

THE ROLE OF TAXES IN FOREIGN EARNINGS MANAGEMENT:
IMPLICATIONS FOR PRICING OF FOREIGN EARNINGS

by

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DISSERTATION ABSTRACT

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Title: The Role of Taxes in Foreign Earnings Management: Implications for Pricing of Foreign Earnings

U.S. multinational corporations are well known for shifting income to low tax foreign subsidiaries to avoid U.S. income tax. Yet little is known about how multinational corporations opportunistically use low tax foreign subsidiaries for financial reporting purpose. Understanding this question has implications for U.S. accounting regulators to set enforcement targets. Using worldwide consolidated financial statements, I examine the role of taxes for multinational corporations to manage earnings in foreign subsidiaries. I find that by managing earnings in low tax foreign countries, multinational corporations can reduce the effective tax rate on pretax accrual earnings by an average of 4.3%. To examine the implication of opportunistic foreign earnings management on investors' equity valuation, I find evidence that investors do not seem to overvalue foreign managed earnings compared to domestic managed earnings, though foreign earnings are on average valued higher than domestic earnings.

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CHAPTER I

INTRODUCTION

This study examines the role of taxes for U.S. multinational corporations (MNCs) to manage accounting earnings in foreign subsidiaries, and how investors recognize MNCs' foreign earnings management when valuing foreign versus domestic earnings. Because intra-MNC income shifting using intercompany transactions (such as transfer pricing through royalty payments) is eliminated in the consolidated financial statements, earnings management that affects consolidated net income requires real operation activities from different affiliates, which distinguishes my research question from the studies related to tax-motivated income shifting between the U.S. and foreign affiliates (Collins et al. 1998; Klassen and Laplante 2012; Dyreng and Markle 2013).

For each country in which a MNC operates, the scale of operation in that country determines the size of potential accrual management that is perceived to have low detection risk. For a given amount of pretax earnings accrued in a foreign country with a lower tax rate than the U.S., the foreign subsidiary can report higher after-tax earnings than a comparable U.S. subsidiary due to the lower income tax expense. Therefore, within the perceived safe limits of accrual earnings management, accruing additional pretax earnings in low tax foreign countries can thus reduce the amount of pretax earnings required to achieve a specified target level of after-tax earnings, which, to the extent that earnings management is costly, can reduce the cost of earnings management.

Since the U.S. has two different reporting systems for tax and accounting, one might expect MNCs to avoid reporting taxes on inflated accounting earnings. However, doing so leads to a large book-tax difference, either temporary or permanent, which can signal poor earnings quality to regulators, investors and auditors (Mills 1998; Phillips et al. 2003; Hanlon 2005;

Hanlon et al. 2012). Based on a sample of firms that have overstated their accounting earnings, Erickson et al. (2004) illustrate the tax cost associated with accounting earnings management: these firms not only record but even pay taxes on the inflated accounting earnings. To lower the tax cost of foreign earnings management, MNCs can designate overstated foreign earnings as permanently reinvested according to Accounting Principles Board Statement No. 23 (APB 23).¹

Prior research on foreign earnings management predicts that MNCs might prefer to manage earnings in tax havens because tax haven countries have zero or extremely low tax rates (Dyreng et al. 2012). Despite of the tax advantage, I suggest that tax havens might only capture part of foreign earnings management activities due to their income shifting role. Both anecdotal and empirical evidence shows that tax haven subsidiaries lack of real economic investments and rely on income from intercompany transactions (Desai et al. 2006a; Desai et al. 2006b).² If a MNC inflates accounting accruals in tax havens, the inflated accruals based on intercompany transactions are eliminated during worldwide accounting consolidation, meanwhile the inflated accruals from real operation in tax havens only making a limited impact on the consolidated earnings. Thus, I expand the foreign earnings management prediction to other low tax foreign countries and provide evidence on the amount of tax expense that MNCs can reduce through foreign earnings management.

¹ If a MNC records or pays taxes on managed earnings based on the low foreign tax rates instead of the U.S. tax rate, this could lead to a decrease in the effective tax rate and an increase in the permanent book tax difference. In the MNC's effective tax rate reconciliation schedule, this shows as a deduction from the U.S. statutory tax rate due to foreign statutory tax rate differences. Compared to the book tax difference caused by accounting items such as stock options or goodwill, the difference due to foreign statutory tax rates is less likely to raise a red flag for earnings management.

² In May 2013, Senator Levin (D-Mich) chaired a Senate hearing on Apple to shed light on the role of tax haven subsidiaries. Apple Sales International (ASI), an Irish subsidiary of the Apple Inc, hired no employees until 2011 but holds economic rights of Apple's intellectual properties worldwide. For other affiliates to use the intellectual properties, they need to pay royalties to ASI. In 2011, ASI received 22 billion income and paid 10 million taxes to Ireland based on the income related to the sales to Irish customers. As Apple negotiated a special tax rate of less than 2% with the Irish government, I infer that ASI had about 500 million Irish source income, only 2% of the total 22 billion income received, which means almost 98% income in ASI is received from other Apple affiliates through royalty payments.

I next investigate the implication of foreign earnings management on foreign earnings valuation. When valuing MNCs' foreign versus domestic earnings, researchers show that investors consistently value foreign earnings higher than domestic earnings, and attribute the finding to foreign markets having better growth opportunities than the domestic market (Bodnar and Weintrop 1997; Collins et al. 1998; Christophe 2002; Hope et al. 2008; Hope et al. 2009). However, to the extent that MNCs opportunistically manage earnings in foreign countries, domestic investors may attribute inflated foreign earnings to real foreign growth. The investors' failure to differentiate foreign earnings management from foreign earnings growth could lead to the foreign managed earnings being overvalued. Thus, I investigate how investors price foreign managed earnings compared to domestic managed earnings.

Identifying earnings management in foreign subsidiaries of U.S. MNCs with worldwide consolidated financial statements presents an empirical challenge. To deal with this, I first apply the Dechow and Dichev (2002) discretionary accrual model to separately identify worldwide discretionary and nondiscretionary accruals. Next, I estimate the tax rate on discretionary versus nondiscretionary accruals using an approach adapted from Dyreng and Lindsey (2009). Specifically, I regress total income tax expense on contemporaneous pretax accounting earnings components, including discretionary and non-discretionary accruals, and interpret the coefficient on each earnings component as the effective tax rate (ETR) applicable to the specific earnings component. The salient feature of the design is that by comparing the coefficients on discretionary and nondiscretionary accruals, I can compare the ETR on discretionary accruals to the ETR on nondiscretionary accruals. Because nondiscretionary accruals reflect activities in both U.S. and foreign countries, I expect the ETR on nondiscretionary accruals to reflect a weighted average of U.S. and foreign corporate income tax rates. To the extent that MNCs concentrate earnings management in low tax foreign countries, I expect the ETR on discretionary accruals to be lower than the ETR on nondiscretionary accruals.

Due to better growth opportunities, foreign earnings are on average valued higher than domestic earnings. But to the extent that opportunistically managed foreign earnings cannot translate into future cash flow, managed foreign earnings will not be valued higher than domestic managed earnings. To estimate managed earnings derived from foreign and domestic sources, I follow Dyreng et al. (2012) by regressing discretionary accruals on foreign and domestic pretax earnings, the coefficients of which can be interpreted as the rates at which discretionary accruals are derived from foreign and domestic pretax earnings. Multiplying the coefficients by foreign and domestic pretax earnings, I can estimate foreign and domestic discretionary accruals. To the extent that investors can detect opportunistic foreign earnings management, I do not expect foreign discretionary accruals to be valued higher than domestic discretionary accruals.

Based on a sample of 11,356 U.S. MNC observations between 1988 and 2011, I find that the ETR on discretionary accruals is on average 4.3 percentage points lower than the ETR on nondiscretionary accruals. I subsequently perform additional tests to corroborate the finding. First, I collect a benchmark sample of 13,736 observations for U.S. domestic companies in the same sample period. As domestic companies have no access to foreign subsidiaries, I find the ETR on discretionary accruals is not significantly different from the ETR on nondiscretionary accruals (the ETR difference is 0.6 percentage points). In recent three decades, the U.S. gradually becomes one of the highest tax countries due to continuous foreign tax cut, I find the evidence in support of increasing foreign earnings management throughout the sample period.

Next, I separately identify a subsample of U.S. domestic firms that become MNCs during the sample period. Before the foreign expansion, the ETR on discretionary accruals is not significantly different from the ETR on nondiscretionary accruals. Associated with the foreign expansion, the incremental ETR on discretionary accruals is 3.9 percentage points lower than the incremental ETR on nondiscretionary accruals. The results are robust after I correct the sample selection issue for MNCs. Finally, I separately use MNCs' foreign and domestic ETRs to test

foreign and domestic earnings management. To the extent that foreign discretionary accruals are opportunistically concentrated in low tax countries, I predict and find that the foreign ETR on discretionary accruals is significantly lower than the foreign ETR on nondiscretionary accruals. On the other hand, MNCs are less likely to lower domestic income tax expense on domestic managed earnings. I predict and find that the domestic ETR on discretionary accruals is not significantly different from the domestic ETR on nondiscretionary accruals. In robustness tests, I find consistent evidence of foreign earnings management by using a different tax rate measure (weighted statutory tax rate).

To test how investors price foreign versus domestic discretionary accruals, I find that while foreign earnings are on average valued significantly higher than domestic earnings, foreign managed earnings are not valued significantly different from domestic managed earnings. Specifically, a one dollar increase in predicted foreign (domestic) discretionary accruals is valued at \$1.245 (1.446) and the marginal valuation difference \$0.201 is not significantly different from zero. The evidence suggests that investors price foreign discretionary accruals in a way consistent with the opportunistic earnings management hypothesis. The market valuation results are robust to discretionary accruals adjusted by performance matching and earnings components after tax.

When examining the foreign earnings management of MNCs, I implicitly assume that managers are on average motivated to manage earnings. Next, I focus on different settings in which earnings management is likely to occur. I do not find significant evidence of foreign earnings management in the first two settings where earnings might be managed to avoid a small decline, or to avoid missing analysts' forecasts. The lack of significant evidence is probably due to the data limitation that tests discretionary accruals at the foreign subsidiary level with incentives at the top consolidated level. To identify firm-years that are most likely to manage foreign earnings, I compare firm-years with high income increasing discretionary accruals to firm-years with low income increasing discretionary accruals and find that for firm-years with

high income increasing discretionary accruals, the ETR on discretionary accruals is 13.2% lower than the ETR on nondiscretionary accruals; while for firm-years with low income increasing discretionary accruals, the ETR on discretionary accruals is not significantly different from the ETR on nondiscretionary accruals. Furthermore, consistent with the foreign earnings management prediction, firm-years with high income increasing discretionary accruals have lower foreign ETR than firm-years with low income increasing discretionary accruals.

The finding of earnings management in low tax foreign subsidiaries has implications for accounting regulators. In recent years, MNCs are under increasing scrutiny from legislators and the White House administration for shifting income to low tax foreign countries, which erodes the U.S. tax revenue.³ However, less attention is paid to how MNCs might opportunistically manipulate accounting in low tax foreign subsidiaries. Thus, this study intends to inform accounting regulators about the significance of foreign earnings management, and help accounting regulators to set enforcement targets.

For U.S. auditors, this study provides a test using worldwide consolidated financial statements to identify foreign earnings management activities. This is helpful for U.S. auditors who often face cross border auditing challenges. Daniel L. Goelzer, the former PCAOB acting chairman, pointed out that U.S. auditors do not have sufficient understanding of foreign affiliate personnel and control environments, such as whether foreign personnel are familiar with U.S. GAAP and whether a foreign affiliate's work is adequately supervised.⁴

³ In 2012 and 2013, Senator Carl Levin (D-Mich) chaired two senate hearings on how MNCs (e.g., Microsoft, Hewlett-Packard and Apple) shift profits from the U.S. to low tax foreign subsidiaries such as tax havens. Both legislators and the White House have made a series of proposals to restrict income shifting (Gravelle 2013).

⁴ The speech of chairman Goelzer is available from http://pcaobus.org/News/Speech/Pages/12072009_Goelzer_AICPA_Speech.aspx.

This study contributes to the extant literature in several ways. First, it provides direct evidence on the role of taxes in foreign earnings management. Besides extending Durnev et al (2011) and Dyreng et al (2012), the study adds the implication of foreign earnings management on foreign earnings valuation. Second, Hanlon and Heitzman (2010) review a growing body of research suggesting that tax disclosures provide value relevant information for investors. Adding to the extant research, the evidence in this paper shows that investors can infer book effective tax rates from earnings management locations, which seems to be reflected in investors' equity valuation.

CHAPTER II

LITERATURE REVIEW AND HYPOTHESES

Foreign Earnings Management

Suppose a MNC wants to increase after-tax earnings by a specified target amount, the company can choose to inflate pretax accruals in the U.S., foreign subsidiaries or both.⁵ The earnings management decision depends on perceived earnings management cost, including the likelihood of detection. One factor that influences detection risk is country-level investor protection environment. Leuz et al. (2003) describe earnings management as a rent extraction activity used by managers to obscure true economic performance and conceal private benefits from outsiders. By comparing earnings management across 31 countries, Leuz et al. (2003) find that a strong investor protection environment is associated with less earnings management activity. Thus, to reduce detection risk, MNCs may manage earnings in affiliates with weak investor protection. Consistent with the prediction, Dyreng et al. (2012) find that MNCs with a higher concentration of subsidiaries in weak rule of law countries have more discretionary accruals. Beuselinck et al. (2010) find similar evidence for the European subsidiaries of EU MNCs.⁶

⁵ This study is agnostic regarding to whether the foreign earnings management is carried out at the headquarter level and/or the foreign subsidiary level. Motivated to meet the market's expectation, the top management determines the magnitude and location of earnings management, generating an earnings target for each subsidiary. The top management can either manipulate subsidiary accrual earnings during worldwide accounting consolidation, or delegate earnings management to foreign subsidiary managers by setting specified earnings targets for subsidiaries. The latter is likely when foreign subsidiaries have weak control environments and are not well supervised by headquarter accounting offices. See the example in Appendix B.

⁶ Though this study focuses on the role of taxes in foreign earnings management, I acknowledge investor protection environment could also influence foreign earnings management. In untabulated tests, after controlling for the investor protection environment of foreign subsidiaries in which MNCs operate, I find consistent evidence on the role of taxes in foreign earnings management.

In addition to investor protection environment, prior studies predict that tax havens might exacerbate foreign earnings management (Durnev et al. 2011; Dyreng et al. 2012). This is mainly for two reasons: first, tax havens have banking secrecy protection, which allows banks to refuse to share clients' information with foreign regulatory agencies.⁷ As MNCs set up complex shelters in tax havens to avoid taxes, the lack of transparency allows managers to conceal rent extraction activities such as earnings management from outside investors. Second, MNCs can reduce potential tax cost by managing earnings in tax havens. To the extent that the MNC records or pays taxes on managed earnings to reduce detection risk (Erickson et al. 2004), earnings management in tax havens can minimize the tax cost. Empirically, Dyreng et al. (2012) find that MNCs with higher concentration of subsidiaries in tax havens have more discretionary accruals. Similarly, Durnev et al. (2011) show that MNCs with a higher Offshore Attitude Index exhibit more discretionary accruals and more real earnings management.⁸

In this study, I focus on the role of taxes in foreign earnings management and extend the prediction beyond tax havens. Recent evidence shows that MNCs operate in tax havens mainly for income shifting purpose. Desai et al (2006a) find that MNCs with more income shifting benefits such as higher investment growth in non-haven countries and more intra-firm trade are more likely to operate in tax havens.⁹ Compared to the importance of income shifting, the role of economic investments in tax havens is less prominent. Hines (2005) shows that in year 1999, while MNCs report 30% net income from tax havens, MNCs only report 8.4% property, plant and

⁷ Though worldwide leaders agreed to end the secrecy protection of tax havens (OECD 2010), the OECD 2012 progress report shows that most haven countries still have legal deficiencies to meet the transparent information exchange standards (OECD 2012).

