costs constrained the level of repurchases in the pre-AJCA period, it is possible there will be a stronger effect in the post-AJCA period if U.S. MNCs are anticipating a future tax holiday that will allow them to easily repatriate their foreign earnings without incurring the normal U.S. repatriation tax cost or the costs associated with strategies used to access their foreign cash without triggering U.S. repatriation taxes.

In untabulated analyses, I do not find a significant association between potential repatriation tax costs and the level of U.S. MNCs' dividend payments or share repurchases during the post-AJCA period. Thus, I do not find evidence that repatriation tax costs, on average, constrained U.S. MNCs' distributions to shareholders during the years 2009 through 2014. I find cross-sectional variation based on actual net debt issuance consistent with U.S. MNCs facing potential repatriation tax costs borrowing to help fund repurchases in the post-AJCA period. However, I do not observe significant differences across the financial constraint and NOL partitions.

DeAngelo et al. (2000, 353) note that firms' payout policies change over time, remarking that "There is no guarantee that the practices that currently seem of greatest relevance will continue to seem so important even 20 or 30 years from now . . . [T]hese practices are in constant flux, so an important task of corporate finance research is to help identify factors that shape their evolution." Floyd et al. (2015, 300) find "a staggering upsurge in the magnitude of payouts" beginning around the end of

[32] I exclude the years 2005 through 2007 from the post-AJCA period because the U.S. Senate report that investigated the consequences of the temporary repatriation tax holiday of the AJCA examined the use of funds through 2007 (U.S. PSI 2011). The report excluded the year 2008 because of the financial crisis.

TABLE 7

Regression Results for Relative Level of Repurchases versus Dividends

Independent Variables	Pred. Sign	Dependent Variable: $RepMix_{it}$ (1)	(2)	(3)
Constant	?	0.0051	0.0013	0.0004
		(0.77)	(0.20)	(0.07)
$REPAT_{it}$	+	0.7719**	0.8594***	0.8107***
		(2.31)	(2.59)	(2.83)
eUS_{it}	?	0.0748***	0.0389*	−0.0402**
		(3.77)	(1.96)	(−2.40)
$eFOR_{it}$	?	0.0425	−0.0030	−0.1455***
		(0.89)	(−0.06)	(−3.12)
$Size_{it-1}$	?	0.0020***	0.0012*	0.0009
		(2.97)	(1.70)	
SGR_{it}	?	−0.0551***	−0.0444***	−0.0018
		(−8.77)	(−7.36)	(−0.33)
MTB_{it-1}	?	0.0010*	0.0003	−0.0025***
		(1.71)	(0.46)	(−5.26)
$CAPEX_{it-1}$	?	−0.0075	−0.0024	0.0199
		(−0.35)	(−0.11)	(1.24)
AGE_{it}	?	−0.0025*	−0.0033**	−0.0032***
		(−1.68)	(−2.17)	(−2.83)
RE/TE_{it-1}	?	0.0080***	0.0058***	−0.0008
		(4.10)	(2.99)	(−0.50)
LEV_{it-1}	?	−0.0049	0.0105	0.0279***
		(−0.61)	(1.30)	(4.94)
$CASH_{it-1}$	?	0.0293**	0.0233*	−0.0071
		(2.39)	(1.91)	(−0.74)
$\sigma(eUS)_{it}$	+	0.0416	0.0393	0.0126
		(1.30)	(1.24)	(0.55)
$\sigma(eFOR)_{it}$	+	−0.0942	−0.0693	0.0196
		(−1.60)	(−1.19)	(0.46)
$PastStockRet_{it}$	?	0.0029*	0.0041***	0.0054***
		(1.74)	(2.61)	(5.15)
$Options_{it}$	+	0.1790***	0.1618***	0.0374***
		(5.68)	(5.28)	(2.59)
$DivHist_{it}$	−	−0.0160***	−0.0161***	−0.0160***
		(−9.68)	(−9.84)	(−13.33)
$PayLevelIndicator_{it}$	+		0.0258***	
			(12.48)	
$PayLevel_{it}$	+			0.7242***
				(11.85)
Year Controls		Yes	Yes	Yes
Observations		8,412	8,412	8,412
Adjusted R^2		0.1603	0.1859	0.5752

***, **, * Indicate the regression coefficient is significantly different from zero at the 0.01, 0.05, and 0.10 levels, respectively (two-tailed).
t-statistics are presented in parentheses below the regression coefficients. Robust standard errors were computed using Huber-White corrections with clustering by firm.
Complete variable definitions are provided in Appendix A.

my main sample period. To illustrate, 59.50 percent of firm-years repurchased shares, and the average share repurchase was 2.67 percent of lagged total assets during the post-AJCA period (untabulated), compared to 46.42 percent of firm-years and 1.75 percent of lagged total assets in the main sample. Special dividends were also more common in the post-AJCA period than in the main sample, especially at the end of 2010 and 2012 (Hanlon and Hoopes 2014; Hribar, Savoy, and Wilson 2014). At the same time, U.S. MNCs' potential repatriation tax liabilities increased. Mean *REPAT* is 0.0045 in the post-AJCA period

(untabulated) compared to 0.0023 during the main sample period. I look forward to future research that sheds light on the forces driving these changes and the role of potential repatriation taxes in shaping U.S. MNCs' shareholder payouts in the post-AJCA period.

