

The sources of declining effective tax rates for multinational and domestic firms: Insight from effective tax rate reconciliations

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ABSTRACT: Using a large, hand-collected data set of firms' effective tax rate (ETR) reconciliation disclosures, we identify the specific items that drive changes in firms' GAAP ETRs over time. Our data provides insight into the frequency, tax rate benefit, and dollar benefit of specific tax rate reconciliation items as well as the types of firms affected by various provisions of the tax law (e.g., research tax credit, manufacturing deduction, foreign ETR benefits, etc.). We find that the decline in U.S. multinational (MNE) firms' ETRs over our sample period arises from a combination of higher levels of income outside the U.S. and declining tax rates overseas, as well as a decline in effective state income tax rates as firms recognize higher levels of income outside the jurisdiction of state taxing authorities. Our analysis suggests that the observed decline in domestic firms' ETRs arises from valuation allowance releases, which do not reflect declining tax burdens, but rather arise because of the exclusion of loss years from the analysis. We also identify industry, growth, and size differences in ETR component trends over time. Our results provide more granular insight into how ETRs have changed over time, as well as provide insight as to the heterogeneous impact of various income tax rules.

Keywords: effective tax rates, book-tax differences, multinational firms

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I. INTRODUCTION

Prior research has sought to understand cross-sectional differences (e.g., Gupta and Newberry 1997; Dyreng, Hanlon, and Maydew 2008) and time-series trends (e.g., Dyreng, Hanlon, Maydew, and Thornock 2017; Edwards, Kubata, and Shevlin 2017; Gaertner, Laplante, and Lynch 2016) in firms' effective tax rates (ETRs). However, as Graham, Hanlon, Shevlin, and Shroff (2013) highlight, "The exact methods managers use to reduce the GAAP ETRs are not completely known" (p. 1011).¹ We provide insight into this "black box" by identifying the elements that comprise firms' GAAP ETRs, measuring how those items vary between firms and over time.

Public firms are required to provide a detailed reconciliation between the statutory income tax rate and the firm's GAAP ETR. This reconciliation lists the specific tax benefits (i.e., tax-decreasing reconciling items, such as foreign tax rate differentials) and tax costs (i.e., tax-increasing reconciling items, such as state tax effects) that cause a firm's ETR to differ from the federal statutory rate. We utilize a large hand-collected dataset of ETR reconciliation items, which has a greater level of detail than employed in the majority of prior research, to identify the source of changes in ETRs over time. Similar to other studies (e.g., Dyreng et al. 2017; Brock, Clemons, and Nowak 2017; Chyz, Luna, and Smith 2016; Edwards et al. 2017), we separately consider U.S. multinational firms (MNEs) and U.S. domestic firms as MNEs have tax planning

¹ Throughout the study, we refer to a firm's GAAP ETR as ETR and distinguish it from a firm's cash ETR. See additional discussion below.

opportunities not available to domestic only firms.² Additionally, we separately examine the details of the rate reconciliation across industry groupings, high- and low-growth firms, and large and small firms to better understand the types of firms benefiting from certain provisions of the tax law. Understanding the distribution of the corporate tax burden among different types of firms and how the distribution changes over time for these different types of firms informs the current debate regarding potential U.S. corporate tax reform.

We gather our dataset of tax rate reconciliations from the income tax footnotes in firms' 10-K filings between 1996 and 2015, the period in which SEC disclosures are widely available for our Perl script data extraction. Our final sample of validated observations consists of 23,479 firm-years reporting between zero and twelve unique reconciling items (mean and median of four items). We classify the rate reconciliation items into 23 distinct categories, which we use to examine differences between firms and across time. To examine the most common differences between the statutory rate and firms' ETRs, we consider the frequency of the reconciling item (i.e., the percentage of non-zero observations per year in our sample) and the average ETR effects of each reconciling item. Finally, we also examine the total dollar effect of each reconciling item on our sample.

After providing a descriptive analysis of differences in ETR reconciling items, we focus on using our data set to provide details of time trends in specific reconciling items. Our motivation for this analysis comes from Dyreng et al. (2017), who document a decline in cash ETRs over the last 25 years. One key finding from their study is that the decline in cash ETRs is pervasive across both domestic and MNE firms. They conclude that while tax rates in foreign jurisdictions have declined over their sample period, neither the change in foreign tax rates nor

² For example, see Dharmapala (2014) for a summary of the income shifting literature.

changes in firm characteristics fully explain the declines in cash ETRs. Several studies seek to examine the results of Dyreng et al. (2017) in greater detail. For example, Gaertner et al. (2016) use macro-level tax return data and find increases in reported book-tax differences from firms' tax schedule M-3. Edwards et al. (2017) model a linear tax function and suggest that the Dyreng et al. (2017) trends may be a function of growth in pretax income rather than increased tax avoidance efforts. Lastly, Chyz et al. (2016) find that the decreasing trend in MNE cash ETRs is only partially offset by increases in implicit taxes. Our detailed data allows us to build upon this literature and provide further evidence about the time trends in ETRs.

Consistent with Dyreng et al. (2017), we observe a long-run decline in both domestic and MNEs' cash ETRs. On average, the ETRs of our sample firms have decreased by 0.33 percentage points per year over the past 20 years. The trend is economically large, representing a cumulative decline of between 5.8 and 7.2 percentage points, which is equivalent to \$19.78 million less tax expense (\$107 million less for MNE firms) in 2015 compared to what would have been reported had the ETR remained the same since 1996. While we observe a declining ETR trend across all firms, we note a greater declining time trend for MNE firms than domestic firms. In addition, we find time-series declines in ETRs across all industries, except mining.

When we focus on the individual components of the ETR reconciliation, we note a number of significant time trends. First, we note the state tax effect, which is typically a net increase to ETR, is declining over time, suggesting either a decline in statutory state tax rates, or a smaller proportion of the firm's pre-tax income being subject to state taxes, or both. Second, we note a significant increase in the magnitude of the reconciling item pertaining to foreign tax rate differentials over time, resulting from a decrease in foreign effective tax rates, or a greater proportion of pre-tax income reported as permanently reinvested, or both. Third, consistent with

the phase-in of DPAD beginning in 2005, we note a marked increase in the average magnitude of the reconciling item pertaining to the tax benefit from the manufacturing deduction.

When we partition our sample into domestic and MNE firms, we find the decline in MNEs' ETRs from 1996 - 2015 is primarily driven by two forces, the increasing downward effect of foreign tax rate differentials on ETRs and decreasing upward effect of state income taxes on ETRs. This falling state income tax burden relates to greater percentages of income outside the U.S., leaving less income to be taxed by states. When we adjust MNEs' ETRs by removing the ETR effects of foreign operations and state income taxes, we no longer observe a significant decline in ETRs over time, suggesting these two effects account for substantially all of the net ETR decline for MNEs during our sample period. We also document that the decline in ETRs for our MNE subsample results from a combination of both declining foreign effective tax rates and an increased proportion of income reported outside the U.S.

Our data provides insight into the decline in ETRs for domestic firms as well. In particular, we find that removing the rate reconciliation component related to the valuation allowance from ETR negates the observed downward trend in ETRs for domestic firms. Thus, the observed downward trend in ETRs for domestic firms results not primarily from a change in tax behavior, but as a result of firms recording and releasing valuation allowances. Consistent with this notion, we note that only 38.41 percent of our VA rate reconciliation adjustments are positive (increasing the VA and increasing the ETR), while 61.59 percent are negative (decreasing the VA and decreasing the ETR). Likewise, the magnitude of the negative VA adjustments tend to be larger than the magnitude of the positive VA adjustments.

Our findings for the VA trend for domestic firms provides new insight into the time trend of domestic firms' ETRs. We perform several additional tests to consider the source of the VA

reconciling items. We observe that the VA is associated with prior losses and with volatility of earnings. We suggest that the VA effect we see is an artifact of the data collection process we employ (and employed by many other tax studies). Consistent with the tax literature, we omit loss years from our analysis, due to the difficulty of interpreting ETRs for loss firms. However, by omitting loss years, we may omit years in which the VAs were created or increased. Thus, by including only profitable years, we are more likely to observe VA releases, which decrease ETRs. Overall, we conclude that the decline in domestic firm ETRs over time results from trends in VA releases rather than any particular tax provision of the tax law.

We further examine differences in ETR time trends with additional sample partitions on firm size and growth. We note the declining trend in ETRs is greater for small domestic firms than for large domestic firms. We also observe an increasing trend in the benefit of research credits for the small domestic firms, but not the large domestic firms. However, for MNE firms we observe the opposite trend, with the benefits of research credits increasing for large MNE firms and not for small MNEs. Examining firms based on growth, we note the declining state tax time trend is only significant for high-growth MNE firms, consistent with firms “growing away from” states, rather than taking actions to reduce state taxes (e.g., Dyreng, Lindsey, and Thornock (2013) document that firms use Delaware holding companies as domestic tax havens).

We contribute to the tax literature by providing some of the first large-scale detail of the components of firms’ ETR reconciliations. Book-tax differences are closely related to measures of tax avoidance, but it is not our intent to characterize the propriety of the tax items (i.e., intentional, benign, aggressive, legal, or illegal) that give rise to the observed ETR differences. A long stream of literature considers broad measures of tax outcomes (e.g., ETRs, book-tax differences, etc.) as well as firm, executive, and governance determinants of ETRs (see Hanlon

and Heitzman 2010, for a recent review). However, because our data provides details of firm-level specific differences between the statutory and effective tax rates, we offer insight into transactions that give rise to observed ETR behavior. Our unique data enables us to identify the source of permanent book-tax differences and how these differences have changed over time. It also allows us to understand how certain provisions of the income tax law have a non-uniform effect on different firms and industries.

Congress faces a difficult challenge of designing tax policy that effectively and efficiently raises government revenues, while not overly encumbering taxpayers with excessive tax and compliance burdens. Lawmakers design tax laws to raise revenues, encourage or discourage certain activities, and affect the economy. While some argue that the relatively high U.S. statutory rate hinders competitiveness of U.S. firms, a recent Congressional Research Study suggests that comparing the U.S. *effective* tax rate, rather than the statutory tax rate, to other OECD countries suggests little difference among countries (Gravelle 2014). To that end, understanding the sources of the widening gap between the statutory rate and effective rates is informative to policymakers.

II. INSTITUTIONAL BACKGROUND AND LITERATURE REVIEW

Income Tax Rate Reconciliations

Firms report earnings to investors in accordance with GAAP and to taxing authorities in accordance with the tax law, resulting in book-tax differences (BTDs). BTDs can be favorable (i.e., adjustments that result in book income > taxable income) or unfavorable (i.e., adjustments that result in taxable income > book income) and either permanent or temporary. Temporary differences are items for which the *timing* of recognition differs between GAAP and tax, which reverse over time (e.g., over the life of an asset, total depreciation for GAAP and tax are equal, but annually firms report different amounts of depreciation expense under the two systems). All

other differences between GAAP and tax are permanent differences.³ Permanent differences include items that are recognized in only one of the two systems (e.g., municipal bond interest is never recognized for tax purposes, while items such as tax credits are never recognized as a part of GAAP pretax income). Hanlon and Heitzman (2010) note that transactions that yield favorable permanent book-tax differences are ideal because they reduce the firm's effective tax rate and increase accounting earnings.⁴

Firms disclose material permanent differences affecting the GAAP ETR (total tax expense/pre-tax book income) in the financial statements. ASC 740-10-50-12 requires public entities to provide an annual reconciliation between the U.S. statutory tax rate of 35 percent and the firm's ETR. This schedule provides detail of specific differences between GAAP and taxable income that result in a difference between the statutory tax rate and ETR. Specifically, ASC 740-10-50-12 states:

A public entity shall disclose a reconciliation using percentages or dollar amounts of the reported amount of income tax expense attributable to continuing operations for the year to the amount of income tax expense that would result from applying domestic federal statutory tax rates to pretax income from continuing operations. The statutory tax rates shall be the regular tax rates if there are alternative tax systems. The estimated amount and the nature of each significant reconciling item shall be disclosed.

SEC Regulation S-X, Rule 4-08(h) requires firms to disclose all "significant" book-tax differences in the rate reconciliation, where significant is defined as amounts that are more than five percent of the product of pretax income times the statutory tax rate. See Appendix A for an example disclosure. From our discussion above, note that the reconciliation between the statutory

³ Technically, ASC 740 does not use the term permanent differences. However, both the practitioner and academic literatures consider all non-temporary GAAP versus tax differences as permanent.

⁴ While Hanlon and Heitzman (2010) note that tax shelters that generate permanent book-tax differences are considered the most "aggressive," our intent is not to determine the aggressiveness of any particular item, but rather to identify differences in the types of permanent differences disclosed across firms and over time.

rate and a firm's ETR captures only permanent differences between GAAP and tax reporting. While our study is limited to permanent differences, the rich data available in the ETR reconciliations provides unique insight into firm transactions.

We focus on the permanent differences available in the rate reconciliation to aid in identifying the sources of declining ETRs for several reasons. First, survey evidence suggests that managers are more focused on GAAP ETR (Graham et al. 2013) since it affects reported earnings. Second, GAAP ETR is arguably more salient and visible to investors, for the same reason. Additionally, by the nature of permanent differences between GAAP and taxable income, firms' benefits are greater because they will not reverse over time. Lastly, the level of detail provided in the ETR reconciliation table provides insight into firms' tax transactions not available through other publicly-available data.

A few studies in the tax literature use details of the ETR reconciliation, typically in small samples. For example, McGill and Outslay (2004) use Enron's tax rate reconciliation to identify tax shelter usage and highlight the lack of information in tax disclosures, Shackelford and Slemrod (1998) use details from 46 firms' rate reconciliations over a five-year period to estimate firms' foreign effective tax rates, and Minnick and Noga (2010), focusing on S&P 500 firms, use details from the rate reconciliation to estimate a firm's domestic, state, foreign, and VA ETR effects. Bauman, Bauman, and Halsey (2001) measure the earnings effect of recording a VA using a small sample of VA rate differentials from rate reconciliations. Lastly, Chychyla, Falsetta, and Ramnath (2017) examine whether the reporting of ETR reconciliations in dollars versus percentages influences the ability of investors and analysts to interpret the information. However, to the best of our knowledge, ours is the first study to examine the details of each line item of rate reconciliations from a large sample of diverse firms over a long time period.

Time-series trends in reconciling items

In addition to examining cross-sectional variation in permanent differences across various categories of firms, we also consider time-series changes in the composition and size of these permanent differences. Dyreng et al. (2017) document a decline in cash ETRs in both domestic and MNE firms over a 25-year period. Several studies, including ours, seek to examine the results of Dyreng et al. (2017) in greater detail. For example, Gaertner et al. (2016) use macro-level tax return data and find increases in reported book-tax differences from firms' tax schedule M-3. Edwards et al. (2017) disaggregate the changes in cash ETR into taxes paid and pretax income and identify that the Dyreng et al. (2017) trends may be a function of growth in pretax income. Lastly, Chyz et al. (2016) find that the decreasing trend in MNE cash ETRs is only partially offset by increases in implicit taxes.

III. RESEARCH DESIGN AND RESULTS

Rate Reconciliation Data Collection

Tax rate reconciliation disclosures are not available to researchers in a harmonized, machine-readable format. Therefore, we automate the process of collecting these ETR reconciliation tables using a series of Perl scripts. In particular, using Perl we download all 10-Ks electronically available on the SEC website and then locate the rate reconciliation table to extract details of the permanent differences affecting a firm's ETR. We verify the accuracy of this process by comparing the ETR calculated from the extracted rate reconciliation data with the ETR calculated using Compustat data. We describe our data collection process in detail in Appendix B. We summarize the various ETR effects and categorize them into common groups. We describe the ETR taxonomy in Appendix C.

