Examining Investor Expectations Concerning Tax Savings on the Repatriations of Foreign Earnings under the American Jobs Creation Act of 2004

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ABSTRACT: The American Jobs Creation Act of 2004 was signed into law on October 22, 2004. One of the most significant aspects of this legislation is a temporary tax holiday for dividend repatriations from foreign subsidiaries. U.S. multinational corporations may elect during a one-year window to deduct 85 percent of extraordinary cash dividends received from foreign subsidiaries. In this study, we model the impact that this legislation has on a firm’s decision to either repatriate or reinvest foreign earnings from abroad. We then examine investors’ assessment of how U.S. multinational corporations will respond to the temporary tax holiday. Our results indicate that investors repriced the tax liability consistent with investors anticipating that U.S. multinational corporations will repatriate a significant portion of their permanently reinvested foreign earnings during the tax holiday.

INTRODUCTION

On October 22, 2004 the President signed into law the American Jobs Creation Act of 2004 (AJCA 2004, U.S. Joint Committee on Taxation 2004). The AJCA 2004 involves numerous changes to the existing tax law, among the most notable being a dividend repatriation tax holiday. U.S. multinational corporations (MNCs) have a one-year window during which they can deduct 85 percent of qualifying dividends repatriated from their foreign subsidiaries. The primary beneficiaries of this dividend repatriation tax holiday are U.S. MNCs with significant accumulated foreign earnings that were previously taxed at a low foreign rate relative to their U.S. domestic earnings.

Initial research and media reports indicate the impact of this tax holiday on some U.S. MNCs is substantial. Albring et al. (2005) estimate these firms will save $29 billion from the dividend repatriation tax holiday under the AJCA 2004. In reference to this legislation,
the Wall Street Journal reported on October 5, 2005 that “nine months into 2005, U.S. companies have announced plans to repatriate about $206 billion in foreign profits under a special one-year tax break” (Aeppel 2005). Under current U.S. tax law, earnings from foreign subsidiaries are not taxed in the U.S. until a dividend is repatriated back to the U.S. parent.\(^1\) However, to avoid double taxation, firms receive a tax credit for foreign taxes paid, subject to limitations. Thus, in effect, when a firm repatriates income from a low-tax country, it is required to pay only the difference between the U.S. tax rate and the foreign tax rate to the U.S. government.\(^2\) The temporary tax holiday in the AJCA 2004 results in firms being taxed in the U.S. at a maximum effective rate of 5.25 percent on repatriated foreign earnings as opposed to the top U.S. corporate statutory rate of 35 percent.\(^3\)

This study examines investors’ assessments of how U.S. MNCs might respond to this tax holiday before the firms actually announce the extent of the foreign earnings they intend to repatriate during the holiday. Specifically, we estimate market valuation and stock return regressions to determine whether investors anticipate that firms with low-taxed offshore earnings will take advantage of this tax holiday and repatriate their foreign earnings at a significantly reduced tax rate. For financial reporting purposes, U.S. MNCs can designate foreign subsidiary earnings as “permanently reinvested” under APB Opinion No. 23 (Accounting Principles Board 1972). Permanently reinvested earnings (PRE) are earnings from foreign subsidiaries that have been invested abroad and that managers intend to reinvest indefinitely or that managers intend to remit in a tax-free liquidation. Firms with an average foreign tax rate below the statutory U.S. tax rate are able to defer recognizing the residual U.S. tax on their foreign earnings for financial reporting purposes by designating them as permanently reinvested.\(^4\)

Despite this designation, previous research by Collins et al. (2001) is consistent with the market capitalizing the deferred repatriation tax liability into current stock prices for foreign earnings that managers have designated as permanently reinvested. This result suggests the market does not find the claim that these foreign earnings are permanently reinvested to be credible, and anticipates these firms will eventually pay the residual repatriation tax when those earnings are brought home to the U.S. Dhaliwal and Krull (2006) also investigate whether investors incorporate the deferred tax liability on PRE into stock prices. In contrast to Collins et al. (2001), Dhaliwal and Krull (2006) find that after controlling for size, the deferred repatriation tax on PRE does not directly affect market value.\(^5\)

We employ a market-value (or price-level) regression model and supplement the analysis with a returns approach, which is less subject to econometric problems.\(^6\) We examine

\(^1\) Earnings of U.S.-owned foreign branches and subpart F earnings (basically earnings arising from passive activities such as investments in financial assets) are subject to U.S. taxation in the period earned.

\(^2\) We discuss foreign tax credits in more detail below. A firm may use excess foreign tax credits from subsidiaries based in high-tax countries to offset additional U.S. taxes on dividends from low-tax countries.

\(^3\) Given a top U.S. statutory rate of \(t_d = 35\%\), the 85 percent deduction for dividends from foreign earnings results in a maximum effective rate of \(5.25\% = (t_d - t_f) \times (1 - 85\%) = (35\% - 0\%) \times (1 - 85\%)\), assuming no foreign tax credits because \(t_f = 0\).

\(^4\) Statement of Financial Accounting Standards No. 109 requires that firms disclose the amount of tax related to permanently reinvested earnings if it is material and if it is “practicable” to determine the liability. Many of the firms in our study do not disclose the extent of the tax liability associated with permanently reinvested earnings, indicating that the determination of such a liability is not practicable.


\(^6\) We also check our results using both the Collins et al. (2001) and Dhaliwal and Krull (2006) model specifications and discuss these results below. Our inferences on the market pricing of the deferred repatriation tax on PRE are the same under both specifications.
U.S. MNCs with low-taxed offshore earnings to assess how the market pricing of this deferred tax liability changes when passage of a temporary tax holiday for dividend repatriations becomes probable. Specifically, we test whether, consistent with Collins et al. (2001), the market capitalizes into current stock prices the unrecognized deferred tax liability associated with PRE generated in low-tax jurisdictions prior to the time when passage of the tax holiday was probable. We then examine the same set of firms after passage of the tax holiday became probable to determine whether there is a significant reduction in the capitalization of the deferred tax liability associated with unrepatriated foreign earnings. Such a reduction would be consistent with the market anticipating that the firms will repatriate a significant portion of their permanently reinvested earnings during the window provided by the AJCA 2004. Thus, we provide additional evidence on whether investors capitalize expected but unrecognized repatriation taxes on earnings designated as permanently reinvested using an interrupted time-series setting.

We begin with a simple model of a firm’s decision whether to reinvest foreign earnings abroad or to repatriate earnings to the U.S. (from Scholes et al. 2005) and extend the model to show how the decision changes with the introduction of the tax holiday under the AJCA 2004. We demonstrate the incentive that the AJCA 2004 provides for firms to repatriate foreign earnings during the tax holiday. Based on this model, we provide a numerical example that illustrates the incentive to repatriate within the window. However, the model also shows that as the firm’s investment horizon increases, the incentive to repatriate is substantially reduced. In addition, some firms might face attractive foreign investment opportunities that provide a rate of return sufficient to make repatriation under the Act unattractive. In short, the decision to repatriate during the holiday is going to be a function of a firm’s foreign investment opportunities and investment horizon. That said, the magnitude of the savings and the difficulties associated with bringing the earnings home tax-free make it very likely that repatriation during the holiday will be the most efficient choice for most firms. We test whether, consistent with this incentive, the market anticipates that the majority of U.S. MNCs subject to average foreign tax rates below the U.S. statutory rate will choose to repatriate a significant portion of their PRE during 2005.7

On October 27, 2003, Corporate Financing Week reported that “proposed legislation allowing companies to bring back earnings held in foreign subsidiaries to the U.S. appears to be gaining momentum in Congress.” The article quotes a tax and accounting analyst from Lehman Brothers as indicating the legislation was “gaining momentum very quickly and that passage in the first quarter of 2004 is highly likely.” A review of the Lexis-Nexis academic research database turned up no articles prior to 2003 referring to similar legislation as having a high probability of passing. For this reason, we focus our tests on examining the change in the extent to which the market capitalizes the residual repatriation tax at the 2003 and 2004 fiscal year-ends. Specifically, we analyze the change in the market’s pricing of the repatriation tax from the 2001 and 2002 fiscal year-end, before passage of the tax holiday was probable, to the 2003 and 2004 fiscal year-ends at which point passage of the holiday was probable.

7 IRC Code Section 965, added as a result of AJCA 2004, allows firms to take a one-time deduction in either 2004 or 2005 (for calendar year firms) of 85 percent of foreign earnings repatriated to the U.S. parent company through an extraordinary cash dividend. Due to the complexity of the new provision, combined with uncertainty regarding a number of issues related to the 85 percent dividend, the majority of firms chose to defer the use of the one-time deduction until 2005. We have eliminated from our sample any firms that chose to repatriate earnings under this provision in 2004. Omission of these firms from our analysis allows us to examine investors’ assessment of how firms will respond to the AJCA 2004 before the firms actually announce specifics regarding the amount of PRE they intend to repatriate during the tax holiday.
The results from our price-level regression tests are consistent with investors anticipating firms will repatriate a significant portion of their PRE during the window provided by the AJCA 2004. Consistent with Collins et al. (2001), we find that prior to the time when passage of the tax holiday became probable, investors capitalized into current stock prices the unrecognized deferred tax liability associated with unrepatriated foreign earnings designated as permanently reinvested earnings. However, for the periods after passage of the tax holiday became likely, we find a significant reduction in the extent to which investors capitalize the deferred repatriation tax into current stock prices. The results of our stock return regression tests are consistent with the price-level regressions: The estimated tax savings from the tax holiday are significantly positively associated with stock returns in 2003. We also run supplemental price-level tests to examine whether investors price the deferred repatriation tax as a function of a firm’s probability of repatriation during the holiday. Our results are consistent with investors cross-sectionally adjusting their pricing as a function of the probability of repatriation.

Our findings are particularly notable because none of the firms in our sample had announced the extent of the PRE they intended to repatriate during the window. Our findings suggest that the market is relatively efficient in incorporating expectations about firms responding to the tax cut on repatriations and that the market expected firms to be responsive to the tax cut. Our results indicate a fairly sophisticated understanding on the part of investors of the factors a firm must consider in making the decision about whether to repatriate or reinvest, and of how the AJCA 2004 impacted that decision.

The remainder of the paper proceeds as follows. The second section provides a discussion of the key provisions associated with the dividend repatriation tax holiday. The third section develops a simple model of a firm’s decision on whether to repatriate or reinvest foreign earnings from abroad and the impact that AJCA 2004 has on that decision. The fourth section details our sample selection and descriptive statistics. The fifth section presents our research design and findings. The last section concludes.

KEY PROVISIONS OF THE REPARTIATION TAX HOLIDAY

Pursuant to IRC Section 965, a provision of the AJCA 2004, firms are eligible for the 85 percent dividends received deduction (DRD) on cash dividends from controlled foreign corporations (CFCs). A CFC is a foreign subsidiary (i.e., a subsidiary that is located in some foreign country) of a U.S. corporation. However, this dividend is limited to the greater of $500 million or the amount shown as earnings permanently reinvested outside the U.S. on the firm’s financial statements. If the extent of earnings permanently reinvested outside the U.S. is not disclosed, but the tax liability attributable to such earnings is disclosed, then

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8 This result is not consistent with Dhaliwal and Krull (2006) who find that PRE or deferred taxes on PRE are not significantly associated with stock prices. However, Dhaliwal and Krull (2006) examine a larger set of sample firms collected from 1993 to 1999. We restrict our analysis to firms identified by Albring et al. (2005) as having PRE > $500 million in 2002. Our sample has an average PRE of $3.362 million, while the Dhaliwal and Krull (2006) sample has an average PRE of $401.08 million. We focus on a set of firms with very large PRE that are likely to benefit most from the passage of the AJCA. We believe our analysis of this set of firms is both interesting and economically significant. This difference in sample composition however could explain the differential results regarding the significance of the TAX variable in the two papers.

9 Shane and Stock (2006) investigate the extent to which investors correctly interpret the temporary reported book income effects of tax-motivated income shifting around the Tax Reform Act of 1986. They report evidence consistent with analysts and investors failing to correctly identify and price these temporary effects. This finding would seem to contrast with our finding that investors are relatively sophisticated in examining the impact of the repatriation tax holiday. However, Shane and Stock (2006) examine a setting where managers likely took deliberate care to conceal their earnings management from detection. In contrast, we examine a situation where managers have simply not announced how they will react to a major change in the tax law.
the financial statement amount is set equal to this liability divided by 0.35. For firms that file financial statements with the Securities and Exchange Commission (SEC), the applicable financial statement is the most recent audited financial statement filed on or before June 30, 2003. For firms that do not file with the SEC, it is the most recent financial statement certified on or before June 30, 2003.

In addition to the requirements limiting the amount of the dividend eligible for the DRD, the dividend eligible for the benefit must be extraordinary. Firms that have been receiving dividends from their CFCs will only benefit from the provision to the extent the average of such annual dividends is increased by the dividend repatriated during the tax holiday. A base period amount is calculated as the average dividend received by the firm during three of the previous five taxable years ending before June 30, 2003. If there are less than five taxable years available, then the base period includes all taxable years. Any cash dividend received during the tax holiday that is in excess of the base amount is eligible for the DRD.

