The capacity to be aggressive: structured management and profit shifting practices in the firm

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Abstract

This paper considers the effect of firm's organizational capacity – proxied by structured management practices - on tax planning behavior of multinational firms (MNEs). Management practices improve productivity and hence should increase taxable corporate income of firms. However, higher adoption of management practices may also enable tax planning. Using a pooled cross-sectional dataset, we show that MNEs operating in low-tax countries exhibit a positive relationship between reported profits and structured management practices, while no discernible relationship exists for MNEs operating in high-tax countries. Using an event study design, we find that firms with more structured management are also more responsive to corporate tax rate changes. These patterns are consistent with the shifting of profits out of high-tax locations into low-tax locations. This adds a novel explanation for why some firms are more likely to engage in aggressive tax planning, with implications to the cost-benefit analysis of government-funded management upgrading projects.[1]

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1 Introduction

The revelations from Panama and Paradise papers exposed a sizable amount of international tax avoidance by firms, and in particular multinational enterprises (MNEs). Despite a multilateral effort to curb such practices, the extent of profit shifting has been increasing over time (Clausing [2016], OECD [2017]).[2] While recent evidence suggests that the size of profit shifting is substantial [Torslov et al., 2018], we still have much to understand about the types of firms that are the largest profit-shifters, and what drives and enables them. Bilicka [2019] finds that there are no observable differences between aggressive and non-aggressive tax avoiders, attributing differences to the unobservable propensity of a firm to be an aggressive tax avoider.

In this paper we explore the relationship between organizational capacity and firms' propensity to engage in profit shifting, proposing a novel explanation for the observed difference in firms' propensity to legally avoid paying corporate taxes. We measure organizational capacity by the level of adoption of structured management practices. As higher adoption of structured management practices improves productivity (Bloom et al. [2013, 2014]), in principle this higher productivity should also increase firm revenues and thus their taxable corporate income. However, firms adopting these more structured management practices could also be more effective at legally avoiding taxation. To study this, we use a unique dataset that matches structured management practices from the World Management Survey (WMS) and fifteen years of detailed firm accounts information from Bureau van Dijk's Orbis.

The profit-shifting literature has shown that it is cost-effective for large MNEs with links to tax havens to report low profits in high-tax countries [Desai et al., 2006, Dowd et al., 2017, Gumpert et al., 2016, Hines and Rice, 1994]. Firms use a variety of strategies to avoid paying corporate taxes, such as debt shifting [Desai et al., 2004, Huizinga et al., 2008], transfer pricing [Cristea and Nguyen, 2016, Davies et al., 2018] and intellectual property location [Dischinger and Riedel, 2011]. We propose that, as firms adopting higher levels of structured management have more tractable and predictable production plans, this could enable firms to make more effective reallocation decisions to minimize their overall tax bill. Specifically, a firm could optimally allocate a high share of profits in low-tax countries and a low share of profits in high-tax countries.

In this paper, we study this proposed channel using two complementary approaches. First, we provide a set of descriptive evidence to show how MNEs allocate profits across jurisdictions with different tax rates depending on the levels of structured management in place. Second, we show how MNEs' reported profits react to changes in corporate tax rates, focusing on the heterogeneity between firms with a minimum level of formality in their structured management practices and those with primarily informal practices in place. We focus our analysis on multinational corporations (MNEs) for three reasons: first, they are able to shift profits abroad, unlike domestic firms.[3] Second,

[2] For example, the OECD Base Erosion and Profit Shifting (BEPS) initiative was set up in 2016.

[3] In a companion paper we explore profit shifting between personal and corporate income tax bases for domestic

due to their international nature and size, they are a reasonably comparable group with publicly available data. Third, MNEs often span several jurisdictions, allowing us to exploit variation in tax rates across jurisdictions and time.

We start by documenting the simple relationship between the adoption of structured management practices in firms and their reported revenues, profits and taxes. We find a strong positive relationship between adoption of structured management practices and revenues at the firm level. This is in line with previous literature showing the causal relationship between management and firm productivity [Bloom et al., 2013, Giorcelli, 2019, Gosnell et al., 2016]. This relationship attenuates when we consider returns on assets (ROA) and turns negative when considering the effective tax rates (ETR) — the ratio of tax paid to profits before taxes. This suggests that firms adopting structured management on average generate higher revenues yet pay lower effective tax rates, consistent with the idea that productivity-enhancing structured management may also enable firms to lower their tax bill.

To unpack these patterns, we classify firms based on the location of their operations, for every year identifying whether they operate their production plants in low-tax or high-tax countries. We show that MNEs that operate in low-tax countries exhibit a positive relationship between reported profits and structured management practices. In contrast, we see no discernible relationship for MNEs operating in high-tax countries. Further, we classify firms based on the location of their parent company and country of operation, identifying whether they are firms from high-tax *headquarter* (HQ) countries, and whether their *subsidiaries* operate in high- or low-tax countries.

In particular, we focus on MNEs headquartered in high-tax countries with incentives to relocate their profits to their low-tax subsidiaries. We find that MNEs headquartered in high-tax countries that adopt more structured management tend to report being less profitable. Further, a firm headquartered in a high-tax country reports higher profits in its low-tax subsidiaries. This is particularly pronounced in the upper range of structured management measure. We observe the opposite relationship between structured management and profitability for MNEs headquartered in low-tax countries, regardless of where their subsidiaries operate.

We corroborate our main result by exploring the relationship through the lens of two different definitions of aggressive tax avoidance. First, we consider firms that report near zero returns on assets (ROA) [Bilicka, 2019, Johannesen et al., 2016]. We find there is a higher incidence of ROAs bunching around zero for firms adopting more structured management in high-tax countries than in low-tax countries. Second, we consider firms that have large disparities between their reported financial and taxable profits. We use book tax differences (BTDs) to measure the disparity [Desai, 2003, Desai and Dharmapala, 2006, 2009]. We find that aggressive tax avoiders that adopt more structured management tend to report relatively higher ROA in their low-tax subsidiaries and lower ROA in their high-tax subsidiaries.

Finally, we exploit the panel dimension of our data to consider the effects of reductions in

firms.

corporate tax rates on reported profits of affected MNEs. Following Fuest et al. [2018] and Serrato and Zidar [2016], we consider the effects of these tax rate cuts on reported ROAs in an event study framework. We find that firms with more structured management in place increase reported ROAs following a corporate tax rate cut, while other firms fail to react as strongly. This pattern is driven by firms with mostly formal levels of structured management in place. The evidence is consistent with the relationship between structured management practices and reported profitability we found in the pooled cross-sectional analysis. This is also in line with our conceptual framework, in which the tax minimization is easier for firms with more tractable and predictable profits. If our proposed mechanism is true, we would expect firms with structured management in place to be more responsive when adjusting their reported ROAs after a change in the corporate tax rate in one of their subsidiaries.

In all, our evidence suggests that there is a strong relationship between firms adopting more structured management practices and engaging in more aggressive tax planning practices. While this evidence is not causal, the patterns we uncover shed new light on a previous unstudied characteristic of profit shifting firms. Firms with structured management consistently locate more of their profits in low-tax countries relative to high-tax countries, minimizing their overall tax bill. This pattern is more pronounced for firms that are headquartered in high-tax countries, suggesting such management practices could be allowing for more aggressive tax planning behavior. Supporting evidence from the event study corroborates this notion, by showing that firms adopting more structured management practices react more strongly to changes in corporate tax rates.

