Do U.S. Multinational Corporations Utilize Tax Avoidance Strategy to Meet and Beat Multiple Earnings Goals?

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Experimental psychology literature (Wang and Johnson, 2012) suggests that under risky conditions, when multiple goals coexist, people tend to meet/beat all. Multinational corporations (MNCs) are different in tax structures between home countries and host countries. They tend to use tax planning strategies to boost their earnings through reduced tax liability (Lee et al., 2015). Prior literature documents that MNCs use different financial practices to manipulate earnings than non-MNCs (Contractor, 2016). Using a panel data set from 1987 to 2015, we hypothesize and find that U.S. MNCs tend to apply more aggressive tax planning to meet/beat multiple earnings benchmarks (MMB). Specifically, as U.S. MNCs MMB, they do not apply as much other earnings/expectations management mechanisms as non-U.S. MNCs, but they do exhibit significant evidence of tax avoidance with much lower effective tax rates. The findings of this study contribute to research topics in tax avoidance strategy and earnings management. The results and discussions of this study have practical implications to investors, managers, auditors, and tax regulators.

Keywords: multinational corporations, tax avoidance, multiple earning goals, earnings/expectations management

INTRODUCTION

Managers seek to meet/beat earnings benchmarks (Graham *et al*., 2005; Jiang, 2008). When multiple goals are set to evaluate managers' performances, managers tend to meet/beat all (Wang and Johnson, 2019). A myriad of accounts has been used to manipulate earnings. Income tax is one of the last accounts firms close before the earnings announcements (Dhaliwal *et al*., 2004) due to the inherent complexity of the estimation process. *MNCs* can transfer earnings from high-tax-rate regions to low-tax-rate regions to boost earnings (Hope *et al*. 2013; Amidu *et al*. 2019; Beer *et al.*, 2020), and the international setting where *MNCs* are operated makes the income tax account even more complex to decode, which makes one think that *MNCs* will resort to income tax account to manipulate reported earnings. Accounting literature also documents that Internal Revenue Services (IRS) pays more attention and scrutiny to *MNCs*' tax avoidance behavior (Badertscher et al., 2009). This study examines as U.S. *MNCs* seek to meet/beat more earnings benchmarks (*MMB*), whether the degree of application of income tax avoidance will increase after controlling for the effects of other earnings/expectations management mechanisms documented in the

accounting literature. We hypothesize that as U.S. *MNCs MMB*, they rely more on tax planning and less on the other earnings/expectation management techniques.

Using annual panel data covering the period of 1987 through 2015, we identify *USA* firms as those that are incorporated in the United States according to the ISO country codes. We categorize *MNC*s as those that have positive pre-tax foreign income. We measure tax avoidance using effective tax rate (*ETR*) in the main analyses and then cash paid income taxes (*ETR_CASH*) in the robustness test. We measure discretionary accruals (*DA*) and real earnings management (*REM)* using Jones (1991) model, and Roychowdhury (2006) model, respectively, adjusted for distinct competitive strategies and financial performance (Srivastava, 2019). We proxy for our dichotomous expectations management measure (*DOWN*) by taking the positive difference between the earliest and latest analysts' forecasts immediately before the earnings announcement.

We apply Heckman (1979)'s Two-Step procedure to control for selection bias issue. We arrive at results suggesting that as *U.S. MNCs MMB*, they do not rely on as much the other earnings/expectations management mechanisms as non-U.S. *MNC*s but become more aggressive in tax planning. Specifically, they demonstrate much lower *ETR* and *ETR_CASH* than those of non-*U.S. MNC*s.

This study is important in several ways. First, it contributes to the tax avoidance literature using various panel data in an *MNC* setting. Different from prior research, this study investigates the effect of tax avoidance on firms' benchmarking behavior after controlling for the effects of other earnings/expectations management mechanisms. Second, it contributes to the earnings management literature by showing that *U.S. MNCs* manage earnings benchmarks by applying effective tax planning, and shunning away from traditional earnings management techniques. Lastly, the results of this study have practical implications to different stakeholders, including but not limited to regulators, auditors, and investors.

The rest of the study is proceeded as follows. The next section reviews prior and existing literature and develops hypotheses, followed by data and methodology, empirical results, and conclusions.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

MNCs and Tax Avoidance

Multinational corporations (*MNCs*) are firms headquartered in home countries, but have subsidiaries in other host countries. In most cases, there are significant differences in tax structures between home countries and host countries. Tax avoidance has become one of the reasons *MNCs* become a research topic, and it is found that *MNCs* feature pronounced tax avoidance behavior (Jenkins and Wright, 1975 ; Lee et al., 2015; Dyreng and Hanlon, 2021). Altshuler et al. (2000) explore and find that U.S. foreign investment locations of manufacturing firms are (have become more) sensitive to tax rate differences in different tax locations in the period of 1984-1992, i.e., *MNCs* are becoming more aggressive in tax planning. Rego (2003) finds that *MNCs* with more extensive foreign operations have lower effective tax rates than other firms.

MNCs tend to avoid taxes liabilities through transfer pricing activities in tax havens according to the political cost theory (Duho et al., 2024) and the agency theory (Lee et al., 2015). A tax haven is a country that offers foreign individuals and businesses a minimal tax liability in a politically and economically stable environment, with little or no financial information shared with foreign (home) tax authorities. Individuals residing in the host country or businesses operating out of their home countries can benefit from local tax policies under tax heaven. Desai *et al*. (2006) find that larger, more international firms, and those with extensive intrafirm trade and high R&D intensities are the most likely to use tax havens.

Transfer pricing is an alleged mechanism that *MNCs* can use to gain tax advantage (Duho et al., 2024). In these transactions, the parent company located in the higher tax rate country will sell (transfer) goods to its subsidiaries in the lower tax rate countries (tax havens), resulting in total tax savings until foreign income repatriation. Rego (2003) states that *MNCs* can reduce *ETR* by shifting income from high-tax to low-tax jurisdictions. The author finds that pre-tax income is negatively associated with ETR after controlling for firm size.

The international setting where *MNCs* are operated renders worse information asymmetry between the management and stakeholders. Duru and Reeb (2002) examine the association between the degree of firms' international diversification and the accuracy and bias of analysts' forecasts. They find that analysts' forecasts have become less accurate and more upward biased as firms become more diverse internationally. Balakrishnan *et al*. (2019) find out that while tax aggressive firms enjoy tax benefits, they do suffer from lack of corporate transparency in their financial information environment.

Aggressive accounting practices incur closer scrutiny from independent auditors and regulators. Independent auditors and regulators, therefore, can inhibit firms from using aggressive accounting practices. Discretionary accruals (*DA)* (Jones, 1991*;* Kothari et al., 2005; Cohen et al., 2008; Atayah et al., 2024), real activities manipulations (*REM)* (*G*raham et al., 2005; Roychowdhury, 2006; Cohen et al., 2008; Sitanggang et al., 2020; Potharla, 2023), and downward analysts' forecast guidance (*DOWN)* (Brown and Caylor, 2005) have been shown to be applied by firms in meeting/beating earnings benchmarks. Besides regulators and independent auditors, the markets can also see through managerial earnings management (Bartov *et al*., 2002; Jiang, 2008). Due to increased scrutiny, firms have shown the transition after the Sarbanes-Oxley Act (2002) from *DA* to *REM* (e.g., Cohen *et al.*, 2008). Badertscher *et al*. (2009) find that financial statement restating firms take the risk of being detected by regulators by creating significant book-tax differences between pre-tax income and taxable income. However, the complexity of the income tax account, especially that of those MNCs, has perplexed the independent auditors (Plumlee, 2003).

Multiple Earnings Goals (*MMB*)

Accounting literature documents three earnings targets that firms intend to meet/beat. Burgstahler and Dichev (1997) document and demonstrate an abnormally higher number of firm-year observations just above the threshold of zero earnings/change than those under. A myriad of studies documents that meeting/beating analysts' forecasts is an important earnings benchmark (e.g., Matsumoto, 2002; Bartov *et al*., 2002; Kasznik and McNichols, 2003).

Accounting research has explored the phenomenon of firms meeting/beating multiple earnings goals (zero earnings, zero earnings increase, and analysts' forecasts), which we define as *MMB* in this paper, and there are market benefits associated with those firms that achieved to do so. These three earnings benchmarks have been studied in accounting and finance research to examine managerial behaviors. Jiang (2008) examines the three benchmarks in the debt market and concludes that firms meeting/beating these three benchmarks feature higher probability of rating upgrade and lower initial bond yield spread. The author also finds that managerial response is different between equity and debt markets, i.e., meeting/beating zero earnings is superior to the other two earnings benchmarks in the debt market. Zang (2012) studies these three earnings benchmarks in the context of earnings management and concludes that managers apply respective earnings management mechanism based on their relative costs. Wang and Johnson (2012) develop a tri-reference-point theory and suggest that in risky situations when a firm does not know which threshold takes priority, it would try to meet/beat all three thresholds.

