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"Repatriation Taxes and Foreign Cash Holdings: The Impact of Anticipated Tax Reform"

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Vanderbilt Hall – 208
Time: 4:00 – 5:50 p.m.
Week 8

SCHEDULE FOR 2018 NYU TAX POLICY COLLOQUIUM

(All sessions meet from 4:00-5:50 pm in Vanderbilt 208, NYU Law School)

1. Tuesday, January 16 – Greg Leiserson.Washington Center for Equitable Growth. "Removing the Free Lunch from Dynamic Scores: Reconciling the Scoring Perspective with the Optimal Tax Perspective."

2. Tuesday, January 23 – Peter Dietsch, University of Montreal Philosophy Department. "Tax Competition and Global Background Justice."

3. Tuesday, January 30 – Andrew Hayashi, University of Virginia Law School. "Countercyclical Tax Bases."

4. Tuesday, February 6 – Gerald Auten, U.S. Treasury Department. "Income Inequality in the United States: Using Tax Data to Measure Long-Term Trends."

5. Tuesday, February 13 – Vanessa Williamson, Brookings Institution.

6. Tuesday, February 27 – Jacob Goldin, Stanford Law School.

7. Tuesday, March 6 – Lisa Philipps, Osgoode Hall Law School. "Gendering the Analysis of Tax Expenditures."

8. Tuesday, March 20 – Lisa De Simone, Stanford Graduate School of Business. "Repatriation Taxes and Foreign Cash Holdings: The Impact of Anticipated Tax Reform"

9. Tuesday, March 27 – Damon Jones, University of Chicago Harris School of Public Policy.

10. Tuesday, April 3 – Ajay Mehrotra, American Bar Foundation and Northwestern University School of Law. "T.S. Adams and the Beginning of the Value-Added Tax."

11. Tuesday, April 10 – Jason Furman, Harvard Kennedy School.

12. Tuesday, April 17 – Emily Satterthwaite, University of Toronto Law School. "Electing into a Value-Added Tax: Survey Evidence from Ontario Micro-Entrepreneurs."

13. Tuesday, April 24 – Wolfgang Schon, Max Planck Institute. "Taxation and Democracy."

14. Tuesday, May 1 – Mitchell Kane, NYU Law School.

Repatriation Taxes and Foreign Cash Holdings: The Impact of Anticipated Tax Reform

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Abstract: We examine whether anticipation of a repatriation tax reduction affects the amount of cash U.S. multinational corporations (MNCs) hold overseas. We find that U.S. MNCs most likely to benefit from a repatriation tax reduction accumulated significant cash holdings once Congress proposed legislation, at the expense of reduced shareholder payouts, relative to firms unlikely to benefit. This behavior was accompanied by complementary activities designed to maximize expected tax benefits. We contribute to the literature on how firms respond to tax-induced incentives, provide a new explanation for U.S. MNC cash holding growth, and raise questions about the consequences of U.S. tax reform.

JEL Classifications: H25; G38; G30; M16

Keywords: Multinational corporate taxation; Repatriation; Foreign cash

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1. Introduction

Active foreign profits of U.S. multinational corporations (MNCs) are generally taxed by the U.S. government when repatriated back to the U.S. Due to these rules, U.S.-domiciled MNCs hold large cash balances overseas to defer the tax cost of repatriating foreign profits, with those MNCs bearing the greatest estimated repatriation cost accumulating the most cash on their balance sheet (Foley et al. 2007). Although the current tax code incentivizes accumulation of foreign cash in response to repatriation taxes, a shock to expected future repatriation tax rates could *accelerate* this accumulation. Our paper develops and tests the hypothesis that a shift in expectations about future repatriation tax costs – arising from credible beliefs about the potential enactment of a temporary or permanent reduction to U.S. repatriation taxes – creates a heightened incentive for MNCs to actively accelerate the accumulation of foreign cash and engage in tax planning activities designed to maximize the expected tax benefits of potential repatriation tax reform. This costly, proactive behavior is in stark contrast to the relatively passive accumulation behavior observed prior to the proposed tax reform.

The tax code is a powerful public policy tool that shapes corporate incentives; firms structure activities in response to known tax rules and adjust behavior in response to new rules. Executives maximizing firm value adopt tax-favored business practices to capture government subsidies and engage in costly tax planning to minimize tax liabilities.[1] Such observed corporate

[1] Firms respond to investment tax incentives (Mansfield 1986; Swenson 1992; Berger 1993; Bloom, Griffith and Van Reenen 2002; Klassen, Pittman and Reed 2004; Wilson 2009; Finley, Lusch and Cook 2015; Lester 2016) and more favorable depreciation schedules (House and Shapiro 2008; Park 2016), re-allocate investments to tax-favored operations (Gravelle 1983), and shift business strategies towards organic growth (acquisitions) in response to stricter (looser) acquired tax loss, taxable merger and acquisition, and goodwill amortization rules (Scholes and Wolfson 1990; Ayers, Lefanowicz and Robinson 2000; Weaver 2000). Similarly, the use of debt in lieu of equity financing is increasing in marginal tax rates (Graham 1996; Graham, Lemmon, and Schallheim 1998; Graham 2000; MacKie-Mason 1990) and repatriation taxes constrain shareholder payouts (Nessa 2017). Regarding tax planning, firms both strategically locate assets, liabilities, and operations (Hines and Rice 1994; Seida and Wempe 2004; De Simone, Huang and Krull 2017; De Simone and Sansing 2017; Huizinga, Laeven and Nicodeme 2008) and use accounting discretion to tax-efficiently price intercompany transactions (Collins and Shackelford 1998; De Simone 2016; De

activity is a response to enacted tax benefits and costs: the tax rules are known to all participants, the expected value of tax benefits can be estimated, and the benefits are reasonably assured if the firm complies with the law. However, it is an open empirical question whether and when beliefs about the possible enactment of tax reform affect current firm behavior.

Executives and market participants can be expected to form rational beliefs about the plausible future enactment of tax reform. These beliefs are strengthened and legitimized when specific legislation proposing a repatriation tax reduction is introduced for debate in Congress. If these expectations become sufficiently salient, firms have an incentive to strategically alter current activities to capitalize on this uncertain, yet plausible, future tax benefit. However, such strategic behavior is costly. Given that un-enacted tax benefits are neither guaranteed nor well-defined, it is unclear whether or when firms will incur tangible costs to increase their likelihood of capturing these risky benefits.

To test these arguments, we investigate whether the cash holdings of U.S. MNCs responded to legislative events and public discourse encouraging a reduction in taxes on repatriated foreign cash. Under current U.S. tax law, most active foreign source income of U.S. MNCs is taxed by the federal government at the statutory tax rate (35 percent) upon repatriation to the U.S., with credits for foreign income taxes paid to mitigate double taxation.[2] The first and only U.S. repatriation tax holiday, enacted as part of the American Jobs Creation Act (AJCA) in 2004 to spur domestic investment, allowed U.S. MNCs to repatriate foreign cash to the U.S. at

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Simone, Klassen and Seidman 2017; Huizinga and Laeven 2008; Klassen and Laplante 2012). Although such planning activity is costly, it is on average value creative (Mills, Erickson and Maydew 1998).

[2] The U.S. has a worldwide tax system under which it taxes all global income of U.S. firms. A deferral provision delays taxation on active income earned by controlled foreign corporations until repatriation. The U.S. tax liability is equal to 35 percent of the pre-foreign-tax dividend paid and can be reduced by credits for foreign income taxes paid. Under Subpart F of the U.S. Tax Code, most passive income (e.g., interest, rents, royalties and dividends) earned by certain foreign subsidiaries subject the U.S. parent to immediate U.S. taxation.

the reduced rate of 5.25 percent. U.S. MNCs repatriated approximately $312 billion between November 2004 and the end of 2005 (Redmiles 2008), at which time the tax holiday expired.[3]

Congressional activity in response to the Financial Crisis created expectations that a second repatriation tax reduction could be enacted. The first notable discussion occurred with the introduction of the Responsibly Ending Authority to Purchase (REAP) Act of 2008 (Nov. 20th, 2008), and commentary, debate and rumors of a second repatriation tax reduction ensued over the following years as Congress searched for ways to reinvigorate the U.S. economy. Congressional momentum intensified in March 2011 with the introduction of the Rising Tides Act (March 4th), The Jobs Creation and Innovation Investment Act of 2011 (March 11th) and the establishment of the WIN America Campaign (March 25th). Six new Acts were introduced in Congress through the end of 2011, each raising the issue of a second tax holiday. As the economy improved, support for a temporary tax holiday shifted to proposals for permanent international tax reform reducing or eliminating taxes on repatriated foreign earnings.

Firms expected to benefit from repatriation tax reform have an incentive to strategically and proactively alter their business activities to capture potential tax benefits. Regardless of whether the reduction is expected to be a temporary tax cut or more permanent tax reform, an early response maximizes the expected tax benefit by creating a longer window to accumulate eligible foreign cash. As such, once a credible discussion of a repatriation tax break materialized in the fourth quarter of 2008, U.S. MNCs had an incentive to allocate additional income to foreign operations and begin accelerating their accumulation of foreign cash. However, firms holding excess cash, especially over long periods, can bear significant explicit and opportunity costs. Firms may be required to divert resources from value creating investment activity or slow

[3] Before the enactment of the AJCA, propensity score-matched samples of repatriating and non-repatriating MNCs do not display significant differences in cash accumulation in anticipation of enactment, consistent with the unprecedented and unexpected nature of this tax holiday failing to create strategic ex ante incentives.

the return of idle capital to shareholders. In the extreme, foreign cash holdings can disrupt MNC internal capital markets, creating liquidity constraints that require cash-rich MNCs like Apple to borrow to fund domestic operations, investments, and even shareholder payouts (Lattman and Eavis 2013; De Simone and Lester 2017). As such, only a subset of U.S. MNCs for which expected benefits outweigh such costs are expected to engage in this proactive tax planning.

Our empirical tests examine the cash holding, payout, and tax planning behavior of U.S. MNCs following initial legislative events proposing a repatriation tax reduction in 2008.[4] To attribute this effect to anticipated tax reform, we examine this behavior conditional upon the ex ante incentives of MNCs to capitalize on this proposed tax reform. Specifically, using firm-level data that predates discussion and enactment of the original AJCA repatriation tax holiday, we first use the characteristics of U.S. MNCs that chose to repatriate foreign cash during the AJCA holiday to develop a parsimonious model of the likelihood of repatriation.[5] We next apply our estimated AJCA repatriation likelihood model to all U.S. MNCs using firm characteristics at the end of 2008. This process allows us to identify firms that are, ex ante, most and least likely to benefit from the enactment of a second repatriation tax reduction, as captured by their estimated propensity to repatriate. Our primary tests track the growth in cash holdings over the three-year period (2009 to 2011) during which calls for the second repatriation tax reduction surfaced and intensified.[6] These tests reveal that MNCs expected to benefit from a second repatriation tax

[4] We treat the first introduction of legislation proposing a second repatriation tax reduction as an observable event, and examine differences in the cash holding response of incentivized versus non-incentivized MNCs. Prior research uses similar legislative events to assess expectations about the expected costs and benefits of legislation (e.g., Chhaochharia and Grinstein 2007; Zhang 2007; Doidge, Karolyi and Stulz 2010; Cohn, Gillan and Hartzell 2016).

[5] Consistent with Blouin and Krull (2009), we find that repatriating MNCs are larger, more profitable, have higher levels of net working capital and have a larger deferred foreign repatriation tax exposure than non-repatriating MNCs. In robustness tests, we examine firms that did versus did not repatriate under the AJCA; inferences remain unchanged.

[6] Ideally, we would examine foreign cash balances instead of total cash balances; however, foreign amounts are not regularly disclosed throughout our sample period. Yang (2015) hand collects foreign cash disclosures of U.S. MNCs, finding that only 12.2 percent of firms disclosed in 2010. Disclosure rates improved in 2011 (48.6%), 2012

reduction (i.e., high predicted likelihood of repatriation) began accumulating an economically material 4.0 to 4.9 percent of assets in excess cash after 2008, while MNCs lacking this expected benefit did not. This positive relation between the expected likelihood of repatriation and excess cash holdings is robust to partitioning the sample on the basis of each MNC's sensitivity to market conditions (beta), financial health (Shumway 2001), and external financing constraints (Hadlock and Pierce 2010), suggesting that the observed cash holding behavior does not solely reflect differences arising from the Financial Crisis itself. In aggregate, we estimate that the 594 firms with the highest likelihood of repatriation accumulated an additional $376 billion to $488 billion in excess cash in anticipation of a reduction in repatriation taxes.[7]

To assess whether this excess cash accumulation behavior is costly to these firms, we examine whether firms accumulating excess cash (i.e., those with a high predicted likelihood of repatriation) exhibit differential payout behavior relative to firms not accumulating excess cash (i.e., those with a low predicted likelihood of repatriation). These tests build on other work examining the costs of locked-out foreign cash holdings, such as value destroying foreign acquisitions (Harford 1999; Edwards, Kravet and Wilson 2015; Hanlon, Lester and Verdi 2015), reduced domestic acquisitions (Harris and O'Brien 2017), higher domestic borrowing (De Simone and Lester 2017), and a reduced likelihood of shareholder payouts (Nessa 2017). We find that firms expected to benefit from a repatriation tax reduction reduce share repurchases but not dividend payments after 2008, relative to both their pre-AJCA payout behavior and those firms least likely to benefit from a repatriation tax reduction. Finding a reduction in share

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(61%), and 2013 (68%), corresponding with nearly 150 SEC comment letters about foreign cash holdings. In supplemental analysis, we hand collect and examine disclosed foreign cash holdings over 2011-2015.

[7] Additionally, we document that the excess cash holdings of highly incentivized MNCs do not decline after the Financial Crisis. The failure to document a subsequent decline in excess cash holdings for this subsample suggests (1) that the initial increase was not driven by a purely precautionary motive in response to the Crisis and (2) that the accumulated cash may now be "trapped" inside the corporation's foreign subsidiaries.

repurchases, but not dividends, is consistent both with repurchases being a more flexible payout policy and with repurchase reductions being less likely to convey a negative signal to market participants (Skinner 2008; Lintner 1956). Our results suggest that incentivized MNCs reduced share repurchases by 8.5 percent of income, or nearly $415B, over the period 2009 to 2011.

To support our interpretation of these trends, our next set of analyses examines two mechanisms, income shifting and permanently reinvested earnings, through which MNCs can maximize the benefits from a second repatriation tax break. First, shifting income and cash flows to low-tax foreign jurisdictions allows MNCs increase both the pool of foreign cash available for tax-preferred repatriation and the permanent tax savings when repatriated at reduced U.S. tax rates. Second, because the amount of tax-preferred dividends allowed under the AJCA was capped by the magnitude of an MNC's disclosed permanently reinvested earnings (PRE), increasing the amount of foreign earnings asserted to be indefinitely invested abroad allows MNCs to increase the expected tax benefits of re-enactment. We find evidence that MNCs most likely to benefit from a repatriation tax holiday aggressively utilized both of these tax-planning mechanisms over the period 2008 to 2011. Specifically, we find that incentivized MNCs engaged in incrementally more tax-motivated income shifting to foreign jurisdictions over this period relative to other MNCs, consistent with these firms strategically reclassifying domestic corporate income as foreign in advance of potential reform. We also find that average reported PRE for incentivized MNCs grew approximately 1.8 percent faster, and is more positively correlated with growth in cash holdings, than reported PRE for MNCs unlikely to benefit from a repatriation tax reduction over the same period. These findings confirm that observed increases in cash holdings for incentivized MNCs is positively related to tax planning mechanisms systematically affected by repatriation-tax related incentives.

Our final set of analyses shed additional light on our main results. First, using voluntary disclosures of foreign cash holdings after 2011, we find that firms with the greatest likelihood of repatriation (as estimated in 2008) are more likely to disclose foreign cash holdings and display growth in foreign cash holdings (as a percent of total cash holdings). These results suggest that observed growth in excess corporate cash is driven, at least in part, by increases in foreign cash holdings.[8] Second, the stock prices of U.S. MNCs with a high likelihood of benefiting from a repatriation tax reduction reacted more positively around the introduction of the first legislative event than firms lacking such benefits. These market reaction tests suggest that the subsequent cash accumulation we document is both rational and value enhancing for these firms. Third, using data on the lobbying activities of MNCs during the period 2011-2014, we observe that firm's likely to repatriate are also more likely to lobby for a repatriation tax reduction. However, after controlling for lobbying activities, we continue to find that incentivized MNCs accumulate more excess cash than other firms even after controlling for firms that actively lobbied Congress, suggesting that our cash holding results are not driven simply by firms lobbying for tax reform. Finally, we conduct a series of falsification tests designed to rule out alternative explanations for our results, including an examination of the cash holding behavior of U.S. MNCs in advance of the AJCA and the cash holding behavior of U.S. domestic corporations during our sample period. These samples do not exhibit the same growth in excess cash holdings as that documented among U.S. MNCs during the anticipated tax reform period.