Sample Selection

Table 1 describes our sample selection process. We begin with 195,223 Compustat observations between 1996 and 2015, the years we are able to extract data from SEC EDGAR. Similar to other tax studies, we exclude firms with total assets less than \$10 million and firms with negative pre-tax income, because prior literature highlights that negative pre-tax income amounts make interpreting ETRs more difficult (Hanlon, Mills, and Slemrod 2005).

Additionally, given different tax planning opportunities and incentives, we exclude utilities and financial firms, resulting in a sample for Perl extraction of 63,578 observations. We use a Perl script to extract the rate reconciliation data from firms' form 10-K. See Appendix C for further discussion. Our Perl data extraction process generates 23,479 observations, consisting of 5,089 unique firms. Finally, we validate our data extraction by reconciling the total from the extracted ETR table to the ETR computed from Compustat.

INSERT TABLE 1

Descriptive Statistics

We first examine cross-sectional variation among our firms in terms of the frequency, average tax rate effect, and dollar magnitude of the various types of reconciling items. In Panel A of Table 2, we present descriptive statistics for our full sample of observations. For each ETR rate reconciliation item, we include a sample mean, as well as the frequency (labeled as “% ≠ 0”), and the mean of the ETR effect for the non-zero observations. We note a high frequency (88.36 percent) of observations report state tax ETR effects. We also note a significant percentage of observations report reconciling items for foreign tax rate effects (44.48 percent) and valuation allowances (27.79 percent). In terms of magnitude, the reconciling items with the largest average effect on ETRs among firms with the adjustment are from the VA (-11.33

percentage points), in-process R&D (8.54 percentage points), NOL (-9.25 percentage points), and depletion effects (-9.27 percentage points). However, some of these large reconciling items only occur in a small set of firms. For example, while the firms that have depletion deductions benefit greatly from them, only 1.86 percent of our firm-year observations report a reconciling item related to depletion. Thus, when we examine the average effects of each reconciling item for the full sample (including observations where the effect is zero), we note the reconciling items that contribute most to sample-wide ETRs are state tax effects (2.49 percentage points), VA (-3.15 percentage points), and foreign rate effects (-1.66 percentage points).

In Panel B of Table 2, we partition our sample into domestic (MNE = 0) and multinational (MNE = 1) firms and again consider the mean effect, the frequency of each effect, and mean of non-zero observations. Following Dyreng et al. (2017) we classify an observation as MNE = 1 if pretax foreign income is greater than zero or if the absolute value of foreign income tax is greater than zero. When we partition the sample, we note some differences in ETR reconciling items between domestic and MNE firms. Specifically, while the frequency of VA ETR adjustments is greater for the MNE firms (35.14 percent versus 19.61 percent), the ETR effect of VA is greater for domestic firms (-4.10 percentage points versus -2.29 percentage points). Unsurprisingly, the effect of international operations on ETR is larger in the MNE sample; however, we note an ETR difference even among our domestic firms, suggesting the categorization of domestic/MNE used in the prior literature may not adequately capture all firms that have international tax differences.⁵ We also note a greater frequency of ETR adjustments

⁵ Specifically, using our rate reconciliation data, we observe that 8.47 percent of MNE = 0 firms report an international ETR effect. In addition, we note, particularly in early years in our sample, that firms with foreign operations (e.g., American Airlines, Boeing, Lockheed) are categorized as MNE=0. We suggest these results stem from inconsistent Compustat population of the PIFO and TXFO variables and caution researchers from relying too heavily on this data.

related to uncertain tax positions among MNEs relative to domestic firms (15.95 percent versus 4.48 percent). This is unsurprising, since the IRS has identified that many uncertain tax positions relate to transfer pricing (related to multi-jurisdictional operations) (Towery 2017). Lastly, we note a greater frequency of observations in our MNE sample report ETR differences from the manufacturing deduction (DPAD) relative to the domestic sample (12.69 percent versus 5.19 percent).

Examining the mean ETR effect of each reconciling item treats firms with all levels of pre-tax income equally. Thus, in Panel C of Table 2, we examine the average raw dollar effect of each reconciling item. We present the mean dollar effect of the various adjustments for the full sample, and for non-zero observations. We calculate the dollar effect by multiplying the ETR effect by pre-tax income, resulting in a raw dollar effect. We observe the greatest raw dollar effect for state taxes (\$5.01 million), VA (-\$3.69 million), in-process R&D (-\$14.66 million), international (-\$23.48 million), dividends received deductions (\$-17.47 million), depletion (-\$12.24 million), and minority interest (-\$23.46 million). As with our examination of mean ETR effects, given that some of these reconciling items are relatively rare, we also consider the mean raw dollar effects including the zero dollar observations to better understand tax rates across the broad sample of firms. We note that state income tax effects (\$4.43 million) and foreign rate differentials (-\$10.44 million) contribute most significantly to differences between tax at the statutory tax rate and reported ETRs.

In Panel D, we present the mean dollar effects for the sample partitioned into domestic and MNE firms. We note the greatest raw dollar effect for domestic firms is an increase in ETR from state income taxes (\$2.81 million), and decreases related to VA (-\$0.97 million), international operations (-\$0.30 million), and miscellaneous differences (-\$0.34 million). For the

MNE firms, the greatest increases in ETRs result from state taxes (\$5.89 million) and intangible assets (\$1.22 million), and the greatest ETR benefit is from international differences (-\$19.56 million), the manufacturing deduction (\$1.52 million), and various miscellaneous categories.

INSERT TABLE 2

Reconciling items by industry

Next, we analyze the effect of rate reconciliation items on ETR by industry. In Table 3, we present the mean effect and frequency for each reconciling item for our sample partitioned into ten broad industry groupings based on SIC divisions.⁶ We find the lowest ETRs in the mining (29.46 percent) and manufacturing industries (30.93 percent), and the highest ETRs in the construction (34.30 percent), retail (34.98 percent), wholesale (35.19 percent), and transportation industries (35.22 percent). Across all industries, we find that the most common reconciling item is the effect of state taxes. The VA effect is greatest in frequency and magnitude in the service (35.67 percent), mining (31.72 percent), construction (30.65 percent), and manufacturing (30.85 percent) industries, but less so in the transportation and communication industry (18.77 percent). The ETR benefit of international operations is frequent in all industries, but is particularly prevalent among manufacturers (60.14 percent), other (51.06 percent), services (46.62 percent), and wholesalers (41.90 percent). International adjustments are the least common in the retail industry (19.38 percent). Manufacturers also have the largest average foreign rate differential benefit at -2.56 percentage points, more than double the size of the next closest industry (i.e., services at -1.23 percentage points). As expected, the benefits of the DPAD

⁶ Industry is defined as the ten SIC divisions as defined by the U.S. Federal government. They are A: Agriculture, Forestry, and Fishing; B: Mining; C: Construction; D: Manufacturing; E: Transportation, Communications, Electric, Gas, and Sanitary Services; F: Wholesale Trade; G: Retail Trade; H: Finance, Insurance and Real Estate; I: Services; J: Public Administration, and an Other category including SIC Code 99. Our sample does not include any observations from Division A, Division H, or Division J. The two-digit SIC codes included in each division can be found at: https://www.osha.gov/pls/imis/sic_manual.html.

deduction for manufacturing is most frequent in the manufacturing (15.00 percent) and construction industries (12.56 percent); however, at least some firms in all of the industries benefit from the manufacturing deduction. We observe a large benefit to depletion in the mining industry. Lastly, we observe a benefit to research activities in service and manufacturing industries, but low frequency and little benefit in the other industries. Overall, the results in Table 3 highlight differences across industries in the types of ETR differences.

INSERT TABLE 3

Time trends of reconciling items

Next, we examine the time trend in firms' use of the various permanent difference across the 20 years of our sample. While Dyreng et al. (2017) document a decline in cash ETRs over time our unique data allows us to delve more deeply into the source of changes in ETRs.⁷ Thus, we design our next analysis to consider time trends for domestic and MNE firms, and by industry, size, and growth. Lastly, we use the specific components of firms' ETR reconciliation disclosures to identify any time trends in specific deductions associated with the decline in ETRs over time.

First, similar to Dyreng et al. (2017), we graphically present the downward trend in ETR over our sample period.⁸ While our sample period is similar to theirs, our data collection methodology (outlined in Appendix B) limits the observations we are able to collect. Thus, given

⁷ Relatedly, Edwards et al. (2017) model a linear tax function instead of the proportional tax function typically assumed in prior research. They find that the association between taxes paid and pre-tax income been relatively constant over this time period, which they suggest indicates little change in firms' tax avoidance activities over time. However, BTDs (temporary or permanent) that are independent of current period pre-tax income are captured by the intercept in their linear tax function and thus not reflected in the association they study.

⁸ We note, however, that our GAAP ETR trends look very similar to the Dyreng et al. (2017) cash ETR trends, suggesting that our work provides important insight into these observed trends, despite the omission of deferred taxes and other charges from our analysis.

a slightly different dataset, we begin by graphing the annual mean of ETR across our sample period in Figure 1. Similar to Dyreng et al. (2017), we note a downward trend in ETRs.

INSERT FIGURE 1

As highlighted in a number of studies, MNEs have distinctly different opportunities for tax planning than purely domestic firms (e.g., Rego 2003). While Dyreng et al. (2017) identify similar declining cash ETRs for both domestic and MNE firms, we suggest our unique dataset allows us to more deeply consider the sources of the trends separately for the two groups. Thus, we next consider time trends in ETRs for both MNE and domestic firms, in Figure 2, we graph the annual mean of ETR across our sample period separately for MNE = 0 and MNE = 1 firms. We include linear time trend lines for each subsample separately. We note at the start of our sample period MNEs have higher ETRs than domestic firms; however, the trend lines converge and eventually cross around 2006, at which point domestic firms generally have higher ETRs than MNEs.

INSERT FIGURE 2

We also analyze the broad time trend in tax rates using the following model from Dyreng et al. (2017):

$$ETR_{it} = \alpha_0 + \alpha_1 Time_t + \varepsilon_{it} \tag{1}$$

Where ETR is a firm's GAAP ETR as defined above we measure $Time$ as the fiscal year of the observation less the number 1996, which is the first year in our dataset. Thus, the coefficient on $Time$ captures any linear trend in ETR over the sample period. We test this model on our full sample of firms, partitioned on domestic and MNE observations, and partitioned by industry.

Next, we change the dependent variable from the total ETR to each rate reconciliation component to examine time-series changes in the magnitude of the ETR effect of each of our rate reconciliation items.

$$ETR_EFFECT_{it} = \alpha_0 + \alpha_1 Time_t + \varepsilon_{it} \quad (2)$$

Where *ETR_EFFECT* is the magnitude (in percentage points) of the ETR reconciliation item.

This test allows us to consider changes in the various reconciling items over our sample period, providing insight into the specific components affecting the overall observed downward trend in ETRs.

ETR time trends

In Table 4, we present the results of estimating Equation (1). In Panel A, we present the results using the full sample of firms and for domestic and MNE firms separately. In Panel B, we present the results by industry. In Panel A, we note a negative and significant ($p < 0.01$) coefficient on *Time* for our full sample of firms as well as for the MNE and domestic subsamples. Though the downward time trend is significant across all firms, a test of the difference in the coefficient on *Time* across the MNE=0 and MNE=1 subsamples suggests that the effect of time on ETR is significantly larger ($\chi^2 = 4.15^{**}$) for multinational firms relative to domestic firms. In particular, the economic magnitude of the coefficients suggest that ETRs are decreasing at a rate of approximately 0.36 percentage points per year for MNEs and 0.29 percentage points per year for domestic firms. In terms of economic magnitude, this translates into an ETR decrease of approximately 7.2 percent (MNE) and 5.6 percent (domestic) over our 20 year time period, which equates to an average \$107 million less tax expense (MNE) or \$5.8 million (domestic) compared to what would have been reported had the ETR remained the same since 1996.

In Panel B of Table 4, we present the results of estimating Equation (1) by industry. We note a significant downward trend for every industry except mining, which we note in Table 3 had the lowest mean ETR of any industry. The downward trend is greatest in the Other sample (a decrease of 0.85 percentage points per year), but we caution against over interpreting that result given the small number of those firms relative to other industries in our sample. The next largest decreases are in manufacturing (a decrease of 0.43 percentage points per year) and construction (a decrease of 0.35 percentage points per year). We test for significant differences across industries and find a statistically similar time trend across all industries except for mining (untabulated).

ETR component time trends

Next, we focus on the components of the rate reconciliation, using our detailed hand-collected data to examine the decline in ETRs on a more granular level. Since particular reconciling items need to be relatively frequent in order to influence the broad downward trend in ETRs we observe, we focus on the 13 reconciling items that occur in at least ten percent of the observations in either the full, MNE, or domestic samples for the component analysis. In Panel C of Table 4, we present the time trend regression of Equation (2) for these 13 ETR reconciliation items for the full sample of firms. While we note a significant time trend in a number of components, we highlight several important results.

First, we note a decline over time in the state tax effect, which is typically a net increase to ETR, suggesting either a decline in state income tax rates, or less income reported subject to state taxes, or both. In particular, the mean state tax effect in 1996 was 2.95 percentage points, and the coefficient on *Time* suggests that this effect is decreasing at a rate of 0.05 percentage points per year. We also note a significantly larger ETR decreasing adjustment for international

operations over time, suggesting either a decrease in foreign tax rates, or a greater amount of income reported as permanently reinvested, or both. In fact, the average adjustment for international effects in 1996 is insignificantly different from zero. However, the coefficient on *Time* suggests that this effect is decreasing at a rate of 0.20 percentage points per year. We also note that the use of municipal interest as a means to reduce tax rates is becoming a less important component of a firm's total ETR, as evidenced by the positive coefficient on *Time*. Finally, consistent with the implementation phase-in mechanism of DPAD, we note an increasing benefit from the manufacturing deduction over time. We next further examine time trends of ETR reconciliation items on various subsamples.

ETR component time trends MNE = 1 and MNE = 0

In Panel D of Table 4, we repeat the estimation of Equation (2) on the sample partitioned into domestic and MNE observations. We note several key differences between the two groups.

In terms of international rate effects, the decreasing time trend of the international effect is only observed among MNEs and not domestic firms, suggesting either a decrease in foreign tax rates, or a greater amount of foreign income, or both. In fact, in 1996, the average adjustment for international effects for MNE firms is insignificantly different from zero. However, the coefficient on *Time* suggests that, on average, this effect is decreasing at a rate of 0.27 percentage points per year for MNE firms. We examine this finding in more detail below.

We also note, the coefficient on *Time* in the state effect component regression is only negative and significant for MNEs. Any state income tax that a firm bears will be shown as an increase in ETR. A number of studies examine changes in state income tax rates over time (e.g., Heider and Ljungqvist 2015; Fox and Luna 2005) and find that while some states have been decreasing their statutory tax rates over time, other states are increasing their statutory tax rates.

In addition to reflecting changes in state income tax *rates*, the state income tax rate reconciling item also reflects the portion of a firm's income subject to state income tax. Thus, to the extent that larger percentages of a firm's income arise outside the U.S., the state income tax burden will decrease. Our results support the notion that time-series differences in the state tax effect relate to a greater portion of income not subject to state taxes.