Hypothesis Development

Market premiums are associated with firms' meeting/beating multiple earnings benchmarks, and firms tend to achieve this goal by managing different accounts. *MNCs* can do so by operating in a complex environment where tax planning can be applied advantageously to the other earnings management mechanisms (Salah, 2024). We hypothesize that after controlling for other earnings management mechanisms, *U.S. MNCs* resort to aggressive tax planning to *MMB*. We formalize the hypothesis as follows:

H1*: Ceteris Paribus, compared to earnings and expectations management, U.S. MNCs resort to tax avoidance to MMB to a greater extent than non-U.S. MNCs.*

DATA AND METHODOLOGY

Data

We use data from COMPUSTAT Global and I/B/E/S from 1987 through 2015. This study focuses on *U.S. MNCs* between the Tax Reform Act of 1986 and the Tax Cuts and Job Acts (TCJA) effective in 2018, because U.S. tax laws changed after 2018. The TCJA changed many corporate tax provisions, including a reduction of the corporate statutory tax rate from 35 percent to 21 percent effective in 2018. The Appendix describes the data and sample selection procedure. After merging the two data sets, deleting utilities and banking and financial institutions, and requiring at least 10 observations for each industry-year group, we have 14,395 observations used in the earnings management estimation procedure, consisting of 463 industry-year groups. Before the first step of Heckman (1979) two-step procedure, we winsorize the continuous variables, leaving us with 12,296 observations. Following Rego (2003) we also deleted negative observations regarding foreign pre-tax income, pre-tax income, or effective tax rate (*ETR*), leaving us with 9,092 observations, consisting of 1,782 firms for the main analysis. Following the same procedure as Rego (2003) does, we also reset *ETRs* that are greater than one to one. See the Appendix for data and sample selection.

Traditional literature measures *MNC* as a percentage of foreign operations over entire operations, or the degree of international involvement (Errunza and Senbet, 1984). In this paper, we define *MNC* as a dichotomous variable that is equal to one if the ratio is greater than zero of foreign income to total pre-tax income; otherwise, it is equal to zero. Following Jiang (2008), to control for the effect of the actual degree of foreign investment on firms' meeting/beating behavior, which is not captured by the dichotomous variable, we define *MNC_EXT*, a continuous variable, as the ratio between foreign income and total pre-tax income.

Tax avoidance is measured differently in accounting literature. In this paper, we measure tax avoidance using effective tax rate (*ETR*) (Altshuler et al., 2000; Hope *et al*., 2013). As a robustness test, we also use income taxes paid in cash (*ETR_CASH*) to validate our main results. Accounting literature documents *EM* measures. To estimate *DA* and *REM* measures, we apply Jones (1991) model and Roychowdhury (2006) model respectively, adjusted for firms' distinct competitive strategies and financial performances (Srivastava, 2019). We estimate *DA* from the following equation to represent the magnitude of accruals earnings management. The higher the *DA*, the higher the magnitude a firm applies accruals earnings management.

$$TA_t/A_{t-1} = \delta_0 + \delta_1 (1/A_{t-1}) + \delta_2 \Delta S_t /A_{t-1} + \delta_3 (PPE_t/A_{t-1}) + \delta_4 MKV_t + \delta_5 ROA_{t-1} + \delta_6 MTB_t + \delta_7 (S_{t+1}/ A_{t-1}) + \delta_8 (TA_{t-1}/A_{t-2}) + \varepsilon_t \quad (1)$$

where: TA_t = total accruals at year t, calculated as the difference between income before the extraordinary items and cash flows from operations;
A_{t-1} = total assets at the beginning of the year;
S_t = net sales at year t;
ΔS_t = change in net sales at year t;
PPE_t = gross property, plant, and equipment at year t;
MKV_t = natural log of market value of equity at year t;
ROA_{t-1} = return on asset at the beginning of year t;
MTB_t = market to book ratio of equity at year t;
S_{t+1} = net sales at year t+1;
TA_{t-1} = total accruals of prior year;
A_{t-2} = total assets at the beginning of the prior year.

Following Srivastava (2019), we estimate two *EM* measures. Firms may boost earnings by cutting expenses related to research and development (*R&D*), advertising, and selling, general, and administrative (*SG&A*), resulting in abnormally lower discretionary expenses (*ABN_DISEXP*) than industry-year average;

firms may also enhance earnings by reducing unit cost of goods sold (*COGS*) through economy of scale, leading to abnormally higher production costs (*ABN_PROD*) than industry-year average.

We use the following two models to estimate *ABN_DISEXP* and *ABN_PROD*:

$$DISEXP_t/A_{t-1}=\beta_0+\beta_1(1/A_{t-1})+\beta_2(S_{t-1}/A_{t-1})+\beta_3 MKV_t+\beta_4 ROA_{t-1}+\beta_5 MTB_t+\beta_6(S_{t+1}/A_{t-1}$$
$$\beta_7(DISEXP_{t-1}/A_{t-2})+\varepsilon_t \quad (2)$$

where: $DISEXP_t$ = discretionary expense at year t, the sum of advertising expense, *R&D* expense, and SG&A expense;
S_{t-1} = net sales of prior year;
$DISEXP_{t-1}$ = discretionary expense of prior year.

$$PROD_t/A_{t-1} = \gamma_0 + \gamma_1(1/A_{t-1}) + \gamma_2(S_t/A_{t-1}) + \gamma_3(\Delta S_t/A_{t-1}) + \gamma_4(\Delta S_{t-1}/A_{t-1}) + \gamma_5 MKV_t + \gamma_6 ROA_{t-1} + \gamma_7 MTB_t$$
$$+ \gamma_8(S_{t+1}/A_{t-1}) + \gamma_9(PROD_{t-1}/A_{t-2}) + \varepsilon_t \quad (3)$$

where: $PROD_t$ = production cost at year t, equal to the sum of *COGS* and change in inventory;
$PROD_{t-1}$ = production cost of prior year.

We adjust the residuals from equation (2) *ABN_DISEXP* by multiplying (-1) to arrive at the magnitude of *REM* by cutting discretionary expenses, *REM_DISEXP*. The higher the value of *REM_DISEXP*, the higher the magnitude of *REM* in this respect. The total measure of the magnitude of *REM* is the sum of *REM_DISEXP* and *ABN_PROD*. Equations (1) through (3) are estimated cross-sectionally for each industry-year with at least 10 observations, where industries are defined by two-digit standard industrial classification (*SIC*) codes. Following Badertscher (2011), we measure the magnitude of *EM* as the sum of sign-adjusted *REM* and *DA*. The higher the *EM*, the greater the extent of *EM*.

MMB

Accounting literature documents firms that *MMB*. Following Jiang (2008), we define *MB_AF* as one if a firm meets/beats analysts' forecast, otherwise it is zero; we define *MB_ZERO* as one if a firm meets/beats zero earnings, otherwise, it is zero; we define *MB_GROWTH* as one if a firm meets/beats zero earnings growth, otherwise, it is zero. Finally, we define *MMB* as the sum of *MB_AF*, *MB_ZERO*, and *MB_GROWTH*. Hence, *MMB* ranges from zero to three, with possible values of 0, 1, 2, and 3.

***MMB* and Correction for Potential Self-Selection Bias**

Firms may self-select to *MMB*. Hence, the issue of self-selection bias must be addressed. We use Heckman (1979)'s two-step procedure to mitigate the issue of self-selection bias. To operationalize, we convert *MMB* into a dichotomous variable *MB that is* equal to one if *MMB* is not equal to zero, otherwise it is equal to zero.

In the first step of the Heckman (1979) procedure, we run a selection model on all sample firms to obtain the inverse Mills ratio *(IMR*). We then add *IMR* as a control variable in the multinomial logit model to test whether *MNCs* use tax avoidance to *MMB* after controlling for earnings/expectations management. We use the following probit model to explain firms that meet/beat at least one earnings benchmark:

$$Prob[MB_t = 1] = Probit\,(\theta_0 + \theta_1 AF_t + \theta_2\, SHARES_t + \theta_3\, ROA_{t-1} + \theta_4\, LEV_{t-1} + SIC + YEAR + \varepsilon_t) \quad (4)$$

The dependent variable is MB_t, a dichotomous variable that is equal to one if a firm meets/beats at least one of the earnings benchmarks, and zero otherwise. Selection of the independent variables in this model is based on prior literature that suggests firms' incentives to meet/beat earnings benchmarks. Analysts following a firm (*AF*) function as a barometer of the market expectations of firm performance. Missing beating analysts' forecasts (*MBE*) is very costly (Skinner and Sloan, 2002; Bartov *et al*., 2002). Therefore,

managers have an equity market incentive to *MBE*. Following Zang (2012), we define *AF* as the log of 1 plus the number of analysts following the firm, and we expect its coefficient to be positive. The magnitude of meeting/beating earnings benchmarks is proportional to the number of *SHARES* outstanding (Zang, 2012).