Our paper offers several contributions to the extant literature. First, we provide a new, strategic explanation for the large increase in corporate cash holdings observed over the last decade. Ballooning foreign cash balances of U.S. MNCs have attracted attention of policy-

[8] We also find that firms likely to repatriate accumulate more excess cash than other firms even after controlling for future foreign cash disclosure.

makers and the media. Prior research explores the causes of high corporate cash holdings (e.g., Opler el al. 1999; Bates, Kahle and Stulz 2009), including repatriation taxes and financial reporting incentives related to accounting for income taxes (Foley et al. 2007; Blouin, Krull and Robinson 2012). We extend the literature by introducing and examining how changing beliefs about potential repatriation tax reductions affect U.S. MNC cash balances.

Second, we provide evidence on how evolving beliefs about the enactment of future tax policy shape corporate behavior. We document that firms proactively respond to deliberated tax incentives, and engage in (presumably) unconditionally negative NPV behavior in the short run (i.e., excess cash holdings) in exchange for future, risky tax gains. Third, from a tax policy perspective, our results raise questions about the long-term impact of temporary tax provisions on economic behavior. Regardless of whether the initial law achieved desired consequences, its transient nature may induce firms to engage in multi-year tax planning strategies that essentially create a recurring problem future regulation is required to solve. Our results are timely given current prospects for temporary or permanent U.S. multinational tax reform.

2. Background and motivation

2.1 Background on the repatriation tax holiday

In 2004, Congress passed the AJCA to encourage U.S. MNCs to repatriate foreign cash and increase investment in the sluggish domestic economy. By allowing an 85 percent deduction for qualified cash dividends received from controlled foreign corporations in 2004 or 2005, the AJCA reduced the maximum U.S. corporate tax rate on repatriated funds from 35 percent to 5.25 percent. Internal Revenue Code (IRC) Section 965, which detailed the provisions of the AJCA, limited the cash dividends eligible for the deduction to the greater of $500 million, the amount of

foreign earnings for which the MNC did not accrue a deferred tax liability in the most recent financial statements, or the most recently disclosed potential tax liability on those permanently reinvested earnings (PRE) grossed up by 35 percent.[9] Thus the cash MNCs could repatriate at a reduced rate was tied to the amount of unremitted foreign subsidiary earnings that MNCs previously disclosed they intended not to repatriate "in the foreseeable future" (APB 23).[10]

The magnitude of cash repatriated under the AJCA is material. Using confidential U.S. tax returns, Redmiles (2008) finds that 843 public and private firms repatriated a total of $312 billion under the AJCA in 2004 and 2005. Blouin and Krull (2009) use a Lexis Nexus search to identify 455 MNCs that repatriated $310 billion under the AJCA. Blouin and Krull (2009) report that, relative to average repatriations in the 16 years before the enactment of the AJCA, repatriations under the AJCA increased by more than one percent of GDP.

Technical guidance provided by U.S. Treasury in 2005 stipulated limitations on the use of cash repatriated under the AJCA. Funds were to be allocated to eligible domestic investments subject to a pre-approved plan by management, such as hiring and training employees, infrastructure, research and development, capital investments, acquisitions, and the repayment of corporate debt. Specifically prohibited uses of repatriated funds included stock redemptions, shareholder dividends, and executive compensation. The literature provides mixed evidence on whether U.S. MNCs abided by these restrictions when deploying repatriated cash under the AJCA. Blouin and Krull (2009) and Dharmapala, Foley and Forbes (2011) find that repatriated cash was used for paying dividends and for share repurchases. Faulkender and Peterson (2012)

[9] Under U.S. GAAP, firms recognize a deferred tax liability on foreign earnings when earned to account for taxes due upon repatriation. However, under Accounting Principles Board No. 23 (APB 23), firms are not required to accrue a deferred tax liability on foreign earnings asserted to be indefinitely reinvested overseas (PRE), though they are required to disclose the amount of PRE and the estimated tax liability on PRE should the earnings be repatriated.
[10] IRC Section 965 limited the AJCA dividends received deduction to *cash* dividends even though the amount eligible for the deduction could not exceed the amount of foreign unremitted *earnings* designated as PRE; Blouin, Krull and Robinson (2014) estimate that on average 45 percent of PRE is invested in cash and financial assets.

find that capital-constrained repatriating firms increased investments; however, most of the repatriating MNCs were not capital constrained, and these unconstrained MNCs did not increase domestic investment.

2.2 Background on corporate cash holdings

Cash balances of U.S. non-financial corporate institutions amounted $1.7 trillion at the end of 2015, a tremendous increase from $111.9 billion at the end of 1980.[11] These cash balances in 2015 were 9.5 percent of GDP, over twice the figure at the end of 1980. Keynes (1936) identifies three motives for firms' liquidity preferences: transactional, precautionary, and speculative. Transactional motives refer to cash required for the general day-to-day operations of the firm.[12] The precautionary motive for holding cash is akin to setting aside cash in the event of a sudden or unexpected emergency, as well as to take advantage of unexpected opportunities. The speculative motive for holding cash is the "object of securing profit from knowing better than the market what the future will bring forth" (Keynes 1936). Building on Keynes (1936) framework, Opler et al. (1999) develop a model of optimal cash holdings and find that high cash balances are associated with riskier cash flows, firm size, and stronger growth opportunities.

Bates, Kahle and Stulz (2009) study the evolution of cash holdings from 1980 to 2006. They document that the observed increase in cash balances is associated with firms becoming more R&D intensive, having riskier cash flows, holding fewer inventories and receivables, and being smaller in size. More importantly, however, an analysis of cash holdings by decade suggests that the increase in the growth rate of firms' cash holdings in the 2000's is unrelated to continued changes in these firm characteristics. Instead, the increased rate of "excess cash"

[11] Cash balances include cash and cash equivalents.
[12] Keynes (1936) further divides the transactional motive into the income motive (the gap between receipt and disbursement of income) and the business motive (the gap between production costs and income from sales).

accumulation during this period seems to be a response to a shift in economic forces and/or the emergence of new incentives that affect the firms' cash management policies.

Jensen (1986) argues that excess cash holdings are essentially an accumulation of free cash flows arising from agency conflicts. If agency problems inside MNCs have become more acute over time, these agency conflicts could be responsible for rising excess cash balances at U.S. firms.[13] Supporting this possible explanation, firms with excess cash tend to make value destroying acquisitions (Harford 1999); in the context of MNCs, foreign excess cash holdings attributable to high repatriation costs are associated with value destroying acquisitions (Harford 1999; Edwards, Kravet, and Wilson 2015; Hanlon, Lester, and Verdi 2015), suggestive that the frictions imposed by the U.S. tax system might be intensifying agency conflicts inside U.S. MNCs. Other rational explanations for rising cash balances of U.S. MNCs include the use of cash holdings as a hedge against future poor performance (Acharya, Almeida and Campello 2007), the impact of improved corporate governance (Harford, Mansi and Maxwell 2008), and the influence of product market dynamics (Haushalter, Klasa and Maxwell 2007).

2.3 Influence of taxes on corporate cash holdings

Recent research identifies two tax-related incentives shaping U.S. corporate cash balances: (1) incentives arising from tax payments due upon U.S. repatriation of foreign cash and (2) financial reporting incentives under U.S. GAAP. First, Foley et al. (2007) link corporate cash holdings to repatriation tax incentives. Specifically, because U.S. repatriation taxes represent a friction to MNCs' internal capital markets, Foley et al. (2007) predict and find that firms facing higher repatriation tax burdens hold higher levels of cash abroad and in lower-tax jurisdictions.

[13] Interestingly, Opler et al. (1999) do not find evidence supporting the agency theory for free cash flows affecting cash balances during their earlier time periods.

Thus, in the presence of sufficiently large tax benefits, U.S. MNCs are willing to hold costly excess cash balances to avoid the current tax obligations arising from U.S. repatriation taxes.

Second, current financial reporting standards require firms to accrue repatriation taxes on foreign income regardless of whether the income is repatriated in the current period. However, corporations can circumvent accruing repatriation taxes on foreign income by asserting under APB 23 that the income is indefinitely reinvested abroad. As a result of the APB 23 assertion, MNCs include foreign pre-tax permanently reinvested earnings (PRE) in income with no associated U.S. tax expense. Thus, MNCs have a financial reporting incentive to accumulate earnings abroad as PRE in order to avoid recognizing tax expense (Blouin, Krull and Robinson 2012; Graham et al. 2011). Indeed, Blouin, Krull and Robinson (2012) find that these financial reporting incentives contribute to the accumulation of PRE and foreign excess cash by MNCs.

We contribute to the growing literature on cash holdings by studying whether a shift in expectations about the possible enactment of a second repatriation tax reduction resulted in MNCs actively increasing their excess cash holdings and engaging in planning activities to capitalize on these potential, risky tax benefits.[14] MNCs can employ a variety of methods to increase their foreign earnings and cash holdings to capture expected tax benefits. MNCs can shift income abroad through decisions about where to produce and locate or by strategically setting cross-border intercompany transfer prices (De Simone, Mills and Stomberg 2017; Harris 1993; Hines and Rice 1994; Klassen and Laplante 2012). MNCs with intangible assets can also shift these assets, and the associated income, abroad by employing techniques such as cost

[14] The Joint Committee on Taxation (JCT) made ex ante calculations of AJCA tax revenues. These calculations incorporated that "at least some taxpayers would change their future behavior to anticipate a second round of Section 965-type relief, by investing more offshore than they would have done had a one-time tax holiday not been enacted, and keeping the resulting earnings offshore indefinitely" consistent with the corporate response modeled by Curtis, Garin and Mehkari (2017). Although JCT staff initially estimated this cost to be $1B over ten years, more recent PRE data caused JCT staff to believe this figure was a "very conservative estimate of the cost to Treasury of this probable shift in future behavior" (Kleinbard and Driessen 2008).

sharing arrangements (De Simone and Sansing 2017) and shifting income attributable to domestic R&D to foreign jurisdictions (De Simone, Huang and Krull 2017). In the presence of a material and credible increase in the likelihood of a future repatriation tax reduction, we expect MNCs with the greatest ex ante tax benefit to have the strongest incentive to strategically increase foreign cash holdings.

However, there are many reasons why beliefs about a second reduction in repatriation taxes will not impact MNCs' cash holdings. The expectation of a future uncertain tax break may not sufficiently offset the additional costs of holding excess cash overseas, such as short-term costs of funding liquidity shortfalls in the home country and a reliance on costly external capital to fund operations, growth opportunities, and shareholder payouts. In the extreme, excess cash holdings destroy firm value as the firm foregoes positive NPV investment or research projects due to the high costs of potentially scarce external capital, especially during periods of economic decline such as the Financial Crisis. Additionally, it is possible that managers assigned – quite correctly to date – a low probability to the enactment of a reduction in repatriation taxes over this period despite legislative rhetoric. As a result of these costs and forces, the impact of beliefs about a potential repatriation tax reduction on cash holdings is an empirical question. Based on these arguments, we state our hypothesis in the alternative form below.

Hypothesis: U.S. MNC excess cash holdings are positively associated with expected tax benefits from a reduction in repatriation taxes.

An MNC's computation of expected tax benefits from a future reduction in repatriation taxes has two components: the extent to which the MNC would benefit from the legislation multiplied by the probability of the legislation being enacted. Regarding the first component, we believe MNCs that repatriated under the AJCA likely benefited the most from the tax holiday.

We therefore expect that MNCs with characteristics similar to AJCA repatriating MNCs would also be most likely to benefit from repatriating under a future reduction in repatriation taxes.

The second component of the calculation of expected benefits suggests that MNCs respond to the likelihood of a future repatriation tax reduction, which varies over time given the political environment, legislative proposals in Congress, publicly available analyses of the consequences of the AJCA, the lobbying activities of industry groups, and the tenor of media coverage. Appendix B presents major events affecting firm expectations of a future repatriation tax reduction. The first major event following the AJCA is the proposal of the REAP Act by two House Ways and Means committee members in November of 2008. A primary component of this proposed legislation was another temporary repatriation tax reduction to improve liquidity for troubled U.S. firms during the Financial Crisis. The introduction of this bill credibly raised the perceived probability of a repatriation tax reduction above zero, with subsequent media coverage suggesting that multinationals may be less likely to repatriate until a repatriation tax reduction could be enacted (Vaughan 2008). We therefore expect to observe the cash holdings of those MNCs predicted to benefit the most from a reduction in repatriation taxes to increase following the fourth quarter of 2008.

Findings of a Senate Permanent Subcommittee on Investigations report released in October 2011 painted the effectiveness of the AJCA in a significantly negative light, highlighting how the Act failed to achieve most of its stated objectives. Several grassroots organizations such as the Citizens for Tax Justice quickly followed suit, releasing their own reports on the inadequacies of repatriation tax holidays, several of which were picked up by mainstream media. These reports appear to have slowed momentum towards a repeat temporary repatriation tax reduction in the form of a repatriation tax holiday. One of the main lobby groups for a second

tax holiday, the WIN Campaign, disbanded within six months of these reports, and a litigation tracking site govtrack.us estimated that subsequent repatriation tax holiday proposals had a zero percent chance of being enacted. It is therefore plausible that accumulated excess cash holdings of MNCs most likely to benefit from a reduction in repatriation taxes ceases increasing following the fourth quarter of 2011. However, several proposals made after 2011 for long-term international tax reform included provisions for the reduction or abolishment of repatriation taxes, suggesting that MNCs may to continue to increase cash holdings following 2011 (e.g., Senator Baucus 2013; Representative Camp 2014; President Obama 2015; Senators Portman and Schumer 2015; Senator Ryan 2016; Trump 2016). Specifically, the most recent tax reform plans released by the White House, House of Representatives and Senate call for a significant reduction in repatriation taxes for at least ten years (Nutting 2017; Sahadi 2017).

3. Research design: AJCA estimations and the likelihood of foreign cash repatriation

This section documents the economic characteristics of MNCs that chose to repatriate versus not repatriate foreign cash under the AJCA. We then develop a likelihood model of repatriation using actual AJCA repatriation data. In section 4, we will use our likelihood model to classify MNCs in 2008 on the basis of whether they have a high versus low likelihood of repatriating foreign cash if a second repatriation tax reduction were enacted.

3.1 AJCA sample

To estimate the determinants of foreign cash repatriation activity under the AJCA tax holiday, we gathered the complete sample of U.S. MNCs with sufficient accounting and stock price data from Compustat at the end of fiscal year 2002 to estimate our models. A firm is designated as an MNC if it has non-zero pre-tax foreign income (Compustat: PIFO) in 2002 or is

included in the Blouin and Krull (2009) sample. Consistent with prior research, we exclude all financial firms (SIC codes 6000-6999), utilities (SIC codes 4900-4999) and holding companies (SIC code 9990-9999), resulting in a sample of 1,582 unique MNCs at the end of 2002.[15] We then classify MNC observations as repatriating or non-repatriating firms based on Blouin and Krull (2009). Our final AJCA sample includes 390 repatriating and 1,192 non-repatriating MNCs with sufficient Compustat data to estimate our determinants model at the end of 2002.[16] Appendix C presents our sampling strategy in greater detail.

3.2 Determinants of foreign cash repatriation activity under the AJCA.

Table 1, Panel A presents descriptive statistics for our samples of AJCA repatriating and non-repatriating MNCs.[17] Consistent with Blouin and Krull (2009), repatriating and non-repatriating MNCs differ along several key dimensions. Repatriating MNCs are larger, more profitable, have more capital expenditures and higher growth in capital expenditures, less R&D expense but greater growth in R&D expense, greater cash flow, and more (net) working capital than non-repatriating MNCs. Repatriating MNCs also have more total debt and less cash relative to non-repatriating MNCs, though they pay more dividends. Lastly, repatriating firms were expected to face a larger tax liability if they repatriated foreign profits in the absence of the repatriation tax reduction (*REPAT_TAX*). These differences are statistically significant.

To understand the decision to repatriate, we use actual AJCA behavior to estimate a model of the probability that an MNC repatriated cash under AJCA. The model is estimated at the end of 2002, prior to any events related to the AJCA, to prevent a confounding of the relation

[15] Similar to Blouin and Krull (2009), we focus on the activities of listed companies, which account for the majority of foreign cash repatriation activity under the AJCA. To maintain a constant sample in tests, we remove MNCs with negative cash values or cash-to-assets ratios of one.

[16] The Blouin and Krull (2009) sample consists of 455 unique MNCs that repatriated $310B under the AJCA. After eliminating repatriating MNCs missing Compustat data in 2002 and excluding financial firms, utilities and holding companies included in their sample, we are left with 390 repatriating MNCs.