Additionally, we note that the decreasing time trend for the VA effect is only significant for domestic firms. In general, firms record a valuation allowance when management determines it is not more likely than not that the future benefits of deferred tax assets (most often net operating losses and tax credit carryforwards) will be realized (ASC 740-10-30-5(e)). Recording a valuation allowance generally creates a permanent difference, increasing a firm's effective tax rate. If, in a future period, expectations of future income have changed and the firm determines a valuation allowance is no longer required, the firm will reverse the valuation allowance, creating a permanent difference that decreases the effective tax rate. The significant VA trends observed in the domestic subsample suggest reductions in VA affect observed ETRs for our sample of profitable firms. We examine this finding in more detail below.

Overall, the results in Table 4 suggest distinctly different sources of the decline in ETRs for MNEs relative to domestic firms.

INSERT TABLE 4

Sources of international and VA component time trends

From the frequencies in Table 2, and the regression results in Tables 4, we next seek to identify components of the ETR reconciliation that contribute to the overall decline in reported ETRs over time. Thus, we focus on frequent rate reconciling items that are either tax benefits that are increasing in magnitude or tax costs that are decreasing in magnitude. For MNEs, the

rate reconciliation items that are both frequent and demonstrate a large downward trend over the sample period are state tax rate effects and international effects. For domestic firms, we note the valuation allowance is both frequent and displays a downward trend. We suggest that domestic firms' decline in ETRs associated with VAs may be an artifact of the data screening process employed in most tax research, since we omit loss years (the years most likely to include VA increases) but include profit years (the years most likely to contain VA releases, which decrease the ETR). We examine this in further detail below.

Dyreng et al. (2017) specifically test how the decline in statutory tax rates around the world affect U.S. firm's reported cash ETRs. Using Exhibit 21 data that lists the location of significant firm subsidiaries, they estimate firm-specific average foreign statutory tax rates. Using their firm-level average foreign rate measure, they find that the decline in average foreign statutory tax rates explains a portion of the downward trend in cash ETRs for multinational firms; however, they conclude the foreign rate decline does not fully explain the decrease. Our data allows us a more precise measure of firm-specific foreign tax rate differentials, allowing for a more nuanced examination of the decline in firm ETRs. In Figure 3, we present graphs of $MNE = 0$ and $MNE = 1$ ETRs by year, excluding the effects of international operations and state income tax. As noted above, we observe high frequency and large decreasing trends in these items for MNEs. Thus, we expect that excluding the international effect and state effect will flatten the downward trend for MNEs will flatten relative to Figure 2, while we expect domestic firms will continue to display a downward trend. We note that for domestic firms ($MNE = 0$) the linear trend remains. However, for $MNE = 1$ firms, consistent with our expectation, we note that excluding foreign and state ETR effect largely eliminates the downward slope in ETRs over time, which we empirically test below.

INSERT FIGURE 3

In Figure 4, we plot the annual ETRs excluding the ETR effect of VA. As noted above, we observe a high frequency and strong downward trend for the ETR effect from VA among domestic firms, but not among MNEs. Thus, we expect that the downward trend for domestic firms in Figure 4 will flatten relative to Figure 2, while we expect MNEs will still display a downward trend. We note that for domestic firms ($MNE = 0$) the linear trend no longer exhibits a strong decline. For $MNE = 1$ firms, we note that excluding the VA does not reduce the downward slope in ETRs over time.

INSERT FIGURE 4

Next, in Table 5 we present the results of estimating Equation (1) to test time trends in these modified ETRs across all firms in our sample and for $MNE = 1$ and $MNE = 0$ subsamples. In Panel A of Table 5, we present the results using a modified ETR excluding the effect of international operations and state income tax differences as the dependent variable. We note the coefficient on *Time* is negative significant in the full sample of firms, suggesting a decline in ETRs even after excluding the effect of international operations and state income taxes. However, consistent with the graphical results above, excluding the effect of international and state rate effects, the time trend is insignificant for the $MNE = 1$ firms. Thus, the combined effect of an increasing tax benefit from associated with international operations and a decreasing state tax cost explain substantially all of the decreasing trend in ETR observed among MNEs in our sample. However, we continue to observe a negative and coefficient on *Time* in the $MNE = 0$ firms.

In Panel B of Table 5, we repeat the same test; however, we adjust the ETR measures to exclude the effect of the VA. As with Panel A, we continue to note a negative and significant

coefficient on *Time* in the full sample. However, consistent with Figure 4, we find that the time trend is eliminated in the MNE = 0 firms, suggesting that substantially all of the downward time trend in ETR for domestic firms in our sample can be explained by ETR effects related to valuation allowances.

The results of Table 5 suggest that the downward trend in ETRs observed in our full sample results from distinctly different effects for domestic and multinational firms. We conclude that the declining ETRs for domestic firms results from the release of valuation allowances, and the declining ETRs for multinational firms stems from foreign rate differentials and state income tax deductions. To the extent that MNE firms report additional income outside the U.S. subject to lower foreign tax rates, there is less income subject to state rates as well, which results in the same favorable impact on both effective tax rate measures.

INSERT TABLE 5

In general, firms report a favorable (i.e., ETR decreasing) foreign ETR differential when three factors are present: 1) the MNE has foreign operations in a foreign subsidiary, 2) the foreign tax rate on foreign income is less than the U.S. tax rate, and 3) the MNE identifies the profits of its foreign subsidiary as permanently reinvested outside the U.S. (ASC 740-30-25-17).⁹ Thus, a favorable foreign ETR difference is a function of both the MNE's income derived from foreign sources as well as the difference between the foreign tax rate and the U.S. statutory rate.¹⁰

⁹ If the MNE conducts foreign operations in a low-tax jurisdiction through a U.S. entity or a branch, the foreign income will be immediately subject to U.S. tax less any credit for foreign taxes paid and the firm will not report any foreign ETR difference.

¹⁰ Firms are required to disclose the total amount of foreign earnings identified as permanently reinvested, and, to the extent practicable, the deferred taxes that would be recorded if the earnings were not permanently reinvested. A number of studies examine determinants of permanently reinvested earnings and firms' disclosure choices. For example, see Ayers, Schwab, and Utke (2015).

While the U.S. statutory rate has remained static over our study period, the tax rates of other OECD countries have fallen. For example, in 1996, the first year in our sample, the average OECD combined country-level and sub-central level (i.e., state, province, etc.) corporate tax rate was approximately 36.6 percent; including six countries that had higher rates than the U.S. In contrast, in 2015, the last year of our sample, the average OECD rate had fallen to approximately 25 percent, with no rates higher than that of the U.S. In particular, from 1996 – 2015, the average statutory rate decrease of OECD countries was approximately 10.85 percentage points, with Germany, Ireland, and Italy all decreasing their rates by over 20 percentage points. In addition to the OECD countries, there are numerous countries offering very low or zero percent rates on corporate taxable income (e.g., Bermuda, Cayman Islands, Jersey, and the British Virgin Islands).

Thus, next we examine the results of Table 5 more closely. Specifically, in Table 6 we consider the source of the declining ETR for MNEs from international operations. A decline in ETR could result from a decline in foreign tax rates, greater percentage of income reported overseas, or some combination thereof. Thus, we create two variables to test the source of the decline. We use a firm's foreign ETR (*FETR*) measured as foreign tax expense divided by foreign pre-tax income and the foreign income percentage (*FIncPerc*) measured as the ratio of foreign income to total income, and separately graph the time trends of each in Figure 5. Dyreng et al. (2017) use a weighted average of a firm's foreign subsidiary locations to estimate a firm's foreign statutory tax rate.

INSERT FIGURE 5

Additionally, we test for significant time trends in *FETR* and *FIncPerc* and present these results in Table 6. We note that both measures exhibit significant time trends. Thus, we conclude

that the decline in MNE ETRs results from both a decline in foreign tax rates, but also the percentage of income reported outside the U.S.

INSERT TABLE 6

Next, we separately consider the VA results for domestic firms we observe in Table 5 Panel B. In Table 7 Panel A, we first examine the magnitude of VA increases and VA releases for both our $MNE = 1$ and $MNE = 0$ subsamples. We observe that while the magnitude of the VA increases and releases are considerably larger for the $MNE = 1$, the disproportionate value of VA releases in the domestic subsample suggests a greater portion of releases than increases, which we attribute to the sample construction excluding loss years. MNE firms are more likely to have years with positive pre-tax income, but increase a VA in one particular jurisdiction.

In Table 7 Panel B we examine the loss frequency of losses, and the association between a firm's ETR and VA effect. We note that the reported ETR and the VA ETR effect monotonically decrease with the number of prior year losses. Additionally, consistent with the fact that the VA effect we observe in the time-series and descriptive results is greater in $MNE = 0$ firms, we note a greater ETR effect among our domestic firms.

INSERT TABLE 7

Lastly, because our interest is in the decline in domestic firm ETRs over time, in Figure 6 Panel A, we graph the mean ETR effect of VA for our $MNE = 0$ subsample that report a VA effect by year and include a trend line. Consistent with the results in Table 5, we observe a significant downward trend in the ETR effect. Additionally, in Panel B, we present the mean dollar value of VA increases and VA releases for our $MNE = 0$ subsample by year and include trend lines for each. We note a significant trend in VA releases across our sample period, while the level of VA increases remains stable. This graph, along with the findings above, suggests that

the decline in ETRs observed for MNE = 0 firms is a function of increasing VA releases, relating to loss years eliminated from our sample.

INSERT FIGURE 6

IV. ADDITIONAL ANALYSIS

In this section we perform additional analysis to examine differences in large and small firms and high and low growth firms.

Time trends – large and small firms, high- and low-growth

In Table 8, we further partition our domestic and MNE samples into large and small firms and high- and low- growth firms to examine different ETR time trends across cross-sections of firms. We identify large (small) firms based on the top (bottom) quartile of assets. Similarly, we identify high growth (low growth) firms as those in the top (bottom) quartile of Tobin's Q. First, we focus on size because while prior research predicts an association between firm size and ETR, the empirical results have been mixed (e.g., Mills, Erickson, and Maydew 1998; Rego 2003; Omer, Molloy, and Ziebart 1993). Thus, understanding how various components of the ETR may vary by size and MNE/domestic is of interest. Second, we focus on growth opportunities because a number of tax policies are designed to spur economic growth, and tax planning opportunities and incentives vary based on growth.

We note several key findings from this analysis. First, the downward time trend in ETRs is pervasive across all cross-sections of firms. In Panel A of Table 8, we note the declining trend in ETRs is significantly greater ($p < 0.01$) for small domestic firms than large domestic firms. In particular, small domestic firms have a downward trend of 0.43 percentage points per year while large domestic firms have a downward trend of 0.22 percentage points per year. We note no significant difference between the downward trend in ETRs for large and small MNE firms. In

untabulated results, we note the trend for large domestic firms is significantly smaller than the other three subsamples.

In Panel B of Table 8, we analyze the time trend for the various components of the ETR reconciliation for four subsamples of firms: large domestic firms, small domestic firms, large MNEs, and small MNEs. We note several key results. First, in Table 4 Panel D, we note for MNE firms we do not note a significant VA effect. However, when we partition the MNE group into large and small firms, we note a significant downward trend in the ETR effect from valuation allowances for the small MNE firms. Second, we note differences in benefits from the research credit across these four groups of firms. Among domestic firms, we note small firms realize increased ETRs benefit from research credits over time, while large firms do not. However, among MNEs, this relationship reverses, and we observe large MNEs garnering greater benefits from research credits over time, while small MNEs are not. Third, small domestic firms do not realize a downward trend in the ETR effect from uncertain tax positions, while the other three groups do. Finally, we observe a downward trend in the ETR effect from DPAD in all four subsamples.

In Panel C of Table 8, we estimate Equation (1) on four groups of firms: high growth domestic firms, low growth domestic firms, high growth MNEs, and low growth MNEs. Across all four subsamples of firms we observe a significant downward trend in ETR. We test ETR decline across the groups and find no significant differences.

In Panel D of Table 8, we analyze the time trend for the various components of the ETR reconciliation (i.e., Equation (2)) for the four high/low growth and MNE/domestic subsamples. First, we note the time trend on the state tax effect is not significant for either high or low growth domestic firms, consistent with the results in Table 4 Panel D. However, we also note the state

tax time trend is only significant for high-growth MNE firms, consistent with firms “growing away from” states, rather than taking actions to reduce state taxes (such as establishing Delaware holding companies, etc.). In examining the time trend of the international ETR effect, we note that both high- and low- growth MNEs exhibit a significantly negative time trend. Interestingly, we also observe that low growth domestic firms also experience a significantly decreasing trend in the international ETR effect. When we examine the research credit effect, we note that high-growth domestic firms do not exhibit an increasing time trend for the credit. On the other hand, we note that high growth MNEs exhibit an increasing benefit from the research credit over time. Lastly, we note that the increasing time trend benefit of DPAD is present in domestic and MNE high and low-growth firms.

INSERT TABLE 8

V. CONCLUSION

We use a unique dataset of hand-collected tax rate reconciliation disclosures to examine both cross-sectional differences and time-series changes in firms’ ETRs. Our data provides insight into the frequency, tax rate effect, and dollar benefit of specific tax planning items. Additionally, our data allows us to identify the types of firms affected by various provisions of the tax law such as the research tax credit, foreign ETR benefits, and the manufacturing deduction. We note differences between MNE and domestic firms, across industries, across large and small firms, and between high and low growth firms. Additionally, we provide details of the nature of differences between book and tax reporting that gives rise to a portion of the declining cash ETRs observed in Dyreng et al. (2017). We expand their study by providing details of the specific sources of decline. While both MNE and domestic firms report declining ETRs over time, we identify distinctive differences in the sources of the decline. We find the decline in

MNE ETRs is primarily associated with foreign tax rate differentials and state income tax rate differentials, and that the decline relates to both decreasing foreign tax rates and increases in the percentage of income reported outside the U.S. For domestic firms we find the decline is primarily associated with the release of valuation allowances. However, since the ETR benefit of valuation allowance releases does not represent genuine tax savings, our results suggest that that domestic firms have not enjoyed similar reductions in tax burdens over our study period.

The findings in our study are subject to several caveats. First, our data-gathering algorithm captures a significant portion, but not all, of the firm-year observations during our time period. While we lose a portion of the population due to data collection limitations, we suggest our sample is representative of the population of profitable firms. Additionally, our data only captures non-conforming differences between book-and tax. To the extent firms engage in conforming tax avoidance, our data does not detect those transactions. Our focus is on GAAP ETRs, which does not include the effect of temporary differences. We are not able to identify the intent or aggressiveness of any specific transactions, only the amounts reported in the tax rate reconciliation table. Lastly, the time trends we observe in our data may not be tax driven, but result from changes in the underlying firm economics, including changes in recording and releasing valuation allowances.

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APPENDIX A: Example Tax Rate Reconciliation Disclosure

THE HERSHEY COMPANY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS December 31, 2012

The following table reconciles the federal statutory income tax rate with our effective income tax rate:

For the years ended December 31,	2012	2011	2010
Federal statutory income tax rate	35.0 %	35.0 %	35.0 %
Increase (reduction) resulting from:			
State income taxes, net of federal income tax benefits	3.2	2.4	2.8
Qualified production income deduction	(2.5)	(2.2)	(2.4)
Business realignment and impairment charges and gain on sale of trademark licensing rights	0.2	(0.1)	1.8
International operations	(0.1)	(0.6)	0.4
Other, net	(0.9)	0.2	(0.6)
Effective income tax rate	<u>34.9 %</u>	<u>34.7 %</u>	<u>37.0 %</u>

Tax rates associated with business realignment and impairment charges increased the effective income tax rate from the federal statutory income tax rate by 0.2 percentage point for 2012. Tax rates associated with business realignment and impairment charges and gain on sale of trademark licensing rights reduced the effective income tax rate from the federal statutory income tax rate by 0.1 percentage point for 2011. Tax rates associated with business realignment and impairment charges increased the effective income tax rate from the federal statutory income tax rate by 1.8 percentage points for 2010. The effect of international operations varied based on the taxable income (loss) of our entities outside of the United States.