We, therefore, add *SHARES* (log number of shares outstanding) to control for the magnitude of meeting/beating earnings benchmarks, and we predict this coefficient to be positive. We add return on assets (*ROA*), calculated as the ratio between income before extraordinary items and total assets at the beginning of the year to control for firms' accounting performance (Zang, 2012). Firms with good accounting performance are more likely to meet/beat earnings benchmarks. Therefore, we predict this coefficient to be positive. Jiang (2008) examines the effects of meeting/beating earnings benchmarks on the cost of debt. The author finds that meeting/beating earnings benchmarks is associated with lowered cost of debt, and meeting/beating the *INCOME_ZERO* enjoys the most premium regarding change in credit ratings upgrade and change in initial bond yield. Therefore, we add leverage *(LEV)* of a firm as a control variable for the debt market, calculated as the ratio between the long-term debt and total assets at the beginning of the year. Since the debt market puts more weight on meeting/beating zero earnings (*MB_ZERO*) benchmark, we predict that firms with more leverage are not likely to meet/beat more than *MB_ZERO* earnings benchmark. Therefore, we predict the coefficient of *LEV* to be negative. We add *SIC* and *YEAR* dummy variables to control for differences in industries and years.

MNCs, Tax Avoidance, and *MMB*

To examine whether the U.S. *MNCs* apply tax avoidance (*ETR* proxy for tax avoidance) to *MMB*, we use the following multinomial logit model:

$$\begin{aligned} log[E(MMB/\eta_1, \eta_2 \ldots \eta_k)] &= \eta_0 + \eta_1 USA + \eta_2 MNC + \eta_3 MNC\_EXT_t + \eta_4 ETR_t + \eta_5 DA_t + \eta_6 REM_t \\ &+ \eta_7 DOWN_t + \eta_8 USA*MNC + \eta_9 USA*MNC*ETR_t + \eta_{10} USA*MNC*DA_t \\ &+ \eta_{11} USA*MNC*REM_t + \eta_{12} USA*MNC*DOWN_t + \eta_{13} AF_t + \eta_{14} SHARES_t \\ &+ \eta_{15} ROA_t + \eta_{16} LEV_t + \eta_{17} SOX + \eta_{18} IMR + \eta_{19} SIC + \eta_{20} YEAR + \varepsilon \end{aligned} \quad (5)$$

where:

MMB	= the number of times a firm meets/exceeds earnings benchmarks with the values of 0, 1, 2, and 3;
USA	= 1 if the current ISO country code-incorporation is "*USA*"; otherwise, 0;
MNC	= 1 if the ratio is not zero of foreign pre-tax income over total pre-tax income; otherwise, 0;
MNC_EXT	= continuous variable of *MNC*;
ETR	= effective tax rate calculated as the ratio of the difference between total tax paid and deferred income tax and total pre-tax income;
DA	= discretionary accruals from equation (1);
REM	= the sum of sign-adjusted residuals from equations (2) and (3);
DOWN	= 1 if the difference is positive between the initial forecast immediately after prior year's earnings announcement and the forecast immediately before current year's earnings announcement; otherwise, 0;
*USA*MNC*	= the interaction term between *USA* and *MNC*;
*USA*MNC*ETR*	= the interaction term of *USA*, *MNC* and *ETR*;
*USA*MNC*DA*	= the interaction term of *USA*, *MNC* and *DA*;
*USA*MNC*REM*	= the interaction term of *USA*, *MNC* and *REM*;
*USA*MNC*DOWN*	= the interaction term of *USA*, *MNC* and *DOWN*;
SOX	= an indicator variable set to one if *YEAR* is beyond 2002; and
IMR	= inverse Mills ratio from equation (4).

EMPIRICAL RESULTS

Table 1 lists *MMB* by *SIC*. The maximum number of observations belong to *SIC* 73 (Business Services) with 1,509 observations. However, the major combination belongs to Manufacturing (*SIC* 20-38). Another interesting thing we observe is that most observations go to *MMB* with a value of 2 (with 3,343 observations) very close to those with a value of 3 (with 3,205 observations). However, the differences between any of *MMB2* and *MMB3* and *MMB1* or *MMB0* are significant, suggesting that more firms tend to *MMB* more than one earnings benchmark.

TABLE 1
MMB* BY *SIC

	MMB				
SIC	0	1	2	3	Total
10	20	36	72	34	162
13	50	129	185	144	508
20	17	85	166	158	426
22	8	18	27	32	85
23	2	0	16	10	28
26	8	25	49	31	113
27	5	30	50	45	130
28	143	268	405	308	1124
30	2	5	11	14	32
32	0	5	11	20	36
33	2	21	48	30	101
34	2	10	19	28	59
35	69	184	393	428	1074
36	82	186	343	321	932
37	25	61	126	131	343
38	97	196	318	291	902
39	5	4	10	13	32
51	7	28	61	53	149
54	3	3	10	10	26
56	8	52	109	125	294
58	20	48	91	103	262
59	24	61	101	105	291
67	2	10	15	23	50
73	107	282	550	570	1509
79	2	8	9	7	26
80	9	24	50	55	138
82	0	5	20	19	44
87	13	28	78	97	216
Total	732	1,812	3,343	3,205	9,092
%	8.05	19.93	36.77	35.25	100

MMB is multiple meet/beat observations that beat none, one, two, or three of the three earnings benchmarks: zero earnings, zero earnings growth, and analysts' forecast; SIC is the two-digit standard industrial classification code.

Table 2 lists *MMB* by *YEAR*. It seems that before 1992, there were fewer yearly observations. Other than that, there is no other apparent pattern in the distribution.

TABLE 2
MMB BY YEAR

	MMB				
YEAR	0	1	2	3	Total
1988	3	9	24	18	54
1989	14	35	65	61	175
1990	14	33	59	49	155
1991	18	50	67	57	192
1992	18	39	71	78	206
1993	24	46	85	90	245
1994	25	45	84	154	308
1995	25	50	119	154	348
1996	31	55	128	165	379
1997	38	91	141	182	452
1998	42	89	124	173	428
1999	31	79	118	147	375
2000	47	82	130	139	398
2001	30	114	112	80	336
2002	40	79	124	68	311
2003	20	47	133	117	317
2004	29	61	133	148	371
2005	35	73	156	104	368
2006	32	72	147	128	379
2007	29	76	173	107	385
2008	40	66	153	87	346
2009	13	91	150	108	362
2010	20	58	150	161	389
2011	16	54	147	155	372
2012	15	64	153	132	364
2013	14	80	148	123	365
2014	24	83	136	139	382
2015	45	91	113	81	330
Total	732	1,812	3,343	3,205	9,092
%	8.05	19.93	36.77	35.25	100

Variable are defined in the prior table.

Table 3 presents the descriptive and estimation results of Heckman (1979)'s two-step procedure. Panel A displays the descriptive statistics. The mean of *MB* is 0.92, indicating that 92% of the observations *MB* at least one of the three earnings benchmarks. The mean of *ROA* is 0.01, and the average of *LEV* is 0.15. Panel B of Table 3 shows the correlations between variables used in this step. Panel C of Table 3 displays the estimation results. All coefficient estimates show signs and significance as expected. For example, the coefficient of *AF* is 0.5695, significant at <.0001 level.

TABLE 3
STEP ONE OF HECKMAN (1979)'s PROCEDURE

Panel A Descriptive Statistics of Step One of Heckman (1979)'s Procedure

	Mean	Std Dev	Q1	Median	Q3
MB	0.92	0.28	1.00	1.00	1.00
AF	1.37	0.71	0.69	1.10	1.79
SHARES	3.36	1.20	2.50	3.23	4.06
ROA	0.01	0.22	0.01	0.06	0.11
LEV	0.15	0.17	0.00	0.09	0.24

Panel B Correlations of Step One of Heckman (1979)'s Procedure

	MB	*AF*	*SHARES*	*ROA*	*LEV*
MB	1	**0.15**	**0.11**	**0.42**	**0.03**
AF	0.14	1	**0.29**	**0.23**	**0.14**
SHARES	0.12	**0.37**	1	**0.08**	**0.15**
ROA	0.44	**0.18**	**0.06**	1	**-0.14**
LEV	0.01	**0.09**	**0.13**	-0.01	1

Panel C Estimates of Step One of Heckman (1979)'s Procedure

Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr > |Z|
Intercept	0.7661	0.1786	0.4161	1.1162	4.29	<.0001
AF	0.5695	0.1076	0.3585	0.7804	5.29	<.0001
SHARES	0.4417	0.0537	0.3364	0.5470	8.22	<.0001
ROA	4.2130	0.2587	3.7060	4.7201	16.28	<.0001
LEV	-0.7775	0.3136	-1.392	-0.1629	-2.48	0.0132

Total number of observations is 9,092. MB is defined as the instance that a firm meets/beats at least one of the three earnings benchmarks: zero earnings, zero earnings growth, and analysts' forecast. AF is the natural log of one plus number of analysts following a firm; SHARES is the natural log of common shares; ROA is the return on assets, defined as the income before extraordinary items to total assets; LEV is the leverage, defined as the long-term debt to total assets. The bold-faced values in Panel B denote statistical significances at least at 0.05 significance levels.