⁸ The Offshore Attitude Index is calculated based on tax havens, legal regimes, political stability and economic crime pollution for each foreign country. At each firm-year level, the authors construct an average index based on the weighted average of Offshore index from each foreign countries that the MNC operates in. Higher value of the index is associated with lower taxation, weaker legal enforcement, less stable political regimes and more economic crimes.

⁹ Desai et al (2006b) use an analytical approach to show that the likelihood of income shifting to tax havens increases with the return to investments in higher tax regions.

equipment investments in tax havens. As income shifting relies on inter-company transactions, inflated earnings based on shifted income are eliminated in consolidated financial statements. For example, tax haven affiliates often hold economic rights of intangible properties and charge royalties when other affiliates use them. Though a tax haven affiliate can inflate royalty revenue from other affiliates, the inflated royalty revenue is eliminated during worldwide accounting consolidation. On the other hand, if tax haven affiliates inflate earnings from their own operation, the impact on consolidated earnings is limited due to the small operation size in tax havens.

When choosing earnings management locations, companies not only consider lowering tax cost but also factor in the overall detection risk. The scale of operation in a given country determines the size of accrual management perceived to have low detection risk. Under the limits of accrual earnings management across countries, MNCs would prefer to manage earnings in low tax countries. Thus, while it is unlikely to have a corner solution in which all earnings management takes place in low tax countries, MNCs can still opportunistically concentrate managed accruals in low tax countries.

To provide some anecdotal evidence, I use the empirical method developed in Section 3.1 to identify firm-years likely managing foreign earnings and corroborate the results by searching descriptive information. For example, Symbol Technologies Inc, a software company in New York, might manage foreign earnings in year 1998 and 1999.¹⁰ By inspecting 10-Ks in both years (see Appendix B), I find that out of the 19 foreign countries in which Symbol Technologies operate, 12 countries (63%) have lower corporate tax rates than the U.S.¹¹ Moreover, out of the worldwide revenue, foreign sales revenue account for 45% and 42.4%, separately in 1998 and 1999. The evidence from 10-Ks indicates opportunities for foreign earnings management: the

¹⁰ I select the firm years because they are in the top quartile of income increasing discretionary accruals and Table 6 shows the subsample has significant foreign earnings management evidence.

¹¹ I obtain the corporate tax rate data from the KPMG Corporate Tax Rate Survey. Only the tax data of South Africa in year 1998 and 1999 is not available.

company extensively operated in low tax foreign countries and claimed to have high foreign sales revenue. Based on the SEC Accounting and Auditing Enforcement Release (AAER), Symbol Technologies had in fact overstated sales revenue in 1998 and 1999 through channel stuffing, and manipulated inventory levels and accounts receivables to conceal the revenue recognition schemes. Though the AAER does not specify the country in which the revenue manipulation occurs,¹² it is likely that foreign sale revenue had been manipulated as the company later acknowledged its internal control weakness in foreign subsidiaries.¹³

The first hypothesis in the alternative form is:

H1: While accruing nondiscretionary earnings from worldwide operation, MNCs concentrate discretionary earnings in low tax countries.

Foreign versus Domestic Earnings Valuation

In this section, I examine the implication of foreign earnings management on foreign earnings valuation. Previous studies consistently find higher foreign earnings response coefficients (ERCs) than domestic ERCs (Collins et al. 1998; Hope et al. 2008). To explain the evidence, Bodnar and Weintrop (1997) suggest that foreign expansion represents business opportunities in less exploited markets, in which MNCs likely establish and maintain market monopoly power for a finite period. The superior foreign market power means higher return on foreign investments than domestic investments, and foreign earnings are valued higher than domestic earnings. Consistent with this prediction, Desai et al. (2011) compare direct investments

¹² In most AAER cases, the SEC accuses companies of overstating revenue or understating expense at a firm-wide consolidated level without specifying the location in which fraudulent activities occur (Dechow et al. 2011).

¹³ In the 10-K/A of year 2002, the company acknowledged that each foreign subsidiary was responsible for its own financial reporting and was lack of the headquarters' supervision, and the company former management created an environment that encouraged inappropriate activities to meet forecasted financial results. However, the company did not disclose restated foreign sales revenue, foreign tax or permanently reinvested foreign earnings.

abroad to repatriated investment returns between year 1982 and 2010, and find that cash flows received from foreign investments exceed 160 percent of net foreign investments. To ensure that the higher foreign ERCs are driven by foreign growth, Bodnar and Weintrop (1997) show that the higher foreign ERCs only exist in firms that have more foreign sales growth than domestic sales growth.

Christophe (2002) attempts to challenge the role of growth in explaining the evidence of higher foreign ERCs relative to domestic ERCs. Alternatively, he suggests that when foreign earnings increase, investors perceive future growth opportunities; when foreign earnings decrease, investors, facing information asymmetry of foreign operations, might infer that managers have free cash flow problem abroad or managers are unwilling to abandon inefficient projects due to high sunk costs. As a result of the asymmetrically perceived agency cost, investors react more strongly to foreign earnings decrease than foreign earnings increase. By partitioning his sample into firms with positive and negative changes in foreign earnings, the author finds that foreign ERCs are higher than domestic ERCs only when foreign earnings decrease. But the author acknowledges that foreign growth can still explain the finding: when foreign earnings decrease, investors realize they have overestimated foreign market growth prospects and they discount stock price accordingly, leading to a larger foreign ERC. Consistent with the explanation, the author finds when foreign earnings decrease, the ERC magnitude increases with growth opportunities proxied by Tobin's q ratio. Thus, the results of Christophe (2002) still support the role of growth in explaining the evidence of higher foreign ERCs relative to domestic ERCs.

However, if MNCs opportunistically manage accruals in foreign countries ("opportunistic hypothesis"), managed foreign earnings are based on managers' discretion, instead of real operations that generate future cash flow (Guay et al. 1996). Managers often manage accruals to hide current poor performance by overestimating revenue and/or underestimating expense, and

thus to the extent that foreign managed earnings fail to translate into future cash flow, the foreign managed earnings will not be valued higher than the domestic managed earnings.

Though the opportunistic earnings management hypothesis is well supported in empirical studies,¹⁴ there is a strand of research that suggests managers manage earnings to convey private future information and current managed earnings might predict future cash flow (“private information hypothesis”). DeFond and Park (1997) suggest that when current performance is poor (good) and expected performance is good (poor), managers shift future (current) good earnings into the current (future) period to reduce the chance of dismissal.¹⁵ Under the private information hypothesis, to the extent that earnings are managed to convey future cash flow information, and since foreign earnings have better growth opportunities than domestic earnings, foreign managed earnings might be valued higher than domestic managed earnings.

Based on the opportunistic earnings management hypothesis, I predict that investors will not value foreign managed earnings higher than domestic managed earnings. If the prediction is rejected, it could be because either foreign earnings are managed to convey private information or investors fail to detect the foreign earnings management. My second hypothesis is stated in null form below:

¹⁴ Researchers find consistent empirical evidence supporting the opportunistic earnings management hypothesis in settings such as capital issuing, merger and acquisition and manager compensation. Teoh et al. (1998a, 1998b) find that managers opportunistically increase accrual earnings before IPOs or seasoned equity offerings, and that the market overprices these abnormal accruals. When investigating stock-for-stock acquisitions and mergers, Erickson and Wang (1996) find acquiring firms manage earnings upward in the periods prior to the merger agreement. By examining executive bonus plans conditioned on accounting earnings, Holthausen et al. (1995) find that CEOs use income decreasing accruals when their bonuses are at maximum. Studies that relate earnings management to equity compensation incentives show that equity incentives are positively associated with the use of discretionary accruals (Bergstresser and Philippon 2006; Larcker et al. 2007; Cheng and Warfield 2005).

¹⁵ Following the study of DeFond and Park (1997), Sankar and Subramanyam (2001) use an analytical approach to show that with the objective to maximize the utility of compensation as a function of reported earnings and price, managers have incentives to smooth income and communicate future private information through reported earnings in the current period. Based on an indirect approach, Altamuro et al. (2005) find that SAB 101, an accounting regulation that aims to reduce managerial discretion in accelerating revenue, leads to less informative accounting earnings. They suggest that the finding implies managers accelerate revenue to signal value-relevant information of future performance.

H2: While investors value foreign earnings higher than domestic earnings on average, investors do not value foreign discretionary accruals higher than domestic discretionary accruals.

CHAPTER III

RESEARCH DESIGN

Foreign Earnings Management

Using worldwide consolidated financial statements, I attempt to identify the role of taxes in foreign earnings management. The basic intuition is that as MNCs concentrate earnings management in low tax foreign countries and carry out operating activities worldwide, managed earnings are on average subject to a lower corporate income tax rate than unmanaged earnings. In other words, the tax expense per dollar of pretax managed earnings is lower than the tax expense per dollar of pretax unmanaged earnings.

To reflect the tax expense recorded on pretax financial earnings, I construct effective tax rate (ETR) as below:¹⁶

$$ETR_{it} = \frac{TXT_{it}}{PI_{it}} \quad (1)$$

For firm i in fiscal year t , TXT_{it} is total worldwide tax expense and PI_{it} is worldwide pretax income.¹⁷ I rearrange terms in equation (1) and have the following:

$$TXT_{it} = PI_{it} \times ETR_{it} \quad (2)$$

Next, I decompose pretax income (PI_{it}) into different earnings components:

$$PI_{it} = OCF_{it} + WC_{it} + NWC_{it} \quad (3)$$

¹⁶ The ETR defined in this study is interchangeably addressed as Financial or GAAP ETR in other studies (Graham et al. 2011; Hanlon and Heitzman 2012). ETR captures total tax expense that affects accounting earnings, which is consistent with the objective to examine earnings management in this study.

¹⁷ The pretax income is before minority interests. Hanlon (2003) notes that most companies calculate ETR as total book tax expense over pretax income from continuing operations. The definition of pretax income is also consistent with Dyreng and Lindsey (2009) as they calculate pretax income as a sum of foreign and domestic pretax income from continuing operations.

In equation (3), I separate pretax income (PI_{it}) into pretax operating cash flow (OCF_{it}), pretax working capital accruals (WC_{it}) and pretax non-working capital accruals (NWC_{it}). The pretax operating cash flow is defined as cash flow from operation (OANCF), plus cash tax paid (TXPD), less extraordinary items (XIDOC) for firm i in fiscal year t ; The pretax working capital accruals are defined as the change in accounts receivable (RECCH), plus the change in inventory (INVCH) and other assets (AOLOCH), minus the change in accounts payable (APALCH).¹⁸ I use the cash flow approach to construct working capital accruals because Hribar and Collins (2002) point out that compared to accruals calculated from cash flow statement, accruals based on balance sheet might be subject to measurement error.¹⁹ The pretax nonworking capital accruals are the difference between pretax income, operating cash flow and working capital accruals. Based on equation (3), I continue to decompose working capital accruals (WC_{it}) into managed and unmanaged accrual components:

$$PI_{it} = OCF_{it} + DA_{it} + NDA_{it} + NWC_{it}. \quad (4)$$

In equation (4), discretionary accruals (DA_{it}) are working capital accruals subject to managers' discretion and nondiscretionary accruals (NDA_{it}) are working capital accruals based on operating cash flow activities. I illustrate how I calculate DA_{it} and NDA_{it} in section 3.2.

By inserting decomposed pretax income from equation (4) back to equation (2), I have the following:

$$TXT_{it} = (OCF_{it} + DA_{it} + NDA_{it} + NWC_{it}) \times ETR_{it}. \quad (5)$$

¹⁸ The definition is similar to Dechow and Dichev (2002). Based on Compustat items, the calculation of pretax working capital accruals can be expressed as $WC_t = -(\Delta \text{Accounts receivable (RECCH)} + \Delta \text{Inventory (INVCH)} + \Delta \text{Accounts payable (APALCH)} + \Delta \text{Other assets (AOLOCH)})$. Note all data items are from the cash flow statement.

¹⁹ Hribar and Collins (2002) suggest that accruals based on balance sheet might be subject to measurement error in events such as mergers and acquisitions, divestitures, and foreign operations through subsidiaries.

In equation (5), the ETR_{it} is constrained to be the same for all earnings components. However, to the extent that MNCs concentrate earnings management activities in low tax foreign countries while conducting operations worldwide, the effective tax rate applicable to managed earnings is expected to be lower than unmanaged earnings. Thus, I relax the coefficient constraint of equation (5) and allow ETR_{it} to vary with each earnings component as below:

$$\begin{aligned} \text{TXT}_{it} = & \text{OCF}_{it} \times ETR_{\text{OCF},it} + \text{DA}_{it} \times ETR_{\text{DA},it} + \text{NDA}_{it} \times ETR_{\text{NDA},it} \\ & + \text{NWC}_{it} \times ETR_{\text{NWC},it}. \end{aligned} \quad (6)$$

In equation (6), each ETR term can be interpreted as the average tax expense per dollar of pretax earnings component, or equivalently, the ETR applicable to each pretax earnings component. Dyreng and Lindsey (2009) describe the ETR as a function of firm characteristics such as the presence of net operating loss carry forward, firm size, debt, advertising and R&D. Following Dyreng and Lindsey (2009), I estimate each ETR term as below:

$$ETR_{\text{OCF},it} = \theta_{a1} + \theta_{a2}\text{NOL}_{it} + \theta_{a3}\text{Size}_{it} + \theta_{a4}\text{Debt}_{it} + \theta_{a5}\text{AD}_{it} + \theta_{a6}\text{R\&D}_{it}, \quad (7a)$$

$$ETR_{\text{DA},it} = \theta_{b1} + \theta_{b2}\text{NOL}_{it} + \theta_{b3}\text{Size}_{it} + \theta_{b4}\text{Debt}_{it} + \theta_{b5}\text{AD}_{it} + \theta_{b6}\text{R\&D}_{it}, \quad (7b)$$

$$ETR_{\text{NDA},it} = \theta_{c1} + \theta_{c2}\text{NOL}_{it} + \theta_{c3}\text{Size}_{it} + \theta_{c4}\text{Debt}_{it} + \theta_{c5}\text{AD}_{it} + \theta_{c6}\text{R\&D}_{it}, \quad (7c)$$

$$ETR_{\text{NWC},it} = \theta_{d1} + \theta_{d2}\text{NOL}_{it} + \theta_{d3}\text{Size}_{it} + \theta_{d4}\text{Debt}_{it} + \theta_{d5}\text{AD}_{it} + \theta_{d6}\text{R\&D}_{it}, \quad (7d)$$

where NOL_{it} is equal to one if firm i has net operating loss carry forward (TLCF) at the beginning of fiscal year t ; Size_{it} is the natural logarithm of total assets (AT); Debt_{it} is the sum of short-term (DLC) and long-term debt (DLTT); AD_{it} is advertising expense (XAD); R\&D_{it} is

research and development expense (XRD).²⁰ By substituting equations (7a), (7b), (7c) and (7d) into equation (6), I have the following,

$$\begin{aligned} \text{TXT}_{it} = & \theta_{a1}\text{OCF}_{it} + \theta_{b1}\text{DA}_{it} + \theta_{c1}\text{NDA}_{it} + \theta_{d1}\text{NWC}_{it} + \sum_{k=2}^6 \theta_{ak}\text{OCF}_{it} \times \text{Control}_{it}^k \\ & + \sum_{k=2}^6 \theta_{bk}\text{DA}_{it} \times \text{Control}_{it}^k + \sum_{k=2}^6 \theta_{ck}\text{NDA}_{it} \times \text{Control}_{it}^k \\ & + \sum_{k=2}^6 \theta_{dk}\text{NWC}_{it} \times \text{Control}_{it}^k. \end{aligned} \quad (8a)$$

Where Control_{it}^k is the kth control variable identified in equations (7a), (7b), (7c) and (7d). To estimate equation (8a) using the ordinary least squares technique, I add an intercept term, constitutive terms ($\sum_{k=2}^6 \text{Control}_{it}^k$) and an error term to equation (8a).²¹ This generates the following:

$$\begin{aligned} \text{TXT}_{it} = & \theta_0 + \theta_{a1}\text{OCF}_{it} + \theta_{b1}\text{DA}_{it} + \theta_{c1}\text{NDA}_{it} + \theta_{d1}\text{NWC}_{it} \\ & + \sum_{k=2}^6 \theta_{ak}\text{OCF}_{it} \times \text{Control}_{it}^k + \sum_{k=2}^6 \theta_{bk}\text{DA}_{it} \times \text{Control}_{it}^k \\ & + \sum_{k=2}^6 \theta_{ck}\text{NDA}_{it} \times \text{Control}_{it}^k + \sum_{k=2}^6 \theta_{dk}\text{NWC}_{it} \times \text{Control}_{it}^k \\ & + \sum_{k=2}^6 \theta_k \text{Control}_{it}^k + u_{it}. \end{aligned} \quad (8b)$$

²⁰ Similar to Dyreng and Lindsey (2009), I replace variables with missing values by zero.