Another critical provision of Section 965 stipulates that the DRD is available only to the extent that cash dividends received from a CFC are reinvested in the U.S. Section 965(b)(4) states that permitted investments include: (1) funding of working, hiring, and training (other than executive compensation), (2) infrastructure, (3) research and development, (4) capital investments, and (5) financial stabilization of the corporation for purposes of job retention or creation. The domestic reinvestment plan adopted by the firm must be approved by the CEO prior to the date the cash dividend is paid and must subsequently receive the approval of the board of directors. Many of the U.S. MNCs examined in this study indicate in their 2004 financial statements that they are awaiting technical guidance related to these reinvestment requirements before they could estimate the amount of earnings they intend to repatriate under the tax holiday.

FASB issued Staff Position 109-2 in December 2004 to provide disclosure guidance related to the repatriation of foreign earnings under AJCA 2004. Pursuant to FSP 109-2, firms must disclose any planned repatriation, or if they are still in the process of evaluating repatriation under AJCA 2004, they must disclose the range of amounts being considered. The majority of the firms in our sample disclosed a broad range for the potential amount of PRE that they were considering repatriating during the tax holiday. The disclosed range often began with zero, giving investors little specific guidance on the extent to which the company intended to take advantage of the tax holiday. For example, Agilent Technologies, Inc. made the following disclosure related to AJCA (2004) in the tax footnote of its 2004 Form 10-K:

On October 22, 2004, the AJCA was signed into law. The AJCA includes a deduction for 85 percent of certain foreign earnings that are repatriated, as defined in the AJCA, at an effective tax cost of 5.25 percent on any such repatriated foreign earnings. Agilent may elect to apply this provision to qualifying earnings repatriations in fiscal 2005. Agilent has begun an evaluation of the effects of the repatriation provision; however, we do not expect to be able to complete this evaluation until after Congress or the Treasury Department provide additional clarifying language on key elements of the

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10 As noted by Albring et al. (2005) and Blessing (2004), this approach would significantly understate the amount of permanently reinvested earnings because the deferred tax would be recorded at the incremental tax rate net of any foreign tax credits as opposed to a rate of 35 percent.

11 Based on analysis of investment alternatives implied by the firms’ decision to accumulate foreign earnings overseas, Blouin and Krull (2006) predict that firms will actually use any repatriated funds under AJCA 2004 to repurchase shares. They provide evidence consistent with their predictions.
We expect to complete our evaluation of the effects of the repatriation provision within a reasonable period of time following the publication of the additional clarifying language. The range of possible amounts that Agilent is considering for repatriation under this provision is between zero and $970 million. The related potential range of income tax is between zero and $51 million.

We assume that any change in the extent that the market capitalizes the deferred tax on unrepatriated foreign earnings is driven exclusively by the repatriation tax holiday and not by other provisions in the AJCA 2004. However, the AJCA 2004 contained two other major provisions that might impact our tests. One of these provisions was a reduction in the number of income “baskets” used to calculate a firm’s foreign tax credit limitation. This change allows firms more flexibility in shielding income earned in low-tax jurisdictions from the repatriation tax. There are, however, some key differences between the repatriation tax holiday and the change in the calculation of the foreign tax credit limitation. The reduction in the number of baskets will make it easier for firms to shield earnings in low-tax countries from the repatriation tax using earnings from high-tax countries. For purposes of our study, we calculate our estimate of the repatriation tax using an average foreign tax rate. Only firms with an average foreign tax-rate below the U.S. statutory rate have a positive repatriation tax liability in our analysis. It is unlikely that these firms would have sufficient earnings from high-tax countries to significantly offset their foreign earnings from low-tax countries; otherwise their average foreign tax rate would not be below the U.S. statutory rate. This observation does not rule out a possible benefit for these firms associated with the reduction in baskets; however, this benefit is likely to be relatively small in comparison to the benefit provided by the repatriation tax holiday.

The AJCA 2004 also includes a provision for a domestic manufacturing deduction (DMD) that allows manufacturing firms to deduct 3 percent (which increases to 6 percent in 2007 and 9 percent in 2010) of qualified production income (subject to limitations). The DMD will increase the domestic after-tax rate of return, \( r_d \), starting in 2005 (assuming input prices are not bid up too much such that after-tax rates of return to manufacturing are unchanged). With an expected increase in \( r_d \), firms will be encouraged to repatriate during the tax holiday and this reinforces our prediction that investors will view the tax holiday positively.

In an effort to control for the possible impact of the DMD provision, we directly test whether, in a price-level regression, the multiplier on domestic net income changed after passage of the AJCA became probable. The results (not tabulated) are not consistent with the market increasing the multiplier on domestic income as a result of the DMD provision. In fact, we actually see a decline in the market’s pricing of domestic net income during the AJCA period. Some of the benefit associated with the introduction of the DMD provision might have been mitigated by the repeal of the Extraterritorial Income Exclusion (ETI), which was eliminated as a part of the AJCA 2004. Specifically, the AJCA 2004 reduced ETI benefits to 80 percent in 2005, 60 percent in 2006, and after 2006 the ETI no longer exists. Regardless of what caused the decline in the pricing of domestic net income, our inferences related to the pricing of the deferred repatriation tax remain unchanged.

THE DECISION TO REPATRIATE OR REINVEST FOREIGN EARNINGS

In choosing whether to repatriate foreign earnings U.S. MNCs must consider the taxes that would be paid if the earnings were repatriated currently, future taxes that would be paid on the earnings if repatriation is deferred, and any implicit taxes that would be paid by choosing a tax-favored option that has a lower pretax rate of return. The U.S. government
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taxes U.S. firms on their worldwide income, however foreign subsidiaries of U.S. MNCs are not included on the consolidated U.S. tax return. The earnings from these foreign subsidiaries are not taxed until the cash is repatriated to the U.S. parent. When the earnings are repatriated, they are taxed at the U.S. statutory rate and the firm receives a credit for foreign taxes paid. In choosing to reinvest foreign earnings abroad, a firm avoids paying the residual U.S. tax until the foreign earnings are repatriated to the U.S.

The following set of equations, adapted from Hartman (1985) and Scholes et al. (2005), models the decision a firm faces to repatriate or reinvest. In the equations below, \( t_d \) is the U.S. tax rate, \( t_f \) represents the foreign tax rate, \( r_d \) is the U.S. after-tax rate of return, and \( r_f \) represents the foreign after-tax rate of return.

Letting \( \text{DIV} \) represent the amount of dividends that are repatriated in the current period, the amount remaining after paying the home country tax, in this case the U.S. tax, is:

\[
\text{DIV} - \frac{\text{DIV}}{1 - t_f} (t_d - t_f) = \frac{\text{DIV}(1 - t_d)}{1 - t_f}.
\] (1)

The second term on the left-hand side of Equation (1) denotes the calculation of additional U.S. taxes. \( \text{DIV} \) is grossed up by \((1 - t_f)\) to derive an estimate of foreign taxable income which is then multiplied by the U.S. tax rate (to estimate U.S. taxes) less the amount of the foreign tax credit (foreign taxable income times \( t_f \) representing the foreign taxes paid on the foreign income). If the firm then chooses to reinvest this amount in the U.S. for \( n \) periods at an after-tax rate of return of \( r_d \), then the accumulation in \( n \) periods is:

\[
\frac{\text{DIV}(1 - t_d)}{(1 - t_f)} (1 + r_d)^n.
\] (2)

However, if the firm instead chooses to reinvest the earnings and profits abroad for \( n \) periods and then repatriate, then the accumulation in \( n \) periods is:

\[
\text{DIV}(1 + r_f)^n - \frac{\text{DIV}(1 + r_f)^n}{1 - t_f} (t_d - t_f) = \frac{\text{DIV}(1 - t_d)}{1 - t_f} (1 + r_f)^n.
\] (3)

In comparing Equations (2) and (3), the only difference is in the last term \((1 + r_d)^n\) versus \((1 + r_f)^n\). As a result, the decision to reinvest hinges on whether the after-tax rate of return on foreign investment, \( r_f \), exceeds the after-tax rate of return on home country investment, \( r_d \).

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12 DeWaegenaere and Sansing (DS 2006) develop a more complex model than the model presented here. Our model assumes a finite-lived subsidiary with eventual repatriation of foreign earnings, whereas DS assume foreign subsidiaries investment in operating assets are infinite-lived allowing for the possibility of permanent deferral of repatriation tax on the earnings of its operating assets. Additionally DS separate out investments in operating assets and financial assets and among growth firms (the assumption in our model) and mature firms where \( (r_d = r_f) \) and any foreign reinvestment is in financial assets. While such separation allows analytical insights into firms’ repatriation decisions and on possible coefficient values on deferred tax liabilities (DTL) and permanently reinvested earnings arising from operating assets and financial assets, data on PRE and DTL decomposed by asset type are neither disclosed nor available. Thus, we use our simpler model to make our point. However, consistent with the DS analysis, in sensitivity analysis we examine the pricing of the repatriation tax within the holiday period as a function of excess cash holdings.

13 Consistent with existing U.S. tax law, this model assumes the home country has a worldwide tax system with foreign tax credits rather than a territorial system. This model also assumes the home-country tax rate, \( t_p \), exceeds the foreign-country tax rate, \( t_f \). Otherwise, no home-country tax would be due upon repatriation.

14 \( \text{DIV}(1 - t_f) \) is equal to foreign source income (FSI), and the foreign tax credit (FTC) is limited to the min \( (\text{FSI} 	imes t_d, \text{FSI} 	imes t_f) \).
investment, \( r_d \). Interestingly, the decision to repatriate is not impacted by the extent of the repatriation tax or the investment horizon because the firm bears the cost of the repatriation tax irrespective of whether it chooses to repatriate now or to reinvest and repatriate at some point in the future.\(^{15} \) If a firm did not repatriate foreign earnings before the AJCA 2004, then we can infer that \( r_d < r_f \).

The results of the above model rely on two critical assumptions. The first assumption is that the foreign earnings will eventually be repatriated and subject to the tax on repatriation. This assumption appears to be supported by the work of Collins et al. (2001), who find the market capitalizes into stock prices the unrecognized deferred tax liability associated with unrepatriated foreign earnings despite management’s designation of the earnings as permanently reinvested. Scholes et al. (2005) discuss a number of ways or mechanisms that firms might use to bring foreign earnings home tax-free. However, our sample firms have already reported these earnings as taxable income in the foreign jurisdiction so it is not possible to employ the usual mechanisms (transfer pricing, interest payments to the U.S. parent on debt, royalties, and other payments to the U.S. parent for services provided) because these mechanisms affect future profits, not past reported profits. Thus the ability to avoid U.S. taxation on already reported foreign earnings is somewhat limited. Further, these mechanisms to transfer future profits usually relate to firms wishing to transfer profits from high tax jurisdictions to low tax jurisdictions whereas in our setting the U.S. tax rate is higher than the foreign tax rate (otherwise there would not be any additional U.S. tax due on repatriation).

The second assumption of our model is that the tax price of repatriation remains constant over time; i.e., there is no time subscript on \( t_d \) and \( t_f \) — they are assumed intertemporal constants. The introduction of the AJCA 2004 obviously violates this assumption. The AJCA 2004 allows MNCs to repatriate at a significantly reduced rate of a maximum 5.25 percent because 85 percent of the dividend is excluded from additional U.S. taxation. As a result, the tax price of dividend repatriation now impacts the final result, and firms face the following decision:

If the firm decides to repatriate under the AJCA 2004, then the amount remaining after paying the U.S. tax is:

\[
DIV - \left( 15\% \cdot \frac{DIV}{1 - t_f} (t_d - t_f) \right).
\]  

If the firm then chooses to reinvest the amount repatriated during the tax holiday in the U.S. for \( n \) periods at an after-tax rate of return of \( r_{d^r} \), then the accumulation in \( n \) periods is

\[
\left[ DIV - \left( 15\% \cdot \frac{DIV}{1 - t_f} (t_d - t_f) \right) \right] (1 + r_{d^r})^n.
\]

\(^{15} \) The model is obviously a simplification. For example, by designating foreign earnings as PRE, firms do not have to accrue or recognize the additional U.S. taxes due on repatriation. Thus managers can “manage” reported after-tax earnings by increasing or decreasing the amount designated as PRE. Krull (2004) provides evidence that firms appear to manage reported earnings via PRE. The value to the firm (or at least the managers) of this discretion is not captured in our model.
Under the AJCA 2004, the firm must now compare Equation (5) to Equation (3) to
determine whether to repatriate under the tax holiday. The firm will choose to repatriate
under AJCA if Equation (5) ≥ Equation (3):

\[
DIV - \left( 15\% \times \frac{DIV}{1 - t_f} (t_d - t_f) \right) (1 + r_d)^n \geq \frac{DIV(1 - t_d)}{1 - t_f} (1 + r_f)^n.
\]

The decision is now a function of the current repatriation tax under the AJCA 2004, the
future expected U.S. tax rate, the expected after-tax rates of return on both foreign and
domestic investments, and the length of the investment horizon. In our original analysis,
without the tax holiday provided by the AJCA 2004, a firm would choose to continue to
reinvest foreign earnings and profits abroad if \( r_f \) exceeded \( r_d \).