Table 4 presents descriptive statistics of variables used in the main analysis. The mean of *MMB* is 1.99, indicating that on average firms *MMB* for almost two of the three earnings benchmarks. The mean of *USA* is 0.88, indicating that 88 percent of the firms are from the *USA*. The mean of *MNC* is 0.44, indicating that 44 percent of the observations reported some foreign income. The mean of *MNC_EXT* is 0.30. *ETR*, the tax avoidance measure, has a mean of 0.26. The mean of *ETR_CASH* is 0.30. The means of *DA* and *REM* are both positive, indicating that firms applied income-increasing earnings management on average. The mean of *DOWN* is 0.58, indicating that about 58% of the observations on average guided downward analysts' forecasts. The mean of *SOX* is 0.52, indicating that about 52% of the observations fall in years beyond 2002.

TABLE 4
DESCRIPTIVE STATISTICS OF MAIN ANALYSIS

Variable	Mean	Std Dev	Q1	Median	Q3
MMB	1.99	0.93	1.00	2.00	3.00
USA	0.88	0.32	1.00	1.00	1.00
MNC	0.44	0.50	0.00	0.00	1.00
MNC_EXT	0.31	0.44	0.00	0.00	0.26
ETR	0.26	0.22	0.08	0.26	0.37
ETR_CASH	0.30	0.31	0.06	0.23	0.35
DA	0.01	0.11	-0.03	0.01	0.06
REM	0.02	0.40	-0.16	0.04	0.24
DOWN	0.58	0.49	0.00	1.00	1.00
*USA*MNC*	0.39	0.49	0.00	0.00	1.00
*USA*MNC*ETR*	0.16	0.90	0.00	0.00	0.24
*USA*MNC*DA*	0.01	0.06	0.00	0.00	0.00
*USA*MNC*REM*	0.00	0.23	0.00	0.00	0.00
*USA*MNC*DOWN*	0.24	0.43	0.00	0.00	1.00
AF	1.36	0.70	0.69	1.10	1.79
SHARES	3.50	1.26	2.58	3.34	4.23
ROA	0.02	0.22	0.01	0.06	0.11
LEV	0.15	0.17	0.00	0.09	0.24
SOX	0.52	0.50	0.00	1.00	1.00

Total number of observations is 9,092; MMB is multiple meet/beat observations that beat none, one, two, or three of the three earnings benchmarks: zero earnings, zero earnings growth, and analysts' forecast; USA is a dichotomous variable equal to one if the current ISO country code-incorporation is "USA"; MNC is a dichotomous variable taking the value of one if the ratio is greater than zero of foreign pre-tax income over total pre-tax income, otherwise, it is equal to zero; MNC_EXT is the continuous format of MNC; ETR is the effective tax rate, calculated as the ratio between the difference between total tax paid and deferred tax income and pre-tax income; DA is the discretionary accruals; REM is the sign-adjusted real earnings management, the sum of sign-adjusted abnormal discretionary expense and the abnormal production cost; DOWN is a dichotomous variable taking the value of one if the difference is positive between the earliest analysts' forecast and the latest analysts' forecast immediately before the earnings announcement, otherwise it is equal to zero; AF is the natural log of one plus number of analysts following a firm; SHARES is the natural log of common shares; ROA is the return on assets, defined as the income before extraordinary items to total assets; LEV is the leverage, defined as the long-term debt to total assets; SOX is a dichotomous variable taking the value of one if the year is beyond 2002; otherwise, it is equal to zero.

The interaction terms present something interesting. The mean of the interaction term *USA*MNC*ETR* is 0.16, indicating that on average, a *U.S.* multinational corporation's *ETR* is 16%, compared to an average of 26%. In other words, a *U.S. MNC*'s *ETR* is only 61.54% of that of the *MNC*s. The mean of *USA*MNC*DA* is 0.01, the same as that of the entire sample, indicating that the *U.S. MNC*s do not resort to *DA* differently than other *MNC*s. The mean of *USA*MNC*REM* is 0.00, lower than 0.02, that of the entire *MNC*s, indicating that *U.S. MNC*s do not resort to *REM* as much as the *MNC*s as a whole. The mean of *USA*MNC*DOWN* is 0.24, lower than 0.58, indicating that the *U.S. MNC*s do not use *DOWN* as much as the *MNC*s as a whole. In sum, the descriptive statistics of these four interaction terms suggest that

compared with other *MNC*s, the *U.S. MNCs* tend to use aggressive tax planning rather than other earnings/expectations management mechanisms to *MMB*.

Table 5 presents the Pearson correlations of variables used in the main analysis. *MMB* is positively correlated with *MNC* (0.18), and *ETR* (0.18), indicating that *MMB* firms tend to be *MNC*s with higher *ETR*. *MMB* is negatively correlated with *USA*MNC*ETR* (-0.03), indicating that *U.S. MNC*s tend to resort to lower *ETR* (tax aggressiveness) to *MMB*. The correlation between *MMB* and *ROA* is 0.53, indicating that firms financially strong tend to *MMB*.

Table 6 presents the study's main results - the multinomial logit estimations. The base comparison group is *MMB* when it is taking the value of zero, that is, when a firm-year does not meet/beat any of the three earnings benchmarks. The variable of interest is *USA*MNC*ETR*. As *USA*MNC*s use *ETR* to *MMB*, the coefficients of the interaction terms decrease from -0.0169 to -0.1349 to -1.3261, and the *p*-values decrease from 0.7184, to 0.0334, to <.0001. The results suggest that *USA*MNC*s tend to use aggressive tax planning (lower *ETR*) to *MMB*. The main results also suggest that on average, *USA*MNC*s do not resort to *DA*, *REM*, and *DOWN* differently than those other *MNC*s. Out of these nine coefficients, only the one for *USA*MNC*DA* (*MMB1*) is significant at 0.05 significant level with a coefficient of 2.0519. In summary, the main results of the analyses support our hypothesis that as *U.S. MNC*s *MMB*, they tend to use more aggressive tax planning and remain indifferent concerning other earnings/expectations management mechanisms.

TABLE 5
CORRELATIONS OF VARIABLES IN THE MAIN ANALYSIS

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
MMB	1	1																		
USA	2	0.00	1																	
MNC	3	**0.18**	0.01	1																
MNC_EXT	4	**-0.04**	**-0.01**	**0.18**	1															
ETR	5	**0.18**	**0.08**	**0.15**	**0.21**	1														
ETR_CASH	6	**-0.03**	**0.01**	**0.03**	0.41	**0.18**	1													
DA	7	**0.13**	**-0.02**	**0.02**	0.00	**0.03**	-0.01	1												
REM	8	**-0.03**	**-0.02**	**-0.04**	0.01	**-0.04**	-0.01	**0.13**	1											
DOWN	9	**-0.03**	**-0.06**	**0.08**	**0.02**	**0.04**	0.00	-0.01	**0.05**	1										
*USA*MNC*	10	**0.17**	**0.29**	**0.90**	**0.15**	**0.16**	**0.03**	0.02	**-0.03**	**0.07**	1									
*USA*MNC*ETR*	11	**-0.03**	**0.06**	**0.20**	**0.71**	**0.27**	**0.43**	0.00	-0.01	0.01	**0.22**	1								
*USA*MNC*DA*	12	**0.06**	**0.03**	**0.10**	**0.03**	0.00	0.01	**0.55**	**0.11**	-0.01	**0.11**	0.02	1							
*USA*MNC*REM*	13	0.00	0.00	0.00	0.01	**-0.03**	0.01	**0.1**	**0.58**	**0.05**	0.00	0.00	**0.19**	1						
*USA*MNC*DOWN*	14	**0.11**	**0.21**	**0.64**	**0.11**	**0.11**	**0.03**	0.00	0.01	**0.48**	**0.71**	**0.16**	**0.06**	**0.06**	1					
AF	15	**0.22**	**0.04**	**0.15**	**0.00**	**0.14**	**0.03**	**0.02**	**-0.08**	**0.07**	**0.16**	**0.03**	-0.01	**-0.07**	**0.14**	1				
SHARES	16	**0.13**	**-0.3**	**0.3**	**0.06**	-0.02	-0.01	**-0.05**	**-0.05**	**0.14**	**0.23**	**0.04**	**-0.03**	**-0.04**	**0.26**	**0.32**	1			
ROA	17	**0.53**	**-0.05**	**0.19**	**0.01**	**0.33**	0.01	**0.21**	0.02	**0.04**	**0.18**	**0.03**	**0.09**	-0.02	**0.13**	**0.17**	**0.08**	1		
LEV	18	-0.01	0.04	0.01	**0.02**	**-0.03**	0.00	**-0.02**	**0.11**	**0.06**	**0.03**	**0.02**	0.00	**0.08**	**0.07**	**0.09**	**0.12**	-0.01	1	
SOX	19	0.01	-0.16	0.15	**0.04**	**-0.12**	**-0.02**	**-0.03**	0.00	**0.06**	**0.11**	0.01	0.00	**0.05**	**0.15**	**-0.34**	**0.40**	-0.01	0.01	1