VI. CONCLUSION

In this paper, I examine whether and to what extent the tax and financial reporting costs of repatriating foreign earnings constrain U.S. MNCs from distributing cash to their shareholders through dividends and share repurchases. I find that repatriation tax costs decrease the probability that a U.S. MNC pays a dividend, the magnitude of dividend payments conditional on the decision to pay a dividend, and the overall unconditional level of dividends paid by U.S. MNCs. The economic magnitude of the effect is substantial. The dividend payments of a U.S. MNC facing the mean (median) level of positive repatriation tax costs are 14.32 (6.57) percent lower than the dividends paid by a U.S. MNC without potential repatriation tax costs. While I find that repatriation tax costs decrease the probability that a U.S. MNC repurchases shares, I do not find evidence that repatriation tax costs decrease the overall level of share repurchases by U.S. MNCs. Thus, repatriation tax costs appear to constrain the dividend payments, but not share repurchases of U.S. MNCs. In cross-sectional analyses, I find evidence suggesting that some U.S. MNCs facing potential repatriation taxes incur borrowing costs or utilize valuable tax attributes to help fund repurchases. Finally, I find evidence consistent with U.S. MNCs facing repatriation tax costs making more extensive use of repurchases relative to dividends to make distributions to shareholders, indicating that repatriation tax costs also impact the form of U.S. MNCs' shareholder distributions.

This study is of interest to accounting and finance researchers and policymakers. The findings contribute to our understanding of the effects of the U.S. worldwide tax system and financial reporting treatment of foreign earnings on U.S. MNCs' decisions. While existing research provides evidence that repatriation tax costs are associated with greater foreign cash holdings (Foley et al. 2007) and foreign acquisition activity (Edwards et al. 2016; Hanlon et al. 2015), there is comparatively little empirical evidence regarding the effect of potential repatriation tax costs on U.S. MNCs' investing and financing decisions at home. I advance this literature by providing evidence of the impact of repatriation tax costs on U.S. MNCs' payout policies and quantifying the economic magnitude of the effect, which is important because payout policy interacts with firms' other investing and financing decisions and is at the core of many questions in corporate finance (Allen and Michaely 2003; Farre-Mensa et al. 2014). The results also suggest that some U.S. MNCs incur costs (e.g., borrowing, utilizing tax attributes, engaging in complex transactions) to avoid U.S. repatriation taxes when repurchasing shares. Understanding how the current U.S. tax and financial reporting treatment of foreign earnings affects U.S. MNCs' decisions is critical as policymakers consider reforms to the current U.S. worldwide tax system. The results suggest that moving to a territorial tax system could increase U.S. MNCs' dividend payments to shareholders and share repurchases of U.S. MNCs that currently have limited resources or opportunities to employ tax planning strategies to minimize repatriation tax costs or to obtain external financing to fund repurchases.

I also contribute to the literature that examines the determinants of firms' payout policies. This study responds to calls to use insights from fields outside of corporate finance to improve our understanding of corporate payout policy (Farre-Mensa et al. 2014) and provides evidence of the importance of repatriation tax costs in explaining the incidence, amount, and form of U.S. MNCs' payouts to shareholders.

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APPENDIX A
Variable Definitions

Dependent Variables

$Dividends_{it}$ = dividends paid to common shareholders (DVC) by firm i in year t;

$DivIndicator_{it} = 1$ if $Dividends_{it} > 0$, and 0 otherwise;

$DivLevel_{it} = Dividends_{it}$ scaled by total assets (AT) at the end of year $t-1$;

$Repurchases_{it}$ = purchases of common and preferred stock by firm i in year t (PRSTKC) less any decrease in the redemption value of preferred stock from year $t-1$ to year t (PSTKRV), or less any decrease in preferred stock (PSTK) from year $t-1$ to year t if the redemption value of preferred stock is missing;

$RepIndicator_{it} = 1$ if $Repurchases_{it} > 0$, and 0 otherwise;

$RepLevel_{it} = Repurchases_{it}$ scaled by total assets (AT) at the end of year $t-1$; and

$RepMix_{it}$ = $Repurchases_{it}$ minus $Dividends_{it}$, scaled by total assets (AT) at the end of year $t-1$ if $DivIndicator_{it}$ or $RepIndicator_{it} = 1$.