A simple numerical example demonstrates the impact the AJCA 2004 has on this
decision and the incentive a firm has to repatriate during the tax holiday. Suppose a firm
has foreign retained earnings (PRE) = $100 and has a ten-year investment horizon. Further,
assume the firm has investment opportunities abroad such that its foreign pre-tax rate of
return (\( R_f \)) is 10 percent, and assuming a 15 percent foreign tax rate, the firm’s foreign
after-tax rate of return (\( r_f \)) is 8.5 percent. In addition, assume the firm faces a domestic
U.S. tax rate of 35 percent. Under this scenario, before the tax holiday provided by the
AJCA 2004, the firm would have had to earn a pre-tax rate of return on earnings repatriated
and reinvested domestically of at least 13.08 percent to justify repatriation, calculated as
follows:

\[
(1 + r_d)^{10} < (1 + 0.085)^{10} \rightarrow r_d > 0.085 \rightarrow R_d > 0.13077.
\]

However, during the tax holiday, a firm facing the same scenario would have to earn
a pre-tax domestic rate of return of only 9.24 percent to justify repatriating within the
window provided by the tax holiday. This required rate of return on repatriated earnings is
calculated from the inequality in Equation (6) as follows:

\[
100 - \left( 15\% \times \frac{100}{1 - 0.15} (0.35 - 0.15) \right) (1 + r_d)^{10} \leq \frac{100(1 - 0.35)}{1 - 0.15} (1 + 0.085)^{10};
\]

\[
r_d > 0.06008 \rightarrow R_d > 0.09243.
\]

The above example illustrates the incentive provided by the tax holiday for firms to
repatriate low-tax foreign earnings. Notice that before the tax holiday the firm was indifferent
to repatriating or reinvesting abroad when the after-tax domestic rate of return equaled the
after-tax foreign rate of return. However, during the tax holiday the firm requires
an after-tax rate of return abroad that is higher than at home by 2.5 percent (6.0% - 8.5%)
in order to justify not taking advantage of the tax holiday. This example helps to illustrate
the importance that the spread between domestic and foreign rates of return plays in
determining the extent to which a firm benefits from the tax holiday. Thus, firms with after-
tax foreign investment opportunities that far exceed their domestic investment opportunities

16 Note that as the investment horizon increases, the tax incentive to repatriate under AJCA 2004 is reduced.
Inequality (6) can be re-written as \( r_d > (1 + r_f) [(1 - t_f) / (1 - (0.85t_f + 0.15t_d))]^{1/n} - 1 \). Note that as the
investment period increases the importance of the tax holiday declines, and as \( n \) approaches \( \infty \) the reinvestment
decision again becomes a function of only \( r_d \) and \( r_f \).
will not find it beneficial to repatriate even during the tax holiday, and will continue to invest abroad. In the next section, we describe our methodology for testing the extent to which the market anticipated that firms would take advantage of the tax holiday and repatriate a significant portion of their PRE during the window provided by the AJCA 2004.

**SAMPLE SELECTION**

Table 1, Panel A presents our sample selection procedure. Our sample is based on a set of 117 firms identified by Albring et al. (2005) as having permanently reinvested earnings exceeding $500 million in 2002.\(^1\) Our main tests utilize firm-specific data for the 2001, 2002, 2003, and 2004 fiscal years. As a result, we begin with 468 firm-year observations (117 firms × 4 years). To obtain PRE for each firm-year observation, we search each firm’s tax footnote in the 10-K. There were 41 firm-year observations that did not disclose the magnitude of their PRE in their 10-K, and 115 did not have sufficient data to calculate the variables necessary for our analysis. This latter result is due primarily to

### TABLE 1

**Sample Selection and Industry Distribution**


<table>
<thead>
<tr>
<th>Total sample of firm-year observations with PRE &gt; $500 million in 2002(^a)</th>
<th>468</th>
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<tbody>
<tr>
<td>Less firm-year observations that did not disclose PRE in their annual report</td>
<td>41</td>
</tr>
<tr>
<td>Less firm-year observations with missing regression variables(^b)</td>
<td>115</td>
</tr>
<tr>
<td>Complete firm-year observation</td>
<td>312</td>
</tr>
</tbody>
</table>

**Panel B: Industry Distribution of Sample Firm-Year Observations**

<table>
<thead>
<tr>
<th>SIC Code</th>
<th>Industry Type</th>
<th>Number of Companies</th>
<th>Mean MVE</th>
<th>Mean PRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–999</td>
<td>Agriculture, Forestry, Fishing</td>
<td>3</td>
<td>1,483</td>
<td>1,117</td>
</tr>
<tr>
<td>1000–1999</td>
<td>Mining, Building</td>
<td>8</td>
<td>10,749</td>
<td>2,500</td>
</tr>
<tr>
<td>2000–2999</td>
<td>Manufacturing</td>
<td>109</td>
<td>44,396</td>
<td>4,876</td>
</tr>
<tr>
<td>3000–3999</td>
<td>Manufacturing</td>
<td>133</td>
<td>20,766</td>
<td>2,520</td>
</tr>
<tr>
<td>4000–4999</td>
<td>Transportation, Communication, Electric, Gas</td>
<td>2</td>
<td>3,680</td>
<td>1,350</td>
</tr>
<tr>
<td>5000–5999</td>
<td>Wholesale, Retail</td>
<td>9</td>
<td>21,734</td>
<td>2,237</td>
</tr>
<tr>
<td>6000–6999</td>
<td>Financial Services</td>
<td>20</td>
<td>47,753</td>
<td>2,665</td>
</tr>
<tr>
<td>7000–7999</td>
<td>Hotels, Services</td>
<td>22</td>
<td>79,292</td>
<td>4,411</td>
</tr>
<tr>
<td>8000–8999</td>
<td>Services</td>
<td>3</td>
<td>5,173</td>
<td>841</td>
</tr>
<tr>
<td>9000–9999</td>
<td>International, Non-Operating</td>
<td>3</td>
<td>314,368</td>
<td>21,667</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>312</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

\(^a\) The initial sample is based on 117 firms identified by Albring et al. (2005) as having PRE > $500 million in 2002. The sample is comprised of 2001–2004 fiscal-year observations for these firms.

\(^b\) We require five years of foreign tax and foreign earnings data to calculate the average foreign tax rate.

---

\(^1\) Albring et al. (2005) construct their sample by identifying firms on the Compustat Geographical Segment database with foreign assets or foreign sales. They then analyze the footnotes of the 2002 annual reports for these firms to identify those firms that disclose a dollar amount of PRE exceeding $500 million.
our use of a multi-year measure of the foreign tax rate. We estimate a firm’s foreign tax rate as the sum of foreign current tax expense from year \( t-4 \) through year \( t \) divided by the sum of foreign pre-tax income from year \( t-4 \) through year \( t \). These data requirements leave us with a sample of 312 distinct firm-year observations from 92 firms for our analysis.

Table 1, Panel B presents a distribution of firm-year observations used in our tests by industry. Of the total sample of 312 observations, 242 firm-years are classified as manufacturing. The highest specific industry concentrations are 23 firm-years in the pharmaceutical industry (SIC code 2833–2836), and 19 firm-years in the computer or computer-related industries (SIC code 7370–7377).

Table 2, Panels A and B provide descriptive statistics for our sample of firms. Total assets for our firms range from $1.2 billion to $799 billion, with a mean (median) value of $42.2 ($13.4) billion. The market values of our sample firms range from $248 million to $382 billion, with a mean (median) market value of $38.0 ($14.6) billion. For all firms on Compustat during the same time period, the mean (median) total assets are $7.0 ($0.249) billion and mean (median) market value of equity is $2.7 ($0.161) billion (numbers not tabulated). Thus while the number of firm-year observations in our sample is relatively small, these firms are extremely large relative to the average publicly traded firm in the U.S. economy, and these firms are economically significant in their own right. The remaining variables in Table 2 relate to our test variables and we discuss them after we present our test procedures.

RESEARCH DESIGN AND RESULTS

Price-Level Tests

Our first set of tests use a price-level model:

\[ \text{Price-Level Tests} \]

\[ \text{RESEARCH DESIGN AND RESULTS} \]

\[ \text{Price-Level Tests} \]

Our first set of tests use a price-level model:20

18 Consistent with Albring et al. (2005), we use a multi-year measure of foreign tax rate because the computation of deemed paid tax under IRC Section 902(a) attaches to each dividend the amount of post-1986 foreign income taxes its foreign subsidiary pays in proportion to the percentage of the subsidiary’s post-1986 earnings and profits it receives. Using a five-year accumulation period is a compromise between using data from the most recent year to calculate the foreign ETR and using data on all taxes and earnings since 1986, which would result in significant survivorship bias.

19 This sample is not however the population of U.S. MNCs. Blouin and Krull (2006) note that of a sample of 877 firms identified as referencing the AJCA 2004 Act in their financial statements, only 246 firms indicated that they had repatriated earnings under the tax holiday. Nevertheless, as noted our sample firms are large and economically significant in their own right.

20 Whether U.S. taxes on foreign earnings are capitalized into stock prices is somewhat analogous to whether shareholder-level taxes on dividends are capitalized. Harris and Kemsley (1999) employ a price-level model predict and test whether investors capitalize taxes on dividends at the top individual shareholder rate. However, Hanlon et al. (2003) and Dhaliwal et al. (2003) question the Harris and Kemsley (1999) result on two grounds. First, both papers raise doubt about whether all retained earnings will be subject to taxation at individuals’ tax rates because of the existence of dividend clienteles (dividends attract lower-tax rate investors including institutions who in most cases are tax-exempt), earnings can be and are distributed via share repurchases where the gains to shareholders are taxed at lower capital gains rates (when capital gains were taxed at lower rates than corporate dividends), and in liquidations distributions are taxed at capital gains rates, not as ordinary dividends (even though financial economists refer to these distributions as liquidating dividends). Second, both papers argue that the price-level approach used by Harris and Kemsley (1999) (interacting \( BV \) and \( NI \) with \( RE/BVE \)) is non-diagnostic with respect to whether shareholder-level tax on retained earnings is capitalized. Our price-level model differs from that used in Harris and Kemsley (1999) and is not subject to the same criticisms. We discussed earlier the possibility of firms repatriating foreign earnings without paying any additional U.S. tax. To the extent firms can, and the market understands and anticipates this behavior, the market will assign a lower coefficient (i.e., closer to zero) to our estimates of the additional U.S. tax.
TABLE 2
Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Variables in $ Millions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Assets ($TA)</td>
<td>312</td>
<td>42,205</td>
<td>13,369</td>
<td>107,849</td>
<td>798,660</td>
<td>1,211</td>
</tr>
<tr>
<td>Market Value of Equity ($MVE)</td>
<td>312</td>
<td>38,011</td>
<td>14,573</td>
<td>57,189</td>
<td>381,744</td>
<td>248</td>
</tr>
<tr>
<td>Domestic after-tax net income ($DNI)</td>
<td>312</td>
<td>717</td>
<td>213</td>
<td>1,518</td>
<td>9,294</td>
<td>-3,223</td>
</tr>
<tr>
<td>Foreign after-tax net income ($FNI)</td>
<td>312</td>
<td>836</td>
<td>333</td>
<td>1,350</td>
<td>8,365</td>
<td>-506</td>
</tr>
<tr>
<td>Residual common equity ($CS)</td>
<td>312</td>
<td>2,128</td>
<td>851</td>
<td>7,864</td>
<td>56,396</td>
<td>-19,825</td>
</tr>
<tr>
<td>All non-PRE retained earnings ($RE)</td>
<td>312</td>
<td>4,142</td>
<td>1,483</td>
<td>10,535</td>
<td>69,649</td>
<td>-27,701</td>
</tr>
<tr>
<td>Permanently reinvested earnings ($PRE)</td>
<td>312</td>
<td>3,662</td>
<td>1,604</td>
<td>5,499</td>
<td>51,600</td>
<td>0</td>
</tr>
<tr>
<td>Unrecognized deferred tax liability on $PRE ($TAX)</td>
<td>312</td>
<td>375</td>
<td>99</td>
<td>904</td>
<td>9,347</td>
<td>0</td>
</tr>
<tr>
<td>Foreign current tax rate ($t_f)</td>
<td>312</td>
<td>0.31</td>
<td>0.29</td>
<td>0.15</td>
<td>0.99</td>
<td>0.04</td>
</tr>
<tr>
<td>$SIZE − \ln(MVE)$</td>
<td>312</td>
<td>9.72</td>
<td>9.59</td>
<td>1.31</td>
<td>12.85</td>
<td>5.51</td>
</tr>
<tr>
<td><strong>Panel B: Variables Scaled by Total Assets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$MVE$</td>
<td>312</td>
<td>1.55</td>
<td>1.14</td>
<td>1.26</td>
<td>6.15</td>
<td>0.05</td>
</tr>
<tr>
<td>$DNI$</td>
<td>312</td>
<td>0.02</td>
<td>0.02</td>
<td>0.04</td>
<td>0.13</td>
<td>-0.18</td>
</tr>
<tr>
<td>$FNI$</td>
<td>312</td>
<td>0.04</td>
<td>0.03</td>
<td>0.03</td>
<td>0.15</td>
<td>-0.03</td>
</tr>
<tr>
<td>$CS$</td>
<td>312</td>
<td>0.07</td>
<td>0.09</td>
<td>0.26</td>
<td>0.76</td>
<td>-0.95</td>
</tr>
<tr>
<td>$RE$</td>
<td>312</td>
<td>0.14</td>
<td>0.13</td>
<td>0.25</td>
<td>0.74</td>
<td>-0.75</td>
</tr>
<tr>
<td>$PRE$</td>
<td>312</td>
<td>0.18</td>
<td>0.17</td>
<td>0.13</td>
<td>0.73</td>
<td>0.00</td>
</tr>
<tr>
<td>$TAX$</td>
<td>312</td>
<td>0.02</td>
<td>0.01</td>
<td>0.03</td>
<td>0.13</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Panel C: Pearson and Spearman Correlation Coefficients$^a$</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$MVE$</td>
<td></td>
<td>0.55</td>
<td>0.14</td>
<td>-0.26</td>
<td>0.21</td>
<td>0.02</td>
</tr>
<tr>
<td>$DNI$</td>
<td></td>
<td>0.36</td>
<td>0.14</td>
<td>-0.26</td>
<td>0.36</td>
<td>0.06</td>
</tr>
<tr>
<td>$FNI$</td>
<td></td>
<td>0.21</td>
<td>0.25</td>
<td>0.11</td>
<td>0.05</td>
<td>0.56</td>
</tr>
<tr>
<td>$CS$</td>
<td></td>
<td>-0.37</td>
<td>-0.32</td>
<td>0.10</td>
<td>-0.66</td>
<td>-0.12</td>
</tr>
<tr>
<td>$RE$</td>
<td></td>
<td>0.21</td>
<td>0.42</td>
<td>0.13</td>
<td>-0.61</td>
<td>-0.21</td>
</tr>
<tr>
<td>$PRE$</td>
<td></td>
<td>0.06</td>
<td>0.08</td>
<td>0.57</td>
<td>-0.06</td>
<td>-0.12</td>
</tr>
<tr>
<td>$TAX$</td>
<td></td>
<td>-0.04</td>
<td>-0.06</td>
<td>0.61</td>
<td>0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td>$SIZE$</td>
<td></td>
<td>0.26</td>
<td>0.43</td>
<td>0.22</td>
<td>-0.20</td>
<td>0.23</td>
</tr>
</tbody>
</table>