2 Conceptual framework

In this section we discuss the conceptual framework underpinning our empirical investigation. Let us assume that all firms have a common objective function of after-tax profit maximisation that involves production maximization and tax minimization. Reaching those goals is the objective of every manager in each affiliate, both subsidiary and HQ. In addition, the manager at the HQ is responsible for the tax planning strategy of the entire corporate group, in addition to the profit maximization of the production facility present in the headquarter location. Profit shifting, by definition, is only possible for a company with multiple affiliates across various countries. The manager at the HQ must take into account profits from their own production facility as well as subsidiary profits and tax rates across all firm locations.[4]

The HQ manager employs a tax planning strategy to maximize the after-tax profits for the whole group. Such planning is possible if its subsidiaries have tractable and predictable production — or, good *organizational capacity*. Predictability of production, such as being able to request and

[4]While a subsidiary can also be involved in tax planning decisions, we assume it is always in conjunction with the HQ as tax planning across borders — profit shifting — involves at least two entities located in different jurisdictions and requires a certain level of coordination.

receive information on accurate production and profits forecasts for different subsidiaries, allows the HQ manager to plan tax liabilities accordingly. Tractability of production, such as having clear production plans with reasonable timelines enables the HQ manager to request specific changes to subsidiary production plans to fit specific target requirements. Having those figures on hand allows the HQ manager to make production targets and profit reallocation decisions between subsidiaries for the current year as well as plan for the following years.

Profit reallocation decisions take three major forms: debt shifting, transfer pricing and patent relocation. For debt shifting, a subsidiary of an MNE located in high-tax country borrows funds from a subsidiary located in low-tax country. Interest payments on this debt are deductible against taxable profits, reducing the tax liability in the high-tax country. The interest payments accrue to the subsidiary in the low-tax country, being taxed at the lower rate and reducing the overall tax liability of the MNE. For transfer pricing, a subsidiary located in high-tax country buys intermediate products from subsidiaries in low-tax countries at prices that are higher than market prices, reducing profits by increasing costs. The low-tax seller earns revenue from the sale which is taxed at lower rates. This strategy relies on mis-pricing (or, inflating) goods relative to their market value and is best achieved using goods that are difficult to price on third party markets, such as intangibles or patents. For patent relocation, MNEs can relocate their patents to low-tax subsidiaries, such that any profits earned on those patents will be taxed at lower rates. Further, royalties for the use of those patents by other subsidiaries will also be taxed at lower tax rates, while the cost of paying the royalties will be deducted against profits in high-tax countries.

The organizational capacity at the subsidiary level allows the HQ manager to use production planning in that subsidiary in the tax planning process. Consistent with a firm's objective to minimize its overall tax bill, a tax planner will move profits away from the subsidiaries located in high-tax countries to subsidiaries located in low-tax countries. For instance, predictable income streams enable effective debt shifting. Lending to a subsidiary with a clear profit forecast allows the tax planner to predict the appropriate amount of debt to reduce the overall tax liability to near zero, but not as far as leaving the subsidiary reporting negative profits.[5] We explore whether we find patterns consistent with this conceptual framework in the data.

3 Data

3.1 Management data

To measure the level of adoption of structured management practices in a firm we use the World Management Survey, a project that has systematically collected data on the adoption of structured

[5]Firms generally avoid reporting negative profits because (i) they care about shareholder perception and thus would prefer a subsidiary not to incur losses, especially if it is in fact involved in profitable activities; (ii) too much debt could increase the likelihood of risky investments and result in potential bankruptcy; (iii) there is a limit on the amount that low-tax subsidiaries can lend.

management practices in firms since 2004.[6] The WMS focuses on medium- and large-sized firms, drawing a random sample of firms with employment of between 50 and 5,000 workers. The WMS methodology, first described in Bloom and Van Reenen [2007], employs a double-blind, interview-based evaluating tool that defines and scores a set of 18 basic management practices on a scoring grid from one ("little/no formal management practices") to five ("best practice"). The topics covered include adoption of lean manufacturing practices, performance monitoring, target setting and people management.

We focus on the 12 topics that directly relate to operations management and exclude the questions relating to people management. We build two indices of operations management: a continuous index with the simple average across the 12 topics, and a binary indicator dividing firms into two groups based on a methodological cutoff of the practices measured. The indicator takes a value of 1 if the firm scores above 3 on the 1 to 5 scale, or having achieved a minimum level of "structured" management practices, while those with scores below 3 have, at best, an "unstructured" set of practices. The survey collects additional information on ownership and firm organization, though it does not include any financial data.

We use only the MNEs from the WMS sample. They operate in various countries including the US and the UK to Turkey and Argentina.[7] The average MNE in each of the countries in our sample has a structured management operations score between 2.95 and 3.53, suggesting the average MNEs across the countries we study are similarly well managed (Figure 1). However, there is substantial variation in the adoption of management practices across MNEs within countries (Figure **??**).

The WMS has a set of firms with panel data, where they interview the same firm across years. As management is a slow-moving variable and the panel dimension does not constitute a large enough sample for our purposes, we consider management a static variable across years and take the average of the management score across years for firms that have multiple values.

3.2 Firm financials and data structure

3.2.1 Main results sample

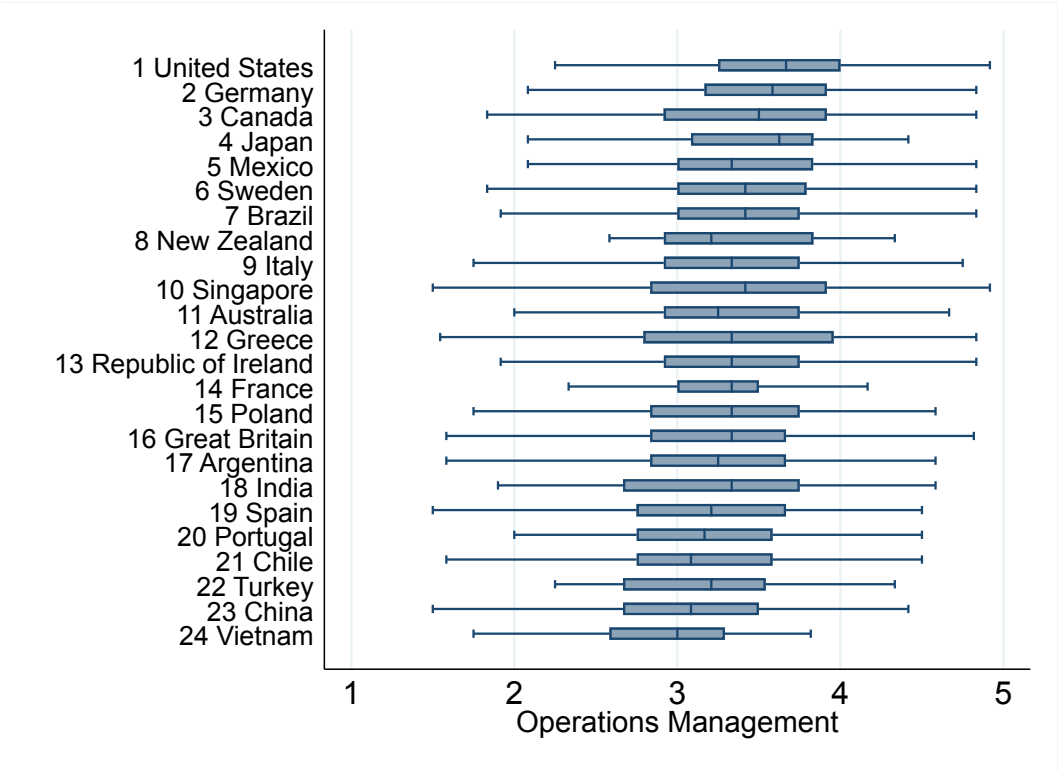
We match the MNEs from WMS with their financial information from Bureau van Dijk (Orbis) dataset between 2004 and 2019. We matched 2,068 firms in the WMS with at least one year of financial data in Orbis, yielding 26,251 firm-year observations for the first part of the analysis. Using Bureau van Dijk (Orbis) ownership information from 2019, we match each subsidiary for which we observe management quality with a parent company that this MNE affiliate belongs to. We find 2038 unique HQ in Orbis. Using the location of the HQ and the subsidiary, we merge in country-year corporate tax rates from the Centre for Business Taxation Corporate Tax Database.[8].