[17] See Appendix A for all variable definitions.

between the decision to repatriate and corporate activity occurring in response to the likelihood of the AJCA's enactment. Our model builds on the Blouin and Krull (2009) repatriation likelihood model by adding proxies for incentives to increase cash holdings (see Bates et al. 2009). Specifically, we estimate variations of the following cross-sectional logistic model:

(1) $$Prob(REPATRIATED = 1) = F(\beta_0 + \beta_1*\Delta CAPEX + \beta_2*\Delta RD + \beta_3*\Delta MTB + \beta_4*\Delta ROA + \beta_5*\Delta LEVERAGE + \beta_6*\Delta FOREIGNPTI + \beta_7*CAPEX + \beta_8*RD + \beta_9*MTB + \beta_{10}*ROA + \beta_{11}*LEVERAGE + \beta_{12}*\%FOREIGNSALES + \beta_{13}*REPAT\_TAX + \beta_{14}*ACQUISITIONS + \beta_{15}*CASHCONV + \beta_{16}*LAG\_CF + \beta_{17}*INDSALE + \beta_{18}*DIVPAY + \beta_{19}*NETWC + \beta_{20}*SIZE)$$

The dependent variable *REPATRIATED* is an indicator variable equal one if the MNC repatriated foreign cash under the ACJA, zero otherwise. The independent variables capture various aspects of the MNCs' operating, investing and financing activities that are expected to influence the decision and/or ability to repatriate foreign cash. Following Blouin and Krull (2009), we include six variables: changes in capital expenditures (*ΔCAPEX*), R&D expenditures (*ΔRD*), growth options (*ΔMTB*), return on assets (*ΔROA*), leverage (*ΔLEVERAGE*), and foreign profitability (*ΔFOREIGNPTI*). These variables capture shifts in the firm's investment opportunities and returns, and are measured over the three-year period 1999 to 2002. We also include proxies for the level of capital expenditures (*CAPEX*), R&D expenditures (*RD*), growth options (*MTB*), return on assets (*ROA*), leverage (*LEVERAGE*), importance of foreign sales (%*FOREIGNSALES*), amount of deferred foreign-source U.S. income tax exposure (*REPAT_TAX*), cash outflows for acquisitions (*ACQUISITIONS*), cash conversion cycle (*CASHCONV*), lagged cash flows (*LAG_CF*), volatility of industry sales (*INDSALE*), dividends (*DIVPAY*), net working capital (*NETWC*), and firm size (*SIZE*) to capture incentives to hold cash.[18]

[18] We recognize that, due to temporary frictions, not all firms that could benefit from a repatriation tax reduction actually repatriated cash during the AJCA window. Such frictions could potentially be eliminated with better

Table 2 presents estimated coefficients for this estimation. These estimations reveal that MNCs that repatriated have lower total and foreign growth in profitability but higher market-to-book ratios. They are also larger, more profitable, have greater levels of working capital and debt, and have a larger deferred foreign-generated U.S. income tax exposure. Moreover, these results generally confirm the main findings in Blouin and Krull (2009), showing that slowing investment rates of return, especially in foreign markets, are a significant determinant of the repatriation decision. Finally, with a pseudo R^2 of 20.3 percent, our model seems to be capturing key attributes associated with the repatriation decision in the presence of a tax holiday.[19]

4. Empirical analysis: Influence of anticipated repatriation tax reduction on cash holdings

This section presents our main empirical analyses. First, we use coefficients from the likelihood model estimated using AJCA data (in section 3.2 above) to identify MNCs in 2008 expected, given current financial and operating characteristics, to have a high versus low likelihood of repatriating foreign cash if repatriation taxes were reduced. Second, we track cash holdings over a period in which the enactment of a repatriation tax reduction was being discussed in the media and Congress, but enactment itself remained uncertain.[20] Finally, we condition this analysis on the MNC's sensitivity to the Financial Crisis and subsequent economic recession.

4.1 Sample of MNCs and the expected likelihood of foreign cash repatriation

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planning or a longer window to take advantage of the reduction in repatriation taxes. Our current methodology treats AJCA period frictions, to the extent they are correlated with firm characteristics or industry affiliation, as permanent.

[19] In untabulated tests, we confirm that the explanatory power of this model (measured as the pseudo R^2 or likelihood ratio) is greater than a repatriation likelihood model using the determinants from Blouin and Krull (2009) or a model using the determinants of cash holdings.

[20] See Figure 1 for an illustration of our research design.

To test for the effect of an anticipated reduction in repatriation taxes on the excess cash holdings of MNCs, we estimate the likelihood of repatriation under a second tax break using the AJCA repatriation likelihood model estimated in section 3.2. We identify all MNCs (excluding financial firms, utilities, and holding companies) in Compustat using the sample selection criteria outlined for our AJCA analysis, and eliminate MNCs with insufficient financial statement data in fiscal year 2008 to estimate the likelihood of repatriation. This sample selection process is detailed in Appendix C. To estimate the probability of repatriation, we apply the estimated coefficients reported in Table 2 to each MNC's 2008 financial characteristics.

The result is a final sample of 1,781 unique MNC-level observations, sorted into three terciles: low, medium, and high likelihood of repatriation. Table 3, Panel A presents descriptive statistics for the estimated probability of repatriation. MNCs in the top tercile are more likely than not to repatriate foreign cash (54.3 percent probability), and include Apple, Amazon, Alphabet (Google's parent), Pfizer and other MNCs that have made headlines for tax avoidance and/or foreign cash balances. In contrast, MNCs in the bottom tercile are estimated to have (on average) less than a six percent chance of repatriating foreign cash; this sample includes MNCs such as Eddie Bauer, Boeing, Morton's Restaurant Group, Orbitz and Pilgrim's Pride.

Panel B presents descriptive statistics on the financial and cash holding characteristics of MNCs across the terciles of estimated repatriation likelihood. We employ two measures of cash holdings: *CASH* and *TTLCASH*. *CASH* is measured as the sum of the firm's cash and cash equivalents and short-term marketable securities, scaled by total assets. Because multinationals can also report excess foreign cash holding as long-term marketable securities, we construct a second variable, *TTLCASH*, measured as the sum of *CASH* and the firm's other long-term

investments and advances.[21] We calculate differences in means between the high likelihood and low likelihood terciles, finding that on average high likelihood MNCs have lower cash and total cash balances, but are larger and more profitable, have higher capital expenditures and market-to-book ratios but lower R&D expense, have higher net working capital and debt, pay more dividends, and have a larger share of foreign sales relative to low likelihood MNCs.

4.2 Main empirical analyses of cash holdings

4.2.1 Univariate evidence

Table 4, Panel A presents descriptive evidence on the cash holdings of MNCs in response to a possible repatriation tax reduction. We analyze average annual changes in *CASH* and *TTLCASH* by tercile of estimated likelihood of repatriation. Changes in *CASH* are benchmarked against the average value over the four quarters of 2007 and the first three quarters of 2008. Because we only have annual data for *TTLCASH,* changes in *TTLCASH* are benchmarked against the 2007 value. Recall that the first proposal for a second repatriation tax reduction occurred in November 2008. The mean change in *CASH* of MNCs with a high likelihood of repatriation is positive and significantly different from zero from the first quarter of 2009 to the second quarter of 2014. In contrast, the mean change in *CASH* of MNCs with a low likelihood of repatriation is generally negative and not significantly different from zero. Further, the difference between the two groups is significantly positive through the third quarter of 2013, with the effect strongest over the 2009-2011 timeframe. Positive differences in cash holding behavior extend through 2014 once we take into account growth in long-term marketable securities (*TTLCASH*).

4.2.2 Multivariate analysis

[21] Data on long-term marketable securities is not available in Compustat. Other long-term investments and advances is a noisy proxy for such long-term marketable securities, as that data item includes both the value of the firm's long-term marketable securities and other types of long term-investments, such as lessor direct financing leases and land held for resale. Additionally, quarterly data on these long-term investments are only available for a small subset of our MNC observations. As such, we perform all analyses of *TTLCASH* using annual data.

To examine the influence of expected repatriation incentives on the cash holdings of MNCs, we use quarterly financial statement data to build a predictive model of excess cash holdings. We estimate the model over a sample period that includes (1) benchmark quarters against which to evaluate changes in cash holdings, (2) the period during which the second temporary repatriation tax reduction was deliberated (i.e., from the last quarter of 2008 to the last quarter of 2011), and (3) subsequent quarters during which the likelihood of a second tax holiday was close to zero again but a more permanent reduction in repatriation taxes was being proposed (i.e., post 2011). Specifically, we use pooled cross-sectional data to estimate variations of the following model:

$$(2) \quad CASH = \beta_0 + \beta_1*CAPEX + \beta_2*RD + \beta_3*MTB + \beta_4*ROA + \beta_5*LEVERAGE + \beta_6*\%FOREIGNSALES + \beta_7*REPAT\_TAX + \beta_8*ACQUISITIONS + + \beta_9*CASHCONV + \beta_{10}*LAG\_CF + \beta_{11}*INDSALE + \beta_{12}*DIVPAY + \beta_{13}*NETWC + \beta_{14}*NETDEBT + \beta_{15}*NETEQUITY + \beta_{16}*SIZE + \beta_{17}*HIGH\_REPATRIATE + HIGH\_REPATRIATE*\Sigma PERIOD\_IND + \Sigma PERIOD\_IND$$

The dependent variable, *CASH*, is the sum of cash and cash equivalents and short-term marketable securities at the end of quarter *t*, scaled by total assets. Most control variables for expected cash holdings are drawn from Bates et al. (2009).[22] We include *%FOREIGNSALES* and *REPAT_TAX* to capture MNC-specific incentives for holding excess cash, including any changes in *foreign* tax rates over the sample period. We also include *CASHCONV*, the average cash conversion cycle, to capture transactional motives for cash holdings (Keynes 1936). Finally, the indicator variable *HIGH_REPATRIATE* equals one (zero) if the MNC's repatriation likelihood model score is in the top (bottom) tercile.[23]

[22] We exclude measures of interest rates and credit spreads from our implementation of the Bates et al. (2009) model due to collinearity with our time period indicator variables of interest.

[23] All analyses exclude MNCs in the middle tercile of expected repatriation. We focus on a comparison of the extreme expected repatriation terciles to magnify the differences in incentives across our sample of MNCs.

Our variables of interest are the interactions between *HIGH_REPATRIATE* and time period indicator variables. These time period indicator variables are included for all periods except the benchmark period, such that all changes in cash holdings are relative to the average of the quarters included in the benchmark period. We estimate this model using two different benchmark periods. The first benchmark period includes the four quarters of 2007 and the first three quarters of 2008.[24] The second benchmark period includes the four quarters of 2002. This alternative benchmark period captures cash holding behavior prior to the enactment of the AJCA.

We present the results of this analysis in Table 4, Panel B. The first columns present coefficient estimates and t-statistics using the seven quarters spanning the beginning of 2007 to the third quarter of 2008 as the benchmark period. The second set of columns use the four quarters of 2002 as the benchmark. Results across both benchmarks support the hypothesis that MNCs estimated to be more likely to repatriate under a second repatriation tax reduction exhibit a statistically significant increase in cash holdings during the period of anticipation of a reduction. The excess cash holdings of these MNCs are significantly positive during nearly every quarter of the anticipation period. Further, estimated coefficients on the time period indicator variables are generally either insignificant or negative, suggesting that MNCs with a low estimated likelihood of repatriation either do not change or reduce their excess cash holdings during the anticipation period. The documented increase in the excess cash holdings of MNCs expected to benefit from a second repatriation tax reduction is material. Our estimations suggest cash holdings increase by approximately 4.0 percent to 4.9 percent of total assets (vis-à-vis the

[24] Cash holding behavior in the first three quarters of 2008 could be contaminated by events that preceded and culminated in the introduction of the REAP Act in November 2008 (e.g., lobbying activity, slowdown in U.S. economy). In untabulated tests, we use the four quarters of 2006 or the four quarters of 2007 as alternative benchmarks to test for the existence of anticipatory effects. Inferences are robust to these alternative benchmarks.

expected non-repatriating group) over the three-year period 2009 to 2011 and even higher thereafter.[25]

In untabulated tests, we examine whether the excess cash accumulation of firms likely to repatriate is increasing over time by replacing the time period indicator variables with a linear time trend variable *TIME,* equal to zero in the first period and increasing by one in every quarter. We estimate a positive and significant coefficient (0.004, p-value < 0.01) on the interaction between *HIGH_REPATRIATE* and the linear time trend, providing corroborative evidence that firms most likely to repatriate increase their excess cash accumulation over time.

We also estimate equation (2) using the alternative measure of cash, *TTLCASH,* as the dependent variable. Due to limited quarterly reporting of the components of *TTLCASH*, we conduct this analysis using annual data. Similar to our main analyses, we use two benchmark periods: fiscal year 2007 and fiscal year 2002.[26] These results are reported in Table 4, panel C. Consistent with our quarterly estimations focusing in the evolution of short-term cash holdings (*CASH*), we find positive and significant coefficients on the annual time period indicators after 2008 for MNCs with a high estimated likelihood of repatriation. In contrast, we estimate insignificant or negative coefficients on the annual time period indicators after 2008 for MNCs with a low estimated likelihood of repatriation. In terms of economic magnitude, excess cash holdings of MNCs expected to benefit from lower repatriation taxes increase 3.7 percent to 4.3 percent of total assets relative to the non-repatriation group after 2008.

4.2 Trends in cash holdings, conditional upon beta and financial distress risk

[25] In robustness tests, we define *HIGH_REPATRIATE* using the top and bottom quintiles of likelihood model scores; results are qualitatively similar. A continuous measure of expected repatriation likelihood yields similar results.
[26] In untabulated tests, we confirm inferences are robust to the benchmark periods of 2006, which is prior to the financial crisis, and 2008, which contains the three quarters prior to relevant proposed legislation but is potentially contaminated by fourth quarter corporate cash holding responses to proposed legislation.

The preceding analyses document an increase in cash holdings during a period of heightened expectations about the enactment of a repatriation tax reduction. However, because legislative activities like tax reform are shaped by overall economic conditions, our empirical tests could potentially be confounded. Specifically, our anticipation period includes the Financial Crisis, the Great Recession, and early Eurozone Crises. As documented in Table 1, MNCs that repatriated foreign cash under the AJCA are larger, healthier, more profitable firms. Similarly, as documented in Table 3, MNCs classified in 2008 as having a high likelihood of repatriation are larger, more profitable firms. MNCs with a high likelihood of repatriation therefore possess characteristics likely to minimize their sensitivity to adverse macro-economic conditions, enabling them to better weather the financial crisis and/or to experience smaller disruptions to their revenue and cash flow streams. As such, the relative increase in cash accumulation after 2008 for these MNCs relative to their low repatriation likelihood counterparts could just be a manifestation of ex post differences in cash flow generating activities during the Crisis.

To ensure that our main results are not driven by this omitted economic characteristic (and the differences in future cash flow consequences it implies), we re-estimate equation (2) after partitioning the sample of MNCs on the basis of their sensitivity to macroeconomic conditions and financial health during the Financial Crisis period. We then search for an association between the likelihood of repatriation and cash holdings within each of subsample of MNCs using the benchmark period of all four quarters of 2007 to the third quarter of 2008.

We measure contemporaneous sensitivity to market-level conditions using each MNC's five-year market equity beta over the period 2007 to 2011. We measure betas with a simple market model using at least 36 months of firm and market monthly stock return data. We sort

MNCs into high and low beta portfolios based on their relative in-sample ranking, where high (low) beta MNCs have a beta greater than (less than or equal to) the sample median.

We measure the financial health of each MNC as the five-year average of their probability of bankruptcy, using the Shumway (2001) bankruptcy prediction model over the period 2007-2011. Shumway's bankruptcy risk measure is available for 1,409 unique MNCs. Similar to our beta methodology, MNCs are sorted into high and low financial distress portfolios based on their relative ranking, where high (low) distress MNCs have an average Shumway bankruptcy prediction greater than (less than or equal to) the sample median.

Table 5 presents results after sorting MNCs into these respective portfolios.[27] Panel A presents estimations after sorting MNCs into low and high beta subsamples (first and second estimations, respectively). These estimations reveal that, after controlling for differences in beta, MNCs expected to benefit from a reduction in repatriation taxes continue to experience stronger rates of cash accumulation than MNCs lacking this benefit. Although controlling for beta attenuates results, we continue to observe significant differences in cash behavior after 2009. More importantly, the effect is stronger (economically and statistically) among those MNCs that are not likely to be materially impacted by the financial crisis.

We present similar evidence in Panel B after sorting MNCs into low and high financial distress subsamples. As expected, financially distressed MNCs (second estimation) accumulate less excess cash after 2008 than MNCs with low distress risk. In both cases, cash accumulation following 2008 is concentrated among MNCs most likely to benefit from a future repatriation tax

[27] In these analyses, MNCs are sorted in high, medium and low likelihood of repatriation portfolios independently of sorting by high/low Beta and Shumway bankruptcy risk portfolio. Results of these tests are similar when sorting by likelihood of repatriation within the high/low Beta and Shumway samples. Similarly, all results are robust to benchmarking changes in cash against average 2002 quarterly cash holdings, or calculating beta at the end of 2008.

reduction.[28] We repeat the analysis using a measure of financial constraint based on the Hadlock and Pierce (2010) re-estimation of the KZ index, calculated as of 2007, with consistent results.

Together, these analyses first confirm that the documented cash accumulation patterns of MNCs were systematically influenced by their relative sensitivity to economic conditions associated with the Great Recession. Second, however, even after controlling for the relative health and market sensitivity of MNCs, we continue to observe MNCs with an ex ante predisposition to repatriate foreign cash accumulating cash at a greater rate after 2008 than similar MNCs lacking these incentives. Finally, as expected, this ex ante incentive is strongest amongst low beta and financially healthy MNCs who are least impacted by economic downturns. The strength and duration of the time series trend in excess cash among these healthy MNCs suggests that the observed behavior does not reflect precautionary motives for holding cash, but instead reflects the planning activities of incentivized MNCs during this period of anticipated tax reform.