$^a$ All variables except $SIZE$ scaled by total assets at year-end. Bold correlation coefficients indicate two-tailed significance at the .05 level.

\[
MVE_i = \beta_0 + \beta_1 DNI_i + \beta_2 FNI_i + \beta_3 CS_i + \beta_4 RE_i + \beta_5 PRE_i + \beta_6 TAX_i \\
+ \beta_7 D_{AJCA_i} + \beta_8 (D_{AJCA_i} \times TAX_i) + \epsilon_i
\]  

(7)

where all variables are scaled by total assets (data 6) at fiscal year-end.$^{21}$

$^{21}$ Consistent with Collins et al. (2001) we also estimated the above regression scaling the variables by the number of shares outstanding. The results (not tabulated) are generally consistent with those reported in Table 3 where the variables are scaled by total assets.

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\[ MVE = \text{market value of common equity, calculated as common stock outstanding} \]
\[ (\text{data 25}) \text{ multiplied by the market price of stock three months after the} \]
\[ \text{fiscal year-end;} \]
\[ DNI = \text{after-tax financial statement domestic income, calculated as total after-tax net} \]
\[ \text{income (data 237) minus foreign net income (FNI);} \]
\[ FNI = \text{after-tax financial statement foreign income, computed as foreign pretax} \]
\[ \text{income (data 273) minus foreign income taxes (data 64);} \]
\[ CS = \text{total common equity less total retained earnings, calculated as total common} \]
\[ \text{equity (data 60) minus total retained earnings (data 36);} \]
\[ RE = \text{total retained earnings less PRE, calculated as total retained earnings (data} \]
\[ 36) \text{ minus PRE;} \]
\[ PRE = \text{permanently reinvested foreign earnings (hand collected from firms' 10-Ks);} \]
\[ TAX = \text{unrecognized deferred tax liability associated with PRE if positive (otherwise} \]
\[ 0); \text{we calculate TAX as PRE (Equation (9) below), grossed up to a pretax} \]
\[ \text{amount by dividing by 1 minus the average foreign tax rate, times the} \]
\[ \text{difference between the U.S. statutory rate of 35 percent and the average} \]
\[ \text{foreign tax rate over the previous five years;}^{22} \text{for firms with an average} \]
\[ \text{foreign tax rate above the U.S. statutory rate, we set TAX to 0;}^{23} \text{and} \]
\[ D_{-AJCA} = \text{a binary variable set equal to 1 for fiscal 2003 and 2004 firm-year} \]
\[ \text{observations, and set equal to 0 for fiscal 2001 and 2002 firm-year} \]
\[ \text{observations.} \]

To allow for cross-sectional aggregation all variables are scaled by total assets at fiscal year-end. Consistent with Collins et al. (2001), we decompose net book value (shareholders’ equity) into common stock (CS), retained earnings less permanently reinvested earnings (RE – PRE), and PRE components and include the estimated unrecognized tax liability, TAX, to examine its market valuation separately. Also consistent with Collins et al. (2001), we decompose after-tax net income into domestic and foreign components in an effort to control for possible valuation differences between the two components. Dhaliwal and Krull (2006) include a size variable, calculated as the log of the market value of equity, in their regression. We check our results including log of market value below.

The TAX variable is calculated based on the difference between the U.S. statutory rate and the average foreign tax rate. This calculation of the tax liability assumes firms will repatriate their PRE outside of the window provided by the AJCA 2004, and will be subject to the full residual repatriation tax as follows:

We gross up the expected dividend to the pretax amount:

\[ \text{We use this specification because adjusting our calculation of the TAX variable to be} \]
\[ \text{based on PRE at the end of each year. However, the amount a firm can} \]
\[ \text{repatriate under the tax holiday is limited to the PRE reported on the last audited financial} \]
\[ \text{statement filed on or before June 30, 2003. We use this specification because adjusting our} \]
\[ \text{calculation of the TAX variable to be} \]
\[ \text{based on PRE at the end of fiscal year 2002 during the AJCA period would necessitate adding several additional} \]
\[ \text{variables to the price-level regression to reflect the change in PRE and TAX from 2002 to 2003 and 2004,} \]
\[ \text{respectively. We believe the addition of these variables would add unnecessary complexity to our model and} \]
\[ \text{would have limited impact on our inferences regarding the markets pricing of the deferred repatriation tax} \]
\[ \text{pre/post AJCA 2004. If PRE is increasing over time, then any increase in PRE in 2003 and 2004 is not eligible} \]
\[ \text{for the holiday.} \]

\[ ^{22} \text{The average foreign tax rate is calculated as the sum of foreign income tax (data 64) from year} \]
\[ t-4 \text{ to } t \text{ divided by the sum of foreign pretax income (data 273) from year } t-4 \text{ to } t \text{. We} \]
\[ \text{replicated our tests using a measure of the average foreign tax rate based on one year of foreign income. This} \]
\[ \text{change results in an increase in sample size and the results (not tabulated) are consistent with those reported} \]
\[ \text{using a five-year measure.} \]

\[ ^{23} \text{Note that we calculate the TAX variable based on PRE at the end of each year. However, the amount a firm can} \]
\[ \text{repatriate under the tax holiday is limited to the PRE reported on the last audited financial statement filed on} \]
\[ \text{or before June 30, 2003. We use this specification because adjusting our calculation of the TAX variable to be} \]
\[ \text{based on PRE at the end of fiscal year 2002 during the AJCA period would necessitate adding several additional} \]
\[ \text{variables to the price-level regression to reflect the change in PRE and TAX from 2002 to 2003 and 2004,} \]
\[ \text{respectively. We believe the addition of these variables would add unnecessary complexity to our model and} \]
\[ \text{would have limited impact on our inferences regarding the markets pricing of the deferred repatriation tax} \]
\[ \text{pre/post AJCA 2004. If PRE is increasing over time, then any increase in PRE in 2003 and 2004 is not eligible} \]
\[ \text{for the holiday.} \]
Pretax Dividend = \( \frac{PRE}{1 - t_f} \)

(8)

and we estimate the incremental U.S. tax as:

\[
\text{Incremental Repatriation Tax} = \text{Pretax Dividend} \times (35\% - t_f).
\]

(9)

If a firm chooses to repatriate during the tax holiday provided by the AJCA 2004, then the incremental U.S. tax would be calculated as follows:

\[
\text{Incremental Repatriation Tax} = 15\% \times \text{Pretax Dividend} (35\% - t_f).
\]

(10)

From Equation (10), it is apparent that the decision to repatriate during the tax holiday results in an 85 percent reduction in the residual tax on repatriation.

To test the change in the extent to which the market prices the deferred tax on repatriation, we include a dummy variable, \( D_{\text{AJCA}} \), set to 1 for 2003 and 2004 firm-year observations, and set to 0 for 2001 and 2002 firm-year observations. As discussed above, passage of the tax holiday became probable during 2003, and the Act was officially signed into law during 2004. We interact \( D_{\text{AJCA}} \) with \( TAX \) and as a result, the coefficient on \( TAX \), \( \beta_{8} \), in Equation (7) captures the extent that the market capitalizes the (unrecognized) deferred incremental U.S. tax on unrepatriated foreign earnings into current stock prices prior to the time when passage of the tax holiday became probable. Thus, \( \beta_{8} \) is predicted to be negative because \( TAX \) is a liability to the firm. However, we do not predict or specify an exact magnitude of the coefficient on \( TAX \) in this model (such as \(-1\)) because our regression model is loosely based on the valuation model presented by Ohlson (1995) in which price is regressed on net book value (\( CS, RE, PRE \), and \( TAX \) in our setting) and net income (\( DNI \) and \( FNI \) in our setting). Ohlson (1995) shows that the weight on the book value (net income) components is decreasing (increasing) in the persistence of earnings. In the extreme, if earnings are highly persistent (transitory), then the book value of equity components will receive low (high) weights in the regression.

In our analysis, we calculate the incremental repatriation \( TAX \) in both periods using Equation (9). The coefficient on \( (D_{\text{AJCA}} \times TAX) \), \( \beta_{8} \), thus estimates the change in the extent to which the market capitalized the deferred tax on unrepatriated earnings into current stock prices after passage of the tax holiday became probable. If the market expects firms to repatriate at the lower tax rate, then \( \beta_{8} \) is predicted to be \( > 0 \), because we estimated \( TAX \) using Equation (9), which assumes the market does not anticipate repatriation under the AJCA.\(^{24}\) In the relatively extreme circumstance that the market anticipated that firms would repatriate all of their \( PRE \) during the tax holiday, then we should see an 85 percent reduction in the extent to which \( TAX \) is capitalized into current stock prices.\(^{25}\)

\(^{24}\) An econometrically equivalent approach would be to estimate \( TAX \) during the AJCA period using Equation (10) and use this estimate in regression Equation (7). The weights on \( TAX \) are predicted to be the same in both periods because \( TAX \) is estimated to reflect the taxes due if repatriated in that period. The prediction would then be \( \beta_{8} = 0 \), no difference in the weights. Such a result could be observed due to low power (which could be a problem for us because of the relatively small sample sizes). To avoid this dual interpretation problem, we use the approach outlined in the text. The approach we adopt is intuitively more appealing as we predict the market anticipates a decline in the estimated taxes which will manifest as a smaller coefficient on the \( TAX \) variable after AJCA: \( \beta_{8} > 0 \).

\(^{25}\) Recall, only extraordinary dividends (dividends in excess of an average level over the recent past) were eligible for reduced taxation under the tax holiday. To the extent that less than the entire \( PRE \) is eligible, there will be less than an 85 percent reduction in the pricing of \( TAX \).
Even if the market anticipated that all of the sample firms would repatriate all of their respective PRE, we would still expect the combined coefficients ($\beta_6 + \beta_8$) to be negative because the firms would still be subject to some residual tax upon repatriation. If the market does not anticipate that firms will repatriate a significant portion of their PRE under the tax holiday, then we would expect $\beta_8$ to be insignificant consistent with the market continuing to capitalize the full amount of incremental U.S. taxes that will be due upon repatriation outside of the window provided by the tax holiday.

We present descriptive statistics on the above in Panel A of Table 2. Median after-tax domestic and foreign net incomes are $213 million and $333 million, respectively. The median PRE (permanently reinvested foreign earnings) is $1,604 million and the median proportion of PRE to total retained earnings is 52 percent. Thus foreign operations and profits are extremely important to our sample firms. The mean (median) estimated foreign tax rate is 31 percent (29 percent) but ranges from 4 percent up to 99 percent. We set $\text{TAX}$ equal to 0 for the 93 firm-year observations for which the foreign tax rate exceeds the U.S. tax rate of 35 percent. The mean (median) estimated incremental U.S. tax due on repatriation is $375 ($99) million. We report descriptive statistics for the deflated (by total assets) variables used in the price-level regression in Panel B of Table 2. The mean market value of common stock scaled by total assets ($\text{MVE}$) for our sample is 1.55. The means and medians for each variable are relatively close and there are no obvious outliers. Nevertheless we replicated all results reported below winsorizing the variables at the 1 and 99 percentiles with no change in results or inferences to those tabulated using the unwinsorized data.