[6] See Bloom et al. [2014] for a survey.

[7] We drop African countries from the WMS dataset, as the quality of management practices there is substantially lower than in the remainder of the sample.

[8] For the dataset see: data website and for the information on the dataset see: Eureka website.

Figure 1: Average management score of multinationals with dispersion within countries.



Note: Data from the World Management Survey. Management is the average for the WMS operations management questions (including lean management, monitoring and target-setting). There is 2060 firms in total across all countries.

This is our "baseline sample".

We define a high and low tax rate countries using the median tax rate across all countries in each year. We define low tax country-year cells as those with corporate tax rates below median in a given year. Considering the recent corporate tax rate changes among many countries, we allow each country to change from high tax to low tax during the sample period by using the pooled data.[9]

Of the 2068 unique plants, 1567 are operating at subsidiary location while 501 are co-located with the global HQ (see Table 1). We observe only one plant for about 70% of the MNEs in our sample, and only for the HQ-located plant for about 25% of the sample. For the remainder of the sample we observe at least two or more subsidiaries of the sample firm. We have 13 unique parent firms for which we observe management practices for both the HQ co-located plant and at least one subsidiary.

Table 1: Descriptive Statistics: corporate group structure for firms in the WMS sample

Firms in the same corporate group count	**Total factories** N	**Subsidiary factories** N	**HQ factories** N
1	1446	958	488
2	294	286	8
3	129	125	4
4	84	83	1
5	60	60	0
6	30	30	0
8	16	16	0
9	9	9	0
Total	**2068**	**1567**	**501**

Note: Data from ORBIS and the World Management Survey.

The main variables of interest include operating revenue, profit and loss before tax (PLBT), total assets and taxation from income statement. We construct our main measure of firm profitability, ROA, as the ratio of profits and loss before tax to total assets. We construct a measure of effective tax rates as the ratio of tax paid to profit and loss before taxes (ETR). Table 2 shows the summary statistics for the baseline sample. The average ROA for firms in our sample is 5.1%, and the median number of employees is 574. The average effective tax rate (ETR) in our sample is 18.3%. This ranges from the low of 7.4% in Ireland and 8.6% in Singapore, known tax havens, to high of 29.1% in Italy and 32.5% in Argentina. The structured management score is highest in highly developed countries, such as Sweden, Germany and Japan. Note that while these are not the countries where firms pay highest ETRs in our sample, they are countries with high corporate tax rates. The

[9]For instance, UK had 30% corporate tax rate in 2007, but had gradually lowered in main corporate rate to 19% in 2017.

structured management score is lowest in Vietnam, Turkey and China. These countries do not have the lowest corporate tax rates in our sample and their firms are not reporting lowest ETRs. This is important, as otherwise we could be picking up the simple correlation between more structured management and tax rates in high tax-countries that is unrelated to tax planning practices.

In our baseline sample, 76% of firm-year observations report non-negative profits with the remainder reporting losses. 23.2% of HQ-year observations have negative profits, while this is true for 24% of subsidiary-year observations. Firms with structured management practices in place (a score above 3) have 23% of firm-year observations reporting negative profits, while firms with unstructured management practices in place have 26% of firm-year observations reporting negative profits. Positive profit making firms are on average better managed, as the distribution for positive profits stochastically dominates the one for loss makers. 43% of subsidiaries in the baseline sample are located in high-tax country years, while 40% of headquarters are located in high-tax country years. Of the firms operating in high-tax countries, 48% are headquartered in high-tax countries; of the firms operating in low-tax rate countries, 35% are headquartered in high-tax countries. This is the sample we use for our main empirical analysis establishing the new stylized facts.

3.2.2 Extended sample: imputing management practices

While the "baseline" sample provides the sharpest distinction and most accurate measurement of adoption of management practices across firms, it severely limits the analysis sample relative to the large availability of financial data. The WMS collects data for a random sample of manufacturing plants and we match the financial data from Orbis at the establishment level, which allows us to directly observe management for only 2% of our full financial sample. To extend our sample and use the full financial information, we follow the insights from Bloom et al. [2019]. The authors show that the largest variation in management practices is attributed to the differences between firms, rather than across establishments within firms. This suggests it is reasonable to calculate the average management score for each MNE in our sample, and assign that value to every subsidiary for which we have financial data.

Using ownership data from Orbis, we build the ownership tree for each global ultimate owner (HQ) of the firms in the WMS sample. For all firms interviewed at least once in the WMS, we determine their HQs and build a dataset of their entire corporate structure — including all majority owned subsidiaries that belong to that parent.[10] We match 87,104 unique subsidiaries to the 2038 unique HQs in the WMS data yielding 593,672 firm-year observations (see Table 3). We use the extended sample for our event study analysis.

In Table 4 we describe the financial characteristics of the larger dataset that includes all corporate groups (Panel B). The average ROA for firms in this sample is 3.7%, ETR is 17%. 72 % of firm-year observations report non-negative profits with the remainder reporting losses. 42% of subsidiaries in

[10]We only include affiliates that are majority owned, i.e. the parent company owns 50% of their shares. This is because the parent company needs to have control over the subsidiary to be able to implement profit shifting practices.

Table 2: Descriptive statistics for the baseline sample, by country

	Obs N	**Firms N**	**HQs N**	**Years Avg N**	**ROA**	**Empl Median**	**PLBT**	**Effective Tax rate**	**Mgmt**
Argentina	182	27	4	8	0.134	435	32995	0.325	3.44
Australia	1435	93	33	17	0.027	706	42772	0.207	3.33
Brazil	309	53	19	7	0.023	456	19253	0.130	3.43
Canada	15	1	0	15	0.040	1469	51502	-0.302	3.17
Chile	203	25	7	12	0.090	1000	43833	0.201	3.23
China	1185	150	104	10	0.065	700	17753	0.145	3.06
France	812	54	20	16	0.049	200	5715	0.211	3.28
Germany	2322	176	75	15	0.063	468	28490	0.159	3.53
Great Britain	6181	437	125	16	0.058	212	12082	0.183	3.26
Greece	1339	98	45	16	0.006	237	5824	0.195	3.26
India	488	44	29	13	0.062	500	13064	0.253	3.23
Ireland	720	57	18	15	0.073	164	13772	0.074	3.23
Italy	2599	175	65	16	0.038	255	9215	0.291	3.33
Japan	459	36	16	13	0.064	396	23188	0.285	3.42
Mexico	74	26	6	5	0.083	550	25310	0.261	3.39
New Zealand	27	2	0	14	0.072	300	24511	0.500	3.50
Poland	1087	77	30	16	0.050	340	4489	0.180	3.26
Portugal	928	65	20	15	0.033	213	12193	0.141	3.25
Singapore	1514	160	43	12	0.071	5000	23417	0.086	3.36
Spain	1231	85	23	15	0.053	184	9878	0.166	3.20
Sweden	2662	173	39	17	0.081	244	15620	0.198	3.40
Turkey	140	15	9	11	0.052	301	501	0.190	2.96
United States	40	5	0	11	0.097	3383	98582	0.239	3.22
Vietnam	381	34	23	12	0.066	215	1600	0.118	2.95

Note: Data from Orbis and the World Management Survey. The total number of observations is the count of firm-year available data points (total from column 2), though not all firms have all years available. To arrive at the summary statistics in this table, we first averaged across the values for each firm across all years with available data, and then averaged across countries.