5. Evidence on costs of holding accumulated cash in anticipation of tax reform

We next examine whether the cash accumulation observed among firms likely to benefit from a repatriation tax reduction is costly to these firms. Prior and concurrent work similarly explores different costs of locked-out foreign cash held by U.S. MNCs. For example, foreign excess cash holdings attributable to high repatriation costs are associated with value destroying foreign acquisitions (Harford 1999; Edwards, Kravet, and Wilson 2015; Hanlon, Lester, and Verdi 2015) and higher domestic borrowing (De Simone and Lester 2017). We build on Nessa

[28] These results are robust to calculating the Shumway (2001) bankruptcy prediction model as of the end of 2008.

(2017) and focus on shareholder payouts in the form of regular dividends and share repurchases.[29]

To examine the payout behavior of firms most versus least likely to benefit from a repatriation tax reduction, we estimate dividends and repurchases as a function of cash holdings and return on assets, following Hanlon and Hoopes (2014):

$$(3) \quad PAYOUT = \beta_0 + \beta_1 * CASH + \beta_2 * ROA + \beta_3 * HIGH\_REPATRIATE + HIGH\_REPATRIATE * \Sigma PERIOD\_IND + \Sigma PERIOD\_IND$$

The dependent variable *PAYOUT* is either *DIVIDEND* or *REPURCHASE,* calculated following Skinner (2008). Specifically*, DIVIDEND* is dividends (Compustat: DVC) in year *t* scaled by income before extraordinary items (Compustat: IBC) in year *t*, and *REPURCHASE* is share repurchases net of issuances in year *t* scaled by income before extraordinary items in year *t*. As before, *CASH* is the sum of cash and cash equivalents and short-term marketable securities at the end of year *t* scaled by total assets, and *ROA* is net income in year *t* scaled by assets. We augment the model by including the *HIGH_REPATRIATE* indicator variable and its interaction with our time period indicators.

We predict that if firms accumulating excess cash in response to anticipated tax reform cut back on shareholder payouts, they will reduce share repurchases but not dividends because share repurchases are a more flexible payout policy (Skinner 2008) and, therefore, reductions in repurchases are less likely to serve as a negative signal (Lintner 1956).

We present results of estimating equation (3) using annual payout data and the 2007 benchmark year in Table 6. Panel A presents our main results. The first set of columns present results for dividends and the second set of columns present results for net repurchases. We find

[29] Nessa (2017) finds a negative relation between the estimated repatriation taxes on current-year foreign earnings and the choice to pay a dividend or repurchase shares. We examine the payout behavior of firms most likely to benefit from a repatriation tax reduction related to their total foreign cash holdings.

limited evidence of a difference in dividend payouts for firms in the top tercile of repatriation likelihood; specifically, we observe a positive and significant coefficient on the interaction between *HIGH_REPATRIATE* and the time period indicators in 2009 and post-2011, but not in any other years. In contrast, the second set of columns suggests a significant reduction in repurchases for firms in the top tercile of repatriation likelihood: we find negative and significant coefficients on the interactions across all time periods. These inferences are robust to alternatively using 2006 as the benchmark period, using quarterly data and the four quarters of 2007 to the third quarter of 2008 as the benchmark period, to conditioning on financial health and probability of bankruptcy, and to alternatively running a logistic regression to estimate the probability of dividend or repurchase.

In terms of economic magnitude, our estimates suggest that the average firm with a high estimated likelihood of repatriation under a second repatriation tax reduction reduces share repurchases by 8.5 percent of income before extraordinary items over the period 2009 to 2011. Given total income before extraordinary items for sample firms over this three-year period, our analysis suggests that in aggregate sample firms forego $415B in shareholder payouts.

Finally, to ensure that the documented reduction in share repurchase behavior is robust to controlling for the Financial Crisis' impact on corporate cash flows, we also condition our analysis on MNCs' sensitivity to macroeconomic conditions (beta) and financial distress (bankruptcy risk). These estimations, presented in Panel B, yield similar inferences to those using the full sample. Specifically, we observe significant, systematic decreases in share repurchases across multiple years after sorting MNCs into low and high macroeconomic sensitivity and financial distress portfolios. Taken together, these results provide robust evidence of a reduction in shareholder payouts for firms most likely to benefit from a repatriation tax

reduction during the period over which they accumulated significant magnitudes of excess cash holdings.

6. Evidence on mechanisms to capitalize on a reduction in taxes on repatriated foreign cash

Our final set of analyses explores mechanisms used by MNCs to increase expected benefits from a future repatriation tax reduction. These tests are designed to provide further evidence that the documented increase in excess cash is associated with an anticipated reduction in future repatriation taxes and not the impact of political and regulatory uncertainty on corporate investment (Bloom 2009) or non-tax-related confounding events. First, MNCs can shift income out of the U.S. to capture expected tax benefits upon eventual repatriation at reduced rates. Second, MNCs can assert that more of their accumulated and un-repatriated foreign earnings are indefinitely reinvested. We are unable to identify reasons that reduced corporate investment or non-tax factors would increase tax-motivated income shifting or the amount of earnings asserted to be indefinitely reinvested abroad.[30]

Our approach to examining the effect of an anticipated reduction in repatriation taxes on tax-motivated income shifting and PRE is similar to our main analysis. We identify MNCs that are expected, given their financial and operating characteristics, to have a high versus low likelihood of repatriating foreign cash if a second, subsequent tax break were enacted. We then examine their income shifting and PRE assertion behavior over the anticipation period.

6.1 Influence of anticipated reduction in repatriation taxes on tax-motivated income shifting

In order to increase the amount of cash available for repatriation at reduced rates, firms can engage in income shifting, whereby they use strategic intercompany transfer pricing or the

[30] On the contrary, a reduction in corporate investment in response to political and regulatory uncertainty presumably would lead to smaller amounts of earnings asserted to be indefinitely reinvested overseas because investment has declined. We also control for known non-tax determinants of PRE in tests exploring this mechanism.

strategic location of high-value, income producing assets to recognize more of their global profits outside of the U.S. In addition to increasing the amount of foreign cash available to repatriate, tax-motivated income shifting increases the tax benefits upon repatriation. Without a repatriation tax reduction, the tax savings from shifting income out of the U.S. to lower-tax jurisdictions provide only temporary benefits if the MNC eventually repatriates these earnings. This is because the MNCs will pay approximately the difference between their foreign effective tax rate and the U.S. statutory rate on repatriated dividends. However, in the event of a repatriation tax reduction, incremental U.S. taxes due upon repatriation are significantly discounted, causing much of the temporary tax savings from income shifting to become permanent. Therefore, MNCs can increase expected benefits from an anticipated repatriation tax reduction by shifting more income to low-tax jurisdictions.

To examine the income shifting behavior of MNCs in anticipation of a reduction in repatriation taxes, we modify the Klassen and Laplante (2012) adaptation of the Collins, Kemsley and Lang (1998) income shifting model. The model tests the extent to which foreign pre-tax return on sales (ROS) approximates worldwide pre-tax ROS. Deviations of foreign ROS from worldwide ROS that are correlated with the difference between the U.S. statutory tax rate and the MNC's foreign effective tax rate are taken as evidence of tax-motivated income shifting. Consistent with Klassen and Laplante (2012), we use five-year average measures of ROS and tax incentives to better capture long-term incentives to shift income.[31] Consistent with Klassen and Laplante (2012) and Collins et al. (1998), we exclude observations with negative aggregate five-year worldwide, domestic or foreign pre-tax income as well as observations with five-year

[31] Klassen and Laplante (2012) and Collins et al. (1998) interact the tax incentive variable with indicator variables for whether foreign taxes are greater than or less than the U.S. statutory rate. Because the U.S. statutory rate is one of the world's highest rates over our sample period, we exclude these indicator variables. To prevent significant sample loss, we set missing values of foreign sales, TXFO, and TXDFO within the rolling five-year periods to zero. We exclude industry fixed effects because *HIGH_REPATRIATE* is correlated with industry.

average foreign tax rate differentials outside the range [-1,1]. The remaining sample includes 4,530 firm-year observations. We use pooled cross-sectional firm-year data from 2007 to 2014 to estimate variations of the following model:

$$(4) \quad AVG\_FOR\_ROS = \beta_0 + \beta_1 * AVG\_WW\_ROS + \beta_2 * AVG\_FTR + \beta_3 * HIGH\_REPATRIATE + \beta_4 * AVG\_FTR * HIGH\_REPATRIATE + \Sigma PERIOD\_IND$$

The dependent variable is the historical five-year average (i.e., year *t-4* to year *t*) foreign pre-tax income scaled by foreign sales (*AVG_FOR_ROS)*. *AVG_WW_ROS* is the historical five-year average worldwide pre-tax income scaled by worldwide sales. *AVG_FTR* is the five-year average difference between the 35 percent U.S. statutory tax rate and the foreign effective tax rate. The foreign effective tax rate is the sum of current (Compustat: TXFO) and deferred foreign income taxes (Compustat: TXDFO) scaled by pre-tax foreign income (Compustat: PIFO). Because we subtract the foreign effective tax rate from the U.S. statutory rate, *AVG_FTR* is increasing in tax incentives to shift income out of the U.S. As before, *HIGH_REPATRIATE* equals one (zero) if the MNC's repatriation likelihood model score is in the top (bottom) tercile. The variable of interest is the interaction between *AVG_FTR* and *HIGH_REPATRIATE*. A positive coefficient on the interaction suggests that incentivized MNCs shift more income out of the U.S. in anticipation of a repatriation tax reduction relative to other MNCs.

We present results in Table 7. Column (1) presents results of estimating equation (4). Consistent with prior work, we estimate positive and significant coefficients on *AVG_WW_ROS* and *AVG_FTR*. Further, we estimate a positive and significant coefficient on the interaction term, suggesting that MNCs likely to repatriate under a second tax break engage in more tax-motivated income shifting relative to other MNCs. In terms of economic magnitude, we estimate that the average sample firm likely to repatriate reports foreign returns that are 1.1 percentage points

higher than the average sample firm unlikely to repatriate.[32] These results are robust to alternatively using three-year historical averages.

In column (2), we replace year fixed effects with two time period indicator variables. The first indicator variable *2009-2011* represents the period during which another temporary repatriation tax reduction was anticipated but remained uncertain (2009 to 2011); the second variable *POST2011* represents the period during which discussions of tax reform included a permanent repatriation tax reduction (2012 to 2014). As expected, we find a positive and significant coefficient on the interaction between *AVG_FTR*HIGH_REPATRIATE* and *2009-2011*, suggesting that incentivized MNCs engage in incrementally more tax-motivated income shifting during this period relative to other MNCs and the benchmark period. Interestingly, however, this estimation yields an insignificant coefficient for the interaction with *POST2011,* suggesting that the increased tax-motivated income shifting of likely repatriating MNCs is limited to the period during which a second temporary repatriation tax reduction was anticipated, as later proposals for permanent tax reform would impact all MNCs in the long run.

6.2 Influence of anticipated reduction in repatriation taxes on PRE

The maximum amount of cash an MNC could repatriate under the AJCA was tied to the dollar amount of PRE disclosed in the most recent financial report prior to enactment (or the dollar amount of disclosed incremental repatriation taxes due on PRE grossed up by 35 percent). It is reasonable for MNCs to assume a similar limit would be imposed in any subsequent repatriation tax holiday legislation, thereby creating an incentive for MNCs most likely to benefit from a second holiday to increase PRE in the anticipatory period. Brennan (2010) documents increases in PRE reported by MNCs following the AJCA. We extend the analysis in Brennan

[32] We calculate the economic magnitude as the sample mean *AVG_FTR* of 0.091 multiplied by the estimated coefficient on *AVG_FTR*HIGH_REPATRIATE* of 0.125.

(2010) by employing a more complete determinants model of PRE and by directly correlating PRE with cash. We begin by modifying the Krull (2004) PRE determinants model, in which annual changes in PRE are explained by financial reporting incentives, tax incentives, foreign investment opportunities, the scale of foreign operations, and liquidity requirements.

(5) $$\Delta PRE = \beta_0 + \beta_1 * FE + \beta_2 * FOREIGNETR + \beta_3 * ROA\_DIFF + \beta_4 * \%FOREIGNSALES + \beta_5 * DIVPAY + \beta_6 * LEVERAGE + \beta_7 * HIGH\_REPATRIATE + \Sigma PERIOD\_IND$$

The dependent variable *ΔPRE* is PRE in year *t* less PRE in year *t-1*, scaled by total assets at the end of year *t*. Following Krull (2004), the financial reporting incentives variable *FE* is the mean I/B/E/S analyst forecast outstanding at the earnings announcement date minus pre-managed earnings, scaled by total assets at the end of year *t*. Pre-managed earnings are earnings reported in I/B/E/S less the change in PRE from year *t-1* to year *t* times the difference between 35 percent and *AVG_FTR*. *FE* is increasing in financial reporting incentives to designate more foreign earnings as PRE. The tax incentive variable *FOREIGNETR* is the foreign effective tax in year *t* ((TXFO+TXDFO)/PIFO). The difference between foreign and domestic after-tax return on assets in year *t-1* (*ROA_DIFF)* controls for foreign investment opportunities, while the share of foreign sales in year *t* (*%FOREIGNSALES)* controls for the global footprint of the firm. We also control for dividend payouts (*DIVPAY)* and total debt (*LEVERAGE*).

Our variable of interest is the indicator variable *HIGH_REPATRIATE*, which is equal to one (zero) if the MNC's repatriation likelihood model score is in the top (bottom) tercile. Consistent with MNCs likely to repatriate under a second tax break having greater expected benefits from designating more foreign earnings as PRE, we expect a positive coefficient on this variable. We also estimate a levels specification by modifying equation (6) to include the level of PRE scaled by assets as the dependent variable and interactions between *HIGH_REPATRIATE* and our time period indicators. We expect positive coefficients on these interactions.

We present results in Table 8. The first set of columns present estimated coefficients and t-statistics for the changes model (equation 5) and the second set of columns present the levels model. In the first set of columns, we find a positive and significant coefficient on *HIGH_REPATRIATE*, suggesting that MNCs most likely to benefit from a reduction in repatriation taxes increase their PRE assertions more over the period 2007 to 2014 relative to other MNCs. Our estimates suggest that average reported PRE of incentivized MNCs grew approximately 1.8 percent faster than for un-incentivized MNCs. In the second set of columns, we estimate an insignificant coefficient on *HIGH_REPATRIATE,* providing evidence that there is no difference in the level of PRE between the two groups of MNCs in 2007. However, we estimate positive and significant coefficients on the interactions between *HIGH_REPATRIATE* and the time period indicator variables, consistent with results from the changes model. Taken together, our evidence suggests that MNCs likely to repatriate under a second repatriation tax reduction increase the magnitude of PRE disclosed during the anticipation period more than MNCs unlikely to repatriate. This evidence is consistent with likely repatriating MNCs maximizing the future expected benefits of a second repatriation tax reduction.

To provide further evidence that the growth in PRE reflects anticipation of reduced repatriation taxes, we also examine the direct link between cash holdings and the dollar amount of PRE. If documented growth in PRE were unrelated to expected repatriations of cash, PRE is less likely to be held in cash and more likely to be redeployed in foreign investments. As such, we would expect little to no correlation between PRE and cash holdings. In contrast, we expect and find a significantly positive correlation for the subset of incentivized MNCs (0.09), which contrasts sharply with a negative correlation for un-incentivized MNCs (-0.29).

7. Additional analyses and robustness tests

7.1 Falsification tests

We conduct falsification tests to address the possibility that our main results document a mere time trend in cash holdings. Our first set of untabulated analyses examines the cash holding behavior of multinationals leading up to the AJCA. As the AJCA was a fairly unexpected event, incentivized MNCs would not have had time to actively accumulate material amounts of cash before or during the event window. Documenting differential cash accumulation behavior in pre-AJCA data among repatriating and non-repatriating MNCs would suggest that our main results might be driven by an omitted factor. Univariate evidence on changes in cash holdings over the twelve quarters from the first quarter of 2003 to the fourth quarter of 2005 reveals that the evolution of cash balances for repatriating and non-repatriating MNCs is statistically similar over this period.[33] Multivariate analyses using quarterly financial statement data to re-estimate equation (2), after substituting *HIGH_REPATRIATE* with *REPATRIATED* (an indicator variable equal one if the MNC repatriated foreign cash under the ACJA, zero otherwise), also fail to document changes in cash holdings leading up to the AJCA. We conclude firms that ultimately repatriated under the AJCA did not behave differently with respect to cash holdings relative to other firms in advance of the unexpected legislative event.

Second, because purely domestic corporations are unable to benefit directly from a repatriation tax break, these firms provide an opportunity to conduct a falsification test. We identify firms with zero foreign pre-tax income (Compustat: PIFO) for each year 1990 to 2016 and use 2008 financial statement data to match these domestic firms to 1,026 of the 1,781 MNCs

[33] As expected, predicted probabilities of repatriation for the treatment and control groups differ significantly. However, there is sufficient propensity score overlap to match firms, which allows us to eliminate concerns that observed differences in cash behavior are the result of different firm characteristics (e.g., financial condition) around the time of the AJCA. We match on predicted probabilities using a one-to-one nearest neighbor match.

from our main sample on size, industry, and return on assets. We then estimate our main test on this matched sample of domestic firms. We define *PSEUDO_REPATRIATE* equal to one for domestic firms matched to MNCs from our main sample firms with an estimated a likelihood of repatriation in the top tercile (*HIGH_REPATRIATE*=1). Because domestic firms are unable to benefit from a repatriation tax reduction, we expect no effect of this anticipated repatriation tax reduction on their cash holdings relative to domestic firms matched to the low-likelihood MNC sample. Consistent with predictions, we fail to estimate any coefficients on the interactions between *PSEUDO_REPATRIATE* and our time period indicator variables that are statistically different from zero at conventional levels (results not tabulated for parsimony).