We report Pearson and Spearman correlations between the variables used in our price-level regression analysis in Panel C of Table 2. The Pearson (Spearman) correlations between after-tax domestic net income ($\text{DNI}$) and market value of common equity ($\text{MVE}$) and between after-tax foreign net income ($\text{FNI}$) and $\text{MVE}$ are 0.55 (0.36) and 0.14 (0.21), respectively. The Pearson (Spearman) correlations between retained earnings (less $\text{PRE}$, $\text{RE}$) and $\text{MVE}$ and $\text{SIZE}$ and $\text{MVE}$ are 0.21 (0.21) and 0.25 (0.26), respectively. Somewhat surprisingly, the Pearson (Spearman) correlations between common equity (less retained earnings, $\text{CS}$) and $\text{MVE}$ are $-0.26 (-0.37)$. Of the variables used in our analysis only $\text{PRE}$ and the unrecognized tax liability associated with $\text{PRE}$ ($\text{TAX}$) are not significantly correlated with $\text{MVE}$.

We report the results of estimating Equation (7) without the $\text{SIZE}$ variable in Column (1) of Table 3.\textsuperscript{26} The coefficient on $\text{FNI}$, the foreign earnings multiple, is 18.55 and significantly greater than the coefficient on $\text{DNI}$, the domestic earnings multiple, of 10.14 at the ($p < 0.05$) level. This result is consistent with the findings of both Bodnar and Weintrop (1997) and Collins et al. (1998) who document a greater capitalization of foreign earnings relative to domestic earnings.\textsuperscript{27} However, the coefficient on $\text{PRE}$ of 2.66 is not significantly greater than the coefficient on $\text{RE}$ of 2.42.

The coefficient on $\text{TAX}$ is $-5.11$, which is significant (at $p < 0.05$) using a one-tailed test. This result is consistent with the market capitalizing the deferred repatriation tax into

\textsuperscript{26} We present results pooling observations across time. Because we have only four years of data, we cannot employ the usual methods to mitigate concerns with cross-sectional correlation (estimating standard errors clustered by time or using annual cross-sections to estimate standard errors, although we note these approaches assume time-series independence which likely is violated in price-level models). Thus we note and caution the reader about the interpretation of the t-statistics given the possibility of cross-sectional correlation in the data. This problem and caution also applies to our returns tests below.

\textsuperscript{27} Bodnar and Weintrop (1997) attribute this difference in valuations to differences in growth opportunities for foreign operations. Additionally, eliminating firm-year observations with negative domestic or foreign earnings does not alter results or change inferences.
TABLE 3
Estimate of the Effect of Unrecognized Deferred Taxes associated with PRE on Valuation
(Obs = 312)

\[ MVE_i = \beta_0 + \beta_1DNI_i + \beta_2FNI_i + \beta_3CS_i + \beta_4RE_i + \beta_5PRE_i + \beta_6TAX_i + \beta_7D_{AJCA}, \]
\[ + \beta_8(D_{AJCA} \times TAX), + \epsilon_i \]

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<th>(3)</th>
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<td></td>
<td>(0.03)</td>
<td>(0.05)</td>
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<td>-0.33</td>
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<td></td>
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<td>(0.00)</td>
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<tr>
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</tr>
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<td></td>
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<td>(0.00)</td>
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<td></td>
</tr>
<tr>
<td>(D_{2005} \times TAX)</td>
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<tr>
<td></td>
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<td></td>
<td>(0.43)</td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td></td>
<td>69.52%</td>
<td>68.82%</td>
<td>72.38%</td>
<td>67.20%</td>
</tr>
</tbody>
</table>

Column (4) reports the results of a regression estimated including 2005 fiscal year observations. A total of 392 firm-year observations are used in this regression.

Values in parenthesis represent p-values for White adjusted t-statistics.

All variables except size and the dummy variables are scaled by total assets at year-end.

- \( MVE \) = the market value of common equity three months after fiscal year-end;
- \( DNI \) = after-tax financial statement domestic income;
- \( FNI \) = after-tax financial statement foreign income;
- \( CS \) = total common equity less total retained earnings at the end of the fiscal year;
- \( RE \) = total retained earnings less \( PRE \) at the end of the fiscal year;
- \( PRE \) = permanently reinvested earnings reported in the financial statement footnotes;
- \( TAX \) = the unrecognized deferred tax liability associated with \( PRE \) at the end of the fiscal year;
- \( D_{AJCA} \) = a dummy variable set equal to 1 for 2003 and 2004 fiscal year observations, and set equal to 0 for all other observations; and
- \( SIZE \) = the log of market value of equity; and
- \( D_{2005} \) = a dummy variable set equal to 1 for 2005 fiscal year observations, and set equal to 0 for all other observations.
current stock prices before passage of the tax holiday was probable. While this estimated coefficient might seem large, it is consistent with the finding of Collins et al. (2001) who document a large negative coefficient on the TAX variable. They argue the TAX variable represents the deferred tax liability associated with both current and prior foreign earnings that have been designated as PRE, and therefore it reflects some combination of the earnings multiples in the PRE and FNI coefficients. Given these multiples reflect expected future profits, TAX is then picking up the earnings multiples arising from expected future profits. If TAX is reflecting the multiple on future earnings (and not just the U.S. tax liability on past foreign earnings), the estimated coefficient on FNI should decline if we exclude TAX from the regression model. We report the results of this regression in Column (2) of Table 3 and, consistent with this prediction, we observe that the estimated coefficient declines from 18.55 to 17.54. We also present returns analysis in the next section to help alleviate concerns with the estimated magnitude of the TAX coefficient in the price-level regression approach.

The coefficient, $\beta_8$, on the interaction term $(D_{AJCA} \times TAX)$ is 4.29 and is significant at the ($p < 0.10$) level. This result provides evidence consistent with a shift in the extent to which the market capitalized the deferred repatriation tax into current stock prices after passage of the tax holiday became probable. As predicted, the combined coefficient on $(\beta_6 + \beta_8)$, −0.82, is still negative, but is not significantly different from 0. A negative coefficient on $(\beta_6 + \beta_8)$ would be consistent with the fact that firms are still subject to some repatriation tax even if they choose to repatriate all of their PRE during the window provided by the AJCA 2004. Note that the coefficient on the indicator variable, $D_{AJCA}$, is negative and significant. We have no specific prediction for the coefficient on the $D_{AJCA}$ variable and we offer no explanation for why the variable is negatively associated with market value.

As previously noted, Dhaliwal and Krull (2006) report an insignificant coefficient on their TAX variable. One difference between their model and ours is that they add the log of the market value of equity ($MVE$) as an additional explanatory variable. Column (3) of Table 3 presents the results of estimating the Equation (7) with the $MVE$ variable. The coefficient on the $MVE$ variable is positive and significant. The results in Column (3) with the inclusion of the $MVE$ variable are generally consistent with those reported in Column (1) with the TAX and $(D_{AJCA} \times TAX)$ variables remaining significant and in the predicted directions. Thus the difference between our results and Dhaliwal and Krull (2006), in the pricing of PRE prior to AJCA 2004, is not due to our omission of $MVE$.

Equation (10) shows an 85 percent reduction in incremental U.S. tax during the holiday. If our estimates reflect investors’ estimates without (too much) error, then we might expect to observe an 85 percent reduction in the estimated coefficient on TAX. Given an estimated coefficient on TAX in the pre-period of −5.11, we might expect the coefficient on the interaction term $(D_{AJCA} \times TAX)$ to be 4.34 resulting in $(\beta_6 + \beta_8) = -0.767 (1.15 * -5.11)$. An F-test indicates that the observed estimate of the sum of $-0.767$ is not significantly different from $-0.767$. The maximum deductible amount of the repatriation dividend was limited to $500 million or the amount of PRE disclosed by the firms implying that any dividends would come from PRE. However, ex post some firms (e.g., Microsoft Corporation) repatriated from non-PRE designated foreign earnings. Our regression results suggest investors expected the repatriation to be sourced from PRE.

However, it is not clear to us why Dhaliwal and Krull (2006) include the log of $MVE$ as an additional explanatory variable in their model. First, the dependent variable is $MVE$. Second, all variables are deflated by Total Assets, which acts as a control for size. Thus, we see no theoretical reason to include the log of $MVE$ and are not surprised it exhibits a significant positive coefficient given the variable is simply a transformation of the LHS dependent variable.

\*\*\*  

\[\text{References}\]

Collins et al. (2001) express all variables on a per share basis and use a sample from 1993. When we estimate Equation (7) with variables expressed on a per share basis our estimated coefficient on the TAX variable is −3.64 very similar to the −3.19 reported by Collins et al. (2001).

Dhaliwal and Krull (2006) report an insignificant coefficient on their TAX variable. They argue the TAX variable represents the deferred tax liability associated with both current and prior foreign earnings that have been designated as PRE, and therefore it reflects some combination of the earnings multiples in the PRE and FNI coefficients. Given these multiples reflect expected future profits, TAX is then picking up the earnings multiples arising from expected future profits. If TAX is reflecting the multiple on future earnings (and not just the U.S. tax liability on past foreign earnings), the estimated coefficient on FNI should decline if we exclude TAX from the regression model. We report the results of this regression in Column (2) of Table 3 and, consistent with this prediction, we observe that the estimated coefficient declines from 18.55 to 17.54. We also present returns analysis in the next section to help alleviate concerns with the estimated magnitude of the TAX coefficient in the price-level regression approach.

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The coefficient, $\beta_8$, on the interaction term $(D_{AJCA} \times TAX)$ is 4.29 and is significant at the ($p < 0.10$) level. This result provides evidence consistent with a shift in the extent to which the market capitalized the deferred repatriation tax into current stock prices after passage of the tax holiday became probable. As predicted, the combined coefficient on $(\beta_6 + \beta_8)$, −0.82, is still negative, but is not significantly different from 0. A negative coefficient on $(\beta_6 + \beta_8)$ would be consistent with the fact that firms are still subject to some repatriation tax even if they choose to repatriate all of their PRE during the window provided by the AJCA 2004. Note that the coefficient on the indicator variable, $D_{AJCA}$, is negative and significant. We have no specific prediction for the coefficient on the $D_{AJCA}$ variable and we offer no explanation for why the variable is negatively associated with market value.

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We also estimate Equation (7) including 2005 fiscal-year end observations with the results reported in Column (4) of Table 3. Examining the market’s pricing of the deferred tax on the unrepatriated foreign earnings reported at the end of 2005 allows us to check whether our finding that the market changed its pricing of the deferred repatriation tax when passage of the AJCA 2004 became probable is in-fact a result of the tax holiday and not indicative of an unrelated downward shift in the markets pricing of this deferred tax.

The 2005 fiscal year was the final year firms were able to take advantage of the tax holiday and repatriate, and any PRE reported on a firm’s books at the end of 2005 is not eligible for the tax holiday. Thus, we do not expect the coefficient on the TAX variable for 2005 fiscal-year end observations to be significantly different from observations in 2001 and 2002 prior to the introduction of the holiday. To test this, we include a new dummy variable (D_2005) that is set to 1 for all 2005 fiscal-year observations, and is set to 0 for all other observations. We then interact this dummy variable with the TAX variable (D_2005 × TAX) to test whether there was a change in the extent to which the market capitalized the deferred repatriation tax on unrepatriated foreign earnings for 2005 fiscal-year end observations relative to pre-AJCA. For 2005 fiscal-year observations the TAX variable is calculated based on PRE that was not repatriated during the window provided by the AJCA 2004. As predicted, we find the estimated coefficient on the (D_2005 × TAX) variable is not significantly different than 0, implying no difference in the pricing of the deferred tax pre-AJCA and post-holiday.

Supplemental Price-Level Tests

Our model indicates not all firms might repatriate under the tax holiday: specifically those firms with far more profitable foreign opportunities than domestic opportunities ($r_f >> r_d$). Thus, we conduct four sensitivity analyses examining whether the estimated pricing of TAX during the tax holiday varies as a function of proxies for the probability of repatriation. The first proxy is the spread between estimates of each firm’s domestic and foreign Return on Assets (ROA Spread). The second proxy is the firm’s actual repatriation amount during the tax holiday (Repatriation Percentage). The third proxy for probability of repatriation is based on Blouin and Krull’s (2006) analysis and uses the firm’s aggregate ROA. Our final proxy for the likelihood of repatriation is based on the analysis of Foley et al. (2007) and Bryant-Kutcher et al. (2007) and uses a measure of excess cash holdings.