Table 3: Descriptive Statistics: corporate group structure for firms in the extended sample

Firms in the same corporate group count	**Total factories** N	**Subsidiary factories** N	**HQ factories** N
1	580	186	394
2	266	196	70
3	246	196	50
4	288	239	49
5	270	235	35
6	282	251	31
7	294	263	31
8	312	281	31
9	342	316	26
10-49	13763	13322	441
50-99	13625	13458	167
100-499	35622	35458	164
500+	21214	21211	3
Total	**87104**	**85612**	**1492**

Note: Data from ORBIS and the World Management Survey.

the extended sample are located in high-tax country years, while 46% of HQs are located in high-tax country years. Of the firms operating in high-tax countries, 59% are headquartered in high-tax countries; of the firms operating in low-tax countries, 38% are headquartered in high-tax countries. This is similar to the baseline sample proportions and ratios. The ROAs reported in subsidiaries located in low-tax countries are substantially higher than those in high-tax locations, while reported ETRs of subsidiaries in low-tax countries are significantly lower than those in high-tax countries. This is consistent with firms being taxed at low rates on high profits.

4 Empirical evidence

We start with our baseline sample and estimate a simple reduced form model correlating the ROA of each firm to structured management practices, the tax rate in the subsidiary and the interaction between the two:

$$ROA_{it} = \alpha + \beta_1 M_i + \beta_2 HTSub_{ct} + \beta_3 M_i \times HTSub_{ct} + \eta_c + \delta_t \quad (1)$$

where ROA_{it} is the returns on assets, M_i is structured management, $HTSub_{ct}$ is an indicator equal to 1 if the tax rate in the country of the subsidiary is larger than the median tax rate in that year across the countries in our sample, η_c are country fixed effects and δ_t are year fixed effects. In

Table 4: Descriptive statistics for each sample

	Obs N	Firms N	HQs N	ROA	Empl Median	PLBT	ETR
Panel A: Management-only sample							
Low tax sub	14972	1200	436	0.062	765	14422	0.168
High tax sub	11361	868	319	0.046	374	18027	0.210
Low tax GUO	15723	1279	547	0.050	517	16078	0.185
High tax GUO	10610	789	208	0.062	712	15828	0.191
Panel B: Extended sample							
Low tax sub	346279	53267	1093	0.041	106	16493	0.151
High tax sub	247393	33837	945	0.032	90	17888	0.198
Low tax GUO	317789	49242	1256	0.033	98	17231	0.165
High tax GUO	275883	37862	782	0.041	100	16894	0.179

Note: Data from the World Management Survey (2004-2014) matched with Orbis (2004 to 2018). Headquarters are defined as the global ultimate owner identified in Orbis. ROA is the return on assets: ratio of profit and loss before taxes and total assets. PLBT is the profit and loss before taxes. ETR is the Effective Tax Rate: ratio of reported tax payments to profit and loss before taxes.

all specifications we use binary management score, where we define formal management as scores of 3 or above. We consider both the high tax subsidiary dummy and a continuous variable called subsidiary corporate tax rate. The continuous variable is the corporate tax rate in the subsidiary. Table 5 uses the baseline sample. In columns 1-3 and 7 we use all firms, in column 4 we use a sub-sample of high tax HQ only, in columns 5 and 6 we use sub-samples of firms with BTDs above median (column 5) and below median (column 6). We describe each set of results in turn, and complement the average results with non-parametric analysis illustrating the relationship across the distribution.

4.1 Relationship between management and ROA

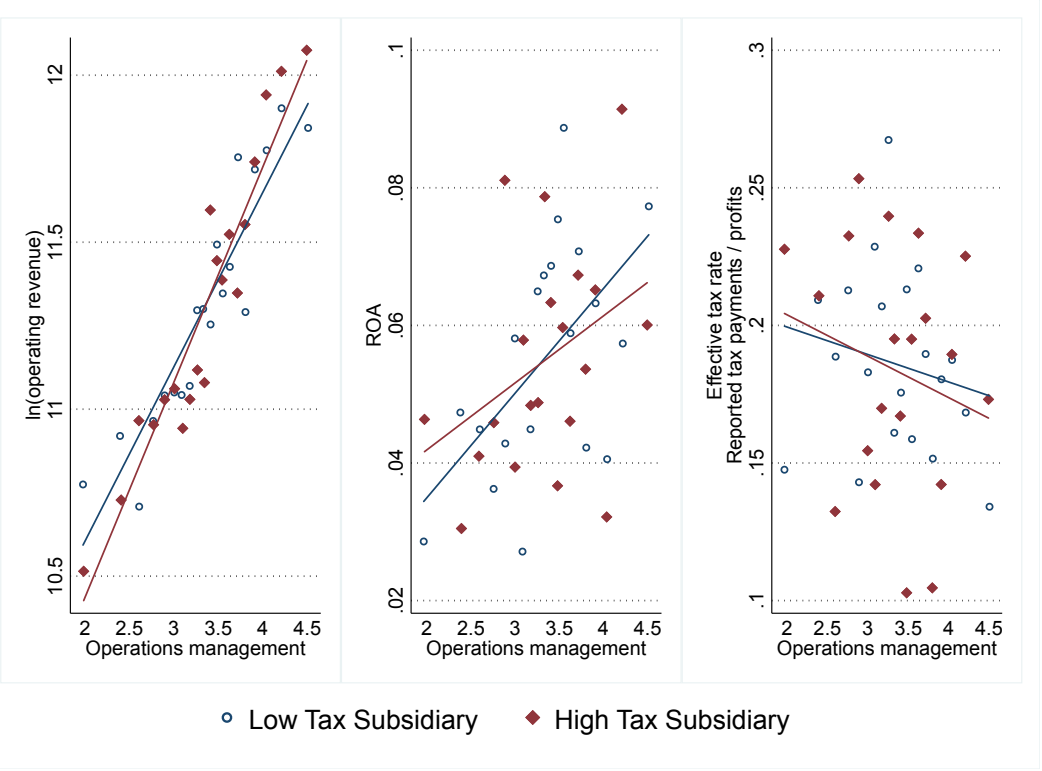
We find that there is a positive and strong correlation between management practices and operating revenues in our sample (Figure 2), consistent with the literature on management and productivity. This relationship is relatively noisier when we consider profitability (ROA) as the outcome variable. Column (1) in Table 5 shows that this is a statistically significant relationship. However, we find a negative correlation between management practices and effective tax rates (ETRs). Effective tax rates are often used in profit shifting literature to illustrate how little tax MNEs pay in various jurisdictions relative to the tax rates. It is clear that higher turnover generated by firms with more