²¹ Though the theoretical expression of equation (8a) omits constitutive terms ($\sum_{k=2}^6 \text{Control}_{it}^k$), it is necessary to include the constitutive terms for empirical regression to avoid coefficient bias. Omitting the constitutive terms relies on the theoretical assumption that they are not correlated with pretax income and pretax income interacted with the constitutive terms (Greene 2003, pp. 148–149). Empirically, the accounting constitutive terms should be correlated with pretax income as they affect accounting income directly or indirectly. Second, omitting the constitutive terms means that when pretax earnings components are zero, constitutive terms have no impact on the dependent variable total book tax expense. However, even for companies with zero pretax income, they may still report book tax expense due to the constitutive control terms. For example, net operating loss carryforwards are recognized as deferred tax assets for financial reporting purpose. Third, Brambor et al. (2005) note a general rule of thumb that even with strong theoretical reasons to exclude constitutive terms, researchers should first estimate a fully specified model to examine whether constitutive terms have explanatory power. In empirical tests reported in section 5, results consistently show that the constitutive control variables have explanatory power for total book tax expense.

In equation (8b), the coefficients of interest are θ_{b1} and θ_{c1} . θ_{b1} (θ_{c1}) is interpreted as the average ETR applicable to discretionary (nondiscretionary) accruals.²² To the extent that MNCs manage earnings in low tax foreign countries while conducting operating activities worldwide (H1), the ETR applicable to discretionary accruals (θ_{b1}) should be lower than the ETR applicable to nondiscretionary accruals (θ_{c1}). Thus, H1 leads to the empirical prediction that $\theta_{b1} < \theta_{c1}$. To directly test the coefficient difference between discretionary and nondiscretionary accruals, I substitute working capital accruals (WC_{it}) for nondiscretionary accruals (NDA_{it}) in equation (8b). After rearranging terms, I generate a mathematically equivalent expression of equation (8b) as below:

$$\begin{aligned}
\text{TXT}_{it} = & \beta_0 + \beta_{a1}OCF_{it} + \beta_{b1}DA_{it} + \beta_{c1}WC_{it} + \beta_{d1}NWC_{it} + \sum_{k=2}^6 \beta_{ak}OCF_{it} \times \text{Control}_{it}^k \\
& + \sum_{k=2}^6 \beta_{bk}WC_{it} \times \text{Control}_{it}^k + \sum_{k=2}^6 \beta_{ck}DA_{it} \times \text{Control}_{it}^k \\
& + \sum_{k=2}^6 \beta_{dk}NWC_{it} \times \text{Control}_{it}^k + \sum_{k=2}^6 \beta_k \text{Control}_{it}^k + u_{it}.
\end{aligned} \tag{9}$$

Compared to equation (8b), the coefficient on DA_{it} (β_{b1}) is now the difference between the ETR applicable to discretionary accruals and the ETR applicable to nondiscretionary accruals.

²³ Under H1, I predict $\beta_{b1} < 0$. There are two advantages of using equation (9) in empirical estimation. First, it can directly test the coefficient difference between discretionary and

²² To facilitate coefficient interpretation, I subtract each continuous variable by its mean in empirical regression. Thus, θ_{b1} (θ_{c1}) can be interpreted as the average ETR applicable to discretionary (nondiscretionary) accruals for a firm-year with average size, debt, advertising expense and R&D expense. The mean centering approach is consistent with Dyreng and Lindsey (2009).

²³ In equation (9), the coefficient of discretionary accruals is ($\beta_{b1} + \beta_{c1}$) and the coefficient of nondiscretionary accruals is β_{c1} . If the ETR applicable to discretionary accruals is lower than nondiscretionary accruals, then $\beta_{b1} < 0$. This is a mathematically equivalent expression of $\theta_{b1} < \theta_{c1}$ in equation (8b).

nondiscretionary accruals. Second, I correct the correlation of residuals across firms and across time, and thus the significance of β_{b1} is less likely inflated.²⁴

Discretionary and Nondiscretionary Accruals

To identify discretionary accruals for firm i in fiscal year t (DA_{it}), I rely on the Dechow and Dichev (2002) discretionary accrual model,²⁵ which is estimated as below,

$$WC_{it} = b_0 + b_1 OCF_{i,t-1} + b_2 OCF_{it} + b_3 OCF_{i,t+1} + e_{it}. \quad (10)$$

In equation (10), WC_{it} is pretax working capital accruals for firm i in fiscal year t ; on the right hand side, I include past, current and future pretax operating cash flow; the residual term (e_{it}) is working capital accruals unexplained by operating cash flow realization, and is defined as discretionary accruals for firm i in fiscal year t (DA_{it}). Nondiscretionary accruals (NDA_{it}) are calculated as working capital accruals minus discretionary accruals for firm i in fiscal year t .²⁶ For robustness check, I also use performance matched discretionary accruals for empirical tests in section 6.2 (Kothari et al. 2005; Francis et al. 2005).

²⁴ Firm fixed effect is not used in the regression because firm fixed effect changes the ETR estimates interpretation, which deviates from the purpose of H1.

²⁵ The basic intuition behind the Dechow and Dichev (2002) model is that accounting accruals, under the GAAP, should shift or adjust the recognition of cash flows over time. Thus, accounting accruals should theoretically map into cash flow realization. Dechow and Dichev (2002) predict that $b_1 > 0$, $b_2 < 0$, and $b_3 > 0$. To the extent that accruals are unexplained by cash flow realization, the residual accrual component is discretionary accruals.

²⁶ Several subsequent studies try to modify the discretionary accrual model of Dechow and Dichev (2002). Wysocki (2008) points out that the model fails to capture situations in which managers opportunistically use discretionary accruals to offset negative shocks to current period cash flows. In this case, earnings management leads to a negative association between operating cash flows in the current period and working capital accruals ($b_2 < 0$), which is not captured by the residual term (e_{it}). Although this type of earnings management is not captured by my discretionary accrual measure, it should weaken my result to the extent that such earnings management is prevalent. White (2012) proposes to use accrual balances instead of changes in accruals to reflect earnings management from a particular previous period. However, in this study, I focus on the ETR applicable to current period earnings components and I should use the discretionary accrual model that identifies discretionary accruals in the current period.

Foreign versus Domestic Earnings Valuation

To investigate how investors value foreign managed earnings relative to domestic managed earnings under H2, I build on the Bodnar and Weintrop (1997) earnings valuation model and augment with firm characteristic control variables from Faulkender and Wang (2006).²⁷ The market valuation equation is estimated as below,

$$\begin{aligned} r_{it} - R_{it} = & \gamma_0 + \gamma_1 \Delta \text{Dom}_{it} + \gamma_2 \Delta \text{For}_{it} + \gamma_3 \Delta \text{R\&D}_{it} + \gamma_4 \Delta \text{Int}_{it} + \gamma_5 \Delta \text{Div}_{it} + \gamma_6 \Delta \text{Debt}_{it} \\ & + \gamma_7 \text{NF}_{it} + \delta_{it}. \end{aligned} \tag{11}$$

Where the dependent variable is the excess stock return of firm i during fiscal year t , which is calculated as the firm's return during fiscal year t (r_{it}) less the return of the firm's benchmark portfolio over the same fiscal year (R_{it}). The benchmark portfolio consists of firms that have similar size and book-to-market ratios to firm i and I use the Fama and French 5x5 size and book-to-market portfolios formed at the beginning of fiscal year t . For independent variables, ΔX_{it} is the realized change of variable X for firm i from fiscal year $t-1$ to year t . ΔDom_{it} is the change of pretax domestic earnings (PIDOM); ΔFor_{it} is the change of pretax foreign earnings (PIFO); $\Delta \text{R\&D}_{it}$ is the change of R&D (XRD) expense; ΔInt_{it} is the change of interest expense (XINT); ΔDiv_{it} is the change of dividend (DVC); ΔDebt_{it} is the change of debt, which is the sum of long-term debt (DLTT) and short-term debt (DLC); NF_{it} is the new financing in fiscal year t , which is equal to net new equity issuance (SSTK-PRSTKC) plus net new debt issuance (DLTIS-DLTR). I scale variables in equation (11) by the average total assets of fiscal year $t-1$ and fiscal year t .²⁸

²⁷ When examining the relation between stock pricing and accounting earnings, Kraft et al. (2007) suggest that it is necessary to include other variables that are value relevant for the stock market and are correlated with earnings. Faulkender and Wang (2006) propose an empirical model that controls for firm-specific risk factors such as changes in financing policy and investment policy.

²⁸ The results are similar when I scale equation (11) by lagged market value. I scale equation (11) by the same scalar (average assets) as equation (17).

In equation (11), I interpret γ_1 (γ_2) as the excess stock return in response to an additional dollar change in domestic earnings (foreign earnings). To the extent that investors price foreign earnings higher than domestic earnings (Bodnar and Weintrop 1997), γ_2 is expected to be higher than γ_1 ($\gamma_1 < \gamma_2$). I next examine how investors price foreign managed earnings relative to domestic managed earnings.

Following Dyreng et al. (2012), I attribute worldwide pretax discretionary accruals to domestic and foreign activities based on domestic and foreign pretax earnings. The equation is estimated as below,

$$DA_{it} = c_0 + c_1 Dom_{it} + c_2 For_{it} + e_{it}. \quad (12)$$

Where the dependent variable is pretax discretionary accruals (DA_{it}) for firm i in fiscal year t and independent variables are domestic pretax earnings (Dom_{it}) and foreign pretax earnings (For_{it}) for firm i in fiscal year t . All variables are scaled by average total assets of fiscal year $t-1$ and year t . The coefficient c_1 (c_2) is the rate at which pretax discretionary accruals are derived from domestic (foreign) pretax income in fiscal year t . By estimating equation (12) by fiscal year and two-digit SIC codes, I form predicted value of c_1 (\hat{c}_1) and c_2 (\hat{c}_2) for each year and industry.²⁹ By multiplying \hat{c}_1 and \hat{c}_2 with domestic earnings and foreign earnings separately, I have the following,

$$DA_Dom_{it} = \hat{c}_1 \times Dom_{it}, \quad (13a)$$

$$DA_For_{it} = \hat{c}_2 \times For_{it}. \quad (13b)$$

²⁹ For each regression by fiscal year and two-digit SIC codes, I require that there are at least 6 observations.

In equation (13a) and (13b), DA_Dom_{it} and DA_For_{it} predict pretax discretionary accruals derived from the domestic and foreign sources for firm i in fiscal year t . The discretionary accruals decomposition will be used in the market valuation test below.³⁰

I rewrite equation (11) by decomposing worldwide pretax income into pretax operating cash flow, pretax discretionary accruals, pretax nondiscretionary accruals and pretax nonworking capital accruals as below,

$$r_{it} - R_{it} = \mu_0 + \mu_1 \Delta OCF_{it} + \mu_2 \Delta NDA_{it} + \mu_3 \Delta DA_{it} + \mu_4 \Delta NWC_{it} + \mu_5 \Delta R\&D_{it} + \mu_6 \Delta Int_{it} + \mu_7 \Delta Div_{it} + \mu_8 \Delta Debt_{it} + \mu_9 NF_{it} + \delta_{it}. \quad (14)$$

Where OCF_{it} , NDA_{it} , DA_{it} , and NWC_{it} are defined in section 3.1. ΔX_{it} is the realized change of variable X for firm i from fiscal year $t-1$ to year t . To examine how μ_3 , the market valuation of an additional dollar of pretax discretionary accruals, varies with foreign and domestic activities, I substitute equation (13a) and (13b) into equation (12), and rewrite the change of discretionary accruals as below:

$$\begin{aligned} DA_{it} - DA_{i,t-1} &= (DA_Dom_{it} - DA_Dom_{i,t-1}) + (DA_For_{it} - DA_For_{i,t-1}) + (e_{it} - e_{i,t-1}) \\ &= \Delta DA_Dom_{it} + \Delta DA_For_{it} + \Delta e_{it}. \end{aligned} \quad (15)$$

In equation (15), the change of worldwide pretax discretionary accruals (ΔDA_{it}) is decomposed into change in domestic pretax discretionary accruals (ΔDA_Dom_{it}), change in foreign pretax discretionary accruals (ΔDA_For_{it}) and an unexplained residual term (Δe_{it}). By

³⁰ In equation (12), the decomposition method based on foreign and domestic pretax income might be subject to measurement error. The decomposition method might not capture real foreign and domestic discretionary accruals, causing seemingly indifferent valuation between foreign and domestic discretionary accruals in equation (17) and confounding the interpretation. I conduct additional tests to address the potential measurement error in Table 5.

inserting equation (15) back to equation (14) and combining residual terms, I have the following,³¹

$$r_{it} - R_{it} = \mu_0 + \mu_1 \Delta OCF_{it} + \mu_2 \Delta NDA_{it} + \mu_3 (\Delta DA_{Dom_{it}} + \Delta DA_{For_{it}}) + \mu_4 \Delta NWC_{it} + \mu_5 \Delta R\&D_{it} + \mu_6 \Delta Int_{it} + \mu_7 \Delta Div_{it} + \mu_8 \Delta Debt_{it} + \mu_9 NF_{it} + \sigma_{it}. \quad (16)$$

Where the marginal valuation coefficients of domestic pretax discretionary accruals and foreign pretax discretionary accruals are constrained to be the same (μ_3). To examine whether investors value foreign managed earnings differently from domestic managed earnings, I relax the coefficient constraint and allow the marginal valuation to vary with domestic and foreign components:

$$r_{it} - R_{it} = \mu_0 + \mu_1 \Delta OCF_{it} + \mu_2 \Delta NDA_{it} + \mu_{31} \Delta DA_{Dom_{it}} + \mu_{32} \Delta DA_{For_{it}} + \mu_4 \Delta NWC_{it} + \mu_5 \Delta R\&D_{it} + \mu_6 \Delta Int_{it} + \mu_7 \Delta Div_{it} + \mu_8 \Delta Debt_{it} + \mu_9 NF_{it} + \sigma_{it}. \quad (17)$$

In equation (17), I interpret μ_{31} (μ_{32}) as the marginal valuation of domestic (foreign) pretax discretionary accruals. To the extent that investors can detect opportunistic foreign earnings management, H2 predicts that investors do not value foreign pretax discretionary accruals higher than domestic pretax discretionary accruals, thus $\mu_{31} \geq \mu_{32}$.³²

³¹ σ_{it} in equation (16) consists of $(\mu_3 \times \Delta e_{it} + \delta_{it})$. As Δe_{it} is theoretically orthogonal to $\Delta DA_{Dom_{it}}$ and $\Delta DA_{For_{it}}$, the inclusion of Δe_{it} in the residual term (σ_{it}) is unlikely to cause an omitted variable bias. For robustness check, I include Δe_{it} from equation (15) as a separate regressor in section 6.3.