Total number of observations is 9,092. Pearson correlations are below the diagonal, and Spearman correlations are above it. The bold-faced values are significant at least at the 0.05 significance level. *MMB* is multiple meet/beat observations that beat none, one, two, or three of the three earnings benchmarks: zero earnings, zero earnings growth, and analysts' forecast; *USA* is a dichotomous variable equal to one if the current ISO country code-incorporation is "USA"; *MNC* is a dichotomous variable taking the value of one if the ratio is greater than zero of foreign pre-tax income over total pre-tax income, otherwise, it is equal to zero; *MNC_EXT* is the continuous format of *MNC*; *ETR* is the effective tax rate, calculated as the ratio between the difference between total tax paid and deferred tax income and pre-tax income; *DA* is the discretionary accruals; *REM* is the sign-adjusted real earnings management, the sum of sign-adjusted abnormal discretionary expense and the abnormal production cost; *DOWN* is a dichotomous variable taking the value of one if the difference is positive between the earliest analysts' forecast and the latest analysts' forecast immediately before the earnings announcement, otherwise it is equal to zero; *AF* is the natural log of one plus number of analysts following a firm; *SHARES* is the natural log of common shares; *ROA* is the return on assets, defined as the income before extraordinary items to total assets; *LEV* is the leverage, defined as the long-term debt to total assets; *SOX* is a dichotomous variable taking the value of one if the year is 2002 and beyond; otherwise, it is equal to zero.

TABLE 6
ANALYSIS OF MAXIMUM LIKELIHOOD ESTIMATES USING *ETR*

Parameter	*MMB*	DF	Estimate	Standard Error	Wald ChiSq	Pr > ChiSq
Intercept	1	1	-7.0065	0.9737	51.7805	<.0001
Intercept	2	1	-16.6285	1.1067	225.7810	<.0001
Intercept	3	1	-9.9413	2.0741	22.9730	<.0001
USA	1	1	0.1200	0.2467	0.2368	0.6265
USA	2	1	0.4281	0.2573	2.7681	0.0962
USA	3	1	0.6075	0.2703	5.0493	0.0246
MNC	1	1	-0.3182	0.3365	0.8939	0.3444
MNC	2	1	-0.2529	0.3444	0.5396	0.4626
MNC	3	1	0.1408	0.3593	0.1535	0.6952
MNC_EXT	1	1	-0.0459	0.0242	3.5791	0.0585
MNC_EXT	2	1	-0.0232	0.0239	0.9471	0.3305
MNC_EXT	3	1	-0.1166	0.0625	3.4811	0.0621
ETR	1	1	1.1178	0.2788	16.0742	<.0001
ETR	2	1	0.5475	0.2806	3.8083	0.0510
ETR	3	1	0.4985	0.3127	2.5409	0.1109
DA	1	1	1.4043	0.3935	12.7364	0.0004
DA	2	1	1.7244	0.4830	12.7464	0.0004
DA	3	1	1.1235	0.5545	4.1050	0.0428
REM	1	1	-0.2659	0.1275	4.3530	0.0369
REM	2	1	-0.3784	0.1439	6.9090	0.0086
REM	3	1	-0.2513	0.1557	2.6056	0.1065
DOWN	1	1	-0.0471	0.1155	0.1662	0.6835
DOWN	2	1	-0.3531	0.1222	8.3511	0.0039
DOWN	3	1	-0.6150	0.1303	22.2647	<.0001
*USA*MNC*	1	1	0.3196	0.3894	0.6737	0.4118
*USA*MNC*	2	1	0.1451	0.3973	0.1333	0.7150
*USA*MNC*	3	1	0.4027	0.4200	0.9191	0.3377
*USA*MNC*ETR*	1	1	-0.0169	0.0469	0.1300	0.7184
*USA*MNC*ETR*	2	1	-0.1349	0.0634	4.5247	0.0334
*USA*MNC*ETR*	3	1	-1.3261	0.2774	22.8571	<.0001
*USA*MNC*DA*	1	1	2.0519	1.0288	3.9776	0.0461
*USA*MNC*DA*	2	1	0.3978	1.1098	0.1285	0.7200
*USA*MNC*DA*	3	1	0.6759	1.1718	0.3327	0.5641
*USA*MNC*REM*	1	1	-0.4807	0.3163	2.3092	0.1286
*USA*MNC*REM*	2	1	-0.0092	0.3267	0.0008	0.9776
*USA*MNC*REM*	3	1	0.1206	0.3373	0.1278	0.7208

*USA*MNC*DOWN*	1	1	-0.0485	0.2477	0.0383	0.8448
*USA*MNC*DOWN*	2	1	0.1854	0.2498	0.5507	0.4580
*USA*MNC*DOWN*	3	1	0.1961	0.2571	0.5819	0.4456
AF	1	1	0.7576	0.1215	38.8735	<.0001
AF	2	1	1.1347	0.1262	80.7987	<.0001
AF	3	1	1.2608	0.1366	85.2463	<.0001
SHARES	1	1	0.6772	0.0799	71.7881	<.0001
SHARES	2	1	0.9464	0.0826	131.1987	<.0001
SHARES	3	1	0.8166	0.0891	83.9186	<.0001
ROA	1	1	7.5508	0.7156	111.3458	<.0001
ROA	2	1	20.5429	0.8408	596.9364	<.0001
ROA	3	1	25.9662	0.9544	740.2155	<.0001
LEV	1	1	-1.4253	0.2993	22.6813	<.0001
LEV	2	1	-1.4557	0.3074	22.4187	<.0001
LEV	3	1	-0.7717	0.3383	5.2038	0.0225
SOX	1	1	-0.3285	0.2991	1.2062	0.2721
SOX	2	1	-0.8984	0.3234	7.7192	0.0055
SOX	3	1	-0.7558	0.3578	4.4618	0.0347
IMR	1	1	17.2244	1.9717	76.3128	<.0001
IMR	2	1	44.5923	2.4312	336.4309	<.0001
IMR	3	1	19.7324	5.7444	11.7997	0.0006
SIC			Included			
YEAR			Included			
Likelihood	Ratio	Chisq	4944.82			
p-value			<.0001			
No. of Obs.			9,092			

MMB is multiple meet/beat observations that beat none, one, two, or three of the three earnings benchmarks: zero earnings, zero earnings growth, and analysts' forecast; *USA* is a dichotomous variable equal to one if the current ISO country code-incorporation is "USA"; *MNC* is a dichotomous variable taking the value of one if the ratio is greater than zero of foreign pre-tax income over total pre-tax income, otherwise, it is equal to zero; *MNC_EXT* is the continuous format of *MNC*; *ETR* is the effective tax rate, calculated as the ratio between the difference between total tax paid and deferred tax income and pre-tax income; *DA* is the discretionary accruals; *REM* is the sign-adjusted real earnings management, the sum of sign-adjusted abnormal discretionary expense and the abnormal production cost; *DOWN* is a dichotomous variable taking the value of one if the difference is positive between the earliest analysts' forecast and the latest analysts' forecast immediately before the earnings announcement, otherwise it is equal to zero; *AF* is the natural log of one plus number of analysts following a firm; *SHARES* is the natural log of common shares; *ROA* is the return on assets, defined as the income before extraordinary items to total assets; *LEV* is the leverage, defined as the long-term debt to total assets; *SOX* is a dichotomous variable taking the value of one if the year is 2002 and beyond, otherwise, it is equal to zero; *IMR* is the inverse Mills ratio from the first step estimation of Heckman (1979) two-step procedure.

The explanation of the coefficients of control variables is as follows. *USA* firms tend to *MMB* to a greater extent than non-*USA* firms as suggested by the increase in the coefficients of *USA* from 0.1200 to 0.4281, to 0.6075, and the significance level from 0.6265, to 0.0962, to 0.0246. There are no obvious patterns for the coefficients of *MNC* and *MNC_EXT*. The coefficients of *ETR*s are positive and decreasing

as firms *MMB* (from 1.1178 to 0.5475, and 0.4985), suggesting as firms *MMB*, they tend to lower their *ETR*. The coefficients of *DA* are positive and significant, but the significance levels are increasing as they *MMB* (from 0.0004 to 0.0428) suggesting that firms rely less on income-increasing *DA* as they *MMB*. All coefficients of *REM* are negative. It seems that as firms *MMB*, they tend to shun away from *REM*. A similar pattern follows for *DOWN*. The signs and significances of coefficients of *AF, SHARES, ROA*, and *LEV* are similar to those in Step One of the Heckman (1979)'s Two-Step procedure. The coefficients of *SOX* indicate that since the enactment of *SOX*, there have been fewer instances of firms *MMB*. Finally, the coefficients of *IMR* are all significant, confirming the importance of correcting for sample selection bias (Wooldridge, 2009; Zang, 2012).