Table 5: Summary of results, baseline sample

	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) Bunching*	(6) Bunching*	(7) ROA	(8) ROA	(9) ROA
Formal management=1	0.019***	0.000	0.052***	0.023	-0.029***	-0.129***	0.066***	0.049**	0.024***
	(0.004)	(0.009)	(0.015)	(0.022)	(0.009)	(0.032)	(0.015)	(0.020)	(0.004)
High tax subsidiary	-0.001	0.011			-0.023				
	(0.007)	(0.007)			(0.019)				
Formal management=1	-0.006	-0.024***			0.044***				
× High tax subsidiary	(0.006)	(0.008)			(0.014)				
Subsidiary Corporate Tax Rate			-0.102	-0.140		-0.068	-0.044	-0.209**	
			(0.078)	(0.121)		(0.188)	(0.086)	(0.101)	
Formal management=1			-0.136***	-0.090		0.443***	-0.224***	-0.093	
× Subsidiary corp tax rate			(0.051)	(0.073)		(0.117)	(0.053)	(0.070)	
BTD above median									0.122***
									(0.005)
Formal management=1									-0.018***
× BTD above median									(0.005)
Year x Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	25987	26014	25987	10491	25987	25987	10771	13772	24543
R-squared	0.0153	0.373	0.0159	0.0196	0.0213	0.0216	0.0327	0.0331	0.114
Sample	**Baseline**	**Baseline**	**Baseline**	**High tax HQ**	**Baseline**	**Baseline**	**BTD above median**	**BTD below median**	**Baseline**

Note: Data from Orbis and the World Management Survey. Sample includes only directly matched subsidiary or HQ in both WMS and Orbis.

Figure 2: Revenues, ROA, ETR and management, baseline sample



Note: Data from the World Management Survey and Orbis. ROA is the ratio of profit and loss before taxes and total assets. ETR is the reported tax payments over profit and loss before taxes.

structured management practices does not necessarily translate into higher taxable profits. In fact, it seems to actually enable firms to lower their ETRs and effectively pay lower tax rates than firms adopting fewer structured management practices.

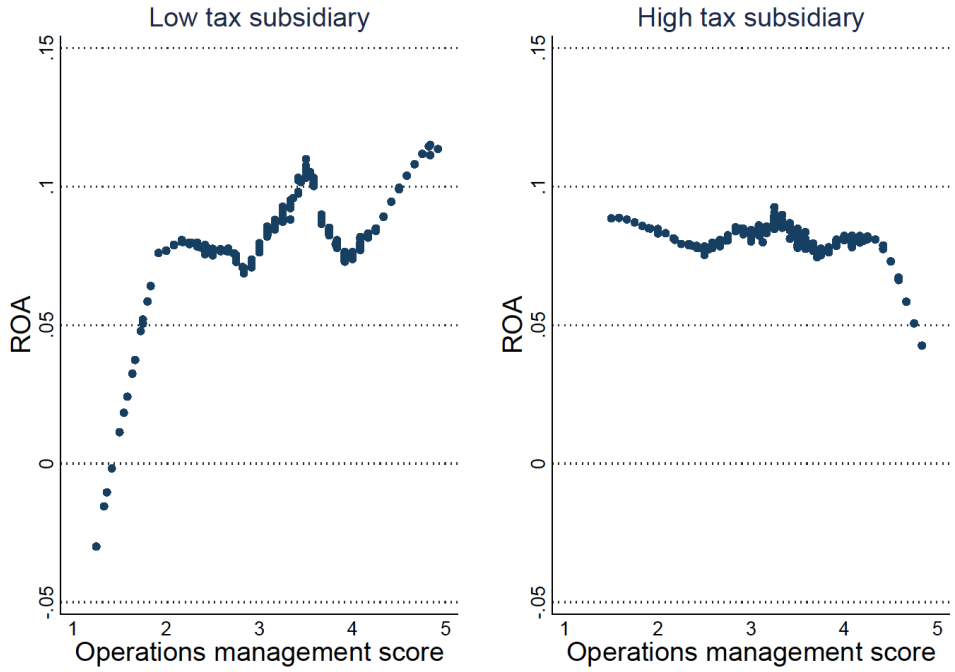
4.2 Relationship between management and ROA by country tax rates

The relationship between profitability and management is driven by firms operating in low-tax countries. In Table 5 we report the coefficient for the interaction between the structured management indicator with a high-tax subsidiary indicator (Column 1) and with the subsidiary corporate tax rate (Column 3). Both interaction terms are negative, suggesting that in high tax environments firms with structured management firms report lower ROAs. The contrasting relationship is clear in Figure 3, where we plot the local linear regressions separately for subsidiaries in low-tax countries and high-tax countries. There is a clear positive relationship between structured management and ROA in low-tax subsidiaries, while no discernible pattern exists in high-tax subsidiaries.

This is not simply a story of location: our descriptive statistics show that firms with more structured management are not systematically located in low-tax rate countries. Hence, we interpret

our findings as evidence that these MNEs are likely to shift profits from high-tax countries to low-tax countries in order to minimize their overall tax bill.

Figure 3: ROA and operations management in low- and high-tax country-years



Note: Data from the World Management Survey and Orbis. Baseline sample. Local linear regressions run with bandwidth 0.5.

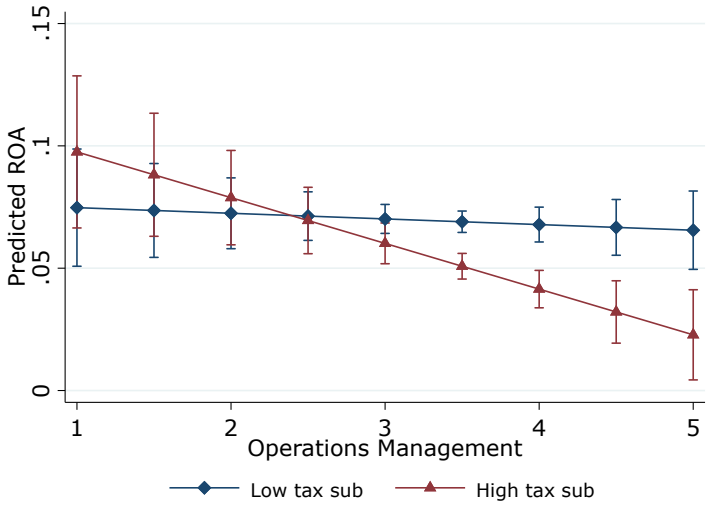
4.2.1 Differences across subsidiaries belonging to the same HQ

While our first result pools all subsidiaries together, we can take advantage of the ownership structure of our dataset and limit the sample only to MNE groups for which we observe more than one subsidiary. We have 622 firms that belong to approximately 230 different MNE groups. Column (2) of Table 5 includes HQ fixed effects, enabling us to pick up a differential allocation of profits between subsidiaries belonging to the same firm. Controlling for HQ fixed effects, the coefficient on the interaction term suggests that a firm with structured management located in a high-tax country reports 0.022 lower ROA relative to a firm without structured management practices. As the average ROA in high-tax subsidiaries in the baseline sample is 0.032, the coefficient represents a reduction in ROA of almost 70%.

Figure 4 plots the marginal effects of structured management on predicted ROA for high-tax and low-tax subsidiaries, across the distribution of management scores. There is a clear negative relationship between higher management scores and predicted ROA in high-tax countries. The

differences between low-tax and high-tax subsidiaries are statistically significant beyond a management score of 3. This is consistent with our regression results using the indicator of structured management instead of the continuous measure.