APPENDIX B: Perl Script Data Collection

We begin by downloading all 10-Ks electronically available from the SEC website covering years 1996 through 2015, using a set of Perl scripts developed by Andy Leone. We then develop two sets of Perl scripts to locate and extract the ETR table, one script for plain-text filings (generally present in 2004 and earlier years), and another script for HTML filings (more common in later years). ASC 740 permits firms to report this table in either percentages or dollars, and our program converts all dollar tables into percentages. We extract the data by firm-year.

In order to confirm the accuracy of our data extraction, we compare the total of the Perl generated table (which should be the firm's GAAP ETR for the year) to the same information computed from Compustat data (TXT/PI). For firms that have equity ownership reporting, we compute an alternative measure of Compustat ETR as $\text{TXT}/(\text{PI}-\text{ESUB})$. To ensure the integrity of our data, we discard any firm-year observations where our Perl data differs from both Compustat computations by more than 0.10 (i.e., the ETRs differ by more than 0.10 percentage points).

ASC 740 does not prescribe precise location, wording, or presentation format for the ETR reconciliation table. As such, our Perl script is unable to identify and extract the ETR table for every firm. In addition, after identifying the ETR table, there are other challenges to extracting this data successfully. For example, for firms that present dollar-based ETR tables, our script must determine the scale of the dollar amounts presented in the footnote (i.e., whether the numbers presented are in thousands, millions, etc.) in order to correctly convert the amounts into percentages.

We summarize the reasons that a firm-year might not be included in the sample as follows:

1. The program is not able to locate the ETR table within the 10-K, based on the search algorithm we developed.
2. The program erroneously identifies a non-tax table as the ETR reconciliation table. In this case, it is very likely we delete this firm-year observation during the data validation process described above.
3. The firm's tax footnote reverses the normal order of the prior and current year columns (i.e., it varies from the traditional process by displaying the prior year on the left, and the current year on the right).
4. The firm presents the ETR footnote in an unusual way (for example, listing each year in a separate ETR reconciliation table, with the earliest year listed first).
5. The firm provides the ETR reconciliation in narrative form only (e.g., "...the only difference between the statutory tax rate and our effective tax rate is result of state income taxes..."). Since this is not in tabular format, our Perl program cannot extract the data.

Overall, our results could be biased if there is a systematic bias in the program's ability to capture the data that is correlated with our variables of interest (time). However, we do not believe that any of these reasons for non-collection pose such a concern.

APPENDIX C: ETR Taxonomy

As described in Appendix B, we develop a Perl script to collect detailed information from each firm's ETR reconciliation schedule. We group these individual line items into the categories below. Our discussion is not necessarily all encompassing, but offers some insight into basic book-tax differences that give rise to ETR rate reconciling items.

State_Effect - The amount of state income tax effect disclosed in the ETR reconciliation table is often stated net-of-tax (i.e., the state income tax rate appears to be only about $(1 - 0.35)$ of the average state statutory rate).

VA_Effect - Under ASC-740-10-30-5(e), when firms establish, increase, or decrease a valuation allowance, the corresponding offset is typically made to deferred tax expense. Thus, changes in valuation allowance amounts will normally impact the ETR reconciliation schedule because they generally impact the GAAP ETR.

Miscellaneous_Effect - This is a residual category we create to capture infrequent items that are not included in other categories. Examples from the data include adjustments titled "the rate effect of a nondeductible fine from the Environmental Protection Agency," "implied interest on structured note," "book vs. tax bond differences," "non-deductible amortization," "nontaxable income earned," etc.

InProcessR&D_Effect - Prior to SFAS 141R, if a portion of the stock purchase price of an acquired firm is allocated to in-process R&D and the amount was subsequently written off, the financial statement write off does not generate a tax deduction, creating an adverse permanent difference that increases the ETR.

MuniInterest_Effect - Interest income on municipal bonds is generally not taxable under IRC §103, resulting in a decrease to the ETR.

ResearchCredit_Effect – IRC §41 provides a credit for incremental research and experimentation spending, resulting in a favorable ETR difference.

International_Effect – If a firm determines earnings of its foreign subsidiaries operating in jurisdictions where the foreign tax rate is lower than the U.S. statutory tax rate are permanently reinvested under APB 23, these lower foreign rates will result in a favorable decrease in the ETR. However, simply having foreign earnings taxed at lower rates will not, by itself, affect the GAAP ETR.

StockOption_Effect - Virtually all observations are after the effective date of SFAS 123R, and most represent "shortfalls" in tax benefits associated with stock options. These shortfalls occur when the actual stock option tax benefit at exercise is lower than the tax benefit that was estimated when the stock options were issued. Since excess tax benefits are charged to capital,

but shortfalls in tax benefits are charged to tax expense (unless an APIC pool is available), stock options tend to have either no effect or an adverse effect on the ETR.

Other_Effect - SEC Regulation S-X, Rule 4-08(h) requires firms to disclose all “significant” items, defined as amounts that are more than 5 percent of the product of pretax income times the statutory tax rate. Amounts below this level are aggregated into a single category, typically labelled as “other” by the firm in their rate reconciliation. We have no further data on these items as this is the level of detail disclosed in public filings.

LifeIns_Effect - Under IRC §101, the proceeds from life insurance proceeds are not taxable, nor are mere increases in cash surrender value amounts.

UncertTaxPositions_Effect - Under FIN 48 (later codified as ASC 740-10-25-6), firms are required to establish a reserve in their financial statements for uncertain tax positions. De-recognizing these benefits can result in an ETR impact, unless the effect is driven solely by potential changes to temporary differences.

Meals&Ent_Effect - Under IRC §274(n), only 50 percent of most meal and entertainment costs are deductible; the disallowance of the remainder of these costs results in a permanent difference between book and taxable income.

DivReceivedDed_Effect - IRC §243 provides a 70 to 100 percent deduction for dividends received from most non-affiliated, domestic corporations, resulting in a permanent difference between book and taxable income.

ManufDeduction_Effect - Under IRC §199 (i.e., DPAD), firms are allowed an incremental tax deduction for a portion of their domestic manufacturing profits. The benefit phases in with a three percent deduction in 2005, rising to nine percent for years 2010 and later. Since there is no corresponding financial statement expense, firms recognize the benefit of this incremental tax deduction as a reduction in the GAAP ETR.

NOL_Effect – This category captures the permanent ETR effect of the creation of new net operating losses (“NOLs”), the use of existing NOLs, or the expiration of existing NOLs. Normally, these activities would give rise to permanent ETR effects only if the original creation of the net operating loss generated a valuation allowance or the expiring NOL was not already offset with a valuation allowance.

Depletion_Effect - Under IRC §613, certain firms are allowed depletion deductions for costs associated with natural resources. To the extent that these tax deductions are unrelated to financial statement basis in the underlying mineral rights, excess tax deductions are permanent benefits that reduce the ETR.

NonDedExp_Effect - This category represents rate reconciliation items where the firm uses the terminology “nondeductible expenses.” Since they broadly categorize these items into one line item, we cannot see the particular types of nondeductible expenses included for each firm, but it likely contains a collection of various items that are never deductible, such as government fines

and penalties, expenses of earning tax-exempt income, etc. We retain firms' terminology and group all non-deductible expense effect items in this category.

M&A_Effect – This difference often results from merger and acquisition transaction-related costs that are not deductible for tax purposes.

Intang&GW_Effect - Prior to SFAS 142, firms generally capitalized and amortized goodwill for financial statement purposes. If the firm had no tax basis in the goodwill (for example, because the acquisition was structured as an ordinary stock acquisition), this financial statement expense without a corresponding tax deduction would give rise to an adverse permanent difference and appear in the ETR as a positive value. However, after the effective date of SFAS 142, goodwill was no longer amortizable for financial statement purposes, so the frequency of this item declines in the ETR reconciliation schedule.

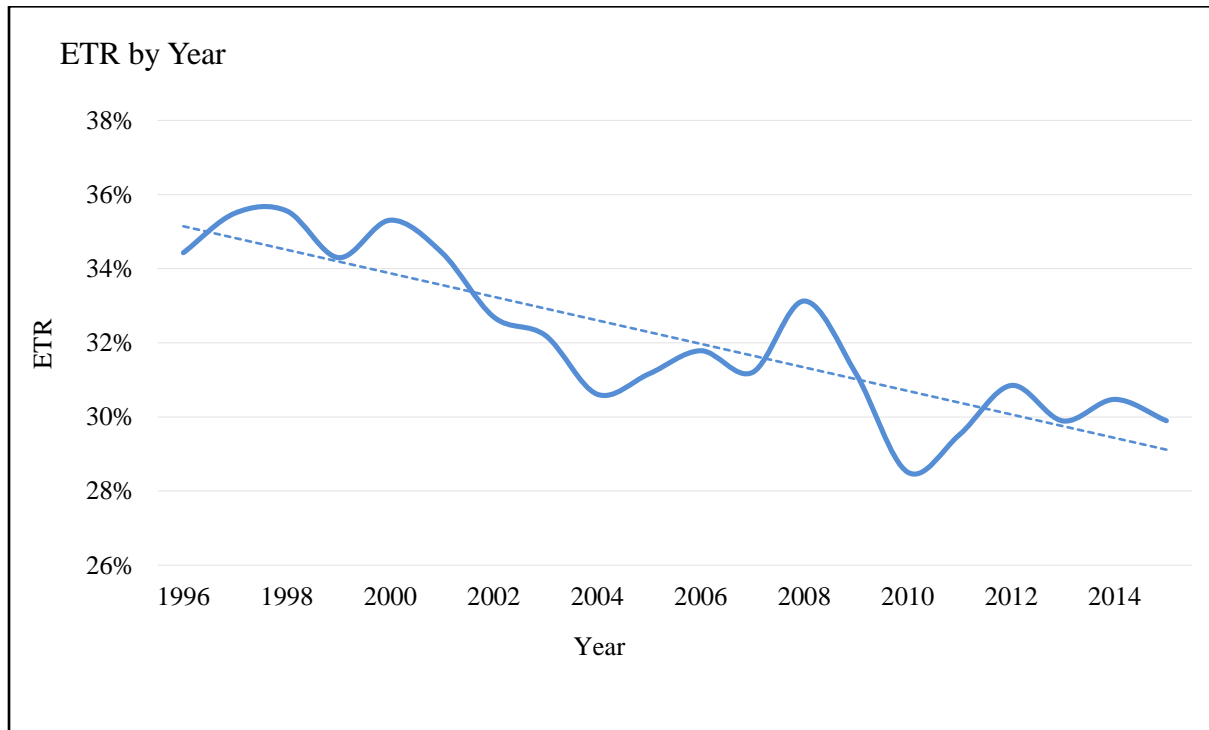
PermDiff_Effect - Similar to the Nondeductible Expenses category above, firms use this category as a catch-all for a variety of items that will never be deductible, such as government fines and penalties, or expenses of earning tax exempt income, etc. We retain firms' terminology and group all permanent difference effect items in this category.

PYandAudit_Effect - This category contains changes in the ETR that arise from tax authority audits, beyond the amounts that were already provided in the financial statements. Amounts may be positive or negative depending on the size of any audit adjustment and whether the firm had reserved for the amount.

OtherCredits_Effect - This category includes a variety of infrequently identified credits such as the low-income housing credit, the orphan drug credit, alternative fuel tax credit, work opportunity credit, FICA tip credits, etc. We specifically exclude the research credit, which is included in a separate category above, as well as the foreign tax credit, which is included in the "international" category above.

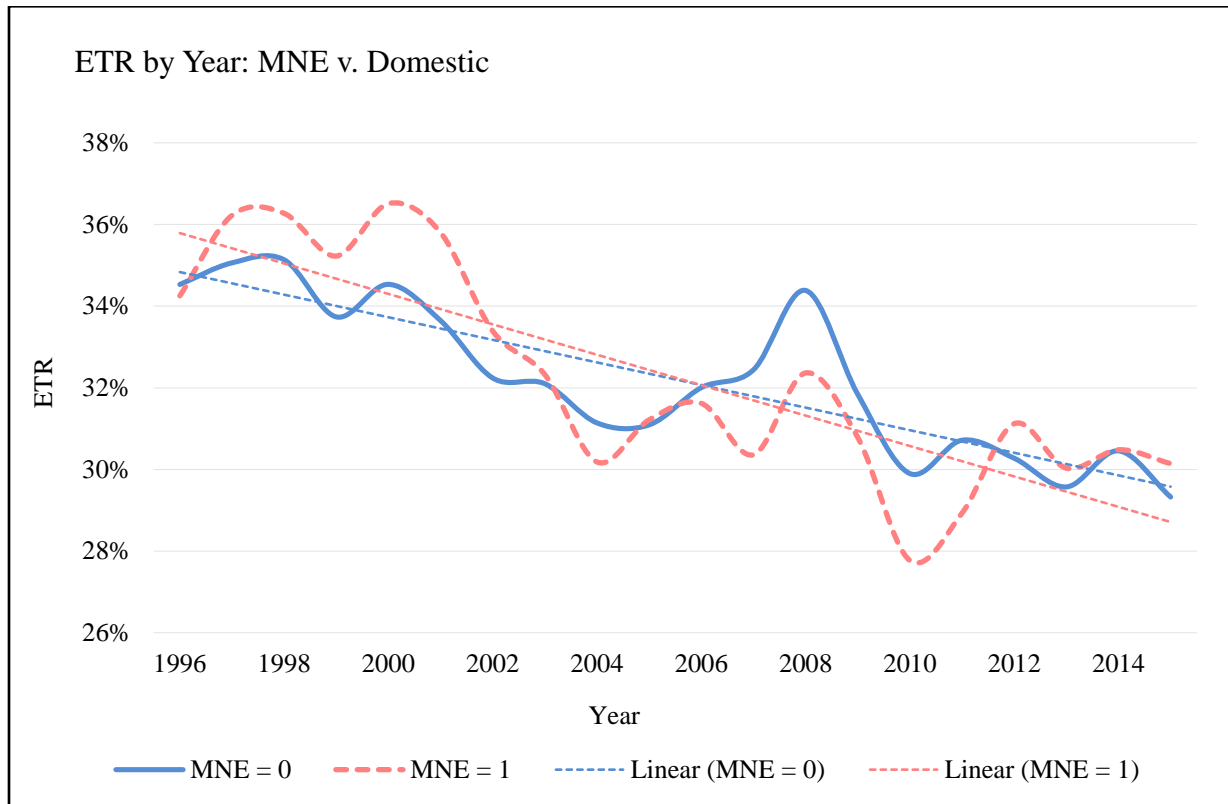
MinorityInt_Effect - For financial statement purposes, firms may subtract the pre-tax income associated with minority ownership from pre-tax income on the face of the income statement. However, if the parent owns at least 80 percent of the stock of a domestic subsidiary, the consolidated tax return generally includes 100 percent of the subsidiary's income, resulting in a permanent difference.