Additional Tests

Financially healthy firms could drive the main results since we delete loss firms in our main analyses. Following Rego (2003) we examine the impact of those deleted loss firms by including them in the multinomial logit analysis (See Table 7). The results from this analysis are in general consistent with those in Table 6 without these loss firms. For example, the coefficients of *USA*MNC*ETRs* are negative and decreasing from -0.0254 to -0.1803 and -0.9662, and their *p*-values drop from 0.6543, to 0.0194 and <.0001, suggesting that as *USA*MNCs MMB*, they tend to be more aggressive lowering their *ETR*. Similar results are generated from the analysis to those control variables as we perform in the main analyses.

TABLE 7
ANALYSIS OF MAXIMUM LIKELIHOOD ESTIMATES USING *ETR* WITH LOSS FIRMS

Parameter	*MMB*	DF	Estimate	Standard Error	Wald ChiSq	Pr > ChiSq
Intercept	1	1	20.3731	250.0000	0.0066	0.9351
Intercept	2	1	23.2533	250.0000	0.0086	0.9259
Intercept	3	1	25.7034	250.0000	0.0106	0.9181
USA	1	1	0.6848	0.7679	0.7952	0.3725
USA	2	1	0.9831	0.7670	1.6431	0.1999
USA	3	1	1.1900	0.7697	2.3906	0.1221
MNC	1	1	0.1410	1.1318	0.0155	0.9009
MNC	2	1	0.3408	1.1297	0.0910	0.7629
MNC	3	1	0.5791	1.1328	0.2613	0.6092
MNC_EXT	1	1	-0.0113	0.0241	0.2214	0.6379
MNC_EXT	2	1	0.0072	0.0256	0.0790	0.7787
MNC_EXT	3	1	-0.0040	0.0271	0.0214	0.8837
ETR	1	1	-1.5774	0.6189	6.4961	0.0108
ETR	2	1	-1.5554	0.6189	6.3155	0.0120
ETR	3	1	-1.5605	0.6191	6.3530	0.0117
DA	1	1	-1.0983	2.4161	0.2066	0.6494
DA	2	1	-1.7788	2.4114	0.5441	0.4607
DA	3	1	-2.1751	2.4182	0.8091	0.3684
REM	1	1	-0.7415	0.6784	1.1946	0.2744
REM	2	1	-0.5349	0.6774	0.6235	0.4298
REM	3	1	-0.4835	0.6788	0.5074	0.4763

DOWN	1	1	0.0427	0.5591	0.0058	0.9391
DOWN	2	1	-0.2633	0.5576	0.2230	0.6368
DOWN	3	1	-0.5204	0.5587	0.8678	0.3516
*USA*MNC*	1	1	1.6794	1.5889	1.1171	0.2905
*USA*MNC*	2	1	1.4841	1.5882	0.8732	0.3501
*USA*MNC*	3	1	1.6158	1.5917	1.0305	0.3100
*USA*MNC*ETR*	1	1	-0.0254	0.0567	0.2006	0.6543
*USA*MNC*ETR*	2	1	-0.1803	0.0769	5.4938	0.0191
*USA*MNC*ETR*	3	1	-0.9662	0.1755	30.3272	<.0001
*USA*MNC*DA*	1	1	5.3547	4.6565	1.3224	0.2502
*USA*MNC*DA*	2	1	4.3173	4.6559	0.8598	0.3538
*USA*MNC*DA*	3	1	4.5132	4.6665	0.9354	0.3335
*USA*MNC*REM*	1	1	-0.8390	1.2293	0.4658	0.4949
*USA*MNC*REM*	2	1	-0.4923	1.2279	0.1607	0.6885
*USA*MNC*REM*	3	1	-0.4216	1.2304	0.1174	0.7319
*USA*MNC*DOWN*	1	1	-2.0840	1.1743	3.1495	0.0759
*USA*MNC*DOWN*	2	1	-1.8744	1.1748	2.5455	0.1106
*USA*MNC*DOWN*	3	1	-1.8878	1.1762	2.5762	0.1085
AF	1	1	-0.1957	1.0178	0.0370	0.8475
AF	2	1	-0.2545	1.0171	0.0626	0.8024
AF	3	1	-0.0363	1.0180	0.0013	0.9715
SHARES	1	1	0.0103	0.5361	0.0004	0.9847
SHARES	2	1	0.0245	0.5356	0.0021	0.9635
SHARES	3	1	-0.0308	0.5360	0.0033	0.9542
ROA	1	1	95.0072	15.8090	36.1164	<.0001
ROA	2	1	106.8000	15.8098	45.6520	<.0001
ROA	3	1	110.8000	15.8140	49.0994	<.0001
LEV	1	1	2.3551	2.8009	0.7070	0.4004
LEV	2	1	3.4318	2.7989	1.5034	0.2201
LEV	3	1	3.9293	2.8020	1.9665	0.1608
SOX	1	1	-0.4435	1.1109	0.1594	0.6897
SOX	2	1	-0.8125	1.1097	0.5361	0.4641
SOX	3	1	-0.7501	1.1175	0.4506	0.5021
IMR	1	1	-27.5193	63.3725	0.1886	0.6641
IMR	2	1	-37.0268	63.3291	0.3418	0.5588
IMR	3	1	-47.9498	63.4271	0.5715	0.4497
SIC			Included			
YEAR			Included			
Likelihood	Ratio	Chisq	1,768.53			
p-value			<.0001			
No. of Obs.			10,718			

MMB is multiple meet/beat observations that beat none, one, two, or three of the three earnings benchmarks: zero earnings, zero earnings growth, and analysts' forecast; *USA* is a dichotomous variable equal to one if the current ISO country code-incorporation is "USA"; *MNC* is a dichotomous variable taking the value of one if the ratio is greater than zero of foreign pre-tax income over total pre-tax income, otherwise, it is equal to zero; *MNC_EXT* is the continuous format of *MNC*; *ETR* is the effective tax rate, calculated as the ratio between the difference between total tax paid and deferred tax income and pre-tax income; *DA* is the discretionary accruals; *REM* is the sign-adjusted real earnings management, the sum of sign-adjusted abnormal discretionary expense and the abnormal production cost; *DOWN* is a dichotomous variable taking the value of one if the difference is positive between the earliest analysts' forecast and the latest analysts' forecast immediately before the earnings announcement, otherwise it is equal to zero; *AF* is the natural log of one plus number of analysts following a firm; *SHARES* is the natural log of common shares; *ROA* is the return on assets, defined as the income before extraordinary items to total assets; *LEV* is the leverage, defined as the long-term debt to total assets; *SOX* is a dichotomous variable taking the value of one if the year is 2002 and beyond, otherwise, it is equal to zero; *IMR* is the inverse Mills ratio from the first step estimation of Heckman (1979) two-step procedure.

Robustness Tests

Tax avoidance can also be measured differently. In this section, we apply cash taxes paid (*ETR_CASH*) as our second measure of tax avoidance to validate our main results. As illustrated in Table 8, the additional analyses support our main analyses in that as *USA***MNC*s *MMB*; they tend to be more tax aggressive than other non-*USA***MNC*s by lowering their *ETR_CASH*. For instance, the coefficients of *USA***MNC***ETR_CASH* are negative and decrease in magnitude from -0.0569 to -0.0971 and -0.5802, and their *p*-values drop from 0.2689 to 0.0933 and 0.0113. Similar results are generated from the analyses to those control variables as we perform in the main analyses.

TABLE 8
ANALYSIS OF MAXIMUM LIKELIHOOD ESTIMATES USING *ETR_CASH*

Parameter	*MMB*	DF	Estimate	Standard Error	Wald ChiSq	Pr > ChiSq
Intercept	1	1	-4.9145	1.1376	18.6624	<.0001
Intercept	2	1	-9.2999	1.2426	56.0126	<.0001
Intercept	3	1	10.2116	3.5110	8.4591	0.0036
USA	1	1	0.1199	0.3492	0.1178	0.7315
USA	2	1	0.2298	0.3510	0.4286	0.5127
USA	3	1	0.4465	0.3608	1.5315	0.2159
MNC	1	1	-0.0652	0.4672	0.0195	0.8890
MNC	2	1	0.0098	0.4648	0.0004	0.9831
MNC	3	1	0.2756	0.4751	0.3364	0.5619
MNC_EXT	1	1	-0.0578	0.0297	3.7937	0.0514
MNC_EXT	2	1	-0.0409	0.0291	1.9853	0.1588
MNC_EXT	3	1	-0.0297	0.0398	0.5560	0.4559
ETR	1	1	1.5136	0.3376	20.0982	<.0001
ETR	2	1	0.4756	0.3396	1.9620	0.1613
ETR	3	1	-0.5019	0.3706	1.8340	0.1757
DA	1	1	1.8049	0.6873	6.8968	0.0086
DA	2	1	1.6298	0.7570	4.6351	0.0313
DA	3	1	1.1573	0.7951	2.1183	0.1455