Independent Variables

AGE_{it} = natural logarithm of the number of years since the earliest date firm i appears on CRSP;

$CAPEX_{it-1}$ = capital expenditures (CAPX) scaled by total assets (AT) of firm i for year $t-1$;

$CASH_{it-1}$ = cash and short-term investments (CHE) scaled by total assets (AT) of firm i at the end of year $t-1$;

$DivHist_{it}$ = natural logarithm of 1 plus the number of years firm i has paid a dividend between 1982 and year t;
$eFOR_{it}$ = foreign pretax income (PIFO) of firm i in year t, scaled by total assets (AT) at the end of year $t-1$;
eUS_{it} = domestic pretax income (PIDOM) of firm i in year t, scaled by total assets (AT) at the end of year $t-1$. If domestic pretax income is missing, then it is set equal to the difference between total pretax income and foreign pretax income;
LEV_{it-1} = sum of long-term debt (DLTT) and the current portion of long-term debt (DLC) scaled by total assets (AT) of firm i at the end of year $t-1$;
MTB_{it-1} = market value of equity (CSHO $*$ PRCC_F) divided by book value of common equity (CEQ) of firm i at the end of year $t-1$;
$Options_{it}$ = annual percentage change in total diluted shares outstanding of firm i as if no repurchases were made during year t. Specifically, following Cuny et al. (2009), it is calculated as total diluted shares outstanding (CSHFD) of firm i at the end of year t plus the number of shares repurchased by firm i during year t less total diluted shares outstanding at the end of year $t-1$, divided by total diluted shares outstanding at the end of year $t-1$. The number of shares repurchased is estimated as $Repurchases_{it}$ divided by the average monthly closing stock price of firm i during year t. If total diluted shares outstanding is missing, then common shares used to calculate basic earnings per share is used (CSHPRI). If common shares used to calculate basic earnings per share is also missing, then common shares outstanding is used (CSHO). The Compustat adjustment factor (AJEX) is used to adjust for stock splits;
$PastStockRet_{it}$ = firm i's stock return compounded monthly for the two-year period ending at the end of year t;
$PayLevel_{it}$ = sum of $Dividends_{it}$ and $Repurchases_{it}$, scaled by total assets (AT) at the end of year $t-1$;
$PayLevelIndicator_{it}$ = 1 if $PayLevel_{it}$ is greater than the sample median, and 0 otherwise;
$REPAT_{it}$ = foreign pretax income (PIFO) of firm i in year t multiplied by the difference between the U.S. corporate statutory tax rate in year t and the firm's three-year average foreign current effective tax rate, scaled by total assets (AT) at the end of year $t-1$, and equal to 0 for firm-years with: (1) a three-year average foreign current effective tax rate above the U.S. statutory rate, (2) negative foreign pretax income in year t, or (3) negative cumulative foreign pretax income over years $t-2$ to t. The three-year average foreign current effective tax rate equals cumulative foreign current tax expense (TXFO) divided by cumulative foreign pretax tax income over years $t-2$ to t. The three-year average foreign current effective tax rate is winsorized between 0 and 1;
RE/TE_{it-1} = retained earnings (RE) divided by book value of common equity (CEQ) of firm i at the end of year $t-1$;
$\sigma(eUS)_{it}$ = standard deviation of eUS over years $t-4$ through t, requiring at least three non-missing values of eUS;
$\sigma(eFOR)_{it}$ = standard deviation of $eFOR$ over years $t-4$ through t, requiring at least three non-missing values of $eFOR$;
SGR_{it} = total sales (SALE) of firm i in year t less total sales in year $t-1$, divided by total sales in year $t-1$; and
$SIZE_{it-1}$ = natural logarithm of total assets (AT) of firm i at the end year $t-1$.

Partitioning Variables Used in Cross-Sectional Analyses

$FinCon_{it}$ = 1 if the ratio of negative words to total words in the 10-K filing of firm i in year t is in the top quartile of the sample, and 0 otherwise. The number of negative words and total words in the 10-K filing were obtained from Bill McDonald's website (http://www3.nd.edu/~mcdonald/Word_Lists.html);
$NetDebt_{it}$ = 1 if firm i's net debt issuance in year t is above the sample median of positive net debt issuance, and 0 otherwise. Net debt issuance equals long-term debt issuance (DLTIS) minus long-term debt reduction (DLTR) of firm i in year t, scaled by total assets (AT) of firm i at the end of year $t-1$ if the difference is positive, and 0 otherwise. If long-term debt issuance or long-term debt reduction is missing, then it is set equal to 0; and
NOL_{it-1} = 1 if tax loss carryforwards (TLCF) of firm i at the end of year $t-1$ is positive, and 0 otherwise. If tax loss carryforwards is missing, then it is set equal to 0.