Figure 1 – ETR by Year, All Firms



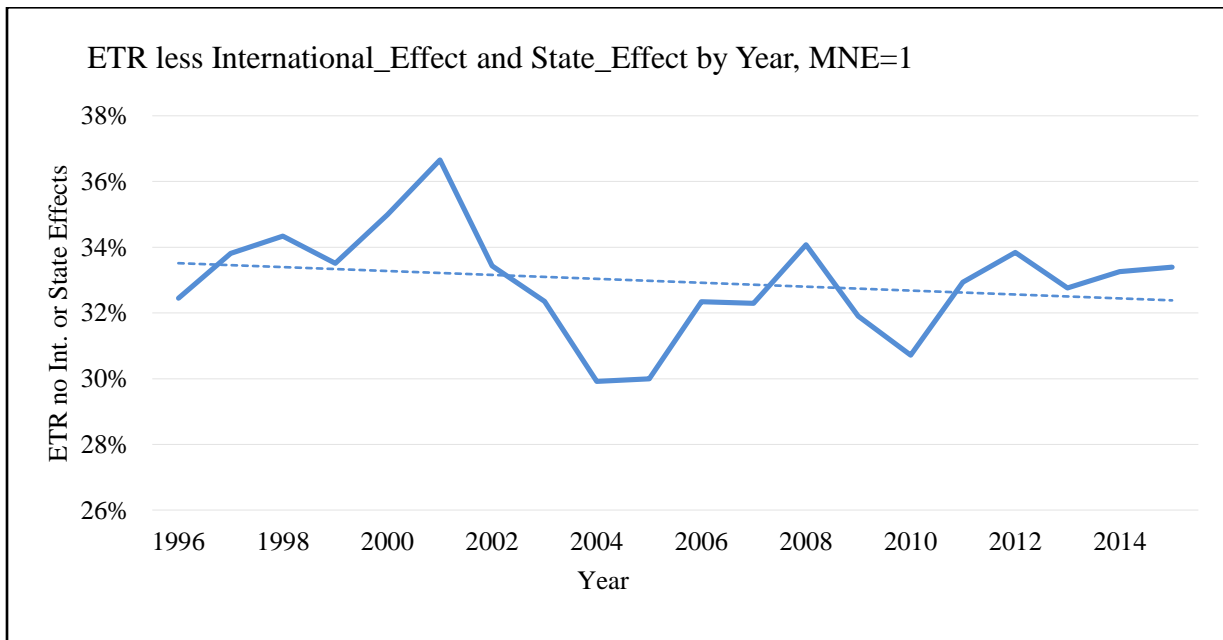
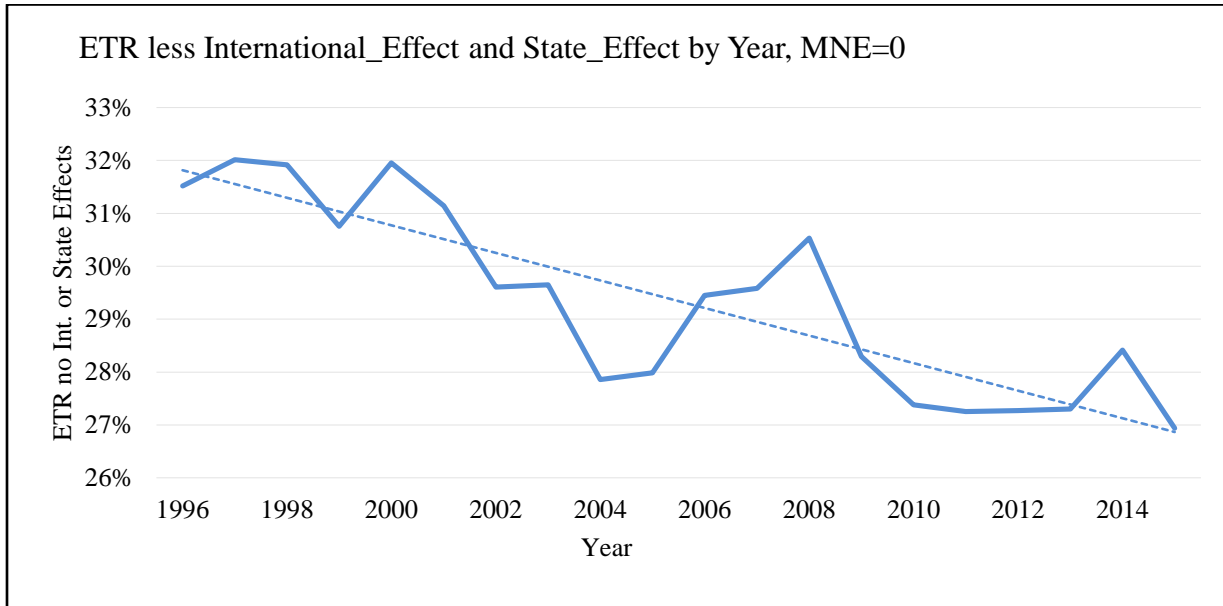
Notes: Figure 1 plots the mean ETR by year over the sample period (1996 – 2015). We include a linear trend line for the plot. We outline our sample selection criteria in Table 1.

Figure 2 – ETR by Year: MNE=1 versus MNE=0



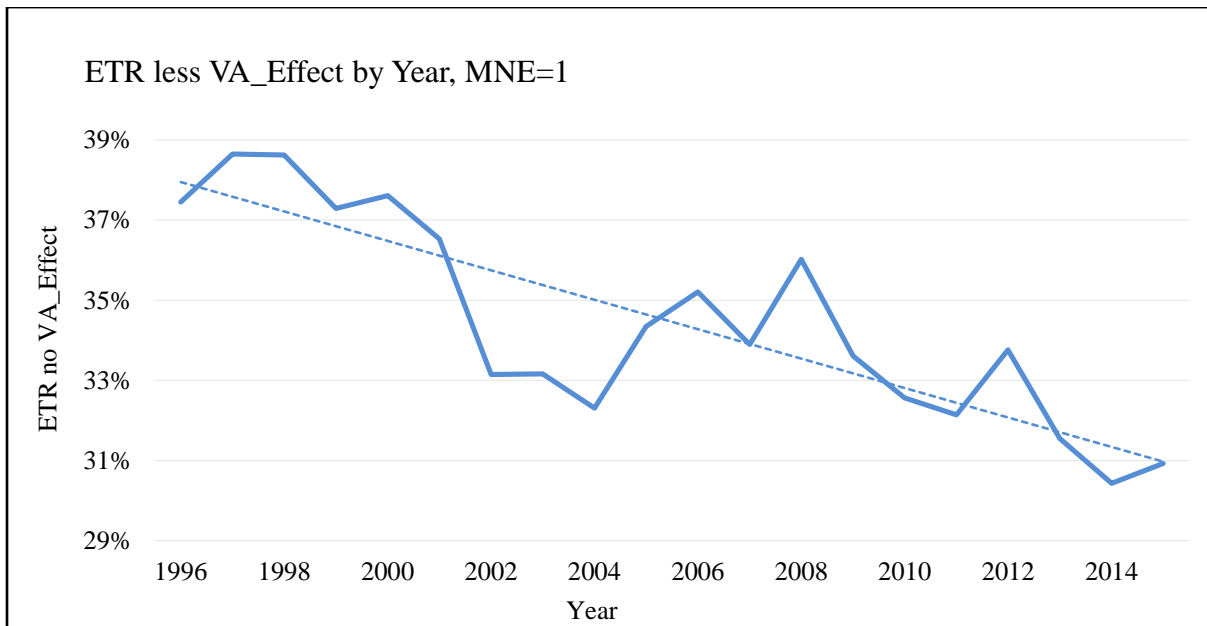
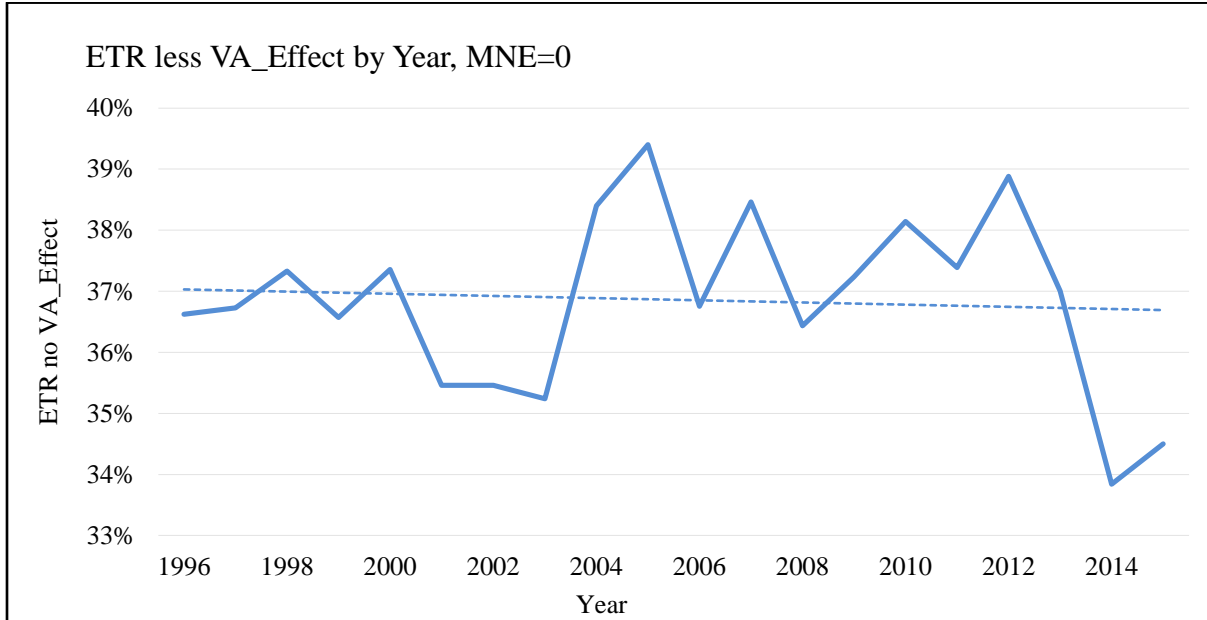
Notes: Figure 2 plots the mean ETR by year over the sample period (1996 – 2015) separately for multinational (MNE = 1) and domestic firms (MNE = 0). We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero ($|TXFO| > 0$). We include a linear trend line for each plot. We outline our sample selection criteria in Table 1.

Figure 3 – ETR excluding the effect of International Operations and State Taxes by Year



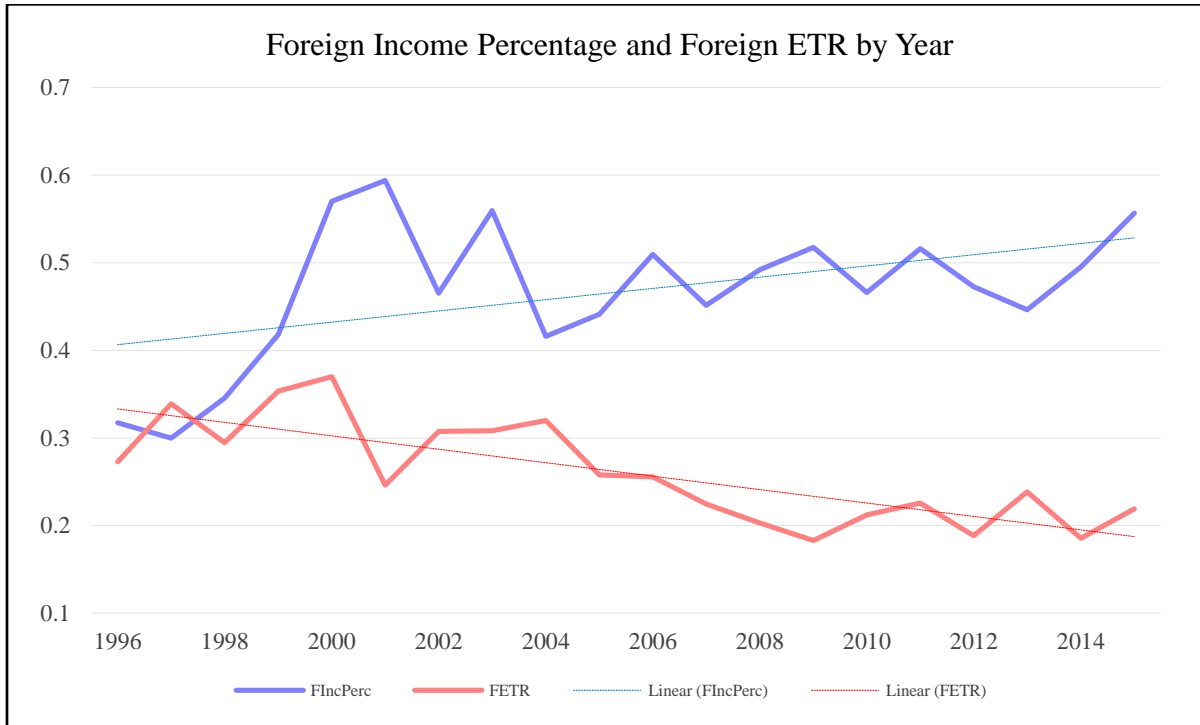
Notes: Figure 3 plots the mean ETR excluding the effect of International Operations (International_Effect) and State income taxes (State_Effect) by year over the sample period (1996 – 2015) separately for multinational (MNE = 1) and domestic firms (MNE = 0). We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero ($|TXFO| > 0$). We include a linear trend line for each plot. We outline our sample selection criteria in Table 1.

Figure 4 – ETR excluding the effect of Valuation Allowances by FYear



Notes: Figure 4 plots the mean ETR excluding the effect of Valuation Allowance (VA_Effect) by year over the sample period (1996 – 2015) separately for multinational (MNE = 1) and domestic firms (MNE = 0). We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero ($|TXFO| > 0$). We include a linear trend line for each plot. We outline our sample selection criteria in Table 1.