7.2 Behavior of disclosed foreign cash holdings

Our main tests use worldwide cash holdings from the consolidated financial statements because disclosures of foreign cash holdings were not common prior to 2011 (Yang 2015). We conduct several tests to support that the accumulation of cash in anticipation of a second repatriation tax reduction is likely dominated by foreign holdings. We hand collect disclosures of foreign cash for our sample firms from 2011 to 2015.[34] For each firm-year with disclosed data, we measure *FOREIGNCASH* as the disclosed foreign cash amount, scaled by total assets.

Table 9, Panel A provides a descriptive analysis of foreign cash disclosures from 2011 to 2015 by tercile of estimated likelihood of repatriation. Consistent with Yang (2015), we find that the number of firms disclosing foreign cash increases over time, from 42 firms in the top and bottom terciles of estimated repatriation likelihood in 2011 to 237 in 2015. Notably, foreign cash disclosure is positively correlated with estimated repatriation likelihood. Further, in every year

[34] To gather this data, we run a script on sample firm annual 10-K filings to capture language around search terms "foreign subsidiary" or "liquidity" that contains the word "cash." We then manually reviewed these excerpts to record disclosed foreign cash amounts. If a firm discloses only domestic cash or a percentage of total cash held overseas, we performed the appropriate calculation to obtain the dollar amount of foreign cash.

the mean amount of *FOREIGNCASH* for MNCs most likely to repatriate is higher than that for firms least likely to repatriate. These differences are statistically significant in 2012 and 2013.

We next estimate a simple model of foreign cash holdings to evaluate trends in the proportion of corporate cash held overseas by disclosing firms over the period 2011 to 2015. The dependent variable *%FOREIGNCASH* is hand-collected foreign cash scaled by total cash. We include as determinants the foreign share of the MNC's total sales and year and Fama French industry fixed effects.[35] We test for a time trend by including a linear time variable, *TIME*, which is equal to one in 2012 and increasing by one ever year thereafter. Panel B of Table 9 reports the results of this estimation. The linear time trend is positive and significant. We interpret this result as evidence that foreign cash balances as a percent of MNCs' total cash balances are increasing over time, consistent with the arguments underlying our main predictions.

Finally, because firms that disclose foreign cash are more likely to be in the top tercile of estimated repatriation likelihood, we re-estimate equation (2) after including an indicator variable *DISCLOSE* equal to 1 if the firm disclosed foreign cash after 2011 and zero otherwise, and its interactions with time period indicators. We report results from this estimation in Panel C of Table 9. Consistent with our main results, firms most likely to benefit from repatriation exhibit a positive accumulation of excess cash of 2.4 to 3.8 percent of assets over the period 2009 to 2011 even after controlling for foreign cash disclosure. In contrast, firms that disclose foreign cash only exhibit positive excess cash accumulation after 2011. Together, the evidence provided in Table 9 suggests that our main results are driven by the foreign cash accumulations of firms most likely to repatriate in the event of a second repatriation tax reduction.

7.3 Market reaction tests

[35] Results are robust to including the foreign share of total assets, though this dramatically reduces the sample because 1,150 firm-year observations do not disclose foreign assets.

One means of validating our research design is to conduct market reaction tests around the key legislative date that shifted expectations about the possible future enactment of a reduction in repatriation taxes: the introduction of the REAP Act on November 20, 2008. To the extent the market can correctly assess which firms would benefit from such tax reform, we expect to see a positive stock price reaction for MNCs with a high likelihood of repatriation. In contrast, firms lacking expected tax benefits should not be affected by this legislative activity, or even could be negatively affected if the market infers a competitive disadvantaged.

To test these arguments, we estimate average returns over two windows: the one-day period of November 21, 2008, and the three-day period beginning November 20, 2008.[36] We find that, across all return metrics and windows, the average return to MNCs in the top tercile of estimated likelihood of repatriation was non-negative and exceeded the average return for MNCs least likely to repatriate.[37] In all but one case (the one-day Fama-French abnormal return), these differences are significant at the 5 percent level.

7.4 Alternative interpretations of the data

We discuss two alternative explanations for our results. First, political economy research shows that uncertainty, including uncertainty around tax policy, is associated with decreased firm investment and sensitivity of corporate investment policy to political stimuli (Bloom, Bond and Van Reenen 2007; Bloom 2009; Barrero, Bloom and Wright 2016) and a negative impact on macroeconomic performance (Baker and Bloom 2013; Fernandez-Villaverde et al. 2015). A

[36] Although the REAP Act was introduced on November 20th, it is unclear what time of day the bill was introduced and whether markets were aware of the bill's contents by the time they closed. According to Congressional records, the house adjourned at 10 AM and reconvened at 3 PM. An examination of newspaper headlines on November 20th, 2008 reveals news of deteriorating macro-economic conditions and uncertainty about government stimulus efforts, leading to headlines on the 21st of a significant drop in the market the preceding day due to economic conditions. As such, we measure returns over two windows.

[37] We employ four measures of market response: raw returns excluding dividends, market-adjusted abnormal returns using a value-weighted index, market-adjusted abnormal return using the capital asset pricing model, and market-adjusted abnormal returns using the Fama-French four factor model.

decline in corporate investment in response to regulatory uncertainty without corresponding increases in corporate shareholder payouts could plausibly provide an alternative explanation for rising corporate cash balances. However, measures of regulatory uncertainty (e.g., Baker, Bloom and Davis 2016) display significant variation over our time period, suggesting this is not the primary driver behind the steadily rising corporate cash balances observed in our study.

Second, we examine whether the growing cash balances of MNCs prompted these firms to lobby for a repatriation tax reduction. Contrary to this explanation, we find that expected repatriating MNCs do not have larger cash balances than expected non-repatriating MNCs (just larger increases). However, we also examine lobbying data obtained from the Center for Responsive Politics. We define an indicator variable *LOBBY* equal to one if the Center for Responsive Politics dataset identifies a sample firm as actively lobbying on one of the repatriation tax bills in Appendix B. We identify 34 sample firms engaged in lobbying on relevant legislation, all of which are in the highest tercile of estimated probability of repatriation (representing 5.72 percent of the high likelihood sample).[38]

We re-estimate equation (2) after including *LOBBY* and its interactions with our time period indicator variables. We present results of this estimation in Table 10. Consistent with our main results, we continue to estimate positive and significant interactions between *HIGH_REPATRIATE* and time period indicators after controlling for lobbying activity. In contrast, none of the estimated coefficients on the interactions between *LOBBY* and the time period indicator variables are statistically different from zero. These results suggest that firms in the highest tercile of likelihood of repatriation accumulate excess cash over the period of anticipation of a second repatriation tax reduction, and that our results are not driven by firms

[38] We note a positive correlation (0.195, p-value < 0.01) between *LOBBY* and the estimated probability of repatriating under a second repatriation tax reduction *HIGH_REPATRIATE.* We also find a positive correlation (0.193, p-value < 0.01) between *LOBBY* and firms that actually repatriated under the AJCA.

lobbying for such legislation. The documented evidence is interesting because while it is clear that some firms that expected to benefit from such legislation actively engaged in lobbying activity in an effort to force the issue onto the legislative agenda, most firms were more passive and only responded to exogenous shifts in the likelihood of legislation.

7.5 Robustness test: Alternative measures of expected likelihood of repatriation

Our current research design focuses on differences in cash holdings, income shifting, and PRE patterns between MNCs located in the top and bottom terciles of the predicted likelihood of repatriation. This research design choice allows us to compare behavior across two groups of MNCs with strongest, yet materially different, sets of relative incentives. However, as a result of this choice, we eliminate about one-third of available MNC observations (those with repatriation likelihoods in the middle of the sample distribution). For completeness, we conduct tests using three alternative approaches to measuring the likelihood of repatriation under a second repatriation tax reduction. First, we re-estimate a variant of equation (2) after including a continuous measure of expected likelihood of repatriation, *PROB_REPATRIATE*, in lieu of our *HIGH_REPATRIATE* indicator variable. We continue to find a positive coefficient on the interactions of this variable and our time period indicator variables, consistent with our main results. Second, instead of developing a model to estimate the likelihood of repatriation, we simply use the indicator variable *REPATRIATED* equal to one if the firm actually repatriated under the AJCA and zero otherwise. Results are generally consistent with our main results. Third, we define *HIGH_REPATRIATE* using alternative thresholds such as the top and bottom quintiles of likelihood model scores; results are qualitatively similar.

8. Conclusions

We examine how U.S. MNCs respond to anticipated tax benefits related to foreign cash. Following proposed legislation for a second repatriation tax reduction, MNCs similar to firms that repatriated under the original tax repatriation tax reduction increased excess cash holdings. In contrast, firms predicted to be unlikely to repatriate did not increase their excess cash holdings over the same period. Further, firms expected to benefit from a repatriation tax break exhibit a reduction in share repurchases over the same period during which they accumulated this excess cash, whereas those firms not accumulating excess cash do not. These activities are consistent with MNCs sacrificing short-term costs of holding excess cash in return for expected tax savings upon future repatriations of the cash. Results are robust to conditioning analyses on the market sensitivity and financial health of sample firms.

Consistent with our results being explained by anticipated future tax benefits, we expect and find that firms most likely to benefit from a reduction in repatriation taxes engage in activities to maximize the benefits of such legislation. Following proposals for a second repatriation tax reduction, firms likely to repatriate shift more income out of the U.S. and increase permanently reinvestment earnings more than firms unlikely to repatriate. These activities increase the amount of foreign cash available and expected to qualify for tax-preferred repatriations under a second repatriation tax reduction.

In this study, we document a material tax-motivated phenomenon with implications for firm investment decisions, corporate debt holdings, cost of capital, shareholder payouts, and internal capital market frictions. We contribute to the literature by documenting that firms respond to anticipated but uncertain tax incentives instead of enacted law, in contrast to prior work. Further, we provide evidence that the temporary nature of past tax policies influences future firm behavior, essentially inducing the recurrence of the problem the temporary regulation

was enacted to solve. Finally, we also document an additional explanation for the large increase in cash holdings observed over the last decade.

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Appendix A
Variable definitions

Variable	Definition
CASH	Cash and short-term marketable securities, scaled by year-end total assets; quarterly.
TTLCASH	CASH plus other long-term investments and advances, scaled by year end total assets; annual data.
CAPEX	Cash flow related to capital expenditures scaled by average assets; quarterly.
RD	R&D expense scaled by average assets; quarterly.
MTB	Market value of equity divided by book value of equity; quarterly.
ROA	Net income scaled by average assets; quarterly
LEVERAGE	Debt in current liabilities plus total long-term debt scaled by year-end assets; quarterly
%FOREIGNSALES	Foreign sales from Compustat segments scaled by sales; missing foreign sales replaced with foreign assets; missing foreign assets replaced with pretax income; missings set to zero; yearly.
ΔCAPEX	Three-year change in CAPEX (CAPEX(t) – CAPEX(t-3)).
ΔRD	Three-year change in RD (RD(t) – RD(t-3)).
ΔMTB	Three-year change in MTB (MTB(t) – MTB(t-3)).
ΔROA	Three-year change in ROA (ROA(t) – ROA(t-3)).
ΔLEVERAGE	Three-year change in LEVERAGE (LEVERAGE(t) – LEVERAGE(t-3)).
ΔFOREIGNPTI	Three-year change in FOREIGNPTI (FOREIGNPTI(t) – FOREIGNPTI(t-3)). FOREIGNPTI is defined as pre-tax foreign income scaled by total worldwide pre-tax income.
REPAT_TAX	Foreign pretax income*35% - foreign income taxes scaled by average assets; negative values set to zero; yearly.
ACQUISITIONS	Acquisition related cash outflows (funds used for and costs related to acquisitions) scaled by average assets; quarterly.
CASHCONV	Cash conversion cycle (days receivables outstanding + days inventory held - days accounts payable outstanding), winsorized at 1 and 99 percent; quarterly.
LAG_CF	Lagged total cash flow scaled by average assets; quarterly.
INDSALE	Coefficient of variation in industry sales using Fama-French 12 industry groups; quarterly.
DIVPAY	Common dividends scaled by average assets; negative and missing values set to zero; yearly.
NETWC	Current assets less cash and current liabilities, scaled by average assets; quarterly.
NETDEBT	Debt issuance less debt retirement scaled by average assets; quarterly.
NETEQUITY	Equity sales less equity purchases scaled by average assets; quarterly.
SIZE	Log of year-end assets; quarterly.
REPATRIATED	Indicator variable equal to one if the firm repatriated under the AJCA; zero otherwise.
PROB_REPATRIATE	Estimated probability of repatriation in 2008 based on estimated coefficients from a logit model using 2002 data and REPATRIATED as the dependent variable
HIGH_REPATRIATE	Indicator variable set equal to one if the firm's predicted probability of repatriation is in the top tercile; zero if in the bottom tercile.
BETA	Coefficient from a regression of firm return on equally-weighted market return index (CRSP: EWRETD). Requires 36 months of data.
SHUMWAY	Shumway measure of bankruptcy, based on Shumway (2001)
DIVIDEND	Dividends (DVC) in year *t* scaled by income before extraordinary items (IBC) in year *t*. If IBC is less than or equal to zero and DVC is positive, DIVIDEND is set equal to one.
REPURCHASE	The increase in common treasury stock (TSTKC) in year *t* if the firm uses the treasury stock method for repurchases, scaled by income before extraordinary items (IBC) in year *t*. If the firm uses the retirement method (if TSTKC = 0 in years *t* and *t-1*), REPURCHASE is the difference between stock purchases (PRSTKC) and stock issuances (SSTK) in year *t*, scaled by IBC in year *t*. If either of these amounts is negative, REPURCHASE is set to zero. If IBC is less than or equal to zero but repurchases are positive, REPURCHASE is set equal to one.
AVG_FOR_ROS	Average foreign pre-tax income scaled by average foreign sales, from year *t-4* to *t*; yearly
AVG_WW_ROS	Average worldwide pre-tax income scaled by average worldwide sales, from year *t-4* to *t*; yearly.
AVG_FTR	Average of 35% less (TXFO+TXDFO)/PIFO (from Compustat) from year *t-4* to year *t*; yearly.
ΔPRE	Permanently reinvested earnings (PRE) in year *t* less PRE in *t-1*, scaled by total assets in *t*; yearly.
PRE	Permanently reinvested earnings in year *t* scaled by total assets in year *t*; yearly.
FE	Average analyst forecast in year *t* less unmanaged earnings in year *t*, where unmanaged earnings are actual earnings less *ΔPRE* times the difference between 35% and *AVG_FTR*.
FOREIGNETR	Foreign effective tax rate ((TXFO+TXDFO)/PIFO) in year *t*.
DIFF_ROS	Foreign return on sales in year *t-1* less domestic return on sales in *t-1*, where foreign return on sales is foreign pre-tax income (PIFO) scaled by foreign sales (SALES) and domestic return on sales is

	domestic pre-tax income (PIDOM) scaled by domestic sales (SALES) from the segments database.
FOREIGNCASH	Foreign cash in year *t* scaled by total assets in year *t*.
%FOREIGNCASH	Foreign cash in year *t* scaled by *TTLCASH* in year *t*.
%FOREIGNAT	Foreign assets in year *t* from the Compustat segments database, scaled by total assets in year *t*.
TIME	Linear time trend for each time period included in the analysis.
LOBBY	Indicator variable equal to one if the Center for Responsive Politics identifies the firm as lobbying on a bill listed in Appendix B, zero otherwise.