APPENDIX B

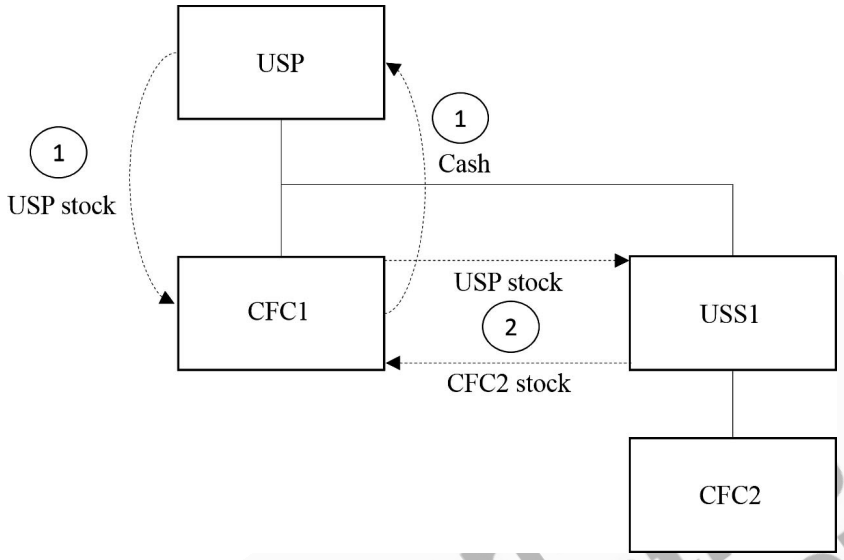
Example of Tax Planning Strategy that Achieves *De Facto* Repatriation

This appendix illustrates a tax planning strategy that has been used by U.S. MNCs to achieve *de facto* repatriations of foreign profits without triggering U.S. repatriation taxes.

A typical Killer B transaction involved a U.S. Parent (USP) that owned 100 percent of a foreign subsidiary (CFC1) with low-tax foreign earnings and a domestic subsidiary (USS1) that owned 100 percent of a second foreign subsidiary (CFC2). A regular dividend (i.e., repatriation) from CFC1 to USP would result in a substantial U.S. tax liability. A Killer B transaction took advantage of provisions in the U.S. tax code that grant tax-free treatment to certain types of corporate reorganizations. The transaction involved two steps. First, CFC1 purchased voting stock of USP from USP for cash. Then, CFC1 transferred the voting stock of USP to USS1 in exchange for the stock of CFC2.

Illustration 1

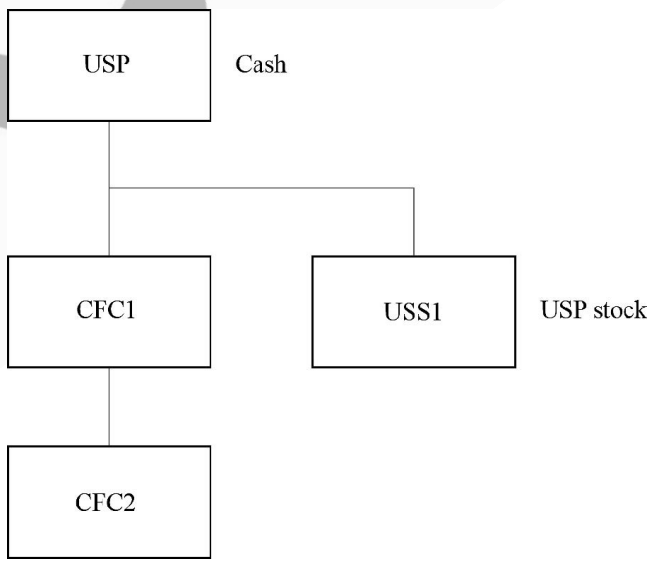
Structure Before and During the Killer B Transaction



Under the U.S. tax code, this transaction was viewed as an acquisition of CFC2 by CFC1 using the voting stock of a corporation with control over CFC1 and, thus, qualified as a tax-free triangular "B" reorganization. The purchase and transfer of the voting stock of USP were made during the same quarter so that CFC1 did not own U.S. property at the end of the quarter. If CFC1 had owned U.S. property at the end of the quarter, then the U.S. tax code would have treated USP as having received a deemed dividend (i.e., treated it as if a repatriation occurred) that would have been subject to U.S. tax. At the completion of the transaction, CFC1 owned CFC2, USS1 owned voting stock in USP, and USP held cash transferred from CFC1, in effect "repatriating" the profits of CFC1 to USP without triggering any U.S. tax liability.

Illustration 2

Structure after the Completion of the Killer B Transaction



The Internal Revenue Service (IRS) constrained the use of this transaction by issuing Notice 2006-85. A variation of this transaction in which CFC1 purchased the USP voting stock from USP shareholders, rather than from USP, was shut down by the IRS with Notice 2007-48 (Hicks and Sotos 2008).