We extend the model from our main tests to add an interaction term:

$$MVE_i = \beta_0 + \beta_1 DNI_i + \beta_2 FNI_i + \beta_3 CS_i + \beta_4 RE_i + \beta_5 PRE_i + \beta_6 TAX_i + \beta_7 D_{AJCA} + \beta_8 (D_{AJCA} \times TAX_i) + \beta_9 Z_i + \beta_{10} (D_{AJCA} \times TAX_i \times Z_i) + \epsilon_i$$

(11)

where $Z$ denotes each of the four proxies below and all other variables are as previously defined. For each proxy we create a dummy variable equal to 1 (0) for those firms classified as most (least) likely to repatriate as indicated by that proxy. The estimated coefficient on the TAX variable, $\beta_6$, has the same interpretation as in the main tests: The estimated price of a dollar of TAX in the pre-AJCA period. The estimated coefficient on $D_{AJCA} \times TAX$, $\beta_8$, is the difference in the pricing of the TAX variable in the AJCA period for those firms

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31 If investors anticipate that the U.S. Congress will pass subsequent tax holidays related to the repatriation tax, they might not capitalize the full amount of the deferred tax on unrepatriated foreign earnings. If this is the case, then we would expect the coefficient on $(D_{2005} \times TAX)$ to be positive.
classified as less likely to repatriate within the holiday period. If the market expects no repatriation, then there will be no difference in the pricing and thus $\beta_8$ is predicted to be 0. However, if the market attaches some probability of repatriation, then the price will be reduced implying a positive but small $\beta_8$. The estimated coefficient on $D_{-AJCA} \times TAX \times Z$, $\beta_{10}$, is the incremental difference in pricing of the $TAX$ variable in the AJCA period for those firms classified as more likely to repatriate within the holiday window. With a predicted reduction in pricing, $\beta_{10}$ is predicted to be positive.

Given these estimated coefficients, we can compute the actual pricing of $TAX$ in the pre-AJCA period (simply $\beta_6$) and in the AJCA period for those firms less likely to repatriate within the window $\beta_6 + \beta_8$, and those firms classified as more likely to repatriate within the window $\beta_6 + \beta_8 + \beta_{10}$. We present these calculations later in Table 4.

### ROA Spread

To calculate a domestic and foreign ROA requires data on income and assets for each location. However, only 18.7 percent of our sample firms disclose foreign assets. ROA can be decomposed as $ROA = \frac{NI}{TA} = \frac{NI}{Sales} \times \frac{Sales}{TA}$ (ROA = profit margin times asset turnover ratio). Because we have sales and net income partitioned into domestic and foreign, we can calculate a profit margin for each location for each sample firm. If we make the assumption that the asset turnover ratio is approximately the same for domestic and foreign operations, then we can convert the profit margin to an ROA measure for domestic and foreign operations using each firm’s aggregate asset turnover ratio. We report descriptive statistics in Panel A of Table 4. Because our sample firms report PRE indicating reinvestment abroad, we expect the foreign profit margin and ROA (a proxy for $r_f$) to exceed the domestic profit margin and ROA (a proxy for $r_d$). Consistent with this expectation, the mean and median foreign profit margin exceeds the domestic profit margin (and using the firm’s aggregate asset turnover) these relations are maintained in the ROA comparisons. We define a dummy variable $DSPREAD$ set equal to 1 for firm-year observations with a spread between foreign and domestic return on assets in the bottom three quartiles of the sample, and set to 0 for all other observations. Thus, the $DSPREAD = 1$ (0) firms are those firms most (least) likely to repatriate during the holiday. This analysis is only relevant for the AJCA period (because in the pre-period, these firms have already designated some foreign earnings as PRE (indicating $r_d < r_f$), thus we interact $DSPREAD$ with $TAX$ only in the AJCA period. We report the results of estimating Equation (11) in Column (1) of Table 4.

Consistent with our prior results, $TAX$ in the pre-AJCA period is significantly negatively priced, the highest quartile firms ($D_{-AJCA} \times TAX$), those least likely to repatriate, have an estimated coefficient of 1.40 but it is not significantly different than 0, and as predicted the estimated coefficient on ($D_{-AJCA} \times TAX \times DSPREAD$) is positive and significant at the ($p \leq 0.10$) level. This result indicates that investors lowered the price on $TAX$ in the AJCA period for the $DSPREAD = 1$ firms: those most likely to repatriate under the holiday. Consistent with this result, the summary results in Panel C of Table 4 indicate the pricing of the deferred repatriation tax is no longer significant for the $DSPREAD = 1$ firms when passage of the tax holiday became probable, but remains significantly negative for the other sample firms during this period.

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32 For the 54 firm-year observations for which we could collect data on foreign assets, the correlation between the domestic and foreign asset turnover ratio is 0.32 and significant, but is less than unity suggesting there is some measurement error in our calculation. Converting the ROA Spread to a dummy variable helps reduce concern with measurement error.
# TABLE 4
Sensitivity Analysis in Price-Level Regression

## Panel A: Descriptive Statistics

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<tr>
<th>Variable</th>
<th>n</th>
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<th>Median</th>
<th>Std. Dev.</th>
<th>Maximum</th>
<th>Minimum</th>
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<td>31,366</td>
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<tr>
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<td>Asset Turnover</td>
<td>304</td>
<td>0.91</td>
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<tr>
<td>Amount Repatriated</td>
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<td>6,026</td>
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<tr>
<td>Percentage of 2002 PRE</td>
<td>57</td>
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<td>94.00%</td>
<td>36.90%</td>
<td>100.00%</td>
<td>0.00%</td>
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</table>

## Panel B: Regression Results: Estimate of the Effect of Differential Foreign and Domestic Investment Opportunities on the Deferred Taxes Associated with PRE

\[
MVE_i = \beta_0 + \beta_1DNI_i + \beta_2FNI_i + \beta_3CS_i + \beta_4RE_i + \beta_5PRE_i + \beta_6TAX_i + \beta_7D_{AJCA_i} + \beta_8(D_{AJCA_i} \times TAX_i) + \beta_9Z_i + \beta_{10}(D_{AJCA_i} \times TAX_i \times Z_i) + \varepsilon_i
\]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Expected Sign</th>
<th>(1) DSPREAD</th>
<th>(2) DREPAT</th>
<th>(3) DROA</th>
<th>(4) DEC</th>
<th>Z_i = DSPREAD</th>
<th>Z_i = DREPAT</th>
<th>Z_i = DROA</th>
<th>Z_i = DEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>0.28</td>
<td>−0.62</td>
<td>0.86</td>
<td>−0.25</td>
<td>(0.02)</td>
<td>(0.52)</td>
<td>(0.00)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>CS</td>
<td>+</td>
<td>1.63</td>
<td>2.32</td>
<td>1.74</td>
<td>1.75</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>RE</td>
<td>+</td>
<td>2.26</td>
<td>3.03</td>
<td>2.39</td>
<td>2.53</td>
<td>(0.00)</td>
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</tr>
<tr>
<td>PRE</td>
<td>+</td>
<td>2.42</td>
<td>3.04</td>
<td>2.65</td>
<td>2.47</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
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<tr>
<td>DNI</td>
<td>+</td>
<td>12.25</td>
<td>11.30</td>
<td>6.05</td>
<td>9.96</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>FNI</td>
<td>+</td>
<td>16.49</td>
<td>21.61</td>
<td>13.86</td>
<td>20.61</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>TAX</td>
<td>−</td>
<td>−5.00</td>
<td>−5.44</td>
<td>−5.74</td>
<td>−6.41</td>
<td>(0.04)</td>
<td>(0.03)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>D_{AJCA}</td>
<td>?</td>
<td>−0.30</td>
<td>−0.32</td>
<td>−0.28</td>
<td>−0.32</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>(D_{AJCA} \times TAX)</td>
<td>?</td>
<td>1.40</td>
<td>1.34</td>
<td>0.39</td>
<td>−2.78</td>
<td>(0.33)</td>
<td>(0.37)</td>
<td>(0.45)</td>
<td>(0.37)</td>
</tr>
<tr>
<td>Z</td>
<td>?</td>
<td>−0.32</td>
<td>0.31</td>
<td>−0.86</td>
<td>0.24</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.00)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>(D_{AJCA} \times TAX \times Z)</td>
<td>+</td>
<td>4.32</td>
<td>3.98</td>
<td>5.91</td>
<td>8.09</td>
<td>(0.10)</td>
<td>(0.14)</td>
<td>(0.02)</td>
<td>(0.14)</td>
</tr>
</tbody>
</table>

n 304 208 312 312

Adjusted R\(^2\) 70.27% 73.51% 72.32% 71.52%

(continued on next page)
<table>
<thead>
<tr>
<th></th>
<th>Pre-Tax Holiday Group $\beta_6$</th>
<th>Group Least Likely to Repatriate $\beta_6 + \beta_8$</th>
<th>Group Most Likely to Repatriate $\beta_6 + \beta_8 + \beta_{10}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSPREAD</td>
<td>-5.00 (0.04)</td>
<td>-3.60 (0.04)</td>
<td>0.72 (0.31)</td>
</tr>
<tr>
<td>DREPAT</td>
<td>-5.44 (0.03)</td>
<td>-4.10 (0.06)</td>
<td>-0.12 (0.61)</td>
</tr>
<tr>
<td>DROA</td>
<td>-5.74 (0.01)</td>
<td>-5.35 (0.03)</td>
<td>0.56 (0.42)</td>
</tr>
<tr>
<td>DEC</td>
<td>-6.41 (0.01)</td>
<td>-9.19 (0.01)</td>
<td>-1.10 (0.30)</td>
</tr>
</tbody>
</table>

For Panel B, values in parenthesis represent p-values for White adjusted t-statistics. For Panel C, columns (2) and (3), values in parenthesis represent p-values for F-statistic testing whether the combined coefficients are significantly greater than zero. The values in parenthesis for Panel C, Column (1) are p-values for White adjusted t-statistics. Reported p-values reflect two-tailed tests for the intercept and one-tailed tests for the estimated coefficients. All continuous variables are scaled by total assets at year-end.

- **Foreign Sales** = total international sales from the Compustat Segment database;
- **Domestic Sales** = total sales (data 12) less foreign sales;
- **Foreign PM** = foreign net income (data 273 – data 64) divided by foreign sales;
- **Domestic PM** = domestic net income (data 237 – FNI) divided by domestic sales;
- **Foreign ROA** = foreign PM multiplied by asset turnover;
- **Domestic ROA** = domestic PM multiplied by asset turnover;
- **Asset Turnover** = total sales divided by lagged total assets;
- **Amount Repatriated** = under AJCA 2004 as reported by firms;
- **Percentage of 2002 PRE** = calculated as the total amount repatriated as reported on the firm’s 2005 10-K divided by the total amount of PRE reported on the firm’s 2002 10-K;
- **MVE** = the market value of common equity three months after fiscal year-end;
- **DNI** = after-tax financial statement domestic income;
- **FNI** = after-tax financial statement foreign income;
- **CS** = total common equity less total retained earnings at the end of the fiscal year;
- **RE** = total retained earnings less PRE at the end of the fiscal year;
- **TAX** = the unrecognized deferred tax liability associated with PRE at the end of the fiscal year;
- **DSPREAD** = a dummy variable set equal to 1 for firm-year observations with a spread between foreign and domestic return on assets in the bottom three quartiles of the sample, and set to 0 for all other observations;
- **DREPAT** = a dummy variable set equal to 1 for firms in the top three quartiles of the total amount of PRE repatriated as reported on the firm’s 2005 financial statements divided by the total PRE reported on the firm’s 2002 financial statements, all other observations are set to 0;
- **DROA** = a dummy variable set equal to 1 for firm-year observations with ROA in the bottom three quartiles of the sample, and set to 0 for all other observations; and
- **DEC** = a dummy variable set equal to 1 for firms in the top three quartiles of excess cash, all other observations are set to 0.

All regressions use data from years 2001–2004. The reduced sample size for the DREPAT regressions reflects loss of firm-year observations where we were unable to collect the actual amount of PRE repatriated under AJCA 2004 from their 2005 10-K. For DSPREAD we lose 12 firm-year observations as a result of merging with the segment database to get the foreign sales number.

**Repatriation Percentage**

Our second sensitivity analysis uses the actual repatriation during the AJCA period as a proxy for *ex ante* market expectations. If we assume market participants had rational
expectations, or perfect foresight, then we can use the actual firm repatriations to test for differences in pricing on the TAX variable during the AJCA period. We are able to collect this data item for 57 of our sample firms (for the remaining firms it is hard to get the exact number from their footnotes). Panel A of Table 4 reports that the mean (median) firm in our sample repatriated 69.89 percent (94 percent) of the PRE it reported on its 2002 financial statements. We define a dummy variable DREPAT set equal to 1 for firms in the top three quartiles of the total amount of PRE repatriated as reported on the firm’s 2005 financial statements scaled by the total PRE reported on the firm’s 2002 financial statements (the amount eligible for the reduced tax rates in AJCA), all other observations are set to 0. We report the results in Column (2) of Table 4. TAX in the pre-AJCA period is significantly negatively priced, the highest quartile firms (D_AJCA × TAX) have an estimated coefficient of 1.34, but the coefficient is not significantly different from zero. As predicted, the estimated coefficient on (D_AJCA × TAX × DREPAT) is positive (3.98), but it is not significant at conventional levels with a p-value of 0.14. The summary results in Panel C of Table 4 indicate that the pricing of the deferred repatriation tax is still significant for the firms in the lowest quartile of total repatriation during the tax holiday, but consistent with expectations, the coefficient on TAX is no longer significant for the firms that repatriated the most during the tax holiday after passage of the tax holiday became probable.