³² For the purpose of this study, I focus on the valuation of pretax earnings components. However, to the extent that managed earnings can predict future cash flow under the private information hypothesis, if firms determine not to repatriate foreign managed earnings back to the U.S., foreign managed earnings will be subject to lower taxes and predict higher future after-tax cash flow than domestic managed earnings. Thus, foreign managed earnings might be valued higher than domestic managed earnings due to the lower tax cost. To control for the possible tax difference between foreign managed earnings and domestic managed earnings, I test the valuation of after-tax foreign and domestic earnings components in section 6.4.

CHAPTER IV

SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

I construct the sample from the Compustat database between fiscal year 1988 and 2011.³³ I exclude firms in the financial industry ($6000 \leq \text{SIC} \leq 6999$) and utility industry ($4900 \leq \text{SIC} \leq 4999$) and keep firms that are incorporated in the U.S. ($\text{FIC} = \text{USA}$) and that report financial statements in U.S. dollars ($\text{CURCD} = \text{USD}$). As some variables in the Compustat should not have been coded as missing, I follow Dyreng and Lindsey (2009) to replace missing values of foreign current tax expense (TXFO), federal current tax expense (TXFED), pretax foreign income (PIFO) and pretax domestic income (PIDOM) as below:

1) Define worldwide current income tax expense (TXWW) as the difference between total income tax expense (TXT) and deferred tax expense (TXDI).

2) If TXFO is missing and TXFED is equal to TXWW , I replace TXFO by zero.

3) If TXFO is missing and PIDOM is equal to pretax income (PI), I replace TXFO by zero.

4) If PIFO is missing and PIDOM is equal to PI , I replace PIFO by zero.

5) If TXFO is missing and TXFED is equal to TXWW , I replace TXFO by zero.

6) If PIFO is missing and PIDOM and PI are not missing, I replace PIFO by $(\text{PI} - \text{PIDOM})$.

7) If PIDOM is missing and PIFO and PI are not missing, I replace PIDOM by $(\text{PI} - \text{PIFO})$.

³³ I choose the sample period because the top federal statutory income tax rate is relatively stable in the period. Before year 1988, the top statutory tax rate was 40%. Between year 1988 and year 1992, the top statutory tax rate was 34%. From year 1993 until now, the top statutory tax rate is 35%.

8) If PI is missing and $PIFO$ and $PIDOM$ are not missing, I replace PI by $(PIFO+PIDOM)$.

9) If $TXFED$ is missing and $TXFO$ and $TXWW$ are not missing, I replace $TXFED$ by $(TXWW-TXFO)$.

10) If $TXFO$ is missing and $TXWW$ and $TXFED$ are not missing, I replace $TXFO$ by $(TXWW-TXFED)$.

11) If $TXWW$ is missing and $TXFED$ and $TXFO$ are not missing, I replace $TXWW$ by $(TXFED + TXFO)$.

After setting variables by the steps above, I replace $PIFO$ and $TXFO$ with zero if they are still missing; I replace $PIDOM$ and $TXFED$ with $(PI-PIFO)$ and $(TXWW-TXFO)$ if they are still missing. I define a firm as a MNC if the firm has non-zero $TXFO$ or non-zero $PIFO$ throughout the sample period. In contrast, I define a firm as a domestic company if the firm has zero $TXFO$ and zero $PIFO$ throughout the sample period. To measure ETR applicable to pretax earnings components, I require firm-years to have positive pretax income ($PI > 0$).³⁴ After eliminating firm-years with missing accounting information, I generate 11,356 multinational firm-years and 13,736 domestic firm-years. I then merge the multinational subsample with the CRSP stock monthly file for stock price information. This generates 6,489 observations after eliminating firm-years with missing variables necessary for the market valuation regression.

Table 1 Panel A provides descriptive statistics for the MNC sample. The average worldwide ETR is 33.9%, which is between domestic ETR (35.2%) and foreign ETR (33.5%). Compared to the domestic sample reported in Table 1 Panel B, MNCs on average have lower

³⁴ Dyreng and Lindsey (2009) include ETR estimates for firm-years with zero or negative pretax income. They find that the regression model based on firm-years with zero or negative pretax income has poor explanatory power and none of the variables of interest is statistically different from zero.

ETR, larger size and more R&D. In untabulated correlation results, the magnitude of nondiscretionary accruals (*NDA*) is positively correlated with worldwide ETR while the degree of discretionary accruals (*DA*) is negatively correlated with worldwide ETR. This is consistent with the notion that multinational companies tend to concentrate discretionary accruals in low tax countries while accruing nondiscretionary earnings worldwide. Moreover, discretionary accruals have a zero correlation with domestic ETR and a negative correlation with foreign ETR, though statistically insignificant (p -value=0.29).

CHAPTER V

RESULTS

Foreign Earnings Management Test

In this subsection, I empirically test H1—foreign earnings management hypothesis of MNCs—based on equation (9). As noted in section 3.1, by subtracting all continuous variables in equation (9) by their respective mean, I can interpret the coefficient of discretionary accruals (β_{b1}) as the difference between ETR applicable to discretionary accruals and ETR applicable to nondiscretionary accruals for a firm-year with average size, debt, advertising and R&D expense ratio. To the extent that MNCs concentrate discretionary accruals in low tax foreign countries, the ETR on discretionary accruals is expected to be lower than the ETR on nondiscretionary accruals ($\beta_{b1} < 0$).

Table 2 Panel A column (1) reports results from equation (9) based on the multinational sample. I find that the ETR on discretionary accruals is 4.3% lower than the ETR on nondiscretionary accruals (the coefficient of *DA* is -0.043, *p*-value=0.001), which means by managing earnings in low tax foreign countries, MNCs on average can lower income tax expense by \$0.043 per dollar of pretax income. In contrast, I expect the ETR on discretionary accruals to be similar to the ETR on nondiscretionary accruals for the domestic subsample.³⁵ Consistent with the expectation, in column (2), the ETR on discretionary accruals is 0.6 percentage points higher than the ETR on nondiscretionary accruals but the difference is not significantly different from zero (*p*-value=0.618). By comparing results between MNC and domestic subsamples, the evidence is consistent with the foreign earnings management prediction under H1. Additionally, the model has good fitness as the adjusted R-squares are above 70% for both subsamples.

³⁵ To be consistent with Equation (9), I use the same set of control variables for domestic and MNCs in Table 2. In Table 4, I will adjust for the sample difference between MNCs and domestic companies.

Theoretically, the coefficients (ETRs) of earnings components are expected to be within the boundary of top U.S. statutory tax rates. In column (1), the ETR on working capital accruals for MNCs is 37.6%, which is above the 35% top federal statutory income tax rate but below the 39.5% combined federal and state statutory income tax rate.³⁶ Compared to the 33.2% ETR on working capital accruals for domestic companies in column (2), MNCs have 4.4% higher ETR on working capital accruals possibly because MNCs operate in more domestic tax jurisdictions than domestic companies. Consistent with the prediction, I find that while MNCs on average report \$0.36 combined domestic tax expense per dollar of pretax earnings, domestic companies on average only report \$0.23 combined domestic tax expense per dollar of pretax earnings.³⁷ The results are not tabulated for brevity.

Based on MNCs, I estimate equation (9) by each fiscal year and examine the time trend distribution of β_{b1} (the coefficient of DA). As Figure 1 shows, though the U.S. corporate tax rate is relatively constant across the sample period, most foreign countries have been gradually cutting taxes and the U.S. becomes one of the highest tax countries by the end of the sample period. The relative decrease of foreign taxes brings more opportunities for foreign earnings management over time. Thus, I expect the ETR difference between discretionary and nondiscretionary accruals becomes more prominent in the latter sample period than the early sample period.

In Figure 2, I plot the time distribution of β_{b1} and I find significant foreign earnings management evidence over time. The yearly ETR difference between discretionary and nondiscretionary accruals is not significant in the early sample period (except for year 1990) when the U.S. tax is not relatively high compared to other countries. However, post year 2002, all

³⁶ The combined U.S. corporate income tax rate is available from <http://www.oecd.org/tax/tax-policy/oecdtaxdatabase.htm>.

³⁷ The combined domestic tax expense includes taxes at both federal and state levels. Though state taxes give more direct evidence on domestic tax jurisdictions, I find some MNCs combine state taxes into federal taxes and report state taxes as missing. Due the measurement issue of state taxes, I use the combined domestic tax expense for analysis.

yearly ETRs on discretionary accruals are significantly lower than the yearly ETRs on nondiscretionary accruals (p -value is below 0.01), except for year 2009, suggesting increasing foreign earnings management coincide with the time trend of decreasing foreign taxes.

In Table 3, I identify a subsample of domestic firms that become MNCs during the sample period. Associated with the foreign expansion, firms are able to manage earnings in low tax countries. Empirically, I predict that before the foreign expansion, the ETR on discretionary accruals is similar to the ETR on nondiscretionary, and due to the foreign expansion, the ETR on discretionary accruals will be lower than the ETR on nondiscretionary accruals. The results in column (1) Table 3 are consistent with the prediction. The ETR on discretionary accruals is not significantly different from the ETR on nondiscretionary accruals before foreign expansion (the coefficient of DA is -0.015, p -value=0.320). Associated with foreign expansion, The ETR on discretionary accruals is 3.9 percentage points lower than the ETR on nondiscretionary accruals.

The column (1) of Table 3 is based on an OLS regression, but foreign expansion is likely an endogenous decision of firm financial conditions. In column (2) and (3), I address the endogeneity issue by predicting the MNC sample self-selection. Following Dastidar (2009), I model the decision to expand internationally as a function of lagged capital expenditure (Cap), lagged return on assets (ROA), lagged firms size, lagged total debt and industry fixed effect. International business literature suggests that companies expand to foreign markets as the marginal return on assets at home markets declines and large size companies are more likely to succeed because of their cost minimization through economics of scale (Caves 1996). The net benefits of foreign expansion decrease with transaction cost. The transaction cost of international expansion is likely high for companies that are financially constrained because the cost of raising additional capital might increase, and for companies that rely more on tangible properties such as capital investments (Dastidar 2009).

Similar to the prediction, in column (2) of Table 3, I find firms with lower ROA, larger size and more capital investments are more likely to expand internationally. The first stage Probit regression generates predicted probabilities of foreign expansion for each firm-year that will be used in the second stage ETR estimates reported in column (3). By interacting the predicted foreign expansion probabilities with pretax earnings components, I find consistent results as column (1). While the ETR on discretionary accruals is not significantly different from the ETR on nondiscretionary accrual before foreign expansion (the coefficient of DA is 0.028, p -value=0.432), as the probability of foreign expansion increases by 1%, the ETR on discretionary accruals becomes 0.13 percentage points lower than the ETR on nondiscretionary accruals.

In Table 4, I use a different approach to examine the foreign earnings management of MNCs. By substituting the dependent variable (TXT) in equation (9) by foreign income tax expense ($For\ TXT$), I predict that to the extent that foreign discretionary accruals are opportunistically concentrated in low tax countries, the foreign ETR on discretionary accruals is lower than the foreign ETR on nondiscretionary accruals. I test the prediction in column (1) and the coefficient of DA is -0.031 (p -value=0.017), indicating that the foreign ETR on discretionary accruals is 3.1% lower than the foreign ETR on nondiscretionary accruals. While MNCs can use low tax foreign subsidiaries to lower foreign income tax expense on managed earnings, MNCs are less likely to lower domestic income tax expense on domestic managed earnings. I expect the domestic ETR on discretionary accruals to be similar to the domestic ETR on nondiscretionary accruals. By substituting the dependent variable (TXT) in equation (9) by domestic income tax expense ($Dom\ TXT$), I find that the domestic ETR on discretionary accruals is not significantly different from the domestic ETR on nondiscretionary accruals (p -value=0.904).

Market Valuation for Foreign Earnings Management

Table 5 reports market valuation results based on the market valuation equations developed in section 3.3. In column (1), I examine the market valuation of foreign and domestic pretax earnings based on equation (11). Similar to previous evidence (Bodnar and Weintrop 1997; Collins et al. 1998; Christophe 2002), I predict and find that foreign earnings are on average valued higher than domestic earnings. While one dollar increase of domestic pretax earnings is valued at \$1.392, one dollar increase of foreign pretax earnings is valued at \$2.204. The valuation difference \$0.812 is significant at the 5% level according to the F-test results in Panel B (p -value=0.014). Column (2) reports the market valuation of foreign versus domestic pretax managed earnings based on equation (17). To the extent that investors can detect foreign earnings management, I predict and find that foreign managed earnings are not valued higher than domestic managed earnings. While one dollar increase in predicted pretax foreign discretionary accruals is valued at \$1.245, one dollar increase in predicted pretax domestic discretionary accruals is valued at \$1.446. The marginal valuation difference \$0.201 is not statistically significant (p -value=0.801).

However, the similar valuation between foreign and domestic discretionary accruals could be due to the failure of differentiating real foreign and domestic discretionary accruals. As a robustness check to the worldwide discretionary accrual decomposition model equation (12), panel C of Table 5 reports ETR applicable to estimated foreign and domestic discretionary accruals. Using a regression framework similar to equation (9), I regress worldwide total tax expense (TXT) on decomposed worldwide discretionary accruals by domestic component (DA_{Dom}), foreign component (DA_{For}) and residual component (e). I predict and find that the ETR applicable to domestic discretionary accruals is significantly lower than the ETR applicable to foreign discretionary accruals. The ETR estimates support the decomposition of worldwide

discretionary accruals in equation (12) and thus the results of column (2) are unlikely due to measurement error.

CHAPTER VI

ROBUSTNESS CHECK

Earnings Management Settings

In Table 6, I separately examine foreign earnings management evidence in three types of settings. In the first case, I consider the setting in which earnings might be managed to avoid small losses. By comparing firm-years with a slight earnings increase to firm-years with a slight earnings decrease in column (1), I predict that firm-years with a slight earnings increase are more likely to manage earnings in foreign countries.³⁸ The coefficient of $EM \times DA$ is -0.016 (p -value=0.540), indicating the small earnings increase is associated with lower ETR on discretionary accruals than nondiscretionary accruals, but the difference is not significant at the 10% level. Secondly, I examine the setting in which earnings might be managed to meet or beat analysts' forecasts. By comparing the firm-years that just meet or beat analysts' forecasts to the firm-years that just miss analysts' forecasts in column (2), I predict that the firm-years that just meet or beat analysts' forecasts are more likely to manage earnings in foreign countries, but I do not find significant evidence to support the prediction (the coefficient of $EM \times DA$ is -0.012. p -value=0.731).³⁹

The lack of significant foreign earnings management evidence in column (1) and (2) is probably due to the data limitation, which tests the discretionary accruals at the foreign subsidiary level with incentives at the top consolidated level. For example, prior research (Healy 1985; Gaver et al. 1995) often finds mixed evidence when examining the relation between top level

³⁸ For the subsample test of small earnings increase, I set the change of earnings cutoffs between -0.02 and 0.02. The results are similar when I choose the cutoffs between -0.01 and 0.01.