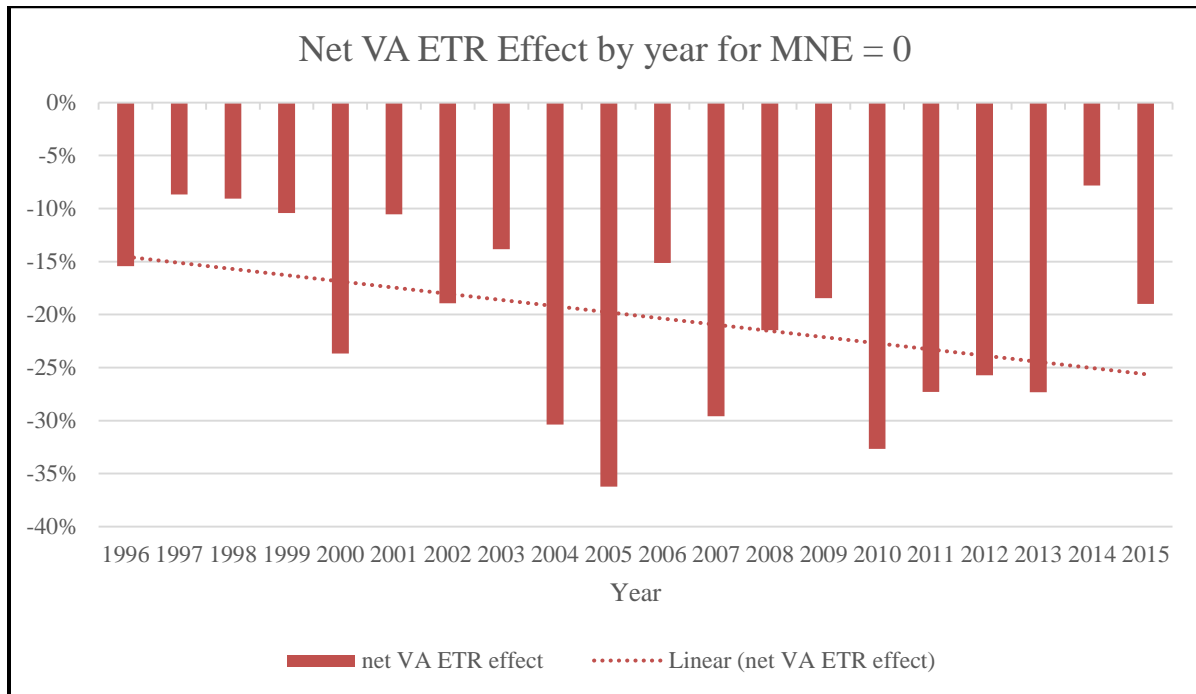
Figure 5 – Partitioning the International ETR Effect into foreign tax rate differences and percentage of international income differences



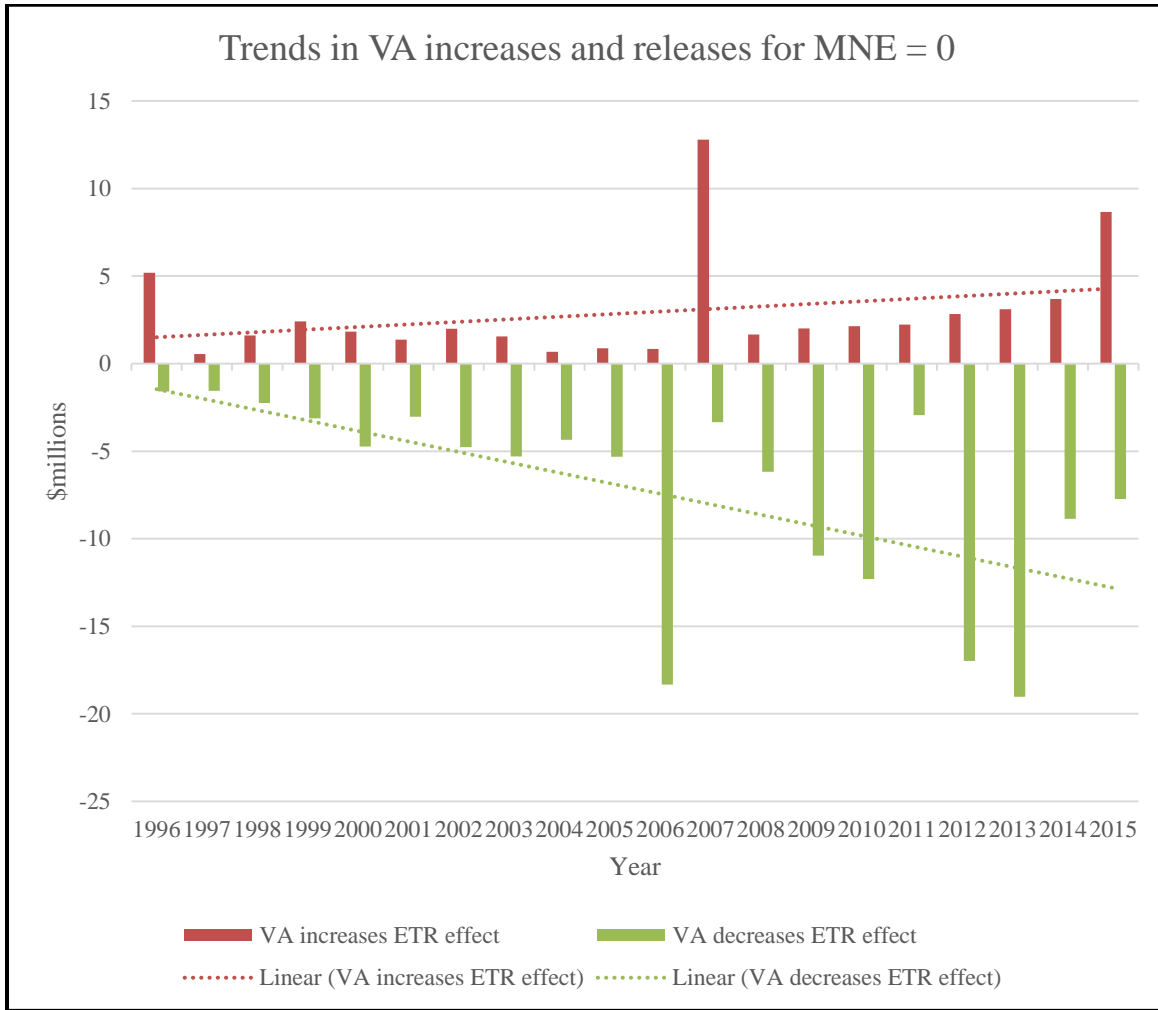
Notes: Figure 5 plots the annual means of foreign ETRs and percentage foreign income for our MNE = 1 subsample by year over the sample period (1996 – 2015). We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero ($PIFO > 0$), or if the absolute value of foreign tax expense is greater than zero ($|TXFO| > 0$). We measure FincPerc as the ratio of foreign income to total income ($PIFO/PI$) and FETR as foreign tax expense divided by foreign pre-tax income. We include a linear trend line for each plot. We outline our sample selection criteria in Table 1.

Figure 6 – VA trends for MNE = 0

Panel A



Panel B



Notes: Figure 6 Panel A plots the net VA ETR effect by year for our MNE = 0 subsample. This figure only includes firms that report a nonzero VA effect in its rate reconciliation in the year. Panel B plots the annual means of VA ETR increases and decreases for our MNE = 0 subsample by year over the sample period (1996 – 2015) for firms that report a VA effect. We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero (|TXFO| > 0). We include a linear trend line for each plot. We outline our sample selection criteria in Table 1.

Table 1 – Sample Selection

Criteria	Observations
All Compustat Observations from 1996 to 2015	195,223
Less: Observations with AT < \$10 million	(29,869)
Less: Observations with a current year loss (PI < \$0)	(56,515)
<u>Less: Utilities and Financials (SIC = 4800-4999; 6000-6999)</u>	<u>(45,261)</u>
Sample for Perl extraction (Appendix B)	63,578
Less: Unable to extract rate reconciliation table	(26,220)
<u>Less: Unable to verify rate reconciliation ETR with Compustat</u>	<u>(13,879)</u>
Full Sample	23,479

Notes: Table 1 outlines our sample selection criteria. See Appendix B for details of the Perl Extraction technique.

Table 2 – Descriptive Statistics
Panel A: Full Sample (n = 23,479)

	Mean	% ≠ 0	Mean ≠ 0 obs.	Std. Dev.	P25	P50	P75
ETR	32.247						
State_Effect	2.4894	88.36%	2.8173	6.8701	0.7000	2.4000	3.9816
VA_Effect	-3.1491	27.79%	-11.331	19.340	0.0000	0.0000	0.0000
Miscellaneous_Effect	-0.1121	27.23%	-0.4118	10.274	0.0000	0.0000	0.0000
MuniInterest_Effect	-0.4589	11.21%	-4.0948	3.2923	0.0000	0.0000	0.0000
ResearchCredit_Effect	-0.5596	12.01%	-4.6572	4.6234	0.0000	0.0000	0.0000
International_Effect	-1.6575	44.48%	-3.7267	11.458	-1.2000	0.0000	0.0000
StockOption_Effect	0.4415	10.64%	4.1501	4.5950	0.0000	0.0000	0.0000
Other_Effect	0.2439	83.17%	0.2933	5.8030	-0.5000	0.0000	0.7431
UncertTaxPositions_Effect	-0.1723	10.52%	-1.6376	4.8943	0.0000	0.0000	0.0000
ManufDeduction_Effect	-0.2164	9.14%	-2.3672	1.8469	0.0000	0.0000	0.0000
PermDiff_Effect	0.3001	11.47%	2.6168	4.8730	0.0000	0.0000	0.0000
PYandAudit_Effect	-0.2755	11.53%	-2.3896	5.9230	0.0000	0.0000	0.0000
OtherCredits_Effect	-0.8981	15.21%	-5.9030	5.8283	0.0000	0.0000	0.0000
MinorityInt_Effect	-0.0673	2.37%	-2.8374	1.8110	0.0000	0.0000	0.0000
InProcesR&D_Effect	0.0680	0.80%	8.5390	2.7312	0.0000	0.0000	0.0000
LifeIns_Effect	-0.0624	2.70%	-2.3061	1.8872	0.0000	0.0000	0.0000
Meals&Ent_Effect	0.1016	3.45%	2.9475	1.5946	0.0000	0.0000	0.0000
DivReceivedDec_Effect	-0.0303	1.23%	-2.4652	1.2609	0.0000	0.0000	0.0000
NOL_Effect	-0.3124	3.38%	-9.2484	5.6288	0.0000	0.0000	0.0000
Depletion_Effect	-0.1722	1.86%	-9.2716	2.4507	0.0000	0.0000	0.0000
NonDedExp_Effect	0.2729	8.05%	3.3878	3.0936	0.0000	0.0000	0.0000
M&A_Effect	0.1208	2.89%	4.1780	3.0901	0.0000	0.0000	0.0000
Intang&GW_Effect	0.6260	9.35%	6.6965	5.3474	0.0000	0.0000	0.0000

Table 2 – Descriptive Statistics (continued)**Panel B: MNE = 0 and MNE = 1**

	MNE = 0 (n = 11,112)			MNE = 1 (n = 12,367)		
	Mean	% ≠ 0	Mean, ≠ 0 obs.	Mean	% ≠ 0	Mean, ≠ 0 obs.
ETR	32.728			31.815		
State_Effect	3.0536	86.03%	3.5494	1.9824	90.45%	2.1917
VA_Effect	-4.1041	19.61%	-20.929	-2.2909	35.14%	-6.5191
Miscellaneous_Effect	-0.2540	22.23%	-1.1429	0.0154	31.72%	0.0485
MuniInterest_Effect	-0.7388	16.35%	-4.5183	-0.2073	6.58%	-3.1496
ResearchCredit_Effect	-0.3067	5.80%	-5.2912	-0.7868	17.60%	-4.4697
International_Effect	-0.1869	8.47%	-2.2070	-2.9790	76.83%	-3.8772
StockOption_Effect	0.2198	7.23%	3.0422	0.6407	13.71%	4.6750
Other_Effect	0.2391	80.28%	0.2979	0.2482	85.76%	0.2894
UncertTaxPositions_Effect	-0.0664	4.48%	-1.4819	-0.2674	15.95%	-1.6769
ManufDeduction_Effect	-0.1307	5.19%	-2.5167	-0.2934	12.69%	-2.3122
PermDiff_Effect	0.2467	10.48%	2.3552	0.3481	12.36%	2.8159
PYandAudit_Effect	-0.1829	6.97%	-2.6221	-0.3587	15.62%	-2.2963
OtherCredits_Effect	-0.8204	12.87%	-6.3750	-0.9678	17.32%	-5.5879
MinorityInt_Effect	-0.0601	1.66%	-3.6074	-0.0738	3.01%	-2.4545
InProcesR&D_Effect	-0.0249	0.39%	-6.4307	0.1515	1.16%	13.009
LifeIns_Effect	-0.1106	3.90%	-2.8370	-0.0191	1.63%	-1.1682
Meals&Ent_Effect	0.0893	3.77%	2.3689	0.1126	3.15%	3.5692
DivReceivedDec_Effect	-0.0679	1.81%	-3.7517	0.0034	0.71%	0.4731
NOL_Effect	-0.4996	3.19%	-15.681	-0.1442	3.55%	-4.061
Depletion_Effect	-0.2176	2.49%	-8.7295	-0.1313	1.29%	-10.216
NonDedExp_Effect	0.2481	7.71%	3.2167	0.2951	8.36%	3.5296
M&A_Effect	0.0442	1.75%	2.5175	0.1897	3.91%	4.8470
Intang&GW_Effect	0.5383	9.12%	5.9050	0.7049	9.56%	7.3749

Table 2 – Descriptive Statistics (continued)
Panel C: Dollar Effects Full Sample (n = 23,479)

	Mean	% ≠ 0	Mean, ≠ 0 obs.	Std. Dev.
State_Dollars	4.4287	88.36%	5.0121	19.921
VA_Dollars	-1.0273	27.79%	-3.6964	40.453
Miscellaneous_Dollars	-1.6744	27.23%	-6.1494	38.896
MuniInterest_Dollars	-0.2954	11.21%	-2.6358	9.4659
ResearchCredit_Dollars	-0.4712	12.01%	-3.9215	14.953
International_Dollars	-10.442	44.48%	-23.478	114.76
StockOption_Dollars	0.2048	10.64%	1.9253	4.8561
Other_Dollars	-1.3339	83.17%	-1.6039	49.483
UncertTaxPositions_Dollars	-0.0067	10.52%	-0.0635	9.0272
ManufDeduction_Dollars	-0.8839	9.14%	-9.6710	10.266
PermDiff_Dollars	0.0790	11.47%	0.6888	3.4002
PYandAudit_Dollars	-0.7264	11.53%	-6.3000	33.918
OtherCredits_Dollars	-1.0401	15.21%	-6.8366	10.059
MinorityInt_Dollars	-0.5566	2.37%	-23.464	19.586
InProcesR&D_Dollars	-0.1168	0.80%	-14.659	19.582
LifeIns_Dollars	-0.0181	2.70%	-0.6704	0.8583
Meals&Ent_Dollars	0.0281	3.45%	0.8148	0.4976
DivReceivedDec_Dollars	-0.2151	1.23%	-17.473	11.537
NOL_Dollars	-0.0827	3.38%	-2.4478	3.6106
Depletion_Dollars	-0.2273	1.86%	-12.238	5.2136
NonDedExp_Dollars	0.1103	8.05%	1.3695	1.4287
M&A_Dollars	-0.1577	2.89%	-5.4515	21.772
Intang&GW_Dollars	0.7361	9.35%	7.8737	17.331

Table 2 - Descriptive Statistics (continued)
Panel D: Dollar Effects, MNE = 0 and MNE = 1

	MNE=0 (n = 11,112)			MNE=1 (n = 12,367)		
	Mean	% ≠ 0	Mean, ≠ 0 obs.	Mean	% ≠ 0	Mean, ≠ 0 obs.
State_Dollars	2.8065	86.03%	3.2621	5.8862	90.45%	6.5077
VA_Dollars	-0.9710	19.61%	-4.9515	-1.0779	35.14%	-3.0672
Miscellaneous_Dollars	-0.3439	22.23%	-1.5470	-2.8699	31.72%	-9.0472
MuniInterest_Dollars	-0.1241	16.35%	-0.7592	-0.4492	6.58%	-6.8247
ResearchCredit_Dollars	-0.1201	5.80%	-2.0728	-0.7866	17.60%	-4.4684
International_Dollars	-0.2969	8.47%	-3.5059	-19.559	76.83%	-25.456
StockOption_Dollars	-0.0311	7.23%	-0.4303	0.4168	13.71%	3.0413
Other_Dollars	-0.0814	80.28%	-0.1014	-2.4593	85.76%	-2.8677
UncertTaxPositions_Dollars	-0.0658	4.48%	-1.4680	0.0464	15.95%	0.2912
ManufDeduction_Dollars	-0.1751	5.19%	-3.3721	-1.5208	12.69%	-11.987
PermDiff_Dollars	0.0005	10.48%	0.0050	0.1495	12.36%	1.2094
PYandAudit_Dollars	-0.2210	6.97%	-3.1681	-1.1805	15.62%	-7.5563
OtherCredits_Dollars	-0.2530	12.87%	-1.9660	-1.7473	17.32%	-10.088
MinorityInt_Dollars	-0.1293	1.66%	-7.7666	-0.9406	3.01%	-31.270
InProcesR&D_Dollars	-0.1683	0.39%	-43.482	-0.0705	1.16%	-6.0524
LifeIns_Dollars	-0.0184	3.90%	-0.4725	-0.0179	1.63%	-1.0948
Meals&Ent_Dollars	0.0389	3.77%	1.0303	0.0184	3.15%	0.5832
DivReceivedDec_Dollars	-0.0071	1.81%	-0.3952	-0.4019	0.71%	-56.481
NOL_Dollars	-0.0566	3.19%	-1.7770	-0.1061	3.55%	-2.9887
Depletion_Dollars	-0.0954	2.49%	-3.8274	-0.3457	1.29%	-26.890
NonDedExp_Dollars	0.0326	7.71%	0.4229	0.1801	8.36%	2.1540
M&A_Dollars	-0.0148	1.75%	-0.8413	-0.2860	3.91%	-7.3089
Intang&GW_Dollars	0.2029	9.12%	2.2254	1.2152	9.56%	12.714

Notes: Table 2 presents descriptive statistics. In Panel A we present the mean, the percentage of non-zero observations, and the mean of non-zero observations for the full sample of firms. In Panel B we present the same statistics on the sample partitioned on MNE = 0 and MNE = 1. In Panel C we present descriptive statistics of the dollar effect using the ETR rate effect * PI. In Panel D we present the same statistics on the sample partitioned on MNE = 0 and MNE = 1. We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero ($|TXFO| > 0$). We outline our sample selection criteria in Table 1.