**Overall ROA**

In their examination of how the AJCA 2004 influenced corporate investment behavior, Blouin and Krull (2006) hypothesize that firms will only have an incentive to repatriate under the AJCA if investment opportunities both in the U.S. and abroad are low. We use total return on assets (ROA) as a proxy for a firm’s foreign and domestic investment opportunities, and define a dummy variable, DROA, which is set to 1 for firm-year observations with ROA in the bottom three quartiles of the sample distribution, those most likely to repatriate, and set to 0 for all other firm-year observations. We report the results in Column (3) of Table 4. TAX in the pre-AJCA period is significantly negatively priced, the highest quartile firms (D_AJCA × TAX, those least likely to repatriate) have an estimated coefficient of 0.39, which is not significantly different than 0, and the DROA firms exhibit a positive coefficient on TAX post-AJCA (those most likely to repatriate under the AJCA) of 5.91, which is significantly greater than zero.33 The summary results in Panel C of Table 4 indicate the deferred repatriation tax is still significantly priced by the market for the DROA = 0 firms after passage of the tax holiday became likely, but is no longer significant for the DROA = 1 firms, consistent with investors anticipating that those firms, with low overall investment opportunities, would take advantage of the holiday and repatriate.

**Excess Cash**

Foley et al. (2007) provide evidence consistent with the tax costs associated with repatriation being an important determinant for why U.S. MNCs hold significant amounts of

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33 Prior to the tax holiday, in our model based on Hartman (1985) and Scholes et al. (2005), the investment horizon should not impact the decision to repatriate, and investment horizon (as proxied by ROA) should not affect the coefficient on the TAX variable in our price-level regression. This result should hold as long as we are assuming firms will one day eventually repatriate and that the repatriation tax will remain constant through time. Thus, to check whether TAX is priced less negatively (closer to zero) before AJCA for high ROA firms, we estimate our price-level model for 2001 and 2002 interacting DROA with our tax variable. The estimated coefficient on the interaction term TAX * DROA is not significant and, thus, TAX is not differentially priced as a function of DROA in the pre-AJCA period.
cash in their foreign subsidiaries. Bryant-Kutcher et al. (2007) argue that firms are willing to invest in negative NPV financial assets abroad in order to permanently defer U.S. repatriation taxes. We further extend this analysis by using excess cash as an additional proxy for the likelihood of repatriation. Mature firms with limited investment opportunities abroad should be the firms most likely to take advantage of the tax holiday and repatriate. This prediction is consistent with our analysis and that of De Waegenaere and Sansing (2006) of the decision to repatriate or reinvest during the tax holiday. Following Bryant-Kutcher et al. (2007), we use a firm-wide model of excess cash to identify firms investing in financial assets abroad because they have limited investment opportunities overseas. Specifically, we categorize firms as having high amounts of excess cash based on the residual from our excess cash model (discussed in Appendix B). A firm is considered to have high excess cash if it is in the top three quartiles of excess cash residuals for our sample firms.34

We report the results in Column (4) of Table 4. TAX in the pre-AJCA period is significantly negatively priced, the lowest excess cash quartile firms (D_AJCA × TAX, those least likely to repatriate) have an estimated coefficient of −2.78, which is not significantly different than zero, and the highest excess cash firms exhibit a positive, but insignificant, coefficient on TAX post-AJCA (those most likely to repatriate under the AJCA) of 8.09. Consistent with investors anticipating that firms with high amounts of excess cash would repatriate during the tax holiday, the results in Panel C of Table 4 indicate that for the high excess cash firms the deferred repatriation tax is no longer significantly priced after passage of the tax holiday became likely, however it remains significant for the group of firms with low amounts of excess cash.

Stock Return Tests

Our second set of tests use a returns model to examine the markets’ assessment of the effect of the AJCA 2004 on U.S. MNCs. The purpose of this analysis is to complement the price-level tests using an approach less subject to econometric concerns (heteroscedasticity, scale, and correlated omitted variable problems in the price-level approach [Christie 1987; Landsman and Magliolo 1988; Easton 1998; Barth and Kallapur 1996; Kothari and Zimmerman 1995]). We develop our returns model in Appendix A starting with the price-level model in Equation (7). The returns model is:

$$ R_{it} = \alpha_0 + \alpha_1 DNI_{it} + \alpha_2 DNI_{it-1} + \alpha_3 FNI_{it} + \alpha_4 FNI_{it-1} + \alpha_5 PRE_{it} $$

$$ + \alpha_6 \Delta TAX_{it} + \alpha_7 SAVINGS_{it} + \varepsilon_{it} $$

(12)

where all variable (except returns) are scaled by the market value of equity at the start of the cumulation period:

34 The results of the model estimating excess cash are presented in Appendix B. Our model is consistent with the excess cash models used by Foley et al. (2007) and Bryant-Kutcher et al. (2007). We estimate this model on the universe of Compustat firms from 2001 through 2004 with the necessary available data. Our results are generally consistent with those reported in Bryant-Kutcher et al. (2007) with the exception that we do not find a positive and significant coefficient for the natural log of net assets, LN(Assets).
$R^*_t =$ is the cumulative market model abnormal return for year $t$, measured over the 12-month period ending three months after the firm’s fiscal year-end; the market model parameters are estimated from a time-series firm-specific regression of stock return on the CRSP value-weighted market return; the estimation period for this regression covers 60 months prior to year $t$; if a firm has fewer then 36 monthly returns, then we set beta = 1 and alpha = 0;

$DNI^*_t =$ after-tax financial statement domestic income for year $t$, calculated as total after-tax net income (data 237) minus foreign net income ($FNI$);

$FNI^*_t =$ after-tax financial statement foreign income for year $t$, computed as foreign pretax income (data 273) minus foreign income taxes (data 64);

$DNI^*_{t-1} =$ after-tax financial statement domestic income for year $t-1$;

$FNI^*_{t-1} =$ after-tax financial statement foreign income for year $t-1$;

$\Delta PRE^*_t =$ change in permanently reinvested earnings (PRE) from the previous year;

$\Delta TAX^*_t =$ $\Delta PRE^*_t / (1 - t_f) \times (35\% - t_f)$; and

$SAVINGS^*_t = .85 \times \text{Pretax Dividend} (0.35 - t_f)$ where $\text{Pretax Dividend} = \text{PRE}_{t-1} / (1 - t_f)$ for 2003 firm-year observations, and 0 for all other firm-year observations.

We include current and lagged domestic and foreign earnings in the returns regression model because this specification does not constrain the coefficient on the lagged income measure to be 1, thus allowing for a more general earnings specification (such as an autoregressive or mean reverting model of annual earnings). $\Delta TAX$ is the estimated revision (change) each year in repatriation taxes due to a change in the amount of foreign source earnings designated as permanently reinvested. To examine the impact that the likely passage of the tax holiday had on stock returns, we calculate the potential tax savings that would accrue to our set of sample firms were they to repatriate all of their PRE during the proposed tax holiday. The $SAVINGS$ variable is calculated based on the PRE reported by our sample firms on their financial statements at the end of the 2002 fiscal year because, as discussed above, the eligible PRE for repatriation under the tax holiday is limited to the amount of PRE reported as of the last audited financial statements on or before June 30, 2003. $SAVINGS$ represents the estimated expected reduction in tax resulting from the passage of the AJCA 2004 on any earnings repatriated during the window provided by the tax holiday. If investors anticipate that our sample of firms will repatriate all of their PRE during the tax holiday, then the $SAVINGS$ variable would represent a revision in an expected future expense. This approach assumes that prior to 2003 investors did not anticipate a change in the rate at which unrepatriated foreign earnings were taxed. Additionally, we assume that investors assumed that the entire PRE qualified for the tax holiday (and not just the extraordinary amount defined as the excess of a prior three-year average dividend repatriation. By estimating $SAVINGS$ on the entire PRE we are implicitly assuming zero prior repatriations during the base period). These are simplifying assumptions that likely overstate the actual benefit derived by each firm from the AJCA 2004. As illustrated by the inequality in Equation (6) the true savings associated with the AJCA 2004 is going to be a function of the firm’s investment horizon, foreign and domestic rates of return, and the amount of PRE eligible for the holiday.

We report descriptive statistics on the variables in Panel A of Table 5. The key variable of interest is (the unexpected) $SAVINGS$ with a mean (median) estimate of $308 \ ($99$) million. The median $SAVINGS$ is approximately 15 percent of concurrent net income. Twenty of the 67 firm-year observations have $SAVINGS$ set to 0 because their estimated
TABLE 5
Returns Regression Results
(n = 204, Years 2002–2004)

Panel A: Returns Regressions Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables in $ Millions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNI$_{it}$</td>
<td>204</td>
<td>1,012</td>
<td>379</td>
<td>1,710</td>
<td>9,294</td>
<td>−2,179</td>
</tr>
<tr>
<td>DNI$_{it-1}$</td>
<td>204</td>
<td>887</td>
<td>270</td>
<td>1,697</td>
<td>9,553</td>
<td>−1,028</td>
</tr>
<tr>
<td>FNI$_{it}$</td>
<td>204</td>
<td>997</td>
<td>436</td>
<td>1,438</td>
<td>8,365</td>
<td>−506</td>
</tr>
<tr>
<td>FNI$_{it-1}$</td>
<td>204</td>
<td>793</td>
<td>335</td>
<td>1,205</td>
<td>7,396</td>
<td>−187</td>
</tr>
<tr>
<td>ΔPRE$_{it}$</td>
<td>204</td>
<td>644</td>
<td>300</td>
<td>1,912</td>
<td>13,600</td>
<td>−8,800</td>
</tr>
<tr>
<td>ΔTAX$_{it}$</td>
<td>204</td>
<td>60</td>
<td>0</td>
<td>291</td>
<td>13,600</td>
<td>−8,800</td>
</tr>
<tr>
<td>SAVINGS$_{it}$</td>
<td>67</td>
<td>308</td>
<td>99</td>
<td>656</td>
<td>4,240</td>
<td>0</td>
</tr>
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</table>

Regression Variables (scaled by lagged MVE)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Maximum</th>
<th>Minimum</th>
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<tr>
<td>Rit</td>
<td>204</td>
<td>0.015</td>
<td>0.005</td>
<td>0.227</td>
<td>0.731</td>
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</tr>
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<td>0.020</td>
<td>0.021</td>
<td>0.030</td>
<td>0.178</td>
<td>−0.096</td>
</tr>
<tr>
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<td>204</td>
<td>0.017</td>
<td>0.018</td>
<td>0.026</td>
<td>0.114</td>
<td>−0.096</td>
</tr>
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<td>FNI$_{it}$</td>
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<td>0.022</td>
<td>0.024</td>
<td>0.147</td>
<td>−0.121</td>
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<tr>
<td>FNI$_{it-1}$</td>
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<td>0.017</td>
<td>0.019</td>
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<td>204</td>
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<td>0.017</td>
<td>0.046</td>
<td>0.202</td>
<td>−0.368</td>
</tr>
<tr>
<td>ΔTAX$_{it}$</td>
<td>204</td>
<td>0.001</td>
<td>0.000</td>
<td>0.006</td>
<td>0.014</td>
<td>−0.072</td>
</tr>
<tr>
<td>SAVINGS$_{it}$</td>
<td>67</td>
<td>0.013</td>
<td>0.008</td>
<td>0.022</td>
<td>0.146</td>
<td>0.000</td>
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Panel B: Pearson and Spearman Correlation Coefficients

<table>
<thead>
<tr>
<th>R$_{it}$</th>
<th>DNI$_{it}$</th>
<th>FNI$_{it}$</th>
<th>ΔTAX$_{it}$</th>
<th>SAVINGS$_{it}$</th>
<th>ΔPRE$_{it}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.06</td>
<td>0.32</td>
<td>0.01</td>
<td>0.14</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>0.13</td>
<td>−0.23</td>
<td>0.20</td>
<td>−0.11</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>0.21</td>
<td>−0.09</td>
<td>0.08</td>
<td>0.12</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>−0.03</td>
<td>−0.14</td>
<td>0.31</td>
<td>0.15</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>−0.04</td>
<td>−0.01</td>
<td>0.14</td>
<td>0.28</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>0.12</td>
<td>−0.06</td>
<td>0.39</td>
<td>0.61</td>
<td>0.12</td>
<td></td>
</tr>
</tbody>
</table>

Panel C: Returns Regression Results

$$R_{it} = \alpha_0 + \alpha_1 DNI_{it} + \alpha_2 DNI_{it-1} + \alpha_3 FNI_{it} + \alpha_4 FNI_{it-1} + \alpha_5 \Delta PRE_{it} + \alpha_6 \Delta TAX_{it} + \alpha_7 SAVINGS_{it} + \varepsilon_{it}$$

<table>
<thead>
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<th>Variable</th>
<th>Expected Sign</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>−0.06</td>
<td>−0.07</td>
</tr>
<tr>
<td>DNI$_{it}$</td>
<td>+</td>
<td>1.75</td>
<td>1.80</td>
</tr>
<tr>
<td>DNI$_{it-1}$</td>
<td>−</td>
<td>−1.25</td>
<td>−1.13</td>
</tr>
<tr>
<td>FNI$_{it}$</td>
<td>+</td>
<td>4.69</td>
<td>4.38</td>
</tr>
</tbody>
</table>

(continued on next page)
TABLE 5 (continued)

<table>
<thead>
<tr>
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<th>Expected Sign</th>
<th>(1)</th>
<th></th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( FNI_{it-1} )</td>
<td>–</td>
<td>–2.24</td>
<td></td>
<td>–1.91</td>
</tr>
<tr>
<td>( \Delta PRE_{it} )</td>
<td>+</td>
<td>0.31</td>
<td></td>
<td>0.46</td>
</tr>
<tr>
<td>( \Delta TAX_{it} )</td>
<td>–</td>
<td>–3.19</td>
<td></td>
<td>–4.71</td>
</tr>
<tr>
<td>( SAVINGS_{it} )</td>
<td>+</td>
<td>2.38</td>
<td></td>
<td>(0.02)</td>
</tr>
</tbody>
</table>

\( n \) | 204 | 204 |
\( \text{Adjusted } R^2 \) | 16.86% | 18.75% |

\(^a\) Boldface correlation coefficients indicate two-tailed significance at the .05 level.
\(^b\) Columns (1) and (2) are estimated on 2002 through 2004 fiscal year observations.