Figure 4: Within-group relationship between management and ROA



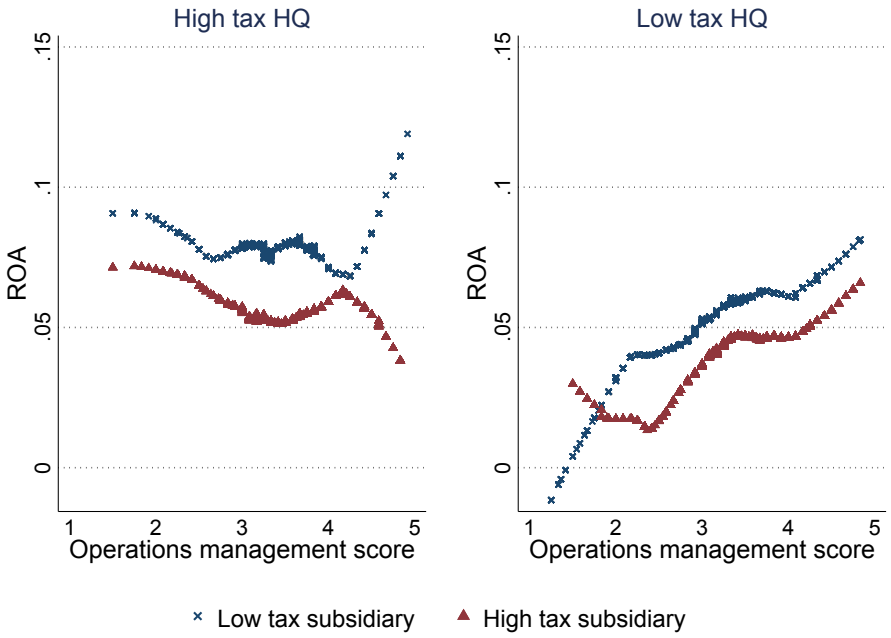
Note: Data from the World Management Survey and Orbis. Firms in baseline sample with at least two observations within a GUO corporate group (HQ and subsidiary, or at least two subsidiaries).

4.2.2 Differences across HQs by country tax rates

We split the sample of MNEs by headquarter location, in particular, we divide our MNEs into those headquartered in high-tax parent and low-tax parent countries. In Column (4) of Table 5 we consider only MNEs headquartered in high-tax countries and find that the interaction effect between structured management and subsidiary corporate tax rate is still negative, though the average effect is less precisely estimated. To consider the relationship throughout the management distribution, we plot the local linear regression in Figure 5 for MNEs headquartered in high-tax countries (left-hand side panel) and MNEs headquartered in low-tax countries (right-hand side panel). We show the relationship for low-tax subsidiaries and high-tax subsidiaries separately for each set of HQs.

There are two clear patterns: first, a negative relationship between structured management and reported ROA for firms headquartered in high-tax countries. Second, a positive relationship between ROA and structured management in firms headquartered in low-tax countries. Further, the level of the reported ROA of high-tax subsidiaries belonging to high-tax HQs is entirely below the level of reported ROA of low-tax subsidiaries. For firms headquartered in low-tax countries, we observe a broadly similar level difference between the subsidiaries in high- and low-tax countries.

Figure 5: ROA and operations management in subsidiaries by low-tax and high-tax HQ country-year



Note: Data from the World Management Survey and Orbis. Baseline sample. Local linear regressions run with bandwidth 0.5.

4.3 Aggressive Tax Planning

We interpret the evidence thus far as suggestive that firms with structured management may be better at tax planning. This relationship is likely to be starker when considering aggressive and non-aggressive tax planners. We consider two proxies for aggressive tax planning.

4.3.1 Measuring aggressiveness: bunching around zero ROA

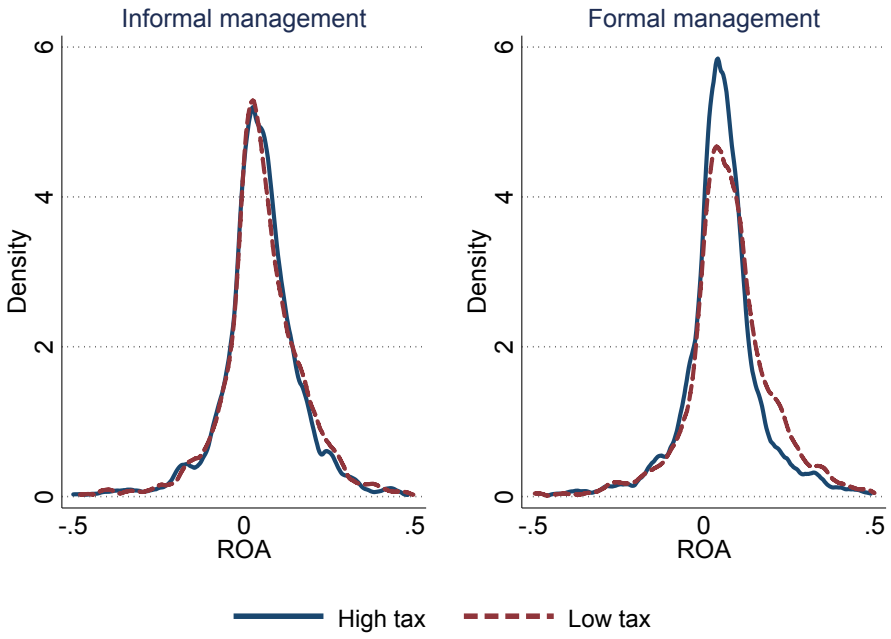
In this section we compare the propensity of MNEs to report near zero ROAs. Previous literature has noted that a large share of firms reporting near zero accounting profits can suggest profit shifting, especially if those firms are located in high-tax countries (Johannesen et al. [2016]). Columns (5) and (6) on Table 5 show the results of a regression using a linear probability model with an indicator taking a value of 1 if ROA is within 0.05 percentage points of zero as an outcome variable. We use the same set of controls as in our main specification in equation 1. The interaction coefficient in Column (5) suggests that firms with formal management have a significantly higher probability of reporting near zero ROA in high tax countries. Column (6) suggests that this probability is larger for subsidiaries in countries with higher tax rates.

In Figure 6 we plot the distributions of ROAs around zero for two groups of firms: those with structured management structures in place and those with unstructured management structures in place, and compare MNE subsidiaries operating in high-tax countries and those operating in low-tax countries. Figure 6 shows that, for firms with structured management in place, a larger share of MNEs operating in high-tax countries reports near zero ROAs relative to MNEs operating in low-tax countries. No such pattern is apparent in firms with unstructured management, consistent with a profit shifting pattern.