³⁹ For the subsample test of meeting or beating earnings forecasts, I calculate earnings expectation as the median EPS forecasted by analysts in the month of earnings announcements. The results are similar when I calculate earnings expectation as the median EPS forecasted by analysts in three months before earnings announcements.

bonus plans and managers' discretionary accrual decisions. Bernard and Skinner (1996) attribute the issue in part to the limitation of data. Guidry et al. (1998) enhance the power of tests by using bonus plans and discretionary accruals from business-unit level. In this study, if the top management, facing the equity market's expectation, set earnings targets for subsidiaries, foreign subsidiary level managers subsequently make discretionary accrual decisions to meet these targets. The anecdotal evidence from Appendix B seems to support the conjecture. Thus, the power of tests would be enhanced if the earnings management incentives could be directly measured at the foreign subsidiary level.

In the third case, I sort firm-years with positive discretionary accruals (income increasing earnings management) in fiscal year t into quartiles and designate firm-years in the top quartile as more likely to manage earnings than firm-years in the bottom quartile.⁴⁰ In column (3), for firm-years in the top discretionary accrual quartile, the ETR on discretionary accruals is 13.2% lower than the ETR on nondiscretionary accruals (p -value=0.008). In contrast, for firms-years in the bottom discretionary accrual quartile reported in column (4), the ETR on discretionary accruals is not significantly different from the ETR on nondiscretionary accruals (p -value=0.944). The evidence in column (3) and (4) suggests that MNCs that have more income increasing discretionary accruals are more likely to manage earnings in foreign countries.

The evidence above shows firm-years in the top discretionary accruals quartile are more likely to manage foreign earnings compared to firm-years in the bottom discretionary accruals quartile. As more foreign earnings management is associated with lower foreign ETR, I predict the top *DA* quartile will on average have lower foreign ETR (*For ETR*) than the bottom *DA* quartile. Panel B of Table 6 shows the average *For ETR* for the top *DA* quartile is 2.3 percentage points lower than the bottom *DA* quartile at a 1% significance level. In contrast, the domestic

⁴⁰ I also require discretionary accruals in fiscal year $t-1$ to be positive to avoid the negative discretionary accruals in fiscal year $t-1$ reversed into positive discretionary accruals in fiscal year t .

ETR (*Dom ETR*) for the top *DA* quartile is higher than the bottom *DA* quartile, likely due to the firms in the top quartile operating in more domestic tax jurisdictions. The results corroborate the foreign earnings management finding of column (3).

Performance Matched Discretionary Accruals

In this subsection, I reexamine the empirical models in Table 2 and Table 5 using performance matched discretionary accruals (*DA_per*). To calculate *DA_per*, for each firm-year, I match it by a decile of firm-years with similar current pretax return on assets, same first two-digit SIC code and same MNC/domestic type. I next subtract the discretionary accruals for a firm-year calculated from equation (10) by the median discretionary accruals of a matched decile. The performance matching procedure is similar to Francis et al. (2005) and Frank et al. (2009). To calculate foreign and domestic performance matched discretionary accruals, I replace the dependent variable in equation (12) by *DA_per*.

Based on the performance matched discretionary accruals, Table 7 has similar results to Table 2. In column (1), the coefficient of *DA_per* is -0.025, indicating that the ETR on discretionary accruals is 2.5% lower than the ETR on nondiscretionary accruals for MNCs (*p*-value=0.028). In contrast, for domestic companies in column (2), the coefficient of *DA_per* is not significant. Table 8 examines the market valuation of performance matched foreign discretionary accruals (*DA_For_per*) and domestic discretionary accruals (*DA_Dom_per*). The results in Table 8 are similar to Table 5. The marginal valuation of *DA_For_per* is not significantly different from the marginal valuation of *DA_Dom_per* (*p*-value=0.916). The evidence shows that the main results are not sensitive to growth performance matching.

Residual Discretionary Accruals

In this section, I add the change of residual discretionary accruals (Δe_{it}) from equation (15) to equation (17). In previous tests, I omit Δe_{it} from the market valuation regression because Δe_{it} is theoretically orthogonal to the change in domestic discretionary accruals (ΔDA_{Dom}) and the change in foreign discretionary accruals (ΔDA_{For}). With Δe_{it} as an additional regressor, the results in Table 9 are consistent with the results in Table 5. The marginal valuation of foreign discretionary accruals is not significantly different from the marginal valuation of domestic discretionary accruals (the p -value of F-test is 0.652). Moreover, the coefficient magnitude of ΔDA_{For} and ΔDA_{Dom} is also similar to Table 5. Thus, the results in Table 5 are robust to the inclusion of residual discretionary accruals.

After-tax Market Valuation Test

In section 3.3, I examine the market valuation of pretax earnings components. However, I note that under the private information hypothesis of earnings management, to the extent that managed earnings can predict future cash flow, foreign managed earnings might predict higher future after-tax cash flow than domestic managed earnings because foreign managed earnings are subject to lower tax rates. In this case, foreign pretax managed earnings could be valued higher than domestic pretax managed earnings. Though the empirical evidence thus far does not support the private information hypothesis, I attempt to control for possible different tax cost on foreign and domestic managed earnings by using after-tax earnings valuation. Empirically, I replace pretax earnings components in equation (17) by after-tax earnings components. Similar to the results of pretax earnings valuation in Table 5 column (1), I find that in Table 10 column (1), after-tax foreign earnings are valued significantly higher than after-tax domestic earnings at the 1% level (the F-test shows p -value of 0.003). This suggests that the foreign earnings valuation premium is not due to lower foreign tax cost. In column (2), the marginal valuation of foreign

after-tax managed earnings is not significantly different from the marginal valuation of domestic after-tax managed earnings (p -value=0.991). This indicates that after controlling for tax cost, foreign managed earnings are still valued similar to domestic managed earnings, which is consistent with the opportunistic earnings management hypothesis.

Weighted Statutory Tax Rate

Empirical Design

Using equation (9) developed in section 3.1, I compare the ETR on discretionary accruals to the ETR on nondiscretionary accruals. In this section, I use a different tax measure—weighted statutory tax rate (WSTR)—to test foreign earnings management prediction. The rationale is the same as the previous test: to the extent that MNCs concentrate earnings management in low tax foreign countries and carry out operating activities worldwide, managed earnings are on average subject to a lower corporate income tax rate than unmanaged earnings.

Under the SEC Regulation S-X Rule 4-08(h), companies are required to provide income tax rate reconciliation schedules in their financial statements. A typical reconciliation schedule starts from the hypothetical income tax expense that would result from the federal statutory tax rate applied to pretax financial income, adjusted by reconciliation items, and eventually reaches total income tax expense in the income statement. Common reconciliation items include: state and local taxes, foreign statutory tax rate differences, permanent book-tax differences, and tax credits (Hanlon, 2003).⁴¹ For the purpose of my study, the reconciliation is illustrated as below:

$$\text{TXT}_{it} = \text{WSTR}_{it} \times \text{PI}_{it} + \text{ADJ}_{it}. \quad (18)$$

⁴¹ See the Appendix A for examples of income tax reconciliation schedule. Permanent book-tax differences exist when the difference between book and taxable income will not reverse over time.

Where TXT_{it} is total book income tax expense for a firm i in year t ; $WSTR_{it}$ is the weighted average of federal, state, local and foreign statutory tax rates for a firm i in year t ; PI_{it} is pretax income before minority interests; $WSTR_{it} \times PI_{it}$ is the hypothetical income tax expense that would result weighted average of federal, state, local and foreign statutory tax rates applied to pretax income; ADJ_{it} is adjustments required to reconcile the hypothetical income tax expense to the total income tax expense in income statement, which is expressed as a function of variables that capture tax credits and permanent book-tax differences as below:

$$ADJ_{it} = d_0 + d_1R\&D_{it} + d_2AD_{it} + d_3Int\ Rev_{it} + d_4Amort_{it} + d_5Stock\ Comp_{it} + d_6Net\ Div_{it} + d_7Net\ Invest_{it} + d_8Manufacture_{it} + d_9MI_{it} + e_{it}, \quad (19)$$

where:

$R\&D_{it}$ = research and development expense (XRD) for firm i in fiscal year t . I control for R&D expenditure to capture R&D tax credits that reduce tax payments;

AD_{it} = advertising expense (XAD) for firm i in fiscal year t . The variable is used to proxy for meal and entertainment expense nondeductible for tax purpose;

$Int\ Rev_{it}$ = interest income (IDIT) for firm i in fiscal year t . The variable is used to proxy for tax-exempt interests from municipal and local bonds;

$Amort_{it}$ = amortization of intangibles (AM) for firm i in fiscal year t . The variable is used to proxy for intangible property amortization such as goodwill that is not deductible for tax purpose;

$Stock\ Comp_{it}$ = stock compensation expense (STKCO) for firm i in fiscal year t . The variable is used to proxy for stock compensation expense nondeductible for tax purpose;⁴²

⁴² For variables XRD, XAD, and STKCO, I replace them as zero if a firm-year has missing value.

Net Div_{it} = net dividend cash flow (DV) for firm i in fiscal year t. The variable is used to proxy for dividend received deduction for tax purpose;⁴³

Net Invest_{it} = net cash flow from investing activities (IVNCF) for firm i in fiscal year t. The variable is used to proxy for the tax exempt net insurance proceeds from life insurance policies for key officers;

Manufacture_{it} = one if a firm i in fiscal year t is in manufacturing industry (SIC between 2011 and 3999).⁴⁴ The variable is used to proxy for domestic manufacturing deduction tax credit.⁴⁵

MI_{it} = minority interests (MII) for firm i in fiscal year t. The variable is used to capture equity interests in less than one hundred percent owned entities that might create book and tax consolidation differences.

In equation (19), except for R&D_{it}, Manufacture_{it} and MI_{it}, I include other variables to control for permanent book tax differences.⁴⁶ I substitute equation (19) into equation (18) and rearrange terms. This generates the following:

⁴³ For dividend cash flow (DV), I replace it as zero if it is negative to capture dividend received instead of dividend paid.

⁴⁴ The manufacturing industry is defined according to the NBER classification (<http://www.nber.org/nberces/>).

⁴⁵ U.S. domestic companies with “qualified production activities” (generally speaking manufacturing activities in the U.S.) can take a tax deduction of 3% from net income.

⁴⁶ Though it is not the purpose of this study to review tax rules that create taxable income difference from book income, I briefly explain how variables in equation (19) can create permanent book-tax differences as below. See Hanlon (2003) for more detailed discussions. 1) AD_{it}. Certain meal and entertainment expense for amusement or recreation purpose is subject to 50% deductible limitation for tax purpose while they are recognized as expense for financial reporting; 2) Int Rev_{it}. Local and municipal government interest income is not taxable but is recognized as interest income for financial reporting; 3) Amort_{it}. When a buyer company acquires a seller company’s stock, the buyer company recognizes goodwill based on purchase premiums for financial reporting, which is subject to future amortization or impairment. However, the goodwill based on stock acquisition cannot be amortized for tax purpose; 4) Stock Comp_{it}. For the incentive stock option (ISO) compensation, while it is recognized as compensation expense post FAS 123, it is not deductible for tax purpose. 5) Net Div_{it}. As a company receives dividends from investments in other domestic companies, the company can claim dividend received deduction for tax purpose to avoid

$$\begin{aligned} \text{TXT}_{it} = & \varphi_0 + \varphi_1 \text{PI}_{it} + \varphi_2 \text{R\&D}_{it} + \varphi_3 \text{AD}_{it} + \varphi_4 \text{Int Rev}_{it} + \varphi_5 \text{Amort}_{it} + \varphi_6 \text{Stock Comp}_{it} \\ & + \varphi_7 \text{Net Div}_{it} + \varphi_8 \text{Net Invest}_{it} + \varphi_9 \text{Manufacture}_{it} + \varphi_{10} \text{MI}_{it} + u_{it}. \end{aligned} \quad (20)$$

The coefficient φ_1 is interpreted as the weighted statutory tax rate (WSTR) applicable to pretax income. I decompose pretax income (PI_{it}) of equation (20) into four earnings components as below:

$$\begin{aligned} \text{TXT}_{it} = & \varphi_0 + \varphi_{11} \text{OCF}_{it} + \varphi_{12} \text{DA}_{it} + \varphi_{13} \text{NDA}_{it} + \varphi_{14} \text{NWC}_{it} + \varphi_2 \text{R\&D}_{it} + \varphi_3 \text{AD}_{it} \\ & + \varphi_4 \text{Int Rev}_{it} + \varphi_5 \text{Amort}_{it} + \varphi_6 \text{Stock Comp}_{it} + \varphi_7 \text{Net Div}_{it} + \varphi_8 \text{Net Invest}_{it} \\ & + \varphi_9 \text{Manufacture}_{it} + \varphi_{10} \text{MI}_{it} + u_{it}, \end{aligned} \quad (21)$$

The earnings components are defined the same as section 3.1. To the extent that MNCs concentrate managed earnings in foreign countries while conducting operation worldwide (H1), I expect the WSTR on DA_{it} to be lower than the WSTR on NDA_{it} ($\varphi_{12} < \varphi_{13}$). To directly test the significance of the coefficient difference between discretionary and nondiscretionary accruals, I substitute working capital accruals (WC_{it}) for nondiscretionary accruals (NDA_{it}) in equation (21). After rearranging terms, I generate a mathematically equivalent expression of equation (21) as below:

$$\begin{aligned} \text{TXT}_{it} = & \omega_0 + \omega_{11} \text{OCF}_{it} + \omega_{12} \text{WC}_{it} + \omega_{13} \text{DA}_{it} + \omega_{14} \text{NWC}_{it} + \omega_2 \text{R\&D}_{it} + \omega_3 \text{AD}_{it} \\ & + \omega_4 \text{Int Rev}_{it} + \omega_5 \text{Amort}_{it} + \omega_6 \text{Stock Comp}_{it} + \omega_7 \text{Net Div}_{it} \\ & + \omega_8 \text{Net Invest}_{it} + \omega_9 \text{Manufacture}_{it} + \omega_{10} \text{MI}_{it} + u_{it}. \end{aligned} \quad (22)$$

multiple tax. For financial reporting, the company recognizes dividend received as investment income. 6) Net Invest_{it} . Life insurance proceeds or premiums for key officers of companies are not taxable or deductible but they are recognized for financial reporting.

The coefficient on DA_{it} (ω_{13}) is now the difference between WSTR applicable to discretionary accruals and WSTR applicable to nondiscretionary accruals. Under H1, I predict that $\omega_{13} < 0$. There are two benefits of using equation (22) in empirical estimation. First, it can directly test the coefficient difference between discretionary and nondiscretionary accruals. Second, the standard errors of the coefficient difference can be corrected for both time serial and cross-sectional correlations, as I estimate equation (22) based on standard errors clustered at both firm and fiscal year level.