Table 3 – ETR Components by Industry

	Mining		Construction		Manufacturing		Transportation, Comm., Electric & Gas	
	n = 908		n = 398		n = 11,300		n = 826	
	mean ETR = 29.46%		mean ETR = 34.30%		mean ETR = 30.93%		mean ETR = 35.22%	
	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.
State_Effect	1.3291	78.85%	3.3873	94.97%	1.9617	89.62%	2.5421	90.80%
VA_Effect	-3.0935	31.72%	-5.3579	30.65%	-3.1975	30.85%	-1.9280	18.77%
Miscellaneous_Effect	0.7875	25.66%	-0.2028	32.91%	-0.2034	29.22%	0.4815	33.41%
MuniInterest_Effect	0.0464	0.66%	-0.0165	2.26%	-0.2017	7.24%	-0.2953	6.90%
ResearchCredit_Effect	-0.0288	1.65%	-0.0375	1.26%	-0.8703	19.40%	0.0000	0.00%
International_Effect	-0.6696	30.62%	-0.8967	24.37%	-2.5649	60.14%	-1.3409	26.39%
StockOption_Effect	0.3090	6.72%	0.2399	4.77%	0.5238	11.32%	0.0266	2.78%
Other_Effect	0.5579	76.10%	0.2540	81.16%	0.2249	84.63%	0.1269	81.84%
UncertTaxPositions_Effect	-0.1361	5.62%	-1.0542	17.34%	-0.1637	12.59%	-0.0824	4.12%
ManufDeduction_Effect	0.0199	7.05%	-0.3797	12.56%	-0.3484	15.00%	-0.0043	0.24%
PermDiff_Effect	0.2743	11.67%	0.2312	15.08%	0.2416	11.45%	0.1198	6.05%
PYandAudit_Effect	-0.2891	11.78%	-0.4596	7.79%	-0.3149	14.50%	-0.2229	7.14%
OtherCredits_Effect	-0.5998	11.56%	-0.2490	6.28%	-0.8339	15.50%	-0.3404	11.26%

Table 3 – ETR Components by Industry (continued)

	Wholesale		Retail		Services		Other	
	n = 1,272 mean ETR = 35.19%		n = 2,343 mean ETR = 34.98%		n = 4,275 mean ETR = 33.30%		n = 47 mean ETR = 31.21%	
	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.
State_Effect	3.1502	92.77%	3.2406	92.96%	3.5058	92.54%	2.9912	85.11%
VA_Effect	-1.5989	23.51%	-2.0021	20.53%	-5.3268	35.67%	-0.7441	25.53%
Miscellaneous_Effect	-0.2905	27.44%	-0.1144	17.80%	-0.0044	29.36%	-4.1419	36.17%
MuniInterest_Effect	-0.1179	4.17%	-0.0671	5.80%	-0.2526	7.42%	-0.0717	12.77%
ResearchCredit_Effect	-0.0031	0.63%	-0.0759	0.55%	-0.7114	13.57%	0.0000	0.00%
International_Effect	-1.0491	41.90%	-0.3847	19.38%	-1.2285	46.62%	-0.8566	51.06%
StockOption_Effect	0.0675	6.68%	0.0911	6.44%	0.7664	16.21%	0.0000	0.00%
Other_Effect	0.0651	83.18%	0.1204	81.39%	0.4941	77.92%	-0.2495	65.96%
UncertTaxPositions_Effect	-0.2467	10.38%	-0.1698	7.51%	-0.2123	13.22%	0.0000	0.00%
ManufDeduction_Effect	-0.0863	5.58%	-0.0506	1.54%	-0.1791	5.15%	-0.0978	8.51%
PermDiff_Effect	0.0856	7.47%	0.2852	12.59%	0.7215	17.96%	0.0000	0.00%
PYandAudit_Effect	-0.1367	9.59%	-0.1521	8.02%	-0.3566	11.27%	-1.0747	10.64%
OtherCredits_Effect	-0.1507	7.70%	-1.9041	24.29%	-1.0745	14.43%	-0.2278	14.89%

Notes: Table 3 presents the mean and frequency of the various ETR reconciliation components on the sample partitioned on industry. We define industry using the ten SIC divisions defined by the U.S. Federal government. They are A: Agriculture, Forestry, and Fishing; B: Mining; C: Construction; D: Manufacturing; E: Transportation, Communications, Electric, Gas, and Sanitary Services; F: Wholesale Trade; G: Retail Trade; H: Finance, Insurance and Real Estate; I: Services; J: Public Administration, and an Other category including SIC Code 99. Our sample does not include any observations from Division A, Division H, or Division J. The two-digit SIC codes contained in each division can be found at: https://www.osha.gov/pls/imis/sic_manual.html.

Table 4 – ETR Time Trends
Panel A: Full Sample, MNE=0, and MNE=1

	Pred.	(i) All Firms		(ii) MNE=0		(iii) MNE=1	
		Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	+	35.217	(189.21)***	34.907	(152.50)***	35.038	(166.09)***
Time	-	-0.3250	(-18.93)***	-0.2879	(-11.82)***	-0.3599	(-14.04)***
N		23,479		11,112		12,367	
Adj. R squared		0.015		0.012		0.016	

χ^2 : Time_{MNE=1} \neq Time_{MNE=0} = 4.15**

Panel B: Time Trends in ETR by Industry

	Pred.	(i) Mining		(ii) Construction		(iii) Manufacturing	
		Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	+	29.719	(26.09)***	37.780	(27.69)***	35.038	(139.06)***
Time	-	-0.026	(-0.24)	-0.355	(-2.67)***	-0.433	(-17.85)***
N		908		398		11,300	
Adj. R squared		-0.001		0.015		0.026	

	Pred.	(iv) Transportation, Comm, Electric & Gas		(v) Wholesale		(vi) Retail	
		Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	+	37.405	(189.21)***	37.305	(55.21)***	37.231	(84.88)***
Time	-	-0.238	(-18.93)***	-0.234	(-3.70)***	-0.238	(-5.36)***
N		826		1,272		2,343	
Adj. R squared		0.011		0.001		0.012	

	Pred.	(vii) Services		(viii) Other	
		Coeff.	t-stat	Coeff.	t-stat
Intercept	+	36.220	(65.34)***	39.29	(16.60)***
Time	-	-0.290	(-5.94)***	-0.854	(-2.61)**
N		4,275		47	
Adj. R squared		0.008		0.051	

Table 4 – ETR Time Trends (continued)
Panel C: Time Trends in ETR Components Full Sample

	Full Sample (n=23,497)			
	Coeff. Intercept	t-stat	Coeff. Time	t-stat
State_Effect	2.9507	(40.81)***	-0.0506	(-6.57)***
VA_Effect	-2.3980	(-13.01)***	-0.0823	(-3.96)***
Miscellaneous_Effect	-0.0705	(-0.64)	-0.0046	(-0.39)
MuniInterest_Effect	-0.8850	(-19.81)***	0.0467	(13.77)***
ResearchCredit_Effect	-0.1107	(-2.35)**	-0.0492	(-8.94)***
International_Effect	0.1700	(1.63)	-0.2003	(-15.74)***
StockOption_Effect	-0.1316	(-3.42)***	0.0628	(12.27)***
Other_Effect	0.3438	(4.93)***	-0.0109	(-1.67)*
UncertTaxPositions_Effect	0.0162	(0.45)	-0.0207	(-3.21)***
ManufDeduction_Effect	0.1572	(12.93)***	-0.0409	(-16.71)***
PermDiff_Effect	0.1083	(2.48)**	0.0210	(3.64)***
PYandAudit_Effect	-0.2718	(-4.59)***	-0.0004	(-0.06)
OtherCredits_Effect	-0.4036	(-6.89)***	-0.0542	(-7.86)***

Table 4 – ETR Time Trends (continued)
Panel D: Time Trends in ETR Components, MNE = 0 and MNE = 1

	(i) MNE = 0 (n=11,112)				(ii) MNE = 1 (n=12,367)			
	Coeff. Intercept	t-stat	Coeff. Time	t-stat	Coeff. Intercept	t-stat	Coeff. Time	t-stat
State_Effect	3.1076	(34.62)***	-0.0071	(-0.62)	2.4888	(20.48)***	-0.0481	(-4.33)***
VA_Effect	-1.9070	(-7.84)***	-0.2902	(-8.69)***	-2.3750	(-8.16)***	0.0080	(0.29)
Miscellaneous_Effect	-0.0337	(-0.27)	-0.0291	(-1.75)*	-0.0306	(-0.15)	0.0044	(0.24)
MuniInterest_Effect	-1.2044	(-18.70)***	0.0615	(11.48)***	-0.3855	(-6.79)***	0.0169	(4.06)***
ResearchCredit_Effect	-0.0285	(-0.57)	-0.0368	(-5.04)***	-0.3086	(-3.36)***	-0.0454	(-5.35)***
International_Effect	-0.1313	(-1.93)*	-0.0073	(-0.91)	-0.1227	(-0.54)	-0.2714	(-12.47)***
StockOption_Effect	-0.1053	(-2.05)**	0.0430	(5.88)***	-0.0931	(-1.59)	0.0697	(9.98)***
Other_Effect	0.1938	(2.15)**	0.0060	(0.64)	0.5359	(4.89)***	-0.0273	(-2.86)***
UncertTaxPositions_Effect	-0.0162	(-0.47)	-0.0066	(-0.92)	0.0134	(0.19)	-0.0267	(-2.75)***
ManufDeduction_Effect	0.1147	(6.36)***	-0.0324	(-7.69)***	0.1957	(10.91)***	-0.0465	(-14.82)***
PermDiff_Effect	0.0872	(1.69)*	0.0211	(2.48)**	0.1454	(1.89)*	0.0193	(2.30)**
PYandAudit_Effect	-0.2112	(-3.02)***	0.0037	(0.39)	-0.3963	(-3.76)***	0.0036	(0.36)
OtherCredits_Effect	-0.4177	(-5.31)***	-0.0532	(-4.68)***	-0.3831	(-4.20)***	-0.0556	(-6.00)***

Notes: Table 4 Panel A presents the results of estimating Equation (1) on the full sample of firms in column (i), domestic firms (MNE = 0) in column (ii), and multinational firm (MNE = 1) in column (iii). In Panel B we present the results of estimating Equation (1) on the sample partitioned by industry groupings (defined as the ten SIC divisions defined by the U.S. Federal government. They are A: Agriculture, Forestry, and Fishing; B: Mining; C: Construction; D: Manufacturing; E: Transportation, Communications, Electric, Gas, and Sanitary Services; F: Wholesale Trade; G: Retail Trade; H: Finance, Insurance and Real Estate; I: Services; J: Public Administration, and an Other category containing SIC Code 99. Our sample does not include any observations from Division A, Division H, or Division J. The two-digit SIC codes contained in each division can be found at: https://www.osha.gov/pls/imis/sic_manual.html. In Panels C and D we present the results of estimating Equation (2) examining time trends in various ETR reconciliation components. Panel C presents the results of estimating Equation (2) on the full sample of firms and Panel D presents the sample partitioned on MNE = 0 and MNE = 1. We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero ($|TXFO| > 0$). We outline our sample selection criteria in Table 1.

Table 5 –Time Trends in Adjusted ETR**Panel A: Time Trend of ETR less International_Effect and State_Effect**

	Pred.	(i) All Firms		(ii) MNE=1		(iii) MNE=0	
		Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	+	32.096	(171.32)***	33.236	(100.10)***	31.931	(146.33)***
Time	-	-0.074	(-3.78)***	-0.040	(-1.36)	-0.273	(-10.24)***
N		23,479		12,367		11,112	
Adj. R squared		0.0006		0.0001		0.0102	
χ^2 : Time _{MNE=1} \neq Time _{MNE=0} = 34.02***							

Panel B: Time Trend of ETR less VA_Effect

	Pred.	(i) All Firms		(ii) MNE=1		(iii) MNE=0	
		Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	+	37.615	(203.58)***	37.978	(121.00)***	36.815	(161.22)***
Time	-	-0.2432	(-12.13)***	-0.3679	(-12.76)***	0.0023	(0.08)
N		23,479		12,367		11,112	
Adj. R squared		0.0061		0.0115		-0.0001	
χ^2 : Time _{MNE=1} \neq Time _{MNE=0} = 82.67***							

Notes: Table 6 presents the results of estimating Equation (1) with different adjustments to the ETR. Panel A presents time trend regressions using ETR excluding the International_Effect and State_Effect reconciling items as the dependent variable, and Panel B presents time trend regressions using ETR excluding VA_Effect reconciling items as the dependent variable. For each panel, we present the results for all firms in column (i), multinational firm (MNE = 1) in column (ii), and domestic firms in column (iii). We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero (|TXFO| > 0). We outline our sample selection criteria in Table 1.