4.3.2 Measuring aggressiveness: above median BTDs

A second proxy for aggressive tax avoidance we use the size of book-tax difference (BTD) measuring the difference between pre-tax book earnings and taxable income. The literature has linked this measure with tax-planning activities of MNEs, and in particular Manzon and Plesko [2002] show that approximated measures of demand for tax shelters help explain the variation in BTDs across firms. These measures have been subsequently used in the literature to approximate for aggressive tax planning. Desai and Dharmapala [2006] show that increases in incentive compensation tend to reduce the level of tax sheltering, Desai and Dharmapala [2009] show that the effect of tax avoidance on firm value is a function of firm governance. Desai [2003] points out further that the size of BTDs is related to managerial motives associated with earnings management. Thus, BTDs have been shown to be reliable proxies for both tax sheltering and earnings management and are thus an appropriate tool to use in the context of analyzing the relationship between management

Figure 6: Bunching around zero ROA for firms with structured management



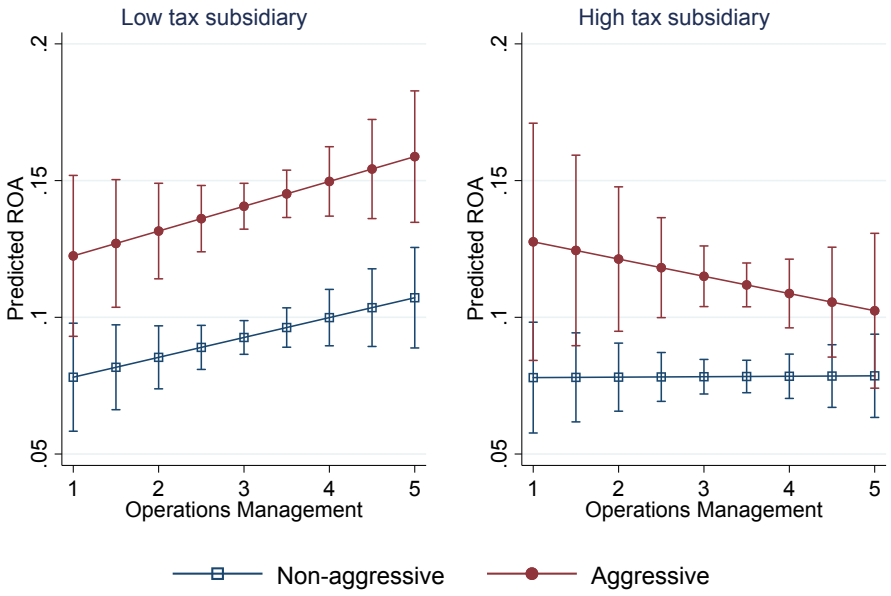
Note: Data from the World Management Survey and Orbis. Baseline sample. ROA restricted between -0.5 and 0.5.

and tax planning practices.[11]

We calculate BTDs following the literature and subtract from the pre-tax profits the current tax expense grossed up by the rate. We calculate the size of that difference for each firm, adjusting for deferred taxes where firms report them, to create permanent book tax differences. We then scale the size of this difference by firm's total assets and divide the sample into firms with larger than median BTDs and smaller than median BTDs. We classify firms with larger than median BTDs aggressive avoiders and those with below median BTDs as non-aggressive firms.[12]

Columns (7) and (8) in Table 5 report the coefficients on the interaction terms between structured management and corporate tax rates for firms that have BTDs above and below median, respectively. It is clear that the negative results from previous regressions are driven by firms with BTD above median — the tax aggressive ones. The interaction coefficient suggests that firms with structured management would report 0.025 lower ROA for a 10% higher subsidiary tax rate.

Figure 7: Aggressive tax avoiders in low- and high-tax subsidiary country-years



Note: Data from the World Management Survey and Orbis. Baseline sample.

[11] Blackburne and Blouin [2016] and Erickson et al. [2004] show that traditional BTD measures may not always be a reliable signal of earnings manipulation. BTDs of companies that were committing some tax fraud are not larger than those companies that did not. In the context of this paper, this means that there may be firms that we have classified as non-aggressive avoiders that may be aggressively tax planning. This would bias the findings against our hypothesis.

[12] Note that we have experimented with dividing the sample into top 25% as being aggressive avoider and bottom 25% as not. The results are not sensitive to these various sample cuts.

In Figure 7 we show the marginal effects from the regression of ROAs on the interaction between management and BTD above median separately for firms operating in high-tax countries and low-tax countries. We find that aggressive tax avoiders report significantly higher ROAs in low-tax countries than non-aggressive firms across the entire management distribution. In turn, in high-tax countries we find a negative relationship between the management score and reported ROA for aggressive tax avoiders and a virtually flat relationship for non-aggressive firms.

Aggressive tax avoiders with structured management practices in place report very high ROAs in low-tax countries, while reporting very low ROAs in high-tax countries. In contrast, firms that we identify as non-aggressive with structured management practices in place report very similar ROAs in high-tax and low-tax subsidiaries countries. This is consistent with the hypothesis that aggressive avoiders are involved in tax planning practices to minimize their tax bill and that these practices are more prevalent among firms with more structured management practices.

Further, in Column (9) of Table 5 we consider a model in which ROA is a function of structured management and whether an MNE is an aggressive avoider (BTD above median) or non-aggressive firm (BTD below median). The relationship between structured management and ROA in positive and firms with high BTDs have on average higher ROAs. The negative interaction term between the indicator for BTD being above median and structured management implies that the relationship between ROA and management is less pronounced for more aggressive avoiders. Aggressive avoiders with more structured management practices are likely to have lower ROAs.

Finally, to understand differences in profit reporting between the two types of firms we plot the distribution of ROA for firms with structured an unstructured management, by the aggressive and non-aggressive classification. Figure 8a includes only firms with structured management, and shows that aggressive avoiders are more likely to bunch at zero ROAs in high-tax countries relative to those in low-tax countries. In contrast, for non-aggressive firms there is no difference in ROA distributions between high-tax and low-tax countries. Further, the ROA distributions for all but aggressive avoiders in high-tax countries look similar.

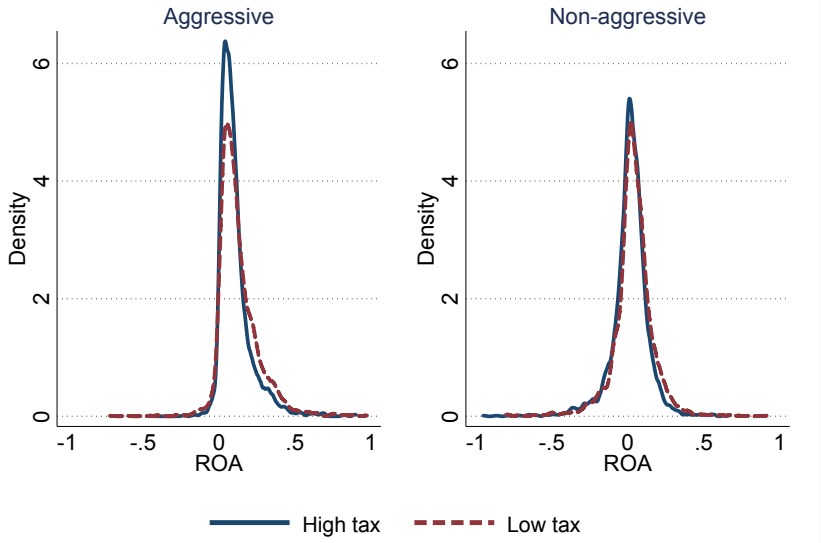
Figure 8b plots the equivalent distributions for firms with unstructured management. There is no difference in ROA distributions for aggressive avoiders between high-tax and low-tax countries. For non-aggressive firms, there is a smaller mass of firms around zero ROAs in high-tax countries than in low-tax countries. Further, the ROA distributions for all but non-aggressive firms in high-tax countries look similar. This is consistent with a notion that non-aggressive firms may report high profits in high tax jurisdictions simply because their businesses are profitable there.