Appendix B
Events that influenced expectations of a tax holiday

Event #	Event Date	Title of Bill	Bill ID (if relevant)	Predominantly Tax Holiday Related?	Relevant Status
1	2/13/2003	Homeland Investment Act of 2003	H.R. 767, 108th Congress	Yes	Introduced
2	3/11/2003	Invest in the USA Act	S 596, 108th Congress	Yes	Introduced
3	7/25/2003	American Jobs Creation Act of 2003	H.R. 2896, 108th Congress	Yes	Introduced
4	10/28/2003	American Jobs Creation Act of 2003		Yes	Order to be reported (amended) by the Yeas and Nays 24-15.
5	11/21/2003	American Jobs Creation Act of 2003		Yes	Reported by Committee (put on house calendar)
6	6/4/2004	American Jobs Creation Act	H.R. 4520, 108th Congress	Yes	Introduced
7	6/14/2004	American Jobs Creation Act		Yes	Order to be reported (amended) by the Yeas and Nays 27-9.
8	6/16/2004	American Jobs Creation Act		Yes	Reported by Committee
9	6/17/2004	American Jobs Creation Act		Yes	Passed House, 251-178.
10	7/15/2004	American Jobs Creation Act		Yes	Passed Senate with Changes, voice vote
11	10/7/2004	American Jobs Creation Act		Yes	Conference Report Agreed to by House, 280-141.
12	10/11/2004	American Jobs Creation Act		Yes	Conference Report Agreed to by Senate, 69-17.
13	10/21/2004	American Jobs Creation Act		Yes	Presented to President to be Signed into Law
14	11/20/2008	REAP Act of 2008	H.R. 7305, 110th Congress	No	Introduced
15	3/4/2011	Rising Tides Act	H.R. 937, 112th Congress	Yes	Introduced
16	3/11/2011	The Jobs Creation and Innovation investment Act	H.R. 1036, 112th Congress	Unclear	Introduced
17	4/5/2011	Bipartisan Tax Fairness and Simplification Act	S 727, 112th Congress	No	Introduced
18	3/25/2011	WIN America Campaign		Yes	First press mention
19	5/11/2011	The Freedom to Invest Act	H.R. 1834, 112th Congress	Yes	Introduced
20	9/7/2011	Putting America Back to Work Act of 2011	H.R. 2862, 112th Congress	Yes	Introduced
21	10/6/2011	Foreign Earnings Reinvestment Act	S 1671, 112th Congress	Yes	Introduced
22	11/9/2011	Rebuilding America Act	S 1837, 112th Congress	Yes	Introduced
23	11/10/2011	Jobs Through Growth Act	H.R. 3400, 112th Congress	No	Introduced
24	11/17/2011	American Jobs First Act of 2011	H.R. 3460, 112th Congress	Yes	Introduced
25	3/8/2012	WIN America Campaign		Yes	Announces support of NASDAQ OMX Group
26	4/23/2012	WIN America Campaign		Yes	Disbanded
27	5/9/2013	Emergency Transportation Safety Fund Act	S 911, 113th Congress	Yes	Introduced, still alive. A prognosis of zero percent chance of being enacted according to govtrack.us
28	5/22/2013	The Partnership to Build America Act	H.R. 2084, 113th Congress	Unclear	Introduced, still alive. A prognosis of 3 percent chance of being enacted according to govtrack.us
29	5/14/2014	Amendment to the Hire More Heroes Act of 2014	S Amdt 3065 to H.R. 3474		Introduced

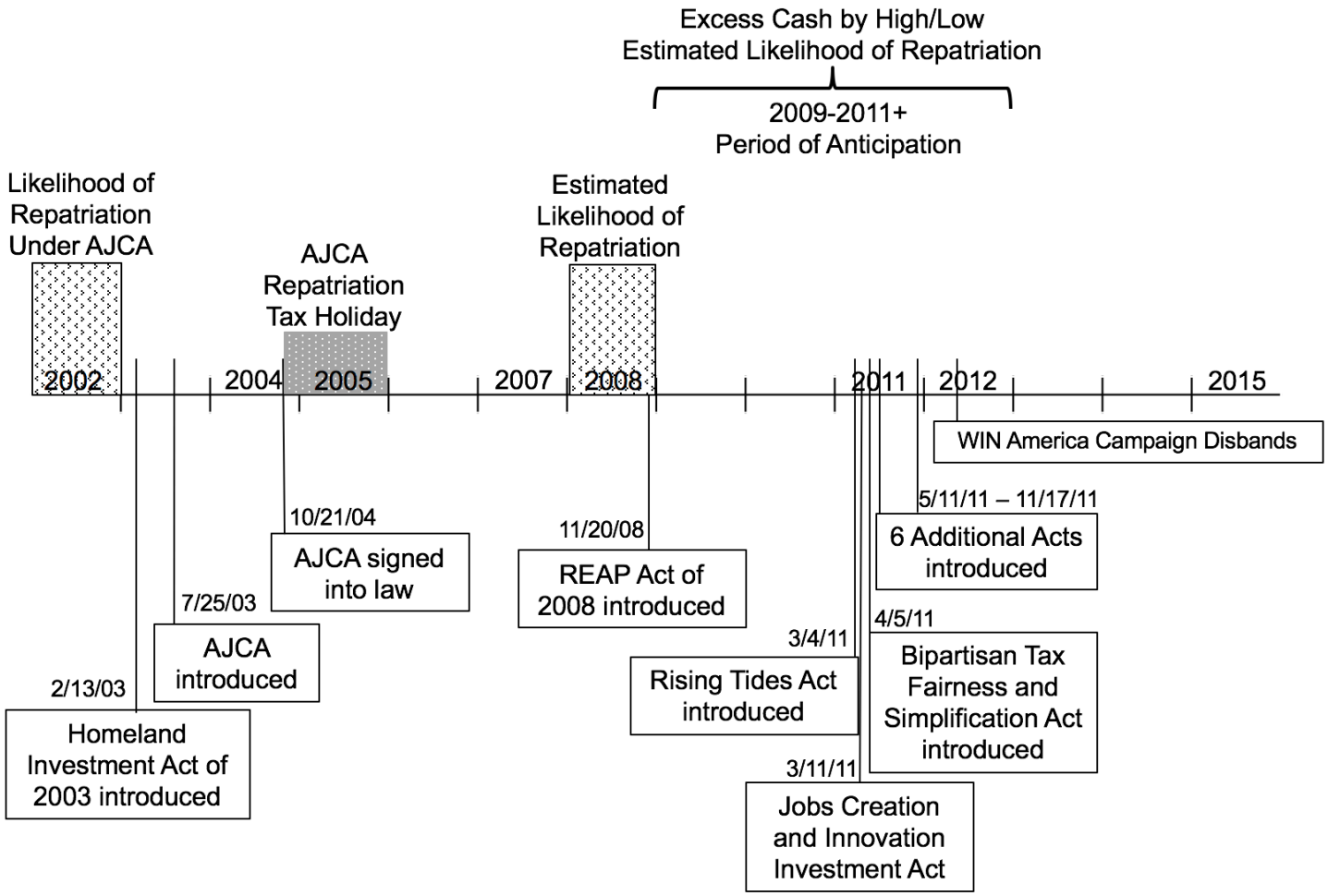
Appendix C
Sample construction

	AJCA 2002 Sample		Second Holiday 2008 Sample	
	# Firms	# Obs. Lost	# Firms	# Obs. Lost
All Compustat Firms	11,253		10,878	
Exclude non-MNCs	1,898	9,355	2,174	8,704
Exclude Financial Firms, Utilities and Holding Companies	1,790	108	2,010	164
Exclude firms with negative or missing assets	1,790	-	2,007	3
Exclude firms with missing Compustat data	1,582	208	1,781	226
of which:				
Firms that repatriated under AJCA	390			
Firms that did not repatriate under AJCA	1,192			
High probability of repatriation			593	
Mid probability of repatriation			594	
Low probability of repatriation			594	

Figure 1
Research Design

This figure presents an overview of the research setting and research design.

Panel A: Timing of Legislative Events and Estimated Likelihood of Repatriation Models



Panel B: Benchmark Periods for Excess Cash Model

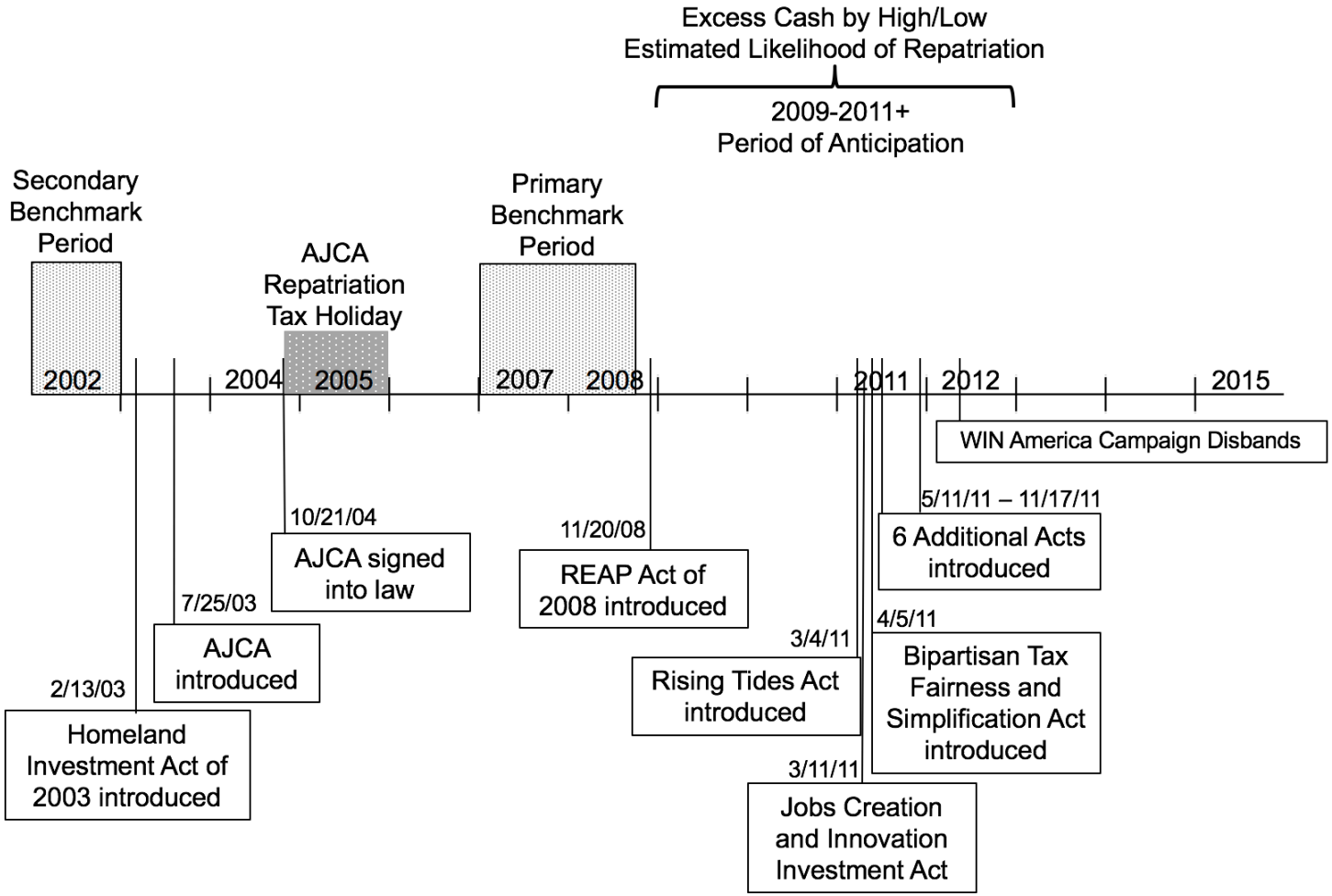


Table 1
Descriptive statistics of AJCA repatriation versus non-repatriation MNCs

This table presents average financial characteristics of multinational firms for all four quarters of 2002, conditional upon whether the MNC ultimately repatriated foreign cash following the enactment of the AJCA's tax holiday. Differences in characteristics are tested using t-tests of means. All variables are defined in Appendix A. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

Variable	Repatriating Firms (*REPATRIATED*=1) (1)	Non-Repatriating Firms (*REPATRIATED*=0) (2)	Difference (1) – (2)	(t-statistic)
ΔCAPEX	-0.019	-0.025	0.006*	1.951
ΔRD	-0.007	-0.014	0.008**	2.490
ΔMTB	-2.176	-3.020	0.844	1.547
ΔROA	-0.039	-0.047	0.008	0.611
ΔLEVERAGE	-0.010	-0.005	-0.005	-0.436
ΔFOREIGNPTI	-0.056	0.057	-0.114	-1.287
CAPEX	0.045	0.040	0.006**	2.449
RD	0.038	0.065	-0.026***	-7.085
MTB	2.930	1.768	1.162***	6.410
ROA	0.040	-0.081	0.121***	13.438
LEVERAGE	0.237	0.216	0.021*	1.741
%FOREIGNSALES	0.393	0.320	0.073**	2.078
REPAT_TAX	0.004	0.003	0.001***	2.983
ACQUISITIONS	0.024	0.023	0.002	0.488
CASHCONV	87.176	84.465	2.711	0.512
LAG_CF	0.014	-0.008	0.022***	3.521
INDSALE	4.282	4.518	-0.236***	-3.305
DIVPAY	1.132	0.466	0.666***	6.515
NETWC	0.074	0.028	0.047***	4.270
SIZE	7.608	5.839	1.769***	17.502
CASH	0.149	0.206	-0.057***	-5.430
TTLCASH	0.180	0.227	-0.048***	-3.952
Number observations	390	1,192		

Table 2
Determinants of AJCA foreign cash repatriation decision

This table presents estimated coefficients from propensity score models of multinational firms' decision to repatriate foreign cash following the enactment of the AJCA. The columns present estimated coefficients and standard errors from the following propensity score model:

$$Prob(REPATRIATED = 1) = F(\beta_0 + \beta_1*\Delta CAPEX + \beta_2*\Delta RD + \beta_3*\Delta MTB + \beta_4*\Delta ROA + \beta_5*\Delta LEVERAGE + \beta_6*\Delta FOREIGNPTI + \beta_7*CAPEX + \beta_8*RD + \beta_9*MTB + \beta_{10}*ROA + \beta_{11}*LEVERAGE + \beta_{12}*\%FOREIGNSALES + \beta_{13}*REPAT\_TAX + \beta_{14}*ACQUISITIONS + \beta_{15}*CASHCONV + \beta_{16}*LAG\_CF + \beta_{17}*INDSALE + \beta_{18}*DIVPAY + \beta_{19}*NETWC + \beta_{20}*SIZE)$$

The dependent variable, *REPATRIATED*, is an indicator variable equal to one if the MNC repatriated foreign cash under the AJCA. The model is estimated using firm-level financial characteristics for 2002. All variables are defined in Appendix A. The sample consists of 1,582 firm observations, split between 390 repatriating and 1,192 non-repatriating firms. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

	Model (1)		
Variable	Coefficient	Chi-Sq.	p-value
Intercept	-5.175***	118.04	<.0001
ΔCAPEX	-0.316	0.05	0.821
ΔRD	-0.109	0.01	0.939
ΔMTB	-0.010	1.06	0.304
ΔROA	-2.327***	15.12	0.000
ΔLEVERAGE	0.019	0.00	0.971
ΔFOREIGNPTI	-0.098**	5.36	0.021
CAPEX	-1.076	0.34	0.560
RD	0.906	0.34	0.558
MTB	0.101***	12.69	0.000
ROA	5.299***	40.67	<.0001
LEVERAGE	0.795*	3.77	0.052
%FOREIGNSALES	0.134	1.73	0.188
REPAT_TAX	16.224*	3.30	0.069
ACQUISITIONS	-0.235	0.06	0.811
CASHCONV	-0.001	2.30	0.129
LAG_CF	0.062	0.01	0.938
INDSALE	0.066	0.99	0.320
DIVPAY	0.020	0.27	0.601
NETWC	2.406***	15.51	<.0001
SIZE	0.452***	112.88	<.0001
Pseudo R^2	20.3%		
Likelihood Ratio	358.08***		
Percent Concordant	79.7%		
Percent Discordant	20.0%		
Percent Tied	0.2%		

Table 3
Descriptive statistics on expected likelihood of repatriation

This table presents descriptive statistics on U.S. multinational corporations at the end of 2008. Panel A presents descriptive statistics on the expected probability of repatriation. The expected likelihood of repatriation, *PROB_REPATRIATE*, is estimated by applying the coefficients from the expanded determinants of repatriation model presented in Table 2 to the financial characteristics of all available U.S. MNCs with sufficient accounting information at the end of 2008. Panel B presents evidence on the average financial characteristics of these MNCs, after sorted into terciles on the basis of the expected likelihood of repatriation. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

Panel A: Distribution of expected likelihood of repatriation (*PROB_REPATRIATE*)

	Mean	Std Dev	Min.	10%	25%	Median	75%	90%	Max.
PROB_REPATRIATE	0.277	0.224	0.000	0.026	0.094	0.231	0.421	0.600	1.000

Panel B: Descriptive statistics, conditional upon *PROB_REPATRIATE terciles*

	Low Likelihood of Repatriation (N=593)	Medium Likelihood of Repatriation (N=594)	High Likelihood of Repatriation (N=594)	Difference (High-Low)	(t-statistic)
PROB_REPATRIATE	0.058	0.230	0.543	0.486***	(73.461)
CASH	0.276	0.174	0.135	-0.141***	(-13.189)
TTLCASH	0.304	0.201	0.165	-0.139***	(-11.597)
CAPEX	0.046	0.048	0.057	0.011***	(3.042)
RD	0.105	0.042	0.034	-0.071***	(-10.067)
MTB	0.766	1.444	2.804	2.038***	(12.041)
ROA	-0.220	0.015	0.081	0.301***	(17.478)
LEVERAGE	0.206	0.209	0.241	0.036**	(2.462)
%FOREIGNSALES	0.265	0.362	0.656	0.391***	(2.717)
REPAT_TAX	0.003	0.004	0.009	0.006***	(6.972)
ACQUISITIONS	0.025	0.042	0.032	0.007	(1.581)
CASHCONV	77.345	83.395	72.672	-4.674	(-0.726)
LAG_CF	0.024	0.024	0.016	-0.008	(-0.705)
INDSALE	4.414	4.105	3.946	-0.468***	(-8.397)
DIVPAY	0.276	0.713	1.687	1.411***	(13.985)
NETWC	-0.035	0.099	0.072	0.107***	(8.372)
NETDEBT	0.002	0.010	0.017	0.015**	(2.412)
NETEQUITY	0.107	-0.018	-0.034	-0.141	(-1.527)
SIZE	4.840	6.501	8.388	3.548***	(38.932)
BETA	1.274	1.183	0.974	-0.300***	(7.360)
SHUMWAY	0.206	0.086	0.037	-0.169***	(15.170)