Empirical Results

In Table 11, for the MNC subsample reported in column (1), the WSTR on discretionary accruals is 4% lower than the WSTR on nondiscretionary accruals (p -value=0.005). In contrast, for the domestic subsample reported in column (2), the WSTR on discretionary accruals is not significantly different from the WSTR on nondiscretionary accruals (p -value=0.378). Additionally, the WSTR on working capital accruals for MNCs is 35.9%, which is 3.7% higher than the WSTR on working capital accruals for domestic companies. This is consistent with my prediction that MNCs operate in more domestic tax jurisdictions than domestic companies.

Table 12 examines the subsample of firms that become MNCs during the sample period. As firms become MNCs, the incremental WSTR on discretionary accruals is 6.2% lower than the incremental WSTR on nondiscretionary accruals. Similar to Table 3, the evidence suggests that foreign expansion brings MNCs opportunities for foreign earnings management. Additionally, the WSTR of working capital accruals increases by 5.3% with foreign expansion. This supports my prediction that early foreign expansion is accompanied with continuing domestic expansion.

Table 13 illustrates foreign and domestic WSTR of MNCs separately in column (1) and (2). Consistent with Table 4, I find that the foreign WSTR on discretionary accruals is 6.1% lower than the foreign WSTR on nondiscretionary accruals in column (1) (p -value=0.034). In

contrast, the domestic WSTR on discretionary accruals is not significantly different from the domestic WSTR on nondiscretionary accruals (p -value=0.622). In summary, the evidence on foreign earnings management is robust to different tax rate measures.

CHAPTER VII

CONCLUSION

This study examines the role of taxes for U.S. MNCs to manage accounting earnings in foreign subsidiaries. Relying on worldwide consolidated financial statements, I predict to the extent that MNCs concentrate earnings management in low tax countries, discretionary accruals are subject to lower income tax rates than nondiscretionary accruals. Consistent with the prediction, I find that the ETR on discretionary accruals is on average 4.3% lower than the ETR on nondiscretionary accruals. Moreover, the trend of foreign earnings management increases over time as foreign taxes decrease. Additionally, the foreign ETR on discretionary accruals is 3.1% lower than the foreign ETR on nondiscretionary accruals. For firms that become MNCs during the sample period, I find foreign expansion is associated with foreign earnings management opportunities..

Having established the foreign earnings management evidence of MNCs based on a large sample, I fail to find significant support for the prediction in two possible earnings management settings: avoiding small earnings declines and avoiding missing analysts' forecasts, which is likely due to the data limitation that identifies the subsidiary level earnings management with top level incentives. However, I find significant foreign earnings management evidence when managers likely use large income increasing discretionary accruals to manage earnings upward.

I also provide evidence on the equity valuation of foreign earnings management. While prior studies consistently show that foreign earnings on average are valued higher than domestic earnings, I predict and find that the marginal valuation of opportunistically managed foreign earnings is not significantly different from the marginal valuation of opportunistically managed domestic earnings. The evidence is robust to different specifications.

APPENDIX A

DEFINITION OF VARIABLES

Variable	Name	Description
		Panel A: Earnings Management Measures
<i>TXT</i>	Total book income expense	Total book income tax expense (TXT) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>ETR</i>	Total effective tax rate	Total book income tax expense (TXT) divided by the pretax book income.
<i>OCF</i>	Pretax operating cash flow	Cash flow from operation (OANCF) plus cash tax paid (TXPD) and less extraordinary items (XIDOC) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>WC</i>	Pretax working capital accruals	The change in accounts receivable (RECCH) plus the change in inventory (INVCH) and other assets (AOLOCH) minus the change in accounts payable (APALCH) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>DA</i>	Pretax discretionary accruals	The residual term from Dechow and Dichev (2002) discretionary accrual model. The model is estimated separately by MNC/Domestic and two-digit SIC codes and each regression requires at least 10 observations.
<i>NDA</i>	Pretax nondiscretionary accruals	Working capital accruals (<i>WC</i>) subtracted by discretionary accruals (<i>DA</i>).
<i>NWC</i>	Nonworking capital accruals	Pretax income subtracted by pretax operating cash flow and working capital accruals.
<i>NOL</i>	Net operating loss carry forward	Dummy variable that takes a value of one if a firm-year has net operating loss carry forward (TLCF) at the beginning of fiscal year t.
<i>Size</i>	Firm size	Natural logarithm of total assets (AT).
<i>Debt</i>	Total debt	The sum of short-term (DLC) and long-term debt (DLTT) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. If DLC and DLTT are both missing, DLC and DLTT are replaced with zero.
<i>R&D</i>	Research and development expense	Research and development expense (XRD) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. If XRD is missing, the variable is replaced with zero.
<i>AD</i>	Advertising expense	Advertising expense (XAD) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. If XAD is missing, the variable is replaced with zero.
<i>For TXT</i>	Foreign total tax expense	The sum of foreign current tax expense (TXFO) and foreign deferred tax expense (TXDFO) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>Dom TXT</i>	Domestic total tax expense	The sum of federal current income tax expense (TXFED) and federal deferred income tax expense (TXDFO) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. State current income tax expense (TXS) is added to federal current income tax expense (TXFED) if TXS is available. State deferred income tax expense (TXDS) is added to federal deferred income tax expense (TXDFO) if TXDS is available.
<i>For ETR</i>	Foreign effective tax rate	The sum of foreign current income tax expense (TXFED) and federal deferred income tax expense (TXDFO) divided by the pretax foreign income (PIFO) in fiscal year t.

<i>Dom ETR</i>	Domestic effective tax rate	The sum of federal current income tax expense (TXFED) and federal deferred income tax expense (TXDFO) divided by the pretax domestic income (PIDOM) in fiscal year t.
<i>AR</i>	Abnormal return	The excess stock market return of firm i in fiscal year t, minus the benchmark return of Fama and French (1993) 25 size and book-to-market portfolios formed in the beginning of fiscal year t.
<i>ΔDom</i>	Change of pretax domestic earnings	The change of pretax domestic earnings (PIDOM) from fiscal year t-1 to fiscal year t divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>ΔFor</i>	Change of pretax foreign earnings	The change of pretax foreign earnings (PIFO) from fiscal year t-1 to fiscal year t divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>ΔOCF</i>	Change of pretax operating cash flow	The change of pretax operating cash flow from fiscal year t-1 to fiscal year t divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>ΔNDA</i>	Change of nondiscretionary accruals	The change of pretax nondiscretionary accruals from fiscal year t-1 to fiscal year t divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>ΔNWC</i>	Change of nonworking capital accruals	The change of pretax nonworking capital accruals from fiscal year t-1 to fiscal year t divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>ΔDA_Dom</i>	Change of domestic discretionary accruals	The change of domestic discretionary accruals divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. The domestic discretionary accruals are estimated from equation (12) and (13a) by year and two-digit SIC code.
<i>ΔDA_For</i>	Change of foreign discretionary accruals	The change of foreign discretionary accruals divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. The foreign discretionary accruals are estimated from equation (12) and (13a) by year and two-digit SIC code.
<i>ΔInt</i>	Change of interest expense	The change of interests expense (XINT) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. If XINT is missing, the variable is replaced with zero.
<i>ΔDiv</i>	Change of dividends	The change of dividends (DVC) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. If DVC is missing, the variable is replaced with zero.
<i>ΔDebt</i>	Change of debt	The change of total leverage, the sum of short-term (DLC) and long-term debt (DLTT), divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
<i>NF</i>	New financing	The sum of new equity issues (SSTK - PRSTKC) + net new debt issues (DLTIS - DLTR) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t. If <i>NF</i> is missing, the variable is replaced with zero.
		Panel C: Additional tests measures
Cap	Capital expenditure	Capital expenditure (CAPXV) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
ROA	Return on assets	Operating Income Before Depreciation (OIBDP) divided by the average total assets (AT) of fiscal year t-1 and fiscal year t.
DA_per	Performance adjusted discretionary accruals	For each firm-year, I match it by a decile of firm-years with similar current pretax return on assets (IB/average total assets), same first two-digit SIC code and same MNC/domestic type. I subtract the discretionary accruals of a firm-year by the median discretionary accruals of the matched decile by performance,

		industry and MNC type.
DA_Dom_per	Performance adjusted domestic discretionary accruals	Estimate the domestic component of worldwide performance adjusted discretionary accruals based on equation (12).
DA_For_per	Performance adjusted foreign discretionary accruals	Estimate the foreign component of worldwide performance adjusted discretionary accruals based on equation (12).
Dom_after_tax	After tax domestic earnings	Domestic pretax earnings (PIDOM) subtracted by federal current income tax expense (TXFED) and federal deferred income tax expense (TXDFED). Both TXFED and TXDFED include state current income tax expense (TXS) and state deferred income tax expense (TXDS) if they are available.
For_after_tax	After tax foreign earnings	Foreign pretax earnings (PIFO) subtracted by foreign current income tax expense (TXFO) and foreign deferred income tax expense (TXDFO).
OCF_after_tax	After tax operating cash flow	Operating cash flow (OANCF) subtracted by extraordinary items (XIDOC).
NDA_after_tax	After tax nondiscretionary accruals	Estimated from equation (10), in which the dependent variable is after-tax working capital accruals, computed as the change in accounts receivable (RECCH), plus the change in inventory (INVCH) and other assets (AOLOCH), subtracted by the change in accounts payable (APALCH) and tax payable (TXACH).
DA_Dom_after_tax	After tax domestic discretionary accruals	Estimated from equation (12) and (13a). I replace the dependent variable in equation (12) by after-tax discretionary accruals.
DA_For_after_tax	After tax foreign discretionary accruals	Estimated from equation (12) and (13b). I replace the dependent variable in equation (12) by after-tax discretionary accruals.
NWC_after_tax	After tax non-working capital accruals	After-tax income (IBC) subtracted by after-tax operating cash flow and after-tax working capital accruals.

APPENDIX B

A CASE OF FOREIGN EARNINGS MANAGEMENT

SYMBOL TECHNOLOGIES INC

Fiscal year 1998 10-K: The Company's sales organization includes domestic sales offices located throughout the United States and foreign sales offices in **Australia, Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Italy, Japan, Mexico, the Netherlands, Singapore, South Africa, South Korea, Spain, Sweden and the United Kingdom...** Foreign sales have represented a substantial portion of the Company's net revenues. In 1998, foreign sales accounted for approximately **45** percent of net revenue... Such sales are subject to the normal risks of foreign operations, such as: **Long receivable collection periods...**

Fiscal year 1999 10-K: (same as above)...Foreign sales have represented a substantial portion of the Company's net revenues. In 1999, foreign sales accounted for approximately **42.4** percent of net revenue ...

SEC Accounting and Auditing Enforcement Release No. 2029 / June 3, 2004: The SEC's complaint alleges that **from at least 1998 until early 2003**, Symbol and the other defendants engaged in numerous fraudulent accounting practices and other misconduct...(the SEC's complaint) alleges that Symbol and other defendants engaged in a **fraudulent scheme to inflate revenue, earnings and other measures of financial performance** in order to create the false appearance that Symbol had met or exceeded its financial projections... defendants used the following fraudulent schemes... (c) **channel stuffing and other revenue recognition schemes**, involving both product sales and customer services; and (d) **the manipulation of inventory levels and accounts receivable data** to conceal the adverse side effects of the revenue recognition schemes...

Fiscal year 2002 10-K/A (amended 10-K):

“Previously, each (foreign) regional office was responsible for its financial controls and processes, with the business manager in each regional office acting relatively autonomously from Symbol's headquarters. Now, our foreign regional offices, with the head of finance for each country, or groups of countries, report directly to the finance department in Symbol's headquarters and ultimately to the Chief Financial Officer.”

APPENDIX C

EXAMPLES OF INCOME TAX RATE RECONCILIATION

Panel A: Cisco Systems, Inc.

Note to Consolidated Financial Statements of Fiscal Year 2003

Years Ended	July 26, 2003	July 27, 2002	July 28, 2001
Federal statutory rate	35.0%	35.0%	(35.0)%
Effect of:			
State taxes	1.8	1.8	(2.4)
Export sales benefits	(0.2)	(1.5)	(1.8)
Foreign income at other than US rates	(8.9)	(4.9)	(1.7)
Nondeductible in-process R&D	-	0.9	30.3
Nondeductible goodwill	-	-	20.9
Nondeductible deferred stock-based compensation	0.8	1.9	8.0
Tax-exempt interest	-	-	(1.0)
Tax credits	-	(3.4)	(2.5)
Other, net	0.1	0.3	1.2
Total	28.6%	30.1%	16.0%

Panel B: Altria Group, Inc.⁴⁷

Note to Consolidated Financial Statements of Fiscal Year 2002

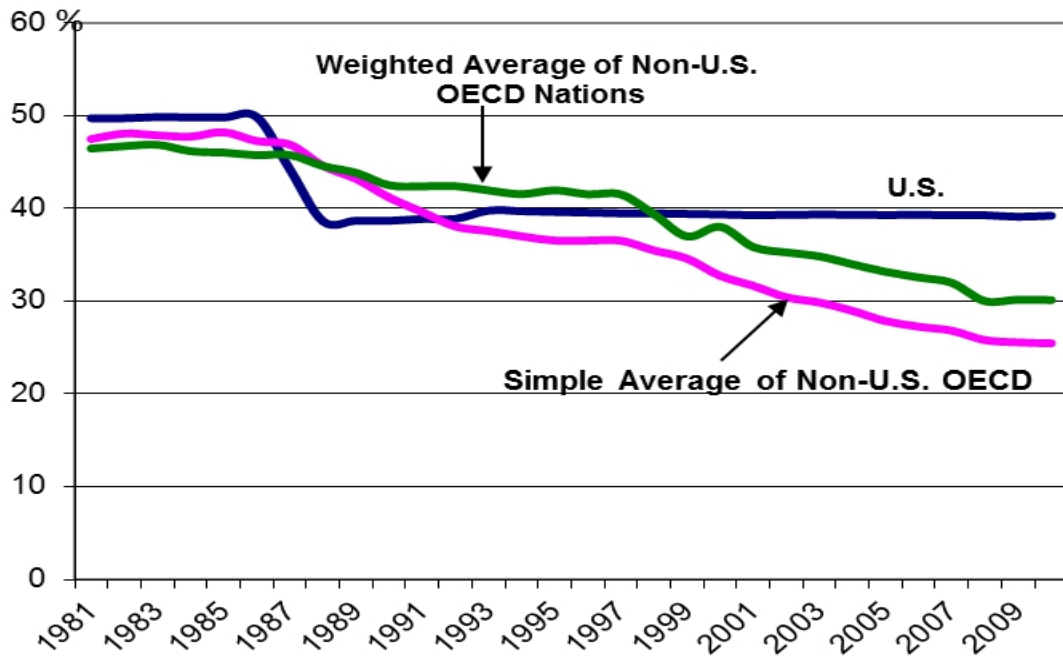
Years Ended	2002	2001	2000
U.S. federal statutory rate	35.0%	35.0%	(35.0)%
Increase (decrease) resulting from:			
State and local income taxes, net of federal tax benefit	1.7	2.3	2.6
Goodwill amortization	-	2.3	1.3
Other (including foreign rate differences)	(1.2)	(1.7)	(0.2)
Effective tax rate	35.5%	37.9%	38.7%

⁴⁷ Altria Group, Inc. is the parent company of Kraft Foods Inc. (“Kraft”) and Miller Brewing Company (“Miller”). Altria Group, Inc. is formerly known as Philip Morris Companies Inc.