Table 6 – Partitioning the International ETR Effect into Rate and Income Components
Panel A: MNE=1

Dependent Variable = ETR

	Pred.	Coeff.	t-stat
Intercept	+	0.4529	(0.75)
Time	-	-0.1720	(-2.83)***
FIncPerc		-2.8447	(-1.90)*
FETR		1.1678	(2.30)***
FIncPerc*Time		-0.2314	(-1.67)*
FETR*Time		0.0932	(1.72)
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N		8,927	
Adj. R squared		0.0926	

Panel B: Time Trends in Percent foreign income and foreign ETR

	Pred.	(i) DV = FIncPerc		(ii) DV = FETR	
		Coeff.	t-stat	Coeff.	t-stat
Intercept	+	0.4235	(18.96)***	0.3336	(22.55)***
Time	-	0.0053	(3.06)***	-0.0077	(-6.63)***
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N		8,927		8,927	
Adj. R squared		0.001		0.006	

Notes: Table 6 Panel A presents the results of estimating Equation (1) on the subsample of MNE = 1 firms. In Panel B we present the results of estimating Equation (2) on the subsample of MNE = 1 firms. In column (i) the dependent variable is a firm's percentage of foreign income, in column (ii) the dependent variable is a firm's foreign effective tax rate. We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero (|TXFO| > 0). We measure FIncPerc as the ratio of foreign income to total income (PIFO/PI) and FETR as foreign tax expense divided by foreign pre-tax income. We outline our sample selection criteria in Table 1.

Table 7 – Examining the source of VA ETR effect**Panel A**

VA Increase	N	Total Dollar Effect (millions)	Mean dollar effect (millions)
Full Sample	2,506	\$26,189	\$10.45
MNE = 1	1,903	\$24,241	\$12.74
MNE = 0	603	\$1,947	\$3.22

VA Release	N	Total Dollar Effect (millions)	Mean dollar effect (millions)
Full Sample	4,019	\$50,309	\$12.52
MNE = 1	2,443	\$37,571	\$15.44
MNE = 0	1,576	\$12,737	\$8.08

Panel B**Full Sample**

Number of loss years in t-4 to t-1	N	% of Total	Mean ETR	Mean VA_Effect
0	10,696	68.04%	33.5792	-0.2617
1	2,724	17.33%	31.7369	-2.8042
2	1,343	8.54%	26.7103	-11.2268
3	664	4.22%	22.1411	-20.5711
4	294	1.87%	16.0844	-23.6012

MNE=0

Number of loss years in t-4 to t-1	N	% of Total	Mean ETR	Mean VA_Effect
0	4,222	66.30%	35.4668	-0.5842
1	1,080	16.96%	32.5009	-4.3388
2	594	9.33%	26.5544	-13.4171
3	304	4.77%	18.9188	-26.7012
4	168	2.64%	10.3376	-28.9689

MNE=1

Number of loss years in t-4 to t-1	N	% of Total	Mean ETR	Mean VA_Effect
0	6,474	69.22%	32.3483	-0.0514
1	1,644	17.58%	31.235	-1.7961
2	749	8.01%	26.834	-9.4898
3	360	3.85%	24.8621	-15.3945
4	126	1.35%	23.7468	-16.4443

Notes: Table 7 Panel A presents number of observations, the total and the mean of the VA increases and releases for the full sample and for the MNE = 1 and MNE = 0 subsamples. Only observations with at least 5-years of consecutive data are included, thus the full sample is 15,721 observations. In Panel B we present the number of observations with losses in the prior years (one, through four), the ETR and VA ETR effect of each group. We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero ($|TXFO| > 0$). We outline our sample selection criteria in Table 1

Table 8 – ETR Time trends – Cross-sectional analysis

Panel A: ETR Time trends for Large and Small Firms – Domestic and MNE

MNE = 0	Pred.	(i) Large		(ii) Small	
		Coeff.	t-stat	Coeff.	t-stat
Intercept	+	35.906	(84.07)***	33.817	(81.31)***
Time	-	-0.2218	(-4.48)***	-0.4344	(-8.66)***
N		1,414		4,050	
Adj. R squared		0.0117		0.0185	
$\chi^2: \text{Time}_{\text{Large}} \neq \text{Time}_{\text{Small}} = 9.0954***$					
MNE = 1	Pred.	(iii) Large		(iv) Small	
		Coeff.	t-stat	Coeff.	t-stat
Intercept	+	36.607	(74.50)***	32.839	(48.04)***
Time	-	-0.4539	(-11.61)***	-0.4180	(-5.18)***
N		4,455		1,815	
Adj. R squared		0.0274		0.0146	
$\chi^2: \text{Time}_{\text{Large}} \neq \text{Time}_{\text{Small}} = 0.1605$					

Table 8 – ETR Time trends – Cross-sectional analysis (continued)
Panel B: ETR Component Time trends for Large and Small Firms – Domestic and MNE

	(i) Large MNE = 0 (n=1,414)				(ii) Small MNE = 0 (n=4,055)			
	Coeff. Intercept	t-stat	Coeff. Time	t-stat	Coeff. Intercept	t-stat	Coeff. Time	t-stat
State_Effect	2.1420	(7.27)***	0.0117	(0.37)	3.5441	(20.91)***	0.0057	(0.26)
VA_Effect	0.2818	(0.75)	-0.2230	(-3.58)***	-4.0185	(-7.95)***	-0.5398	(-7.42)***
Miscellaneous_Effect	0.4278	(1.47)	-0.0897	(-2.39)**	-0.061	(-0.25)	-0.0175	(-0.54)
MuniInterest_Effect	-1.5489	(-8.87)***	0.0962	(8.41)***	-0.3735	(-4.09)***	0.0172	(2.17)**
ResearchCredit_Effect	-0.0215	(-0.69)	-0.0082	(-1.14)	-0.0877	(-0.77)	-0.0620	(-3.97)***
International_Effect	0.3844	(1.53)	-0.0766	(-2.65)***	-0.1637	(-1.48)	-0.0069	(-0.57)
StockOption_Effect	-0.0265	(-0.36)	0.0188	(1.26)	-0.1592	(-1.72)*	0.0658	(4.91)***
Other_Effect	-0.4174	(-1.64)	0.0530	(2.20)**	0.3744	(2.09)**	0.0095	(0.46)
UncertTaxPositions_Effect	0.0939	(1.19)	-0.0323	(-1.97)**	-0.0872	(-1.31)	0.0085	(0.58)
ManufDeduction_Effect	0.1027	(4.48)***	-0.0296	(-4.75)***	0.0483	(2.19)**	-0.0157	(-2.99)***
PermDiff_Effect	0.0383	(1.39)	-0.0100	(-1.09)	0.1592	(1.50)	0.0603	(3.55)***
PYandAudit_Effect	-0.5485	(-2.53)**	0.0194	(1.39)	-0.2366	(-1.60)	0.0084	(0.41)
OtherCredits_Effect	-1.2049	(-3.44)***	0.0499	(1.90)*	-0.239	(-2.09)**	-0.0811	(-3.93)***

Table 8 – ETR Time trends – Cross-sectional analysis (continued)
Panel B: ETR Component Time trends for Large and Small Firms – Domestic and MNE (continued)

	(iii) Large MNE = 1 (n=4,455)				(iv) Small MNE = 1 (n=1,815)			
	Coeff. Intercept	t-stat	Coeff. Time	t-stat	Coeff. Intercept	t-stat	Coeff. Time	t-stat
State_Effect	1.9060	(10.81)***	-0.0334	(-2.17)**	2.8512	(11.98)***	-0.0673	(-1.95)*
VA_Effect	0.0218	(0.06)	-0.0040	(-0.13)	-4.4519	(-4.93)***	-0.4685	(-3.77)***
Miscellaneous_Effect	0.3926	(1.15)	-0.0479	(-1.78)*	-0.5669	(-1.21)	0.1181	(1.97)**
MuniInterest_Effect	-0.3029	(-4.05)***	0.0132	(2.18)**	-0.3450	(-3.32)***	0.0045	(0.37)
ResearchCredit_Effect	0.0126	(0.07)	-0.0296	(-2.44)**	-0.8007	(-2.95)***	-0.0510	(-1.56)
International_Effect	-0.6461	(-1.59)	-0.3380	(-10.16)***	0.0945	(0.18)	-0.1922	(-2.82)***
StockOption_Effect	-0.0693	(-0.89)	0.0389	(5.51)***	0.0359	(0.19)	0.0871	(3.08)***
Other_Effect	-0.0635	(-0.50)	0.0003	(0.02)	1.1856	(3.62)***	-0.0159	(-0.46)
UncertTaxPositions_Effect	0.2332	(2.12)**	-0.0404	(-2.86)***	0.1293	(0.62)	-0.0776	(-1.96)**
ManufDeduction_Effect	0.2355	(5.53)***	-0.0498	(-8.14)***	0.0506	(4.74)***	-0.0166	(-6.80)***
PermDiff_Effect	0.0249	(0.49)	0.0099	(1.64)	0.2880	(1.17)	0.0459	(1.56)
PYandAudit_Effect	-0.8956	(-4.12)***	0.0386	(2.38)**	-0.0682	(-0.25)	0.0258	(0.70)
OtherCredits_Effect	-0.2750	(-1.82)*	-0.0529	(-3.60)***	-0.4549	(-2.54)***	-0.0542	(-2.22)**

Table 8 – ETR Time trends – Cross-sectional analysis (continued)
Panel C: ETR Time trends for High and Low Growth Firms – Domestic and MNE

MNE = 0	Pred.	(i) High growth		(ii) Low growth	
		Coeff.	t-stat	Coeff.	t-stat
Intercept	+	33.757	(60.66)***	35.000	(107.88)***
Time	-	-0.2660	(-4.99)***	-0.2426	(-4.96)***
N		2,166		4,414	
Adj. R squared		0.0099		0.0072	
$\chi^2: \text{Time}_{\text{High growth}} \neq \text{Time}_{\text{Low growth}} = 0.1046$					
MNE = 1	Pred.	(iii) High growth		(iv) Low growth	
		Coeff.	t-stat	Coeff.	t-stat
Intercept	+	33.674	(67.49)***	37.405	(46.57)***
Time	-	-0.3303	(-8.06)***	-0.2983	(-3.86)***
N		3,509		2,040	
Adj. R squared		0.0174		0.0063	
$\chi^2: \text{Time}_{\text{High growth}} \neq \text{Time}_{\text{Low growth}} = 0.1325$					

Table 8 – ETR Time trends – Cross-sectional analysis (continued)

Panel D: ETR Component Time trends for High and Low Growth Firms – Domestic and MNE

	(i) High growth MNE = 0 (n=2,166)				(ii) Low growth MNE = 0 (n=4,414)			
	Coeff. Intercept	t-stat	Coeff. Time	t-stat	Coeff. Intercept	t-stat	Coeff. Time	t-stat
State_Effect	3.2181	(11.61)***	-0.0188	(-0.73)	2.9090	(22.15)***	0.0258	(1.15)
VA_Effect	-5.0379	(-7.03)***	-0.1469	(-1.94)*	-0.8320	(-2.51)**	-0.3085	(-5.27)***
Miscellaneous_Effect	-0.0959	(-0.29)	-0.0201	(-0.55)	0.0373	(0.19)	-0.0066	(-0.21)
MuniInterest_Effect	-0.2049	(-2.99)***	0.0085	(1.59)	-2.0017	(-15.58)***	0.0758	(5.26)***
ResearchCredit_Effect	-0.3158	(-1.26)	-0.0341	(-1.47)	0.0302	(0.80)	-0.0243	(-2.60)***
International_Effect	-0.0028	(-0.01)	0.0110	(0.55)	-0.0508	(-0.59)	-0.0294	(-1.94)*
StockOption_Effect	-0.4633	(-2.70)***	0.0865	(4.14)***	-0.0252	(-0.30)	0.0461	(2.98)***
Other_Effect	-0.0194	(-0.06)	0.0215	(0.81)	0.1763	(1.36)	0.0317	(1.68)*
UncertTaxPositions_Effect	-0.0680	(-0.92)	0.0159	(1.15)	0.0872	(1.70)*	-0.0288	(-2.08)**
ManufDeduction_Effect	0.0898	(2.27)**	-0.0271	(-3.93)***	0.0850	(4.60)***	-0.0236	(-4.67)***
PermDiff_Effect	0.0969	(0.62)	0.0224	(1.21)	-0.0007	(-0.01)	0.0423	(3.56)***
PYandAudit_Effect	0.0958	(0.74)	-0.0274	(-1.68)*	-0.1187	(-1.36)	-0.0064	(-0.49)
OtherCredits_Effect	-0.2494	(-1.09)	-0.0503	(-1.73)*	-0.5546	(-4.22)***	-0.0554	(-2.57)**

Table 8 – ETR Time trends – Cross-sectional analysis (continued)

Panel D: ETR Component Time trends for High and Low Growth Firms – Domestic and MNE (continued)

	(iii) High growth MNE = 1 (n=3,509)				(iv) Low growth MNE = 1 (n=2,040)			
	Coeff. Intercept	t-stat	Coeff. Time	t-stat	Coeff. Intercept	t-stat	Coeff. Time	t-stat
State_Effect	2.3770	(10.60)***	-0.0368	(-1.90)*	2.6248	(6.89)***	-0.0439	(-1.21)
VA_Effect	-3.5445	(-6.81)***	0.0045	(0.10)	-1.6529	(-1.90)*	0.0183	(0.20)
Miscellaneous_Effect	-0.3728	(-1.04)	0.0246	(0.82)	0.2962	(0.45)	0.0036	(0.06)
MuniInterest_Effect	-0.6134	(-4.94)***	0.0333	(3.98)***	-0.1780	(-1.08)	-0.0029	(-0.23)
ResearchCredit_Effect	-0.5344	(-2.43)**	-0.0540	(-2.68)***	-0.3765	(-1.86)	-0.0257	(-1.28)
International_Effect	-0.2992	(-0.85)	-0.2859	(-8.59)***	-0.3038	(-0.42)	-0.1658	(-2.45)**
StockOption_Effect	0.0890	(0.57)	0.0783	(4.95)***	-0.1440	(-3.01)***	0.0566	(5.77)***
Other_Effect	0.5633	(3.87)***	-0.0243	(-2.12)**	0.7874	(2.26)**	-0.0271	(-0.89)
UncertTaxPositions_Effect	-0.0348	(-0.50)	-0.0046	(-0.41)	0.0446	(0.23)	-0.0416	(-1.24)
ManufDeduction_Effect	0.1621	(8.88)***	-0.0426	(-17.85)***	0.2180	(3.98)***	-0.0504	(-4.71)
PermDiff_Effect	0.0281	(0.31)	0.0188	(1.48)	0.4484	(1.57)	0.0163	(0.55)
PYandAudit_Effect	-0.2654	(-2.39)**	0.0065	(0.51)	-0.4853	(-1.24)	0.0113	(0.31)
OtherCredits_Effect	-0.3971	(-2.17)**	-0.0565	(-2.99)***	-0.2088	(-0.97)	-0.0952	(-3.81)

Notes: Table 8 presents the results of estimating Equation (1) and Equation (2) for two groups of 2x2 subsamples: Big/Small x MNE/Domestic and High Growth/Low Growth x MNE/Domestic. Panel A of Table 5 presents the results of estimating Equation (1) with the sample partitioned on size and Panel B presents the results of estimating Equation (2) with the sample partitioned on size. In both Panels A and B, column (i) includes large domestic firms, column (ii) includes small domestic firms, column (iii) includes large MNEs, and column (iv) includes small MNEs. Panel C of Table 5 presents the results of estimating Equation (1) with the sample partitioned on growth and Panel D presents the results of estimating Equation (2) with the sample partitioned on growth. In both Panels C and D, column (i) includes high growth domestic firms, column (ii) includes low growth domestic firms, column (iii) includes high growth MNEs, and column (iv) includes low growth MNEs. We define MNE = 1 following Dyreng et al. (2017) as current year pretax foreign income greater than zero (PIFO > 0), or if the absolute value of foreign tax expense is greater than zero ($|TXFO| > 0$). We outline our sample selection criteria in Table 1.