Table 4
Evolution of MNC cash balances in advance of anticipated repatriation tax reduction

This table tracks trends in cash holdings of U.S. MNCs by estimated likelihood of repatriation. Panel A presents descriptive evidence on change in cash holdings for firms in the top and bottom terciles of predicted repatriation likelihood. The likelihood of repatriation is calculated based on our estimation of equation (1). *CASH* is cash and cash equivalents and short-term marketable securities in quarter *t*, scaled by total assets at the end of the quarter; changes in *CASH* are benchmarked against the average quarterly value in the four quarters of 2007 and first three quarters of 2008. *TTLCASH* is the sum of cash and cash equivalents, short-term marketable securities, and other long-term investments and advances, scaled by total assets; changes in *TTLCASH* are benchmarked against the value in 2007. Panel B presents estimated coefficients and t-statistics from the following determinants of quarterly cash holdings model for MNCs:

$$CASH \text{ or } TTLCASH = \beta_0 + \beta_1*CAPEX + \beta_2*RD + \beta_3*MTB + \beta_4*ROA + \beta_5*LEVERAGE + \beta_6*\%FOREIGNSALES + \beta_7*REPAT\_TAX + \beta_8*ACQUISITIONS + + \beta_9*CASHCONV + \beta_{10}*LAG\_CF + \beta_{11}*INDSALE + \beta_{12}*DIVPAY + \beta_{13}*NETWC + \beta_{14}*NETDEBT + \beta_{15}*NETEQUITY + \beta_{16}*SIZE + \beta_{17}*HIGH\_REPATRIATE + \beta_{18}*HIGH\_REPATRIATE*\Sigma PERIOD\_IND + \Sigma PERIOD\_IND$$

The first set of columns presents estimates where cash holdings are benchmarked against the average quarterly value in the four quarters of 2007 and first three quarters of 2008. The second set of columns presents estimations where cash holdings are benchmarked against the average quarterly value in 2002. *HIGH_REPATRIATE* is equal to 1 if the MNC's predicted likelihood of repatriation is in the top tercile and 0 if in the bottom tercile. Panel C repeats this analysis using annual data and *TTLCASH* as the dependent variable. The first (second) set of columns estimates changes in total cash benchmarked against the value in 2007 (2002). All variables are defined in Appendix A. The sample consists of 1,187 unique firms, split between 593 and 594 firms with a high and low expected likelihood repatriating, respectively. t-statistics are based on standard errors are clustered at the firm level. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

Panel A: Mean change in cash and total cash holdings by tercile of likelihood of repatriation

	Change in CASH				Change in TTLCASH			
	High Likelihood of Repatriation	Low Likelihood of Repatriation	Difference High-Low	t-statistic	High Likelihood of Repatriation	Low Likelihood of Repatriation	Difference High-Low	t-statistic
Q4_2008	-0.003	-0.013***	0.010**	(2.110)	-0.009**	-0.015***	0.006	(0.920)
Q1_2009	0.006**	-0.009*	0.015***	(2.770)				
Q2_2009	0.014***	-0.006	0.019***	(3.070)				
Q3_2009	0.022***	0.000	0.022***	(3.490)				
Q4_2009	0.027***	0.002	0.025***	(3.620)	0.020***	-0.009	0.029***	(3.410)
Q1_2010	0.028***	0.008	0.021***	(2.800)				
Q2_2010	0.022***	0.000	0.022***	(2.920)				
Q3_2010	0.020***	-0.006	0.025***	(3.170)				
Q4_2010	0.024***	0.002	0.022***	(2.640)	0.020***	-0.014	0.034***	(3.380)
Q1_2011	0.022***	0.005	0.018**	(2.040)				
Q2_2011	0.017***	-0.003	0.020**	(2.220)				
Q3_2011	0.010***	-0.006	0.016*	(1.700)				
Q4_2011	0.017***	-0.006	0.023**	(2.450)	0.013***	-0.018*	0.031***	(2.820)
Q1_2012	0.014***	-0.012	0.026***	(2.720)				
Q2_2012	0.007*	-0.015*	0.023**	(2.320)				
Q3_2012	0.007*	-0.014	0.021**	(2.140)				
Q4_2012	0.011***	-0.010	0.021**	(2.130)	0.007	-0.028***	0.035***	(2.960)
Q1_2013	0.010**	-0.015	0.025**	(2.300)				
Q2_2013	0.008**	-0.013	0.021**	(2.040)				
Q3_2013	0.010**	-0.011	0.021*	(1.910)				
Q4_2013	0.016***	0.003	0.013	(1.210)	0.013**	-0.014	0.027**	(2.100)
Q1_2014	0.011***	0.006	0.005	(0.480)				
Q2_2014	0.008*	-0.006	0.014	(1.240)				
Q3_2014	0.006	-0.007	0.013	(1.120)				
Q4_2014	0.013***	0.004	0.009	(0.730)	0.019*	-0.018	0.028**	(1.980)

Table 4 (continued)
Evolution of MNC cash balances in advance of anticipated repatriation tax reduction

Panel B: Dependent Variable: CASH

Benchmark Period:	2007-Q3_2008 Benchmark		2002 Benchmark	
Estimation:	(1)		(2)	
Variable	Coefficient	(t-statistic)	Coefficient	(t-statistic)
Intercept	0.238***	(9.69)	0.216***	(8.80)
CAPEX	-1.204***	(-7.36)	-1.112***	(-7.33)
RD	0.851***	(3.01)	0.821***	(2.93)
MTB	0.003***	(4.60)	0.003***	(5.10)
ROA	0.006	(1.01)	0.010**	(2.07)
LEVERAGE	-0.294***	(-13.02)	-0.320***	(-14.89)
%FOREIGNSALES	0.003	(1.32)	0.001	(0.82)
REPAT_TAX	0.364*	(1.81)	0.308**	(2.02)
ACQUISITIONS	-0.280***	(-10.22)	-0.287***	(-10.87)
CASHCONV	0.000**	(2.55)	0.000**	(2.60)
LAG_CF	0.201***	(8.31)	0.185***	(10.08)
INDSALE	0.031***	(8.51)	0.033***	(9.48)
DIVPAY	0.002	(1.13)	0.001	(0.36)
NETWC	-0.219***	(-8.25)	-0.242***	(-10.26)
NETDEBT	0.128***	(4.51)	0.147***	(4.31)
NETEQUITY	-0.001	(-0.01)	0.072	(1.29)
SIZE	-0.015***	(-5.47)	-0.013***	(-5.68)
PREQ1_2008			0.012	(1.43)
Q1_2008			-0.007	(-0.63)
Q2_2008			-0.012	(-1.02)
Q3_2008			-0.006	(-0.48)
Q4_2008	-0.012*	(-1.82)	-0.003	(-0.28)
2009	-0.005	(-0.86)	0.003	(0.31)
2010	-0.009	(-1.15)	0.000	(-0.04)
2011	-0.014	(-1.61)	-0.005	(-0.43)
POST2011	-0.018*	(-1.83)	-0.008	(-0.71)
HIGH_REPATRIATE	-0.044***	(-3.32)	-0.052***	(-3.83)
HIGH_REPATRIATE*PREQ1_2008			0.006	(0.67)
HIGH_REPATRIATE*Q1_2008			0.023*	(1.74)
HIGH_REPATRIATE*Q2_2008			0.026*	(1.95)
HIGH_REPATRIATE*Q3_2008			0.026**	(2.05)
HIGH_REPATRIATE*Q4_2008	0.010	(1.48)	0.019	(1.44)
HIGH_REPATRIATE*2009	0.025***	(3.53)	0.033***	(2.67)
HIGH_REPATRIATE*2010	0.033***	(3.84)	0.042***	(3.27)
HIGH_REPATRIATE*2011	0.040***	(4.14)	0.049***	(3.66)
HIGH_REPATRIATE*POST2011	0.041***	(3.93)	0.050***	(3.72)
N	27,300		43,381	
Adj-RSquare	38.91		39.84	

Table 4 (continued)
Evolution of MNC cash balances in advance of anticipated repatriation tax reduction

Panel C: Dependent Variable: TTLCASH

Benchmark Period:	2007 Benchmark		2002 Benchmark	
Estimation:	(1)		(2)	
Variable	Coefficient	(t-statistic)	Coefficient	(t-statistic)
Intercept	0.212***	(7.84)	0.189***	(7.51)
CAPEX	-0.552***	(-8.75)	-0.550***	(-9.21)
RD	0.313***	(5.10)	0.324***	(4.92)
MTB	0.003***	(4.50)	0.003***	(4.81)
ROA	0.004	(1.64)	0.006*	(1.81)
LEVERAGE	-0.318***	(-14.43)	-0.343***	(-17.04)
%FOREIGNSALES	0.000	(-0.24)	-0.001	(-0.96)
REPAT_TAX	1.037***	(3.31)	0.875***	(3.23)
ACQUISITIONS	-0.263***	(-11.45)	-0.271***	(-13.08)
CASHCONV	0.000**	(1.99)	0.000**	(2.16)
LAG_CF	0.169***	(5.81)	0.136***	(6.92)
INDSALE	0.037***	(8.99)	0.039***	(10.01)
DIVPAY	0.001	(0.73)	0.000	(0.13)
NETWC	-0.235***	(-8.10)	-0.257***	(-10.09)
NETDEBT	0.020***	(4.86)	0.022***	(3.27)
NETEQUITY	-0.024	(-0.64)	0.041	(1.51)
SIZE	-0.007**	(-2.28)	-0.005*	(-1.84)
PRE_2008			0.007	(0.91)
2008	-0.002	(-0.27)	0.009	(0.85)
2009	-0.002	(-0.29)	0.005	(0.42)
2010	-0.009	(-1.03)	-0.003	(-0.21)
2011	-0.018*	(-1.79)	-0.008	(-0.61)
POST2011	-0.019*	(-1.90)	-0.009	(-0.79)
HIGH_REPATRIATE	-0.050***	(-3.45)	-0.054	(-3.82)
HIGH_REPATRIATE*PRE_2008			0.008	(0.82)
HIGH_REPATRIATE*2008	0.002	(0.23)	0.008	(0.66)
HIGH_REPATRIATE*2009	0.019**	(2.02)	0.026**	(1.98)
HIGH_REPATRIATE*2010	0.021**	(2.03)	0.029**	(2.15)
HIGH_REPATRIATE*2011	0.037***	(3.32)	0.043***	(3.06)
HIGH_REPATRIATE*POST2011	0.037***	(3.20)	0.043***	(3.20)
N	7,540		12,285	
Adj-RSquare	39.81		41.14	

Table 5
Excess cash holdings in anticipation of repatriation tax reduction, conditional upon firm's sensitivity to macro-economic conditions and financial distress risk

This table presents select coefficients and t-statistics from the following quarterly cash determinants model:

$$CASH = \beta_0 + \beta_1*CAPEX + \beta_2*RD + \beta_3*MTB + \beta_4*ROA + \beta_5*LEVERAGE + \beta_6*\%FOREIGNSALES + \beta_7*REPAT\_TAX + \beta_8*ACQUISITIONS + + \beta_9*CASHCONV + \beta_{10}*LAG\_CF + \beta_{11}*INDSALE + \beta_{12}*DIVPAY + \beta_{13}*NETWC + \beta_{14}*NETDEBT + \beta_{15}*NETEQUITY + \beta_{16}*SIZE + \beta_{17}*HIGH\_REPATRIATE + \beta_{18}*HIGH\_REPATRIATE*\Sigma PERIOD\_IND + \Sigma PERIOD\_IND$$

The dependent variable, $CASH_{it}$, is defined as cash and short-term marketable securities in quarter *t*, scaled by total assets at the end of the quarter. Cash holdings are benchmarked against the average quarterly value in the four quarters of 2007 and first three quarters of 2008. Panel A (B) presents estimations after sorting MNCs into high / low portfolios based on average beta (level of financial distress risk) for the years 2007 to 2011. MNCs are classified as high (low) beta or financial distress risk if their beta and Shumway (2001) bankruptcy prediction score is above (equal to or below) the sample median. *HIGH_REPATRIATE* is equal to 1 (0) if the MNC's predicted likelihood of repatriation is in the top (bottom) tercile. All other variables are defined in Appendix A. The beta (financial distress) sample consists of 1,123 (1,409) unique firms with sufficient data to estimate beta (Shumway score). t-statistics are based on standard errors clustered at the firm level. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

Panel A: Conditional upon firm's sensitivity to macro-economic conditions (Beta)

Sensitivity to Macro Economic Conditions:	Low Beta		High Beta	
Variable	Coefficient	(t-statistic)	Coefficient	(t-statistic)
Q4_2008	0.008	(0.76)	-0.017*	(-1.70)
2009	0.008	(0.84)	-0.008	(-1.06)
2010	-0.025*	(-1.75)	-0.004	(-0.44)
2011	-0.037**	(-2.51)	-0.002	(-0.19)
POST2011	-0.057***	(-3.76)	-0.002	(-0.16)
HIGH_REPATRIATE	-0.058**	(-2.23)	-0.015	(-1.03)
HIGH_REPATRIATE*Q4_2008	-0.007	(-0.62)	0.026***	(2.57)
HIGH_REPATRIATE*2009	0.012	(1.14)	0.031***	(3.35)
HIGH_REPATRIATE*2010	0.045***	(3.04)	0.032***	(2.88)
HIGH_REPATRIATE*2011	0.068***	(4.26)	0.026*	(1.95)
HIGH_REPATRIATE*POST2011	0.094***	(5.93)	0.020	(1.41)
N	12,636		12,062	
Adj-RSquare	45.73		48.75	

Panel B: Conditional upon firm's level of financial distress (probability of bankruptcy)

Sensitivity to Macro Economic Conditions:	Low Distress		High Distress	
Variable	Coefficient	(t-statistic)	Coefficient	(t-statistic)
Q4_2008	-0.012	(-0.76)	-0.010	(-1.27)
2009	-0.019	(-1.37)	-0.005	(-0.69)
2010	-0.039*	(-1.86)	-0.015	(-1.63)
2011	-0.052***	(-2.62)	-0.012	(-1.17)
POST2011	-0.059***	(-2.84)	-0.015	(-1.24)
HIGH_REPATRIATE	-0.095***	(-3.68)	-0.024	(-1.24)
HIGH_REPATRIATE*Q4_2008	0.020	(1.27)	0.010	(0.85)
HIGH_REPATRIATE*2009	0.040***	(2.82)	0.026**	(2.48)
HIGH_REPATRIATE*2010	0.064***	(3.02)	0.037***	(2.84)
HIGH_REPATRIATE*2011	0.085***	(4.17)	0.031**	(2.11)
HIGH_REPATRIATE*POST2011	0.100***	(4.69)	0.027*	(1.76)
N	10,888		9,951	
Adj-RSquare	56.59		44.16	

Table 6
Evidence on costs of cash accumulation in anticipation of repatriation tax reduction

This table presents select estimated coefficients and t-statistics from the shareholder payout model for MNCs:

$$DIVIDEND \text{ or } REPURCHASE = \beta_0 + \beta_1 * CASH + \beta_2 * ROA + \beta_3 * HIGH\_REPATRIATE + \beta_4 * HIGH\_REPATRIATE * \Sigma PERIOD\_IND + \Sigma PERIOD\_IND$$

Panel A presents estimations of the shareholder payout model. The first set of columns present estimates using $DIVIDEND_{it}$ as the dependent variable, defined as dividends in year *t* scaled by income before extraordinary items in year *t*. The second set of columns present estimates using $REPURCHASE_{it}$ as the dependent variable, defined as net share repurchases net of issuances in year *t* scaled by income before extraordinary items in year *t.* Panel B presents estimations after sorting MNCs into high / low portfolios based on average beta (level of financial distress risk) for the years 2007 to 2011. MNCs are classified as high (low) beta or financial distress risk if their beta and Shumway (2001) bankruptcy prediction score is above (equal to or below) the sample median. *HIGH_REPATRIATE* is equal to 1 if the MNC's predicted likelihood of repatriation is in the top tercile and 0 if in the bottom tercile. All other variables are defined in Appendix A. The sample consists of 8,220 (8,193) firm-years with dividend (repurchase) information available from Compustat; sample varies by estimation due to the treatment of outliers. t-statistics are based on standard errors are clustered at the firm level. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

Panel A: Dependent variable: *DIVIDEND* or *REPURCHASE*

Model:	DIVIDEND		REPURCHASE	
Variable	Coefficient	(t-statistic)	Coefficient	(t-statistic)
Intercept	0.13***	(7.14)	0.18***	(6.36)
CASH	-0.18***	(-5.10)	0.21***	(3.79)
ROA	0.00**	(2.49)	0.01***	(4.25)
2008	0.01	(0.43)	0.13***	(4.39)
2009	-0.01	(-0.74)	-0.02	(-0.60)
2010	0.00	(0.22)	-0.06**	(-2.17)
2011	0.01	(0.28)	0.00	(-0.14)
POST2011	0.05***	(2.87)	0.00	(-0.01)
HIGH_REPATRIATE	0.15***	(6.30)	0.31***	(7.41)
HIGH_REPATRIATE*2008	0.03	(1.27)	-0.18***	(-3.74)
HIGH_REPATRIATE*2009	0.09***	(3.13)	-0.30***	(-6.69)
HIGH_REPATRIATE*2010	0.02	(0.48)	-0.17***	(-3.69)
HIGH_REPATRIATE*2011	0.00	(-0.05	-0.08*	(-1.70)
HIGH_REPATRIATE*POST2011	0.05**	(1.98)	-0.10**	(-2.28)
N	8,220		8,193	
Adj-RSquare	7.13		3.93	