All variables accept returns are scaled by market value of equity as at start of return cumulation period.
Values in parenthesis represent p-values for White adjusted t-statistics.
Reported p-values reflect two-tailed tests for the intercept and one-tailed tests for the estimated coefficients.

\( R_{it} \) = the cumulative market model abnormal return for year \( t \), measured over the 12-month period ending three months after the firm’s fiscal year-end; the market model parameters are estimated form a time-series firm-specific regression of stock return on the CRSP value-weighted market return; the estimation period for this regression covers 60 months prior to year \( t \); if a firm has less than 36 monthly returns, then we set beta = 1 and alpha = 0;

\( DNI_{it} \) = after-tax domestic net income;
\( DNI_{it-1} \) = after-tax domestic net income from the previous year;
\( FNI_{it} \) = after-tax foreign net income;
\( FNI_{it-1} \) = after-tax foreign net income from the previous year;
\( \Delta PRE_{it} \) = change in permanently reinvested earnings from the previous year;
\( \Delta TAX_{it} \) = \( \Delta PRE_{it}/(1 - t_f) \times (35\% - t_f) \);
\( SAVINGS_{it} \) = is set equal to .85 * Pretax Dividend \((.35 - t_f)\) where Pretax Dividend = \( PRE_{it-1}/(1 - t_f) \) for 2003 firm-year observations, and set equal to 0 for all other firm-year observations; and
\( PRE \) = permanently reinvested earnings reported in the financial statement footnotes.

tax rate is greater than the U.S. tax rate (so no incremental U.S. tax is due). When these firms are omitted, the results are unchanged. The correlation matrix in Panel B shows some significant positive correlations, with the highest being between \( \Delta TAX \) and \( \Delta PRE \), which is expected given \( \Delta TAX \) is a function of \( \Delta PRE \).

We present the results of estimating Equation (12) in Panel C of Table 5. The results of a regression of returns on current and lagged earnings without the \( SAVINGS \) variable are reported in Column (1). The results indicate that both current and lagged domestic and foreign earnings are significantly associated with returns. In the special case where both domestic and foreign earnings follow a random walk we would expect that \( (\alpha_1 = -\alpha_2) \) and \( (\alpha_3 = -\alpha_4) \). There is no significant difference between the coefficients on current and lagged domestic earnings, however the coefficient on current period foreign earnings, \( \alpha_3 \), is significantly different from the coefficient on lagged foreign earnings, \( -\alpha_4 \), for the regressions in both Column (1) and Column (2). Inferences are unchanged if we omit firm-year observations with current year negative domestic or foreign earnings. The estimated coefficient on \( \Delta TAX \) is negative but not significant at conventional levels.

When we add \( SAVINGS \) to the model in Column (2), the coefficient on \( \Delta TAX \) remains negative and is significant at the .08 level. The estimated coefficient on \( SAVINGS \), our main
test variable, is 2.38 and is significant at the .02 level. We expect a coefficient of approximately 1 on SAVINGS (absent measurement error) because we think investors would view the tax holiday as a one-time windfall. The estimated coefficient on SAVINGS at 2.38, while greater than 1, is not significantly greater than 1, consistent with our expectations. This result suggests that investors anticipated that the U.S. MNCs in our sample would repatriate the majority of their PRE during the tax holiday and that investors incorporated this information into their expectations during the 2003 fiscal year. We also estimate similar regressions using 2002 and 2004 firm-year observations and, as expected, the SAVINGS variable is not significant in either of these years: The coefficient on the SAVINGS variable in 2004 is \(-0.20\) (\(p > 0.10\)) and the coefficient on SAVINGS in 2002 is 1.46 (\(p > 0.10\)). This finding is consistent with the market incorporating the tax benefit associated with the repatriation tax holiday during 2003.

When we estimate the model using the change in domestic and foreign earnings the estimated coefficient on the domestic earnings variable is 1.32, the coefficient on the foreign earnings variable is 3.57, and the coefficient on SAVINGS is 2.20 (all three significantly greater than 0).

Finally, consistent with the sensitivity analyses in the price-level regressions, we interact DSPREAD, DREPAT, DROA, and DEC (variables proxying for the probability of firms repatriating during the tax holiday) with SAVINGS. The untabulated results indicate that while the estimated coefficients on the interaction terms are of the correct positive sign, none are significant.

**CONCLUSION**

This study provides evidence consistent with investors recognizing the incentive provided by the 85 percent deduction for cash dividends from permanently reinvested foreign earnings under the AJCA 2004. The results imply that when passage of the dividend deduction became probable, investors anticipated that the U.S. MNCs in our sample with significant amounts of permanently reinvested foreign earnings would repatriate those earnings during the window provided by the AJCA 2004. This is particularly interesting in light of the fact that during the period examined in our tests none of our sample firms had indicated the extent of the permanently reinvested earnings they intended to repatriate during the tax holiday.

The results also support the finding of Collins et al. (2001) that firms are unable to convince investors that tax savings associated with earnings in low-tax countries will be permanent. Specifically, we find that prior to the time passage of the dividend deduction became probable, investors capitalized the unrecognized deferred tax liability associated with PRE into current stock prices. The negative coefficient on TAX for this period of time is consistent with investors anticipating the eventual remittance and taxation of those earnings designated as permanently reinvested. In addition, we find evidence consistent with investors reverting to pricing a greater degree of the deferred repatriation tax on unrepatriated foreign earnings that firms chose not to repatriate during the tax holiday. This finding is inconsistent with investors anticipating a new tax holiday will be provided by Congress in the near future.

The intent of the AJCA 2004 was to stimulate investment and job growth in the U.S. by triggering the repatriation of large sums of cash by U.S. MNCs. Whether the Act is having its intended effect is still too early to tell. As additional data becomes available researchers will be able to explore how firms’ used the funds that were repatriated during the tax holiday and whether those uses were consistent with legislative intent. Researchers
will also be able to examine which firms chose not to repatriate during the tax holiday and why. Future research could also investigate whether earnings trapped abroad as a result of impending repatriation taxes led to agency problems for U.S. MNCs and how the repatriation of earnings during the tax holiday might have affected those agency issues.

APPENDIX A

THE RELATION BETWEEN THE PRICE-LEVEL AND RETURNS MODEL

Our price level model in the text:

\[
MVE_i = \beta_0 + \beta_1 DNI_i + \beta_2 FNI_i + \beta_3 CS_i + \beta_4 RE_i + \beta_5 PRE_i + \beta_6 TAX_i \\
+ \beta_7 D_{AJCA_i} + \beta_8 (D_{AJCA_i} \times TAX_i) + \varepsilon_i. \tag{7}
\]

Ignoring the AJCA, Equation (7) simplifies to:

\[
MVE_i = \beta_0 + \beta_1 DNI_i + \beta_2 FNI_i + \beta_3 CS_i + \beta_4 RE_i + \beta_5 PRE_i + \beta_6 TAX_i + \varepsilon_i. \tag{A1}
\]

Taking first differences gives:

\[
\Delta MVE_{it} = \beta_1 \Delta DNI_{it} + \beta_2 \Delta FNI_{it} + \beta_3 \Delta CS_{it} + \beta_4 \Delta RE_{it} + \beta_5 \Delta PRE_{it} \\
+ \beta_6 \Delta TAX_{it} + \varepsilon_{it}. \tag{A2}
\]

where \( \beta_0 \) drops out if assumed constant through time.

Deflating all variables by lagged \( MVE \), results in the LHS: \( R_{it} = \Delta MVE_{it}/MVE_{it-1} \). With no new capital contributions, \( \Delta CS_{it} = 0 \). With no dividends, \( \Delta RE_{it} = \) the current period earnings, which can be written as the sum of \( DNI \) and \( FNI \). \( \Delta PRE_{it} = FNI \) if all foreign earnings for the current period are designated as permanently reinvested.

Recall \( TAX \) is the estimated incremental tax on repatriation of foreign earnings designated as permanently reinvested:

\[
TAX_{it} = PRE_t/(1 - t_f) * (35\% - t_f). \tag{A3}
\]

With no tax holiday, and no change in \( t_d \) ( = 35\% in Equation (A3)):

\[
\Delta TAX_{it} = \Delta PRE_{it}/(1 - t_f) * (35\% - t_f). \tag{A4}
\]

Substituting these relations gives:

\[
R_{it} = \beta_0 + \beta_1 \Delta DNI_{it} + \beta_2 \Delta FNI_{it} + \beta_4 DNI_{it} + B_4 FNI_{it} + \beta_5 \Delta PRE_{it} \\
+ \beta_6 \Delta TAX_{it} + \varepsilon_{it}. \tag{A5}
\]

Note that this specification is econometrically equivalent (in the sense that the R²’s are the same, and the coefficients can be rearranged to get from one equation to the other) as:

\[
R_{it} = \beta_0 + \beta_1 DNI_{it} + \beta_2 DNI_{it-1} + \beta_3 FNI_{it} + \beta_4 FNI_{it-1} + \beta_5 \Delta PRE_{it} \\
+ \beta_6 \Delta TAX_{it} + \varepsilon_{it}. \tag{A5’}
\]
We define \( SAVINGS = 0.85 \frac{\text{PRE}_{it-1}/(1 - t_f)}{\text{TAXES}_{it}} \times (35\% - t_f) \), which is the expected tax savings as a result of the AJCA. This variable reflects the markets revision in TAXES on \( \text{PRE}_{it-1} \) and because even though AJCA passed in 2004, the market learned of the AJCA in the middle of 2003 and thus \( SAVINGS \) will be reflected in returns in 2003.

During 2003, the total change in TAX is the sum of two components: \( \Delta \text{PRE}_{it}/(1 - t_f) * (35\% - t_f) + SAVINGS \). The first term is the usual \( \Delta \text{TAX} \).

This analysis leads us to the following regression model:

\[
R_{it} = \alpha_0 + \alpha_1 \text{DNI}_{it} + \alpha_2 \text{DNI}_{it-1} + \alpha_3 \text{FNI}_{it} + \alpha_4 \text{FNI}_{it-1} + \alpha_5 \Delta \text{PRE}_{it} \\
+ \alpha_6 \Delta \text{TAX}_{it} + \alpha_7 \text{SAVINGS}_{it} + \epsilon_{it} \quad (11)
\]

where \( SAVINGS \) is 0 in each year except 2003.

\section*{APPENDIX B
ESTIMATION OF THE CASH MODEL}

\[
\ln(\text{Cash}) = \beta_1 \text{DPI} + \beta_2 \text{FPI} + \beta_3 \ln(\text{Assets}) + \beta_4 \text{DividendPymt} + \beta_5 \text{BVE/MVE} \\
+ \beta_6 \text{OpInc} + \beta_7 \text{RD} + \beta_8 \text{CapEx} + \beta_9 \text{MktLeverage} \\
+ \beta_{10} \text{YearEffects} + \epsilon
\]

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<thead>
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<th>Expected Value</th>
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<tr>
<td>PDNI</td>
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<tr>
<td>PFNI</td>
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</tr>
<tr>
<td>Ln(Assets)</td>
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</tr>
<tr>
<td>DividendPymt</td>
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</tr>
<tr>
<td>BVE/MVE</td>
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<tr>
<td>OpInc</td>
<td>+</td>
<td>0.00</td>
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<tr>
<td>RD</td>
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<tr>
<td>CapEx</td>
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</tr>
<tr>
<td>Adjusted R²</td>
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<td>77.38%</td>
</tr>
</tbody>
</table>

All variables except \( \ln(\text{Assets}) \), \( \text{DividendPymt} \), \( \text{OpInc} \), and \( \text{MktLeverage} \) are scaled by net assets (data6 - data1).

- \( \text{PDNI} \) = pre-tax domestic net income (data 272);
- \( \text{PFNI} \) = pre-tax foreign net income (data 273);
- \( \ln(\text{Assets}) \) = the natural log of total assets (data 6);
- \( \text{DividendPymt} \) = a dummy variable set equal to 1 if the company paid a dividend in a given year (data 127 > 0);
BVE/MVE = the ratio of the book value of equity (data 60) to the market value of equity (data 199 × data25);

OpIncσ = the industry standard deviation of operating income to net assets and is estimated on the Compustat universe from 1986–2005;

RD = the ratio of research and development expenditures (data46) to net assets;

CapEx = the ratio of capital expenditures to net assets;

MktLeverage = the ratio of long- (data9) and short-term debt (data34) to the sum of long- and short-term debt and the market value of equity (data199 × data25).

REFERENCES


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