APPENDIX D

TABLES AND FIGURES

Figure 1. Corporate Income Tax Rate by the U.S. and Non-U.S. OECD Countries between Year 1981 and Year 2009



Source: The corporate income tax distribution is compiled by The Tax Foundation based on IMF and OECD tax data.⁴⁸ According to the OECD definition, corporate income tax rate is a combination of top statutory tax rate of central and sub-central governments. Compared to the simple average tax rate of Non-U.S. OECD countries, the weighted average tax rate of Non-U.S. OECD countries is adjusted by country size in calculation.⁴⁹

⁴⁸ see <http://taxfoundation.org/article/tax-reform-key-growing-economy-and-higher-living-standards-all-americans-testimony-us-house>.

⁴⁹ <http://taxfoundation.org/article/countdown-1-2011-marks-20th-year-us-corporate-tax-rate-higher-oecd-average>.

Table 1. Descriptive Statistics

<i>Panel A: Descriptive statistics for multinational companies</i>						
Variable	Mean	Q1	Median	Q3	Std. Dev.	N
TXT	0.039	0.017	0.033	0.054	0.032	11356
ETR	0.339	0.290	0.350	0.389	0.116	10760
OCF	0.150	0.090	0.139	0.197	0.096	11356
WC	0.022	-0.008	0.014	0.043	0.058	11356
NDA	0.022	0.006	0.022	0.039	0.030	11356
DA	0.000	-0.028	-0.006	0.019	0.047	11356
NWC	-0.053	-0.071	-0.048	-0.030	0.038	11356
NOL	0.312	0.000	0.000	1.000	0.463	11356
Size	6.507	5.180	6.458	7.779	1.840	11356
Debt	0.172	0.012	0.133	0.267	0.176	11356
R&D	0.043	0.000	0.019	0.064	0.058	11356
AD	0.015	0.000	0.000	0.010	0.037	11356
For TXT	0.011	0.002	0.007	0.015	0.014	11356
Dom TXT	0.028	0.007	0.021	0.041	0.030	11356
For ETR	0.335	0.231	0.329	0.418	0.166	6868
Dom ETR	0.352	0.293	0.359	0.406	0.142	6868
Market valuation variables:						
AR	-0.001	-0.236	-0.046	0.169	0.412	6489
Δ Dom	-0.005	-0.024	-0.001	0.018	0.055	6489
Δ For	0.000	-0.006	0.000	0.008	0.019	6489
Δ OCF	-0.005	-0.037	-0.003	0.028	0.066	6489
Δ NDA	0.000	-0.016	0.000	0.017	0.035	6489
Δ DA_Dom	-0.001	-0.008	-0.001	0.006	0.015	6489
Δ DA_For	0.000	-0.003	0.000	0.003	0.010	6489
Δ NWC	0.000	-0.014	-0.001	0.014	0.033	6489
Δ R&D	0.005	0.000	0.000	0.005	0.017	6489
Δ Int	0.001	-0.001	0.000	0.002	0.006	6489
Δ Div	0.000	0.000	0.000	0.002	0.033	6489
Δ Debt	0.204	0.046	0.186	0.308	0.178	6489
NF	0.001	-0.033	0.000	0.016	0.099	6489
<i>Panel B: Descriptive statistics for domestic companies</i>						
Variable	Mean	Q1	Median	Q3	Std. Dev.	N
TXT	0.039	0.014	0.033	0.057	0.037	13736
ETR	0.358	0.340	0.376	0.400	0.109	12648
OCF	0.141	0.068	0.132	0.206	0.121	13736
WC	0.035	-0.010	0.017	0.065	0.085	13736
NDA	0.035	0.003	0.029	0.065	0.054	13736
DA	0.000	-0.037	-0.009	0.025	0.060	13736

NWC	-0.056	-0.077	-0.050	-0.028	0.047	13736
NOL	0.169	0.000	0.000	0.000	0.375	13736
Size	4.608	3.285	4.536	5.804	1.803	13736
Debt	0.186	0.003	0.127	0.300	0.203	13736
R&D	0.015	0.000	0.000	0.000	0.040	13736
AD	0.015	0.000	0.000	0.010	0.039	13736

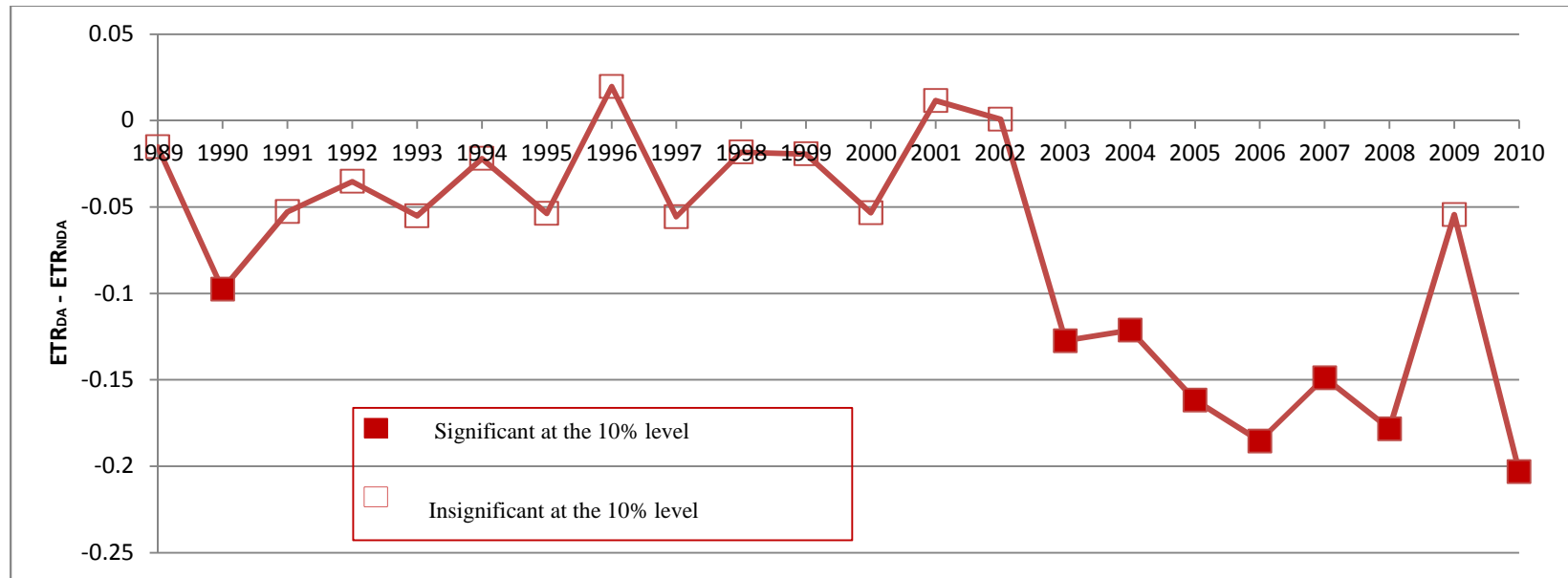
Notes: This table provides descriptive statistics for the variables used in this study. See Appendix A for variable definitions. Panel A presents the distribution of key variables for multinational firm years that have positive pretax income ($PI > 0$). A firm is defined as multinational if it has non-zero current foreign tax expense (TXFO) or non-zero pretax foreign income (PIFO) throughout the sample period. When reporting the distribution of *ETR*, *For ETR* and *Dom ETR*, I separately require each variable to be between zero and one. Panel B presents the distribution of key variables for domestic firm years that have positive pretax income ($PI > 0$). A firm is defined as domestic if it has zero current foreign tax expense (TXFO) and zero pretax foreign income (PIFO) throughout the sample period. Panel C reports Pearson correlations among ETR measures, earnings components and firm characteristic variables for multinational companies with ETR between zero and one. *P*-value is reported in parentheses. All ratio variables are winsorized at the 1st and 99th percentiles by multinational and domestic separately.

Table 2. Estimates of ETR Applicable to Pretax Earnings Components

<i>Panel A: the dependent variable is total income tax expense</i>		
	MNC (1)	Domestic (2)
OCF	0.361 ^{***} (0.000)	0.329 ^{***} (0.000)
OCF×NOL	-0.029 ^{**} (0.049)	-0.038 ^{***} (0.009)
OCF×Size	-0.001 (0.668)	0.022 ^{***} (0.000)
OCF×Debt	0.003 (0.890)	-0.123 ^{***} (0.001)
OCF×AD	-0.092 (0.336)	0.149 (0.227)
OCF×R&D	-0.053 (0.572)	-0.155 (0.392)
WC	0.376 ^{***} (0.000)	0.332 ^{***} (0.000)
WC×NOL	-0.025 (0.470)	-0.050 ^{**} (0.047)
WC×Size	0.002 (0.803)	0.020 ^{***} (0.005)
WC×Debt	-0.061 (0.244)	-0.124 ^{**} (0.017)
WC×AD	0.011 (0.971)	0.329 (0.121)
WC×R&D	0.099 (0.670)	-0.159 (0.676)
DA	-0.043^{***} (0.001)	0.006 (0.618)
DA×NOL	-0.018 (0.568)	-0.026 (0.282)
DA×Size	0.010 (0.204)	0.005 (0.465)
DA×Debt	0.029 (0.592)	-0.001 (0.986)
DA×AD	0.138	-0.488 ^{**}

	(0.722)	(0.040)
DA×R&D	0.190 (0.387)	0.014 (0.970)
NWC	0.323 ^{***} (0.000)	0.352 ^{***} (0.000)
NWC×NOL	0.001 (0.934)	0.005 (0.814)
NWC×Size	-0.004 (0.498)	0.019 ^{***} (0.000)
NWC×Debt	-0.051 (0.272)	-0.093 ^{**} (0.014)
NWC×AD	-0.223 (0.151)	-0.008 (0.959)
NWC×R&D	-0.508 ^{**} (0.001)	-0.023 (0.889)
NOL	-0.003 ^{***} (0.000)	-0.007 ^{***} (0.000)
Size	-0.000 (0.297)	0.001 ^{***} (0.000)
Debt	0.005 ^{***} (0.004)	-0.005 ^{**} (0.026)
AD	0.010 (0.254)	-0.015 (0.198)
R&D	-0.045 ^{***} (0.000)	-0.031 (0.142)
Constant	0.032 ^{***} (0.000)	0.029 ^{***} (0.000)
<hr/>		
<i>N</i>	11356	13736
adj. <i>R</i> ²	0.77	0.70
<i>F</i>	908.963	671.292
<hr/>		

Figure 2. The Yearly ETR Difference between DA and NDA (β_{b1}) for MNCs



Notes: This table reports regression estimates based on equation (9). The sample consists of firm-year observations with positive pretax income. All continuous variables have been subtracted by their mean. Panel A presents the multivariate regression estimates. Column (1) is based on the MNC subsample of 11,356 observations. Column (2) is based on the domestic company subsample of 13,736 observations. Panel B estimates equation (9) for MNCs by each year and plots the coefficient estimates of DA (β_{b1}) by year. The marker at each year is empty if the p -value of β_{b1} in this year is above 10% and is solid if the p -value of β_{b1} is below 10%. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles by MNC and domestic subsamples separately. P -value is reported in parentheses. Standard errors are clustered at firm and fiscal year level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively

Table 3. Estimates of ETR Associated with Foreign Expansion

	Become MNCs OLS	Become MNCs	
	(1)	1st Stage (2)	2nd Stage (3)
MNC Expand	-0.003 (0.217)		-0.019*** (0.008)
OCF	0.367*** (0.000)		0.400*** (0.000)
OCF × MNC Expand	0.003 (0.751)		-0.083*** (0.010)
WC	0.357*** (0.000)		0.376*** (0.000)
WC × MNC Expand	0.034** (0.046)		-0.012 (0.819)
DA	-0.015 (0.320)		0.028 (0.432)
DA × MNC Expand	-0.039** (0.045)		-0.130* (0.059)
NWC	0.377*** (0.000)		0.436*** (0.000)
NWC × MNC Expand	-0.017 (0.518)		-0.176* (0.082)
Cap _{t-1}		-2.745*** (0.000)	
ROA _{t-1}		-1.718*** (0.000)	
Size _{t-1}		0.252*** (0.000)	
Debt _{t-1}		0.051 (0.723)	
Controls?	Yes		Yes
<i>N</i>	4055	3120	3113
adj. <i>R</i> ²	0.79	0.11	0.85
Industry fixed effect?	No	Yes	No

Notes: This table reports regression estimates adapted from equation (9). All continuous variables have been subtracted by their mean. The sample consists of firms that have zero current foreign tax expense (TXFO) and zero pretax foreign income (PIFO) in the first sample year and non-zero current foreign tax expense (TXFO) or non-zero pretax foreign income (PIFO) in latter sample years. This generates 4,055 firm-year observations. *MNC Expand* is equal to one for the first sample year of foreign operation reported and all subsequent sample years. Column (1) is based on the OLS regression. Column (2) and (3) address the endogenous decision of foreign expansion. Column (2) reports the first-stage Probit regression with industry fixed effect. The dependent variable is *MNC Expand* and the regression generates predicted probabilities of foreign expansion. In column (3) the second stage regression, the predicted probabilities of foreign expansion are interacted with each pretax earnings component. For presentation purpose, control variables reported in Table 2 are not separately reported. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. *P*-value is reported in parentheses. Standard errors are clustered at firm level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

Table 4. Estimates of Domestic and Foreign ETR

	For TXT (1)	Dom TXT (2)
OCF	0.061 ^{***} (0.000)	0.281 ^{***} (0.000)
WC	0.074 ^{***} (0.000)	0.278 ^{***} (0.000)
DA	-0.031^{**} (0.017)	-0.002 (0.904)
NWC	0.034 ^{***} (0.000)	0.283 ^{***} (0.000)
Controls?	Yes	Yes
<i>N</i>	11356	11356
adj. <i>R</i> ²	0.13	0.59

Notes: This table reports regression estimates adapted from equation (9). All continuous variables have been subtracted by their mean. In column (1), the dependent variable is *For TXT*, the total foreign income tax expense as the sum of foreign current income tax expense (TXFO) and foreign deferred income tax expense (TXDFO). In column (2), the dependent variable is *Dom TXT*, the total domestic income tax expense as the sum of federal current income tax expense (TXFED) and federal deferred income tax expense (TXDFO). I add state current income tax expense (TXS) to federal current income tax expense (TXFED) if TXS is available. I add state deferred income tax expense (TXDS) to federal deferred income tax expense (TXDFO) if TXDS is available. I also use the following steps to replace missing values of variables above:

- 1) If TXDFED is missing and TXDFO is equal to TXDI, I replace TXDFED to zero.
- 2) If TXDFO is missing and TXDFED is equal to TXDI, I replace TXDFO to zero.
- 3) If TXDFED is missing and TXDFO and TXDI are not missing, I replace TXDFED to (TXDI-TXDFO).
- 4) If TXDFO is missing and TXDI and TXDFED are not missing, I replace TXDFO to (TXDI-TXDFED).