REM	1	1	-0.6460	0.2107	9.4052	0.0022
REM	2	1	-0.6864	0.2199	9.7406	0.0018
REM	3	1	-0.5741	0.2265	6.4252	0.0113
DOWN	1	1	0.2561	0.1788	2.0527	0.1519
DOWN	2	1	-0.1215	0.1801	0.4548	0.5000
DOWN	3	1	-0.3863	0.1853	4.3458	0.0371
*USA*MNC*	1	1	0.5168	0.5418	0.9098	0.3402
*USA*MNC*	2	1	0.3016	0.5393	0.3129	0.5759
*USA*MNC*	3	1	0.3270	0.5531	0.3496	0.5544
*USA*MNC*ETR_CASH*	1	1	-0.0569	0.0514	1.2222	0.2689
*USA*MNC*ETR_CASH*	2	1	-0.0971	0.0578	2.8168	0.0933
*USA*MNC*ETR_CASH*	3	1	-0.5802	0.2290	6.4186	0.0113
*USA*MNC*DA*	1	1	1.7668	1.3718	1.6587	0.1978
*USA*MNC*DA*	2	1	0.5671	1.4453	0.1539	0.6948
*USA*MNC*DA*	3	1	0.7068	1.4894	0.2252	0.6351
*USA*MNC*REM*	1	1	-0.0566	0.4659	0.0148	0.9033
*USA*MNC*REM*	2	1	0.4362	0.4697	0.8622	0.3531
*USA*MNC*REM*	3	1	0.5627	0.4763	1.3954	0.2375
*USA*MNC*DOWN*	1	1	-0.4134	0.3399	1.4793	0.2239
*USA*MNC*DOWN*	2	1	-0.0460	0.3401	0.0183	0.8923
*USA*MNC*DOWN*	3	1	0.0142	0.3454	0.0017	0.9673
AF	1	1	0.6941	0.1642	17.8769	<.0001
AF	2	1	0.8594	0.1660	26.8148	<.0001
AF	3	1	0.9057	0.1736	27.2309	<.0001
SHARES	1	1	0.2615	0.0944	7.6782	0.0056
SHARES	2	1	0.3192	0.0949	11.3026	0.0008
SHARES	3	1	0.2332	0.0979	5.6771	0.0172
ROA	1	1	10.7724	1.2231	77.5733	<.0001
ROA	2	1	24.8893	1.3489	340.4428	<.0001
ROA	3	1	27.2765	1.4821	338.6861	<.0001
LEV	1	1	-0.4744	0.4353	1.1877	0.2758
LEV	2	1	0.0185	0.4373	0.0018	0.9663
LEV	3	1	0.6658	0.4605	2.0904	0.1482
SOX	1	1	-0.2306	0.4389	0.2760	0.5994
SOX	2	1	-0.9884	0.4518	4.7865	0.0287
SOX	3	1	-0.8447	0.4755	3.1554	0.0757
IMR	1	1	15.5993	2.2138	49.6516	<.0001
IMR	2	1	31.3050	2.6476	139.8085	<.0001
IMR	3	1	-35.8480	10.9392	10.7388	0.0010

SIC	Included
YEAR	Included
Likelihood	3,268.32
p-value	<.0001
No. of Obs.	7,959

MMB is multiple meet/beat observations that beat none, one, two, or three of the three earnings benchmarks: zero earnings, zero earnings growth, and analysts' forecast; *USA* is a dichotomous variable equal to one if the current ISO country code-incorporation is "USA"; *MNC* is a dichotomous variable taking the value of one if the ratio is greater than zero of foreign pre-tax income over total pre-tax income, otherwise, it is equal to zero; *MNC_EXT* is the continuous format of *MNC*; *ETR* is the effective tax rate, calculated as the ratio between the difference between total tax paid and deferred tax income and pre-tax income; *DA* is the discretionary accruals; *REM* is the sign-adjusted real earnings management, the sum of sign-adjusted abnormal discretionary expense and the abnormal production cost; *DOWN* is a dichotomous variable taking the value of one if the difference is positive between the earliest analysts' forecast and the latest analysts' forecast immediately before the earnings announcement, otherwise it is equal to zero; *AF* is the natural log of one plus number of analysts following a firm; *SHARES* is the natural log of common shares; *ROA* is the return on assets, defined as the income before extraordinary items to total assets; *LEV* is the leverage, defined as the long-term debt to total assets; *SOX* is a dichotomous variable taking the value of one if the year is 2002 and beyond, otherwise, it is equal to zero; *IMR* is the inverse Mills ratio from the first step estimation of Heckman (1979) two-step procedure.

Following similar method to that used in the main analyses, we also retest our model by including those loss firms (Rego, 2003) (See Table 9). The results are still pronounced, supporting our hypothesis, that when *USA*MNC*s *MMB*, they tend to be more aggressive than non-*USA*MNC*s measured with *ETR_CASH*. For instance, the coefficients of *USA*MNC*ETR_CASH*s are all negative and decreasing in values from -0.2083 to -0.2583 and -0.7067, and their *p*-values drop from 0.0359 to 0.0194 and 0.0001. Similar results are generated from the analyses to those control variables as we perform in the main analyses.

TABLE 9
ANANLYSIS OF MAXIMUM LIKELIHOOD ESTIMATES USING *ETR_CASH* WITH LOSS FIRMS

Parameter	*MMB*	DF	Estimate	Standard Error	Wald ChiSq	Pr > ChiSq
Intercept	1	1	11.3244	214.6000	0.0028	0.9579
Intercept	2	1	16.6212	214.6000	0.0060	0.9383
Intercept	3	1	19.3087	214.6000	0.0081	0.9283
USA	1	1	0.4123	0.8389	0.2416	0.6231
USA	2	1	0.6813	0.8383	0.6605	0.4164
USA	3	1	0.8614	0.8414	1.0481	0.3060
MNC	1	1	-0.1133	1.2417	0.0083	0.9273
MNC	2	1	0.0924	1.2400	0.0056	0.9406
MNC	3	1	0.2920	1.2435	0.0551	0.8144
MNC_EXT	1	1	0.0243	0.0261	0.8704	0.3508
MNC_EXT	2	1	0.0347	0.0269	1.6585	0.1978
MNC_EXT	3	1	0.0273	0.0295	0.8576	0.3544
ETR	1	1	0.1107	0.0694	2.5415	0.1109

ETR	2	1	0.0460	0.0743	0.3833	0.5358
ETR	3	1	-0.1655	0.0964	2.9434	0.0862
DA	1	1	-0.9469	2.8194	0.1128	0.7370
DA	2	1	-1.6668	2.8141	0.3508	0.5536
DA	3	1	-2.0856	2.8213	0.5465	0.4598
REM	1	1	-0.5801	0.7690	0.5690	0.4506
REM	2	1	-0.4747	0.7679	0.3822	0.5364
REM	3	1	-0.3971	0.7693	0.2665	0.6057
DOWN	1	1	-0.2122	0.5871	0.1307	0.7178
DOWN	2	1	-0.5849	0.5858	0.9970	0.3180
DOWN	3	1	-0.8176	0.5870	1.9395	0.1637
*USA*MNC*	1	1	1.1317	1.6091	0.4946	0.4819
*USA*MNC*	2	1	0.8227	1.6072	0.2620	0.6087
*USA*MNC*	3	1	0.8690	1.6109	0.2910	0.5896
*USA*MNC*ETR_CASH*	1	1	-0.2083	0.0993	4.4032	0.0359
*USA*MNC*ETR_CASH*	2	1	-0.2583	0.1105	5.4666	0.0194
*USA*MNC*ETR_CASH*	3	1	-0.7067	0.1830	14.9125	0.0001
*USA*MNC*DA*	1	1	5.0994	4.8197	1.1194	0.2900
*USA*MNC*DA*	2	1	4.2466	4.8122	0.7787	0.3775
*USA*MNC*DA*	3	1	4.5737	4.8219	0.8997	0.3429
*USA*MNC*REM*	1	1	-1.1074	1.3867	0.6377	0.4245
*USA*MNC*REM*	2	1	-0.6985	1.3847	0.2545	0.6139
*USA*MNC*REM*	3	1	-0.6003	1.3869	0.1874	0.6651
*USA*MNC*DOWN*	1	1	-1.0344	1.0750	0.9258	0.3360
*USA*MNC*DOWN*	2	1	-0.7333	1.0743	0.4659	0.4949
*USA*MNC*DOWN*	3	1	-0.7158	1.0759	0.4426	0.5059
AF	1	1	0.3661	1.0662	0.1179	0.7313
AF	2	1	0.2626	1.0655	0.0608	0.8053
AF	3	1	0.4383	1.0664	0.1689	0.6811
SHARES	1	1	0.0522	0.5634	0.0086	0.9261
SHARES	2	1	0.0042	0.5630	0.0001	0.9940
SHARES	3	1	-0.0428	0.5634	0.0058	0.9395
ROA	1	1	137.9000	20.3198	46.0567	<.0001
ROA	2	1	148.5000	20.3205	53.4083	<.0001
ROA	3	1	152.4000	20.3237	56.2555	<.0001
LEV	1	1	2.4084	2.9115	0.6843	0.4081
LEV	2	1	3.5966	2.9087	1.5289	0.2163
LEV	3	1	4.1045	2.9120	1.9867	0.1587
SOX	1	1	-0.2247	1.1515	0.0381	0.8453
SOX	2	1	-0.6804	1.1499	0.3501	0.5540