Table 6 (continued)
Evidence on costs of cash accumulation in anticipation of repatriation tax reduction

Panel B: Evidence on share repurchase behavior conditional upon firm's sensitivity to macro-economic conditions (Beta) and financial distress risk

Partition:	Beta				Bankruptcy Risk			
Model:	Low Beta		High Beta		Low		High	
Variable	Coeff.	(t)	Coeff.	(t)	Coeff.	(t)	Coeff.	(t)
Intercept	0.25***	(3.55)	0.25***	(3.18)	0.29**	(2.31)	0.27***	(6.36)
CASH	0.22*	(1.91)	0.52***	(3.88)	-0.29	(-1.56)	0.06***	(2.92)
ROA	0.13***	(2.58)	-0.21**	(-2.23)	0.38**	(2.46)	0.05	(0.69)
2008	0.23***	(3.36)	-0.06	(-0.82)	0.21**	(2.05)	0.10**	(2.25)
2009	-0.03	(-0.39)	-0.17**	(-2.21)	-0.08	(-0.69)	-0.04	(-1.02)
2010	-0.141**	(-2.12)	-0.16**	(-2.16)	-0.11	(-0.98)	-0.11***	(-2.58)
2011	-0.05	(-0.86)	-0.11	(-1.39)	0.07	(0.60)	-0.03	(-0.50)
POST2011	-0.04	(-0.65)	-0.14*	(-1.83)	0.01	(0.09)	-0.04	(-0.85)
HIGH_REPATRIATE	0.32***	(3.95)	0.29***	(2.79)	0.31**	(2.40)	0.20**	(2.15)
HIGH_REPATRIATE*2008	-0.36***	(-4.38)	0.18	(1.50)	-0.30***	(-2.61)	0.06	(0.46)
HIGH_REPATRIATE*2009	-0.35***	(-4.05)	-0.23**	(-2.27)	-0.32***	(-2.65)	-0.21**	(-2.00)
HIGH_REPATRIATE*2010	-0.10	(-1.23)	-0.20**	(-1.98)	-0.14	(-1.07)	-0.19**	(-2.08)
HIGH_REPATRIATE*2011	-0.05	(-0.68)	-0.07	(-0.64)	-0.22*	(-1.66)	-0.07	(-0.71)
HIGH_REPATRIATE*POST2011	-0.12	(-1.46)	-0.02	(-0.22)	-0.17	(-1.30)	-0.09	(-0.93)
N	2,999		2,680		3,157		2,746	
Adj-RSquare	5.30		5.94		3.17		2.94	

Table 7
Evidence on mechanisms: cross-border income shifting in anticipation of repatriation tax reduction

This table presents select estimated coefficients and t-statistics from the income shifting model for MNCs:

$$AVG\_FOR\_ROS = \beta_0 + \beta_1 * AVG\_WW\_ROS + \beta_2 * AVG\_FTR + \beta_3 * HIGH\_REPATRIATE + \beta_4 * AVG\_FTR * HIGH\_REPATRIATE + \Sigma PERIOD\_IND$$

The dependent variable, $AVG\_FOR\_ROS_{it}$, is defined as average foreign pre-tax income from year *t-4* to year *t*, scaled by average foreign sales from year *t-4* to year *t*. *HIGH_REPATRIATE* is equal to 1 if the MNC's predicted likelihood of repatriation is in the top tercile and 0 if in the bottom tercile. All other variables are defined in Appendix A. The sample consists of 4,530 unique firm-years with positive pre-tax domestic, foreign, and worldwide income, average foreign effective tax rates in [-1,1], and sufficient accounting data to estimate the model. t-statistics are based on standard errors are clustered at the firm level. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

Model:	(1)		(2)	
Variable	Coefficient	(t-statistic)	Coefficient	(t-statistic)
Intercept	0.029***	(7.40)	0.029***	(7.34)
AVG_WW_ROS	0.583***	(15.39)	0.576***	(15.31)
AVG_FTR	0.041***	(4.49)	0.048***	(3.54)
HIGH_REPATRIATE	0.008*	(1.80)	0.012**	(2.16)
AVG_FTR*HIGH_REPATRIATE	0.125***	(5.27)	0.091***	(3.65)
2009-2011			0.001	(0.45)
POST2011			0.004	(0.98)
AVG_FTR*2009-2011			-0.008	(-0.52)
AVG_FTR*POST2011			-0.010	(-0.51)
HIGH_REPATRIATE*2009-2011			-0.004	(-0.80)
HIGH_REPATRIATE*POST2011			-0.004	(-0.56)
AVG_FTR*HIGH_REPATRIATE*2009-2011			0.048*	(1.79)
AVG_FTR*HIGH_REPATRIATE*POST2011			0.030	(0.78)
N	4,530		4,530	
Adj-RSquare	46.38		46.07	

Table 8
Evidence on mechanisms: Permanently Reinvested Earnings (PRE) in anticipation of repatriation tax reduction

This table presents select estimated coefficients and t-statistics from the following PRE prediction models for MNCs:

$$\Delta PRE = \beta_0 + \beta_1*FE + \beta_2*FOREIGNETR + \beta_3*ROA\_DIFF + \beta_4*\%FOREIGNSALES + \beta_5*DIVPAY + \beta_6*LEVERAGE + \beta_7*HIGH\_REPATRIATE + \Sigma PERIOD\_IND$$

and

$$PRE = \beta_0 + \beta_1*FE + \beta_2*FOREIGNETR + \beta_3*ROA\_DIFF + \beta_4*\%FOREIGNSALES + \beta_5*DIVPAY + \beta_6*LEVERAGE + \beta_7*HIGH\_REPATRIATE + \Sigma PERIOD\_IND + HIGH\_REATRIATE*\Sigma PERIOD\_IND$$

The dependent variable in the first set of columns, ΔPRE_{it}, is defined as disclosed PRE in year *t* less disclosed PRE in year *t-1*, scaled by assets in year *t*. The dependent variable in the second set of columns, $PRE_{i,t}$, is defined as disclosed PRE in year *t* scaled by total assets in year *t*. *HIGH_REPATRIATE* is equal to 1 if the MNC's predicted likelihood of repatriation is in the top tercile and 0 if in the bottom tercile. All other variables are defined in Appendix A. The sample consists of 1,018 (1,026) firm-years from 2008 (2007) to 2014 with positive foreign and domestic pre-tax income and foreign effective tax rates in [-1,1] that disclose PRE and sufficient accounting data to estimate the models. Standard errors are clustered at the firm level. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

Dependent Variable:	*ΔPRE*		*PRE*	
Variable	Coefficient	(t-Statistic)	Coefficient	(t-Statistic)
Intercept	0.030***	(4.96)	0.116***	(12.58)
FE	0.000	(-0.45)	0.000	(1.16)
FOREIGNETR	-0.050***	(-7.75)	-0.121***	(-5.72)
ROA_DIFF	0.006***	(3.28)	0.044***	(7.59)
%FOREIGNSALES	0.022**	(2.52)	0.149***	(3.84)
DIVPAY	0.000	(1.05)	0.006**	(2.30)
LEVERAGE	-0.043***	(-3.04)	-0.086*	(-1.77)
HIGH_REPATRIATE	0.018***	(4.64)	-0.012	(-0.52)
2008			-0.018	(-0.80)
2009	-0.001	(-0.15)	-0.035*	(-1.88)
2010	0.004	(1.07)	-0.034*	(-1.90)
2011	0.001	(0.35)	-0.027	(-1.55)
POST2011	0.003	(0.72)	0.001	(0.08)
HIGH_REPATRIATE*2008			0.075***	(2.71)
HIGH_REPATRIATE*2009			0.119***	(4.60)
HIGH_REPATRIATE*2010			0.127***	(4.94)
HIGH_REPATRIATE*2011			0.132***	(5.21)
HIGH_REPATRIATE*POST2011			0.136***	(5.68)
N	1,018		1,026	
Adj-RSquare	17.11		39.49	

Table 9
Disclosure and evolution of foreign cash balances

The following panels track the trends in disclosures of foreign cash holdings. Panel A presents descriptive evidence on the number of firms disclosing foreign cash and mean disclosed foreign cash (defined as foreign cash scaled by total assets) in our main sample of MNCs 2011 to 2015. Panel B presents select coefficients from the following model of expected proportion of foreign cash holdings:

$$\%FOREIGNCASH = \beta_0 + \beta_1*\%FOREIGNSALES + \beta_2*TIME + \Sigma PERIOD\_IND + \Sigma INDUSTRY\_IND$$

In this model, the dependent variable, *%FOREIGN_CASH,* is disclosed foreign cash scaled by cash and cash equivalents, short-term marketable securities, and other long-term investments and advances. *ΣPERIOD_IND* is an array of year indicators 2012 to 2015 and *ΣINDUSTRY_IND* is an array of 12 Fama French industry indicators. Panel C presents select coefficients from the following model of expected cash holdings:

$$CASH = \beta_0 + \beta_1*CAPEX + \beta_2*RD + \beta_3*MTB + \beta_4*ROA + \beta_5*LEVERAGE + \beta_6*\%FOREIGNSALES + \beta_7*REPAT\_TAX + \beta_8*ACQUISITIONS + + \beta_9*CASHCONV + \beta_{10}*LAG\_CF + \beta_{11}*INDSALE + \beta_{12}*DIVPAY + \beta_{13}*NETWC + \beta_{14}*NETDEBT + \beta_{15}*NETEQUITY + \beta_{16}*SIZE + \beta_{17}*HIGH\_REPATRIATE + HIGH\_REPATRIATE*\Sigma PERIOD\_IND + DISCLOSE + DISCLOSE*\Sigma PERIOD\_IND + \Sigma PERIOD\_IND$$

In this model, the dependent variable, *CASH*, is the sum of cash and cash equivalents and short-term marketable securities, scaled by total assets. Changes in cash holdings are benchmarked against the average quarterly value in the four quarters of 2007 and first three quarters of 2008. *HIGH_REPATRIATE* is equal to 1 if the MNC's predicted likelihood of repatriation is in the top tercile and 0 if in the bottom tercile. *DISCLOSED* is equal to one if the firm disclosed foreign cash in the period 2011 to 2015, zero otherwise. *ΣPERIOD_IND* is an array of indicators over the period Q1 2008 to 2014. All other variables are defined in Appendix A. t-statistics are based on standard errors clustered at the firm level. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively.

Panel A: Mean foreign cash holdings by tercile of likelihood of repatriation

	Number of Firms Disclosing Foreign Cash		Disclosed Foreign Cash			
	High Likelihood of Repatriation	Low Likelihood of Repatriation	High Likelihood of Repatriation	Low Likelihood of Repatriation	Difference High – Low	t-statistic
2011	26	16	0.122	0.077	0.044	(1.490)
2012	121	60	0.109	0.083	0.025*	(1.770)
2013	166	67	0.115	0.090	0.025*	(1.680)
2014	186	72	0.110	0.107	0.002	(0.160)
2015	173	64	0.109	0.107	0.001	(0.080)

Panel B: Evolution of the proportion of cash holdings held overseas

Model:	(1)	
Variable	Coefficient	(t-statistic)
Intercept	-36.209***	(-2.70)
%FOREIGNSALES	0.373***	(10.53)
TIME	0.018***	(2.74)
N	1,373	
Adj-RSquare	10.80	

Table 9 (continued)
Disclosure and evolution of foreign cash balances

Panel C: Multivariate analysis of excess cash holdings in anticipation of a second tax holiday by firms that disclose foreign cash

Dependent Variable:	Cash	
Variable	Coefficient	(t-statistic)
Intercept	0.255***	(10.58)
CAPEX	-1.190***	(-7.46)
RD	0.552**	(2.04)
MTB	0.003***	(4.07)
ROA	0.006	(1.10)
LEVERAGE	-0.300***	(-13.97)
%FOREIGNSALES	0.001	(0.38)
REPAT_TAX	0.380	(1.82)
ACQUISITIONS	-0.291*	(-10.50)
CASHCONV	0.000***	(3.40)
LAG_CF	0.202***	(8.41)
INDSALE	0.030***	(8.68)
DIVPAY	0.002	(1.16)
NETWC	-0.262***	(-9.39)
NETDEBT	0.000	(0.00)
NETEQUITY	0.139***	(4.33)
SIZE	-0.017***	(-6.23)
Q4_2008	-0.014**	(-2.09)
2009	-0.007	(-1.14)
2010	-0.010	(-1.27)
2011	-0.019**	(-2.03)
POST2011	-0.019*	(-1.93)
HIGH_REPATRIATE	-0.044***	(-3.32)
HIGH_REPATRIATE*Q4_2008	0.010	(1.42)
HIGH_REPATRIATE*2009	0.024***	(3.45)
HIGH_REPATRIATE*2010	0.032***	(3.60)
HIGH_REPATRIATE*2011	0.038***	(3.92)
HIGH_REPATRIATE*POST2011	0.037***	(3.62)
DISCLOSE	0.018*	(1.92)
DISCLOSE*Q4_2008	0.010	(1.64)
DISCLOSE*2009	0.007	(1.07)
DISCLOSE*2010	0.007	(0.75)
DISCLOSE*2011	0.017**	(1.91)
DISCLOSE*POST2011	0.016*	(1.68)
N	29,740	
Adj-RSquare	39.17	

Table 10
Analysis of excess cash holdings by lobbying activity and likelihood of repatriation

This table presents estimated coefficients and t-statistics from the following determinants of quarterly cash holdings model for MNCs:

$$CASH = \beta_0 + \beta_1*CAPEX + \beta_2*RD + \beta_3*MTB + \beta_4*ROA + \beta_5*LEVERAGE + \beta_6*\%FOREIGNSALES + \beta_7*REPAT\_TAX + \beta_8*ACQUISITIONS + + \beta_9*CASHCONV + \beta_{10}*LAG\_CF + \beta_{11}*INDSALE + \beta_{12}*DIVPAY + \beta_{13}*NETWC + \beta_{14}*NETDEBT + \beta_{15}*NETEQUITY + \beta_{16}*SIZE + \beta_{17}*HIGH\_REPATRIATE + HIGH\_REPATRIATE*\Sigma PERIOD\_IND + LOBBY + LOBBY*\Sigma PERIOD\_IND + \Sigma PERIOD\_IND$$

The dependent variable, $CASH_{it}$, is defined as cash and cash equivalents and short-term marketable securities in quarter *t*, scaled by total assets at the end of the quarter. Changes are benchmarked against the average quarterly value in the four quarters of 2007 and first three quarters of 2008. *HIGH_REPATRIATE* is equal to 1 if the MNC's predicted likelihood of repatriation is in the top tercile and 0 if in the bottom tercile. *LOBBY* is equal to 1 if the MNC is identified by the Center for Responsive Politics as engaged in lobbying on a bill identified in Appendix B and 0 otherwise. All variables are defined in Appendix A. The sample consists of 1,204 unique firms, split between 602 and 602 firms with a high and low expected likelihood repatriating, respectively. t-statistics are based on standard errors are clustered at the firm level. *, **, and *** indicate statistical significance (two-tailed) at the 10%, 5% and 1% confidence level, respectively

Dependent Variable:	Cash	
Variable	Coefficient	(t-statistic)
Intercept	0.246***	(9.90)
CAPEX	-1.206***	(-7.42)
RD	0.632**	(2.06)
MTB	0.003***	(4.72)
ROA	0.001	(0.08)
LEVERAGE	-0.284***	(-12.59)
%FOREIGNSALES	0.003	(1.31)
REPAT_TAX	0.354*	(1.81)
ACQUISITIONS	-0.237***	(-9.20)
CASHCONV	0.000***	(2.64)
LAG_CF	0.191***	(7.99)
INDSALE	0.032***	(8.62)
DIVPAY	0.002	(1.04)
NETWC	-0.221***	(-8.11)
NETDEBT	0.027**	(1.99)
NETEQUITY	0.004	(0.07)
SIZE	-0.017***	(-6.03)
Q4_2008	0.034*	(1.72)
2009	-0.043**	(-3.24)
2010	-0.013	(-2.01)
2011	-0.007	(-1.07)
POST2011	-0.009*	(-1.09)
HIGH_REPATRIATE	-0.043***	(-3.24)
HIGH_REPATRIATE*Q4_2008	0.012*	(1.67)
HIGH_REPATRIATE*2009	0.025***	(3.57)
HIGH_REPATRIATE*2010	0.032***	(3.70)
HIGH_REPATRIATE*2011	0.040***	(4.06)
HIGH_REPATRIATE*POST2011	0.041***	(3.97)
LOBBY	0.034*	(1.72)
LOBBY*2008	-0.002	(-0.24)
LOBBY*2009	0.009	(0.81)
LOBBY*2010	0.009	(0.53)
LOBBY*2011	0.018	(0.91)
LOBBY*POST2011	0.005	(0.24)
N	27,304	
Adj-RSquare	38.08	