After steps above, I replace TXDFED as zero if TXDFED is still missing and replace TXDFO as (TXDI-TXDFED) if TXDFO is still missing. Both *For TXT* and *Dom TXT* are scaled by the average assets of fiscal year t-1 and fiscal year t. For presentation purpose, control variables reported in Table 2 are not separately reported. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. *P*-value is reported in parentheses. Standard errors are clustered at firm and fiscal year level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

Table 5. Market Valuation by Foreign and Domestic Activities

<i>Panel A: the dependent variable is abnormal market return during fiscal year t</i>		
	Foreign/Domestic Earnings (1)	Foreign/Domestic Managed Earnings (2)
ΔDom	1.392^{***} (0.000)	
ΔFor	2.204^{***} (0.000)	
ΔOCF		1.509 ^{***} (0.000)
ΔNDA		1.386 ^{**} (0.010)
ΔDA_Dom		1.446^{***} (0.001)
ΔDA_For		1.245^{**} (0.043)
ΔNWC		0.754 ^{***} (0.000)
ΔR&D	1.597 ^{***} (0.000)	1.542 ^{***} (0.000)
ΔInt	-0.668 (0.478)	-0.869 (0.367)
ΔDiv	-0.026 (0.826)	-0.039 (0.760)
ΔDebt	-0.119 ^{***} (0.000)	-0.127 ^{***} (0.000)
NF	0.164 ^{**} (0.027)	0.162 ^{**} (0.049)
Constant	0.034 (0.229)	0.038 (0.209)
<i>Industry dummies?</i>	Yes	Yes
<i>N</i>	6489	6489
<i>adj. R²</i>	0.06	0.04
<i>Panel B: F-test of coefficients</i>		
ΔFor - ΔDom = 0 (p-value)	5.95 ^{**} (0.014)	
ΔDA_For - ΔDA_Dom = 0 (p-value)		0.06 (0.801)

<i>Panel C: ETR estimates applicable to foreign and domestic discretionary accruals in year t</i>		
	DA_Dom	DA_For
ETR estimate	0.412 ^{***} (0.000)	0.141 ^{***} (0.007)

<i>Panel D: F-test of coefficients</i>		
DA_Dom - DA_For = 0 (p-value)		22.19 ^{***} (0.000)

Notes: This table reports market valuation regressions. In Panel A, the dependent variable is excess stock market return of firm i in fiscal year t , minus the benchmark return of Fama and French (1993) 25 size and book-to-market portfolios formed at the beginning of fiscal year t . Column (1) examines the market valuation of domestic and foreign pretax earnings based on equation (11). Column (2) examines the market valuation of domestic and foreign pretax managed earnings based on equation (17). Panel B reports F-test results of the coefficients in Panel A. Panel C reports ETR estimates adapted from equation (9). I regress total income tax on decomposed worldwide discretionary accruals by foreign discretionary accruals (DA_{For}), domestic discretionary accruals (DA_{Dom}) and the residual component in a framework similar to equation (9). The coefficients of DA_{For} and DA_{Dom} can be interpreted as the ETR applicable to DA_{For} and DA_{Dom} in year t . Panel D reports F-test results of the coefficients in Panel C. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. P-value is reported in parentheses. Standard errors are clustered at firm level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

Table 6. Earnings Management Settings

<i>Panel A: the dependent variable is total income tax expense (TXT)</i>				
	Small Earnings Increase (1)	Meet or Beat forecasts (2)	Top DA Quartile (3)	Bottom DA Quartile (4)
OCF	0.351*** (0.000)	0.344*** (0.000)	0.360*** (0.000)	0.365*** (0.000)
WC	0.336*** (0.000)	0.344*** (0.000)	0.407*** (0.000)	0.378*** (0.000)
DA	-0.011 (0.644)	0.029 (0.325)	-0.132*** (0.008)	0.010 (0.944)
NWC	0.337*** (0.000)	0.340*** (0.000)	0.318*** (0.000)	0.328*** (0.000)
EM	-0.001* (0.057)	-0.001 (0.321)		
EM× OCF	0.008 (0.313)	0.002 (0.813)		
EM× WC	0.031 (0.296)	0.001 (0.979)		
EM× DA	-0.016 (0.540)	-0.012 (0.731)		
EM× NWC	0.008 (0.557)	-0.032 (0.113)		
Controls?	Yes	Yes	Yes	Yes
<i>N</i>	4340	3341	866	867
adj. <i>R</i> ²	0.83	0.84	0.68	0.73

<i>Panel B: ETR comparison for the top and bottom DA quartiles</i>			
	Top DA Quartile	Bottom DA Quartile	Mean difference
For ETR	29.5%	31.8%	2.3%***
Dom ETR	26.9%	25.3%	-1.6%**

Notes: This table reports regression estimates adapted from equation (9) for three different settings in which earnings management is likely to occur: 1) avoiding a small earnings decline; 2) avoiding missing analysts' forecasts; 3) using large magnitude of income-increasing discretionary accruals. The sample consists of MNC observations that have positive pretax income. All continuous variables have been subtracted by their mean. Column (1) examines the earnings management setting in which managers manage earnings to avoid a small earnings decline. The subsample requires that the pretax earnings change from year t-1 to year t, scaled by equity market value in year t-2 ($\Delta\text{PI}/\text{MV}_{t-2}$), is between -0.02 and 0.02. *EM* is an indicator variable equal to one if the pretax earnings change is above

zero and less than 0.02. Column (2) examines the earnings management setting in which managers manage earnings to avoid missing analysts' forecasts. The subsample requires that earnings forecast error is between -0.01 and 0.01. The forecast error is calculated as the difference between EPS from actual earnings announcement and the median EPS forecasted by analysts in the month of earnings announcement. *EM* is an indicator variable equal to one if the earnings forecast error is above zero and less than 0.01. In column (3) and (4), I sort income increasing discretionary accruals ($DA > 0$) in fiscal year t into quartiles and I also require that the discretionary accruals in fiscal year $t-1$ is positive. Column (3) examines the earnings management setting based on the top income increasing discretionary accrual quartile, and Column (4) examines the benchmark setting based on the bottom income increasing discretionary accrual quartile. Panel B reports the average foreign ETR (For ETR) and domestic ETR (Dom ETR) for the top and bottom discretionary accrual quartiles separately. I require both For ETR and Dom ETR to be between zero and one. The sample mean difference and related statistical significance are reported. For presentation purpose, control variables reported in Table 2 are not separately reported. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. *P*-value is reported in parentheses. Standard errors are clustered at firm and fiscal year level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

**Table 7. Estimates of ETR Applicable to Pretax Earnings Components
(Performance Matched Discretionary Accruals)**

	MNC (1)	Domestic (2)
OCF	0.355*** (0.000)	0.329*** (0.000)
WC	0.358*** (0.000)	0.331*** (0.000)
DA_per	-0.025** (0.028)	0.009 (0.290)
NWC	0.322*** (0.000)	0.354*** (0.000)
Controls?	Yes	Yes
<i>N</i>	11356	13736
adj. <i>R</i> ²	0.77	0.70

Notes: This table reports regression estimates based on equation (9) using performance matched discretionary accruals. The sample consists of MNC and domestic firm-year observations that have positive pretax income. All continuous variables have been subtracted by their mean. For presentation purpose, control variables reported in Table 2 are not separately reported. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. *P*-value is reported in parentheses. Standard errors are clustered at firm and fiscal year level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

Table 8. Market Valuation by Foreign and Domestic Activities (Performance Matched Discretionary Accruals)

<i>Panel A: the dependent variable is abnormal market return during fiscal year t</i>	
	Foreign/Domestic Managed Earnings (1)
Δ OCF	1.188*** (0.000)
Δ NDA	0.603** (0.043)
Δ DA_Dom_per	0.911** (0.033)
Δ DA_For_per	0.992* (0.074)
Δ NWC	0.886*** (0.000)
Δ R&D	1.491*** (0.000)
Δ Int	-1.103 (0.291)
Δ Div	-0.049 (0.657)
Δ Debt	-0.124*** (0.000)
NF	0.161** (0.031)
Constant	0.038 (0.207)
<i>Industry dummies</i>	Yes
<i>N</i>	6489
<i>adj. R²</i>	0.04
<i>Panel B: F-test of coefficients</i>	
Δ DA_For_per - Δ DA_Dom_per = 0 (<i>p</i> -value)	0.01 (0.916)

Notes: This table reports market valuation regression based on equation (17) using performance matched discretionary accruals. The sample consists of MNC observations that have positive pretax income. In Panel A, the dependent variable is excess stock market return of firm *i* in fiscal year *t*, minus the benchmark return of Fama and French (1993) 25 size and book-to-market portfolios formed at the beginning of fiscal year *t*. Panel B reports F-test results of the coefficients in Panel A. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. Industry fixed

effect is included and industries are defined based on Fama-French 12 industries. *P*-value is reported in parentheses. Standard errors are clustered at firm level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

Table 9. Market Valuation by Foreign and Domestic Activities (Include Residual Discretionary Accruals)

<i>Panel A: the dependent variable is abnormal market return during fiscal year t</i>	
	Foreign/Domestic Managed Earnings (1)
Δ OCF	1.408*** (0.000)
Δ NDA	1.321*** (0.001)
ΔDA_Dom	1.575*** (0.000)
ΔDA_For	1.249** (0.022)
Δ Residual	-0.606*** (0.002)
Δ NWC	0.633*** (0.001)
Δ R&D	1.588*** (0.000)
Δ Int	-0.820 (0.432)
Δ Div	-0.031 (0.786)
Δ Debt	-0.124*** (0.000)
NF	0.191** (0.011)
Constant	0.036 (0.224)
<i>Industry dummies</i>	Yes
<i>N</i>	6489
<i>adj. R²</i>	0.04
<i>Panel B: F-test of coefficients</i>	
Δ DA_For - Δ DA_Dom = 0	0.20
(<i>p</i> -value)	(0.652)

Notes: This table reports market valuation regression of equation (17) by including the change of residual discretionary accruals (Δ Residual). The sample consists of MNC observations that have positive pretax income. In Panel A, Δ Residual is the change of residual discretionary accruals (Δe_{it}) in

equation (15). Panel B reports F-test results of the coefficients in Panel A. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. Industry fixed effect is included and industries are defined based on Fama-French 12 industries. *P*-value is reported in parentheses. Standard errors are clustered at firm level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

Table 10. Market Valuation by Foreign and Domestic Activities (After-tax)

<i>Panel A: the dependent variable is abnormal market return during fiscal year t</i>		
	Foreign/Domestic Earnings (1)	Foreign/Domestic Managed Earnings (2)
$\Delta\text{Dom_after_tax}$	1.775^{***} (0.000)	
$\Delta\text{For_after_tax}$	3.218^{***} (0.000)	
$\Delta\text{OCF_after_tax}$		1.462 ^{***} (0.000)
$\Delta\text{NDA_after_tax}$		1.099 ^{**} (0.022)
$\Delta\text{DA_Dom_after_tax}$		1.289^{***} (0.001)
$\Delta\text{DA_For_after_tax}$		1.297^{**} (0.017)
$\Delta\text{NWC_after_tax}$		0.903 ^{***} (0.002)
$\Delta\text{R\&D}$	1.650 ^{***} (0.001)	1.573 ^{***} (0.002)
ΔInt	-0.020 (0.989)	-0.974 (0.513)
ΔDiv	0.010 (0.932)	-0.043 (0.705)
ΔDebt	-0.132 ^{***} (0.005)	-0.135 ^{***} (0.005)
NF	0.270 ^{***} (0.010)	0.298 ^{***} (0.006)
Constant	0.037 (0.297)	0.030 (0.388)
<i>Industry dummies</i>	Yes	Yes
<i>N</i>	3801	3801
<i>adj. R²</i>	0.06	0.04
<i>Panel B: F-test of coefficients</i>		
$\Delta\text{For_after_tax} - \Delta\text{Dom_after_tax} = 0$ (<i>p</i> -value)	8.62 ^{***} (0.003)	
$\Delta\text{DA_For_after_tax} - \Delta\text{DA_Dom_after_tax} = 0$ (<i>p</i> -value)		0.00 (0.991)

Notes: This table reports market valuation regression of equation (17) by using after-tax earnings components. The sample consists of MNC observations that have positive pretax income. Δ indicates the change of a variable from fiscal year t-1 to fiscal year t. Panel B reports F-test results of the coefficients in Panel A. All variables are defined in Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. Industry fixed effect is included and industries are defined based on Fama-French 12 industries. *P*-value is reported in parentheses. Standard errors are clustered at firm level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

Table 11. Estimates of Weighted Statutory Tax Rate Applicable to Pretax Earnings Components

	MNC (1)	Domestic (2)
OCF	0.347*** (0.000)	0.328*** (0.000)
WC	0.359*** (0.000)	0.322*** (0.000)
DA	-0.040*** (0.005)	-0.012 (0.378)
NWC	0.312*** (0.000)	0.346*** (0.000)
R&D	-0.036*** (0.000)	-0.075*** (0.000)
AD	0.015* (0.081)	0.007 (0.573)
Int Rev	0.118** (0.020)	0.115** (0.029)
Amort	0.092** (0.033)	0.123 (0.103)
Stock Comp	-0.039*** (0.000)	-0.016 (0.256)
Net Div	0.005 (0.429)	-0.055*** (0.000)
Net Invest	0.004 (0.156)	-0.004* (0.057)
Manufacture	-0.001 (0.156)	-0.001 (0.425)
MI	0.072 (0.327)	-0.083 (0.323)
Constant	-0.002* (0.063)	0.002 (0.156)
<i>N</i>	7112	8580
adj. <i>R</i> ²	0.76	0.67

Notes: This table reports regression estimates based on equation (22). The sample consists of MNC and domestic firm-year observations that have positive pretax income. All variables are defined in section 6.5.1 and Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles by MNC and domestic subsamples separately. *P*-value is reported in parentheses. Standard errors are clustered at firm

and fiscal year level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

Table 12. Estimates of Weighted Statutory Tax Rate Applicable to Pretax Earnings Components for Firms that Become MNCs

	Become MNC (1)
MNC Expand	-0.006* (0.064)
OCF	0.347*** (0.000)
OCF × MNC Expand	0.028* (0.068)
WC	0.325*** (0.000)
WC × MNC Expand	0.053* (0.092)
DA	-0.009 (0.660)
DA × MNC Expand	-0.062* (0.058)
NWC	0.365*** (0.000)
NWC × MNC Expand	0.015 (0.598)
Controls?	Yes
<i>N</i>	2542
adj. <i>R</i> ²	0.76

Notes: This table reports regression estimates from equation (22). The sample consists of firm-years that have positive pretax income and become MNCs during the sample period. Only observations with positive pretax income are included. The subsample is defined in Table 3. For presentation purpose, control variables reported in Table 11 are not separately reported. All variables are defined in section 6.5.1 and Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. *P*-value is reported in parentheses. Standard errors are clustered at firm and fiscal year level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively

Table 13. Estimates of Domestic and Foreign Statutory Tax Rate Applicable to Pretax Earnings Components

	For TXT (1)	Dom TXT (2)
OCF	0.085*** (0.000)	0.281*** (0.000)
WC	0.117*** (0.000)	0.260*** (0.000)
DA	-0.061** (0.034)	0.022 (0.622)
NWC	0.041** (0.013)	0.275*** (0.000)
Control variables?	Yes	Yes
<i>N</i>	7105	7105
adj. <i>R</i> ²	0.14	0.43

Notes: This table reports regression estimates from equation (22) based on the MNC subsample. The sample consists of MNC and domestic firm-year observations that have positive pretax income. In column (1), the dependent variable is total foreign income tax expense (*For TXT*). In column (2), the dependent variable is total domestic income tax expense (*Dom TXT*). See Table 4 for the definition of domestic and foreign income tax expense. For presentation purpose, control variables reported in Table 12 are not separately reported. All variables are defined in section 6.5.1 and Appendix A. All ratio variables are winsorized at the 1st and 99th percentiles. *P*-value is reported in parentheses. Standard errors are clustered at firm and fiscal year level. ***, **, and * denote significance at the 1%, 5% and 10% level (two-tailed test), respectively.

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