SOX	3	1	-0.5769	1.1574	0.2485	0.6182
IMR	1	1	-4.9288	65.2251	0.0057	0.9398
IMR	2	1	-20.3247	65.1731	0.0973	0.7551
IMR	3	1	-31.7718	65.2729	0.2369	0.6264
SIC			Included			
YEAR			Included			
Likelihood			1,758.84			
p-value			<.0001			
No. of Obs.			10,516			

MMB is multiple meet/beat observations that beat none, one, two, or three of the three earnings benchmarks: zero earnings, zero earnings growth, and analysts' forecast; *USA* is a dichotomous variable equal to one if the current ISO country code-incorporation is "USA"; *MNC* is a dichotomous variable taking the value of one if the ratio is greater than zero of foreign pre-tax income over total pre-tax income, otherwise, it is equal to zero; *MNC_EXT* is the continuous format of *MNC*; *ETR* is the effective tax rate, calculated as the ratio between the difference between total tax paid and deferred tax income and pre-tax income; *DA* is the discretionary accruals; *REM* is the sign-adjusted real earnings management, the sum of sign-adjusted abnormal discretionary expense and the abnormal production cost; *DOWN* is a dichotomous variable taking the value of one if the difference is positive between the earliest analysts' forecast and the latest analysts' forecast immediately before the earnings announcement, otherwise it is equal to zero; *AF* is the natural log of one plus number of analysts following a firm; *SHARES* is the natural log of common shares; *ROA* is the return on assets, defined as the income before extraordinary items to total assets; *LEV* is the leverage, defined as the long-term debt to total assets; *SOX* is a dichotomous variable taking the value of one if the year is 2002 and beyond, otherwise, it is equal to zero; *IMR* is the inverse Mills ratio from the first step estimation of Heckman (1979) two-step procedure.

CONCLUSIONS

This paper investigates U.S. multinational corporations' tax planning behavior in a setting where they meet/beat multiple earnings goals using panel data from 1987 to 2015. This study provides robust evidence that as U.S. multinational corporations meet/beat more earnings benchmarks, they tend to relinquish the application of other earnings/expectations management techniques and apply more aggressive tax planning in achieving their goals. Our research contributes to the existing literature by shedding light on the nuanced relationship between tax avoidance and multiple earnings goals in the *U.S. MNCs* context, offering insights that can inform different stakeholders such as investors, auditors, and tax policymakers.

REFERENCES

Altshuler, R., Grubert, H., & Newlon, T.S. (2000). Has U.S. investment abroad become more sensitive to tax rates? *International Taxation and Multinational Activity*, pp. 9–38. University of Chicago Press.

Amidu, M., Coffie, W., & Acquah, P. (2019). Transfer pricing, earnings management and tax avoidance of firms in Ghana. *Journal of Financial Crime*, *27*(1), 235–259.

Atayah, O., Marashdeh, H., & Hamdan, A. (2024). Earnings management with the absence of income tax avoidance motivation: Evidence from pre-, during, and post- global financial crisis. *Asian Journal of Accounting Research, 9*(2), 153–168.

Balakrishnan, K., Blouin, J.L., & Guay, W.R. (2019). Tax aggressiveness and corporate transparency. *The Accounting Review*, *94*(1), 45–69.

Badertscher, B. (2011). Overvaluation and the choice of alternative earnings management mechanisms. *The Accounting Review*, *86*(5), 1491–1518.

Badertscher, B., Phillips, J.D., Pincus, M., & Rego, S.O. (2009). Earnings management strategies and the trade-off between tax benefits and detection risk: To confirm or not to confirm? *The Accounting Review*, *84*(1), 63–97.
Bartov, E., Givoly, D., & Hayn, C. (2002). The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics*, *33*, 173–204.
Beer, S., de Mooij, R., & Liu, L. (2020). International Corporate Tax Avoidance: A review of the channels, magnitudes, and blind spots. *Journal of Economic Surveys*, *34*(3), 660–688.
Brown, L.D., & Caylor, M.L. (2005). A temporal analysis of quarterly earnings thresholds: Propensities and valuation consequences. *The Accounting Review*, *80*(2), 423–440.
Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics*, *24*, 99–126.
Cohen, D.A., Dey, A., & Lys, T.Z. (2008). Real and accrual-based earnings management in the pre- and post-sarbanes-oxley periods. *The Accounting Review*, *83*(3), 757–787.
Contractor, F.J. (2016). Tax avoidance by multinational companies: methods, policies, and ethics. *A I B Insights*, *16*(2), 10–13.
Desai, M.A., Foley, C.F., & Hines, J.R., Jr. (2006). The demand for tax haven operations. *Journal of Public Economics*, *9*(3), 513–531.
Dhaliwal, D.S., Gleason, C.A., & Mills, L.F. (2004). Last-chance earnings management: Using the tax expense to meet analysts' forecasts. *Contemporary Accounting Research*, *21*(2), 431–459.
Duho, K.C.T., Asare, E.T., Glover, A., & Duho, D.M. (2024). Transfer pricing, earnings management and corporate governance among listed firms: evidence from Ghana. *Corporate Governance: The International Journal of Business in Society*, *24*(7), 1663–1694.
Duru, A., & Reeb, D.M. (2002). International diversification and analysts' forecast accuracy and bias. *The Accounting Review*, *77*(2), 415–433.
Dyreng, S., & Hanlon, M. (2021). *Tax avoidance and multinational firm behavior*. Washington, DC: Brookings Institution Press.
Errunza, V.R., & Senbet, L.W. (1984). International corporate diversification, market valuation, and size–adjusted evidence. *The Journal of Finance*, *39*(3), 727–743.
Graham, J., Harvey, C., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, *40*, 3–73.
Heckman, J.J. (1979). Sample selection bias as a specification error. *Econometrica*, *47*(1), 153–161.
Hope, O., Ma, M., & Thomas, W.B. (2013). Tax avoidance and geographic earnings disclosure. *Journal of Accounting and Economics*, *56*, 170–189.
Jenkins, G.P., & Wright, B.D. (1975). Taxation on income of multinational corporations: The case of the United States petroleum industry. *The Review of Economics and Statistics*, *57*(1), 1–11.
Jiang, J. (2008). Beating earnings benchmarks and the cost of debt. *The Accounting Review*, *83*(2), 377–416.
Jones, J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, *29*, 193–228.
Kasznik, R., & McNichols, M. (2002). Does meeting earnings expectations matter? Evidence from analyst forecast revisions and share prices. *Journal of Accounting Research*, *40*(3), 727–759.
Kothari, S.P., Leone, A.J., & Wasley, C.E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, *39*(1), 163–197.
Lee, B.B., Dobiyanski, A., & Minton, S. (2015). Theories and empirical proxies for corporate tax avoidance. *The Journal of Applied Business and Economics*, *17*(3), 21–34.
Matsumoto, D. (2002). Management's incentives to avoid negative earnings surprises. *The Accounting Review*, *77*(3), 483–514.
Plumlee, M. (2003). The effect of information complexity on information use by analysts. *The Accounting Review*, *78*(1), 275–296.
Potharla, S. (2023). Impact of real earnings management on earnings persistence – evidence from India. *International Journal of Emerging Markets*, *18*(11), 5454–5476.

Rego, S.O. (2003). Tax-avoidance of U.S. multinational corporations. *Contemporary Accounting Research, 20*(4), 805–833.
Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics, 42*, 335–370.
Salah, O.B. (2024). Analyzing the causal relationship between tax avoidance and earnings management: Evidence from the STOXX Europe 600 Index. *Accounting and Management Information Systems, 23*(1), 29–49.
Sitanggang, R.P., Karbhari, Y., Bolaji, T.M., & Ariff, M. (2020). Audit quality and real earnings management: Evidence from the UK manufacturing sector. *International Journal of Managerial Finance, 16*(2), 165–181.
Skinner, D.J., & Sloan, R.G. (2002). Earnings surprises, growth expectations, and stock returns. *Review of Accounting Studies, 7*, 289–312.
Srivastava, A. (2019). Improving the measures of real earnings management. *Review of Accounting Studies, 24*, 1277–1316.
Wang, X.T., & Johnson, J.G. (2012). A tri-reference point theory of decision making under risk. *Journal of Experimental Psychology: General, 141*(4), 743–756.
Wooldridge, J. (2009). *Introductory Econometrics: A Modern Approach*. Mason, OH: South-Western Cengage Learning.
Zang, A. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review, 87*(2), 675–703.

APPENDIX: DATA AND SAMPLE SELECTION

Sample Selection Procedure	Observations (firm-year)
COMPUSTAT Global	383,364
I/B/E/S	59,990
Deleting missing values	20,563
Deleting Utilities & Financial Institutions	18,264
Requiring at least 10 observations in each *SIC.YEAR*	14,395
Winsorizing at top and bottom 1 percentile	12,296
Final sample after deleting loss firms	9,092