4.4 Robustness checks

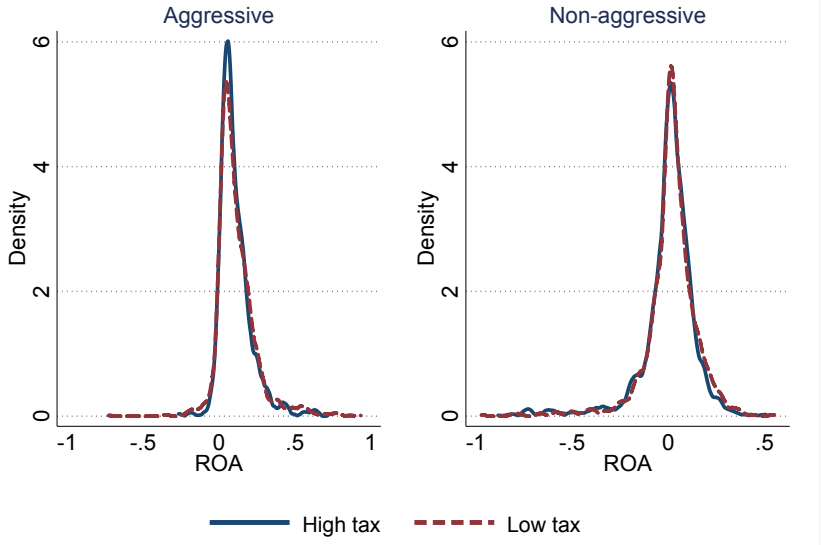
We repeat the empirical exercise with the extended sample, and confirm that the results are robust. Table 6 reports the results. They are consistent in terms of the direction of the effect, though as the sample is substantially larger the results are more precisely estimated and sometimes show larger

Figure 8: Bunching of ROA around zero for aggressive firms with formal management

(a) Formal management



(b) Informal management



Note: Data from the World Management Survey and Orbis. Baseline sample. ROA restricted between -1 and -1.

coefficients.

Further, Table A1 in the Appendix shows that these results hold when we use effective tax rates (ETRs) as dependant variable. The results are consistent with evidence from Figure 2, where the correlation between ETRs and structured management was negative in high tax countries. We show that this effect is also statistically significant and large in magnitude.

5 Event Study

The reduced form evidence indicates that the level of management practices adopted by a firm is correlated with the profit reporting behaviour. In particular, firms tend to report lower profits in countries with higher tax rates. The pooling across years yields a static analysis of the stock of profit allocated to each type of jurisdiction across all years. However, profit shifting is a dynamic exercise, and changes year to year in response to corporate tax rate changes across all jurisdictions where the MNE operates. In this section, we exploit the time dimension of our data to consider the firm's response in allocation of profits across jurisdictions after a tax cut in the subsidiary's jurisdiction. We define an *event* as a change in the corporate tax rate relative to the previous year for that particular country. According to our conceptual framework, a reduction in a tax rate should induce a subsidiary to report more profits in that country (all else equal). We expect this behavior to manifest in firms with formal management practices in place, as they are the only set of firms that have the tractability and predictability of profits that would enable an efficient reallocation of profits.

We conduct an event study exercise using changes in the corporate tax rates across various subsidiary locations of MNEs and estimate the following specification:

$$ROA_{j,t} = \alpha + \sum_{\kappa=-5}^{5} \delta_t \mathbb{1}[t = \kappa] + \sigma_1 X'_{jt} + \eta_t + \epsilon_{jt} \tag{2}$$

where $ROA_{i,t}$ is the return on assets for firm j at time t. $\sum_{\kappa=-5}^{5} \mathbb{1}[t = \kappa]$ is a series of year dummies that equal one when the tax reform was κ years away, with the dummy variable corresponding to $\kappa = -1$ as the omitted category. X'_{it} is a set of firm- and country-level control variables (including GDP growth, cost of capital, investment as share of GDP in both subsidiary and HQ countries), η_t is a year fixed effect, and ϵ_{jt} is the error term.

Our coefficients of interest are the δ_t, as they measure the average change in reported profits relative to the κ year before or after the reform across the subsidiaries in our sample. Following McCrary [2007], we bin event dummies at endpoints of the event window (in our case, at $t = -5$ and $t = 5$) such that the end dummies include all reforms occurring 5 or more years beyond the window. This is to account for the different timing of tax rate cuts across countries, which yields

Table 6: Summary of results for extended sample

	(1) ROA	(2) ROA	(3) ROA	(4) Bunching*	(5) Bunching*	(6) ROA	(7) ROA	(8) ROA
Formal managementt=1	0.017***	0.074***	0.039***	0.009***	0.015	0.043***	0.097***	0.013***
	(0.002)	(0.005)	(0.008)	(0.003)	(0.009)	(0.005)	(0.006)	(0.001)
High tax subsidiary	0.017***			0.015**				
	(0.003)			(0.007)				
Formal management=1	-0.017***			-0.018***				
× High tax subsidiary	(0.002)			(0.004)				
Subsidiary Corporate Tax Rate		0.046*	-0.012		0.537***	0.017	-0.090**	
		(0.026)	(0.037)		(0.049)	(0.027)	(0.035)	
Formal management=1		-0.236***	-0.129***		-0.053*	-0.157***	-0.303***	
× Subsidiary corp tax rate		(0.016)	(0.024)		(0.032)	(0.018)	(0.021)	
BTD above median								0.153***
								(0.002)
Formal management=1								-0.009***
× BTD above median								(0.002)
Year x Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	591300	591289	275605	400869	400869	206908	324480	531388
R-squared	0.00984	0.0101	0.0130	0.0118	0.0121	0.0216	0.0396	0.0828
Sample	**Baseline**	**Baseline**	**High tax HQ**	**Baseline**	**Baseline**	**BTD above median**	**BTD below median**	**Baseline**

Note: Data from Orbis and the World Management Survey. Sample includes all matched GUOs from WMS and Orbis. Management data is averaged across all firms within a GUO where the subsidiaries report a highly centralized firm (decentralization score below 3 on a scale of 1 to 5).

an unbalanced panel for event times.[13]

For the event study, we use the extended sample described in the data section where we assign the average of the management scores for the available subsidiaries to all subsidiaries within an MNE's ownership tree. This is a more appropriate sample for this analysis for two reasons: (i) it is a much larger panel, making the event study design feasible, and (ii) the event study explores dynamic decisions at the MNE level and thus requires inclusion of the financial data of as many subsidiaries as possible.

Within this larger sample, we focus on the subsidiaries in countries that have had only one tax cut in the event window. It is the simplest iteration of this exercise with the most straightforward interpretation. Restricting our analysis to this subset of countries avoids issues related to possible anticipation of tax changes as well as slow and staggered sequential introductions of large tax rate cuts (such as the large 9% UK tax cut scheduled to be rolled in smaller pieces on an annual basis from 2010 to 2022). In our sample of 1,290 country-year tax rates, almost 31% of the country-year combinations do not have any tax rate changes, about 18% have one tax rate change, 26% have between two and five tax changes, and about 7% have more than five tax rate changes (Figure 9a). The majority of the tax rate changes are tax cuts (Figure 9b), with just under 3% of the country-year observations including a tax increase.[14]

Figure 10 shows the coefficient plot of the time event dummy variables from $t = -3$ to $t = 3$, excluding $t - 1$. The sample only includes subsidiaries in country-years that experienced a tax rate cut, and the interpretation of each coefficient is the reported profits relative to the year prior to the tax cut.[15] We show results for all subsidiaries in circles, subsidiaries with formal management in squares, and subsidiaries with informal management in triangles. There is no evidence of a pre-trend in periods before the tax rate cut, but there is a clear positive and statistically significant trend starting from $t = 1$ forward. It is clear that this trend is driven by firms with formal management in place, as the coefficients are similar across the two specifications. Firms with informal management in place, on the other hand, show a delayed positive trend but that is not statistically different from zero. The coefficients from the specification using only firms with informal management are, however, imprecise and we cannot suggest they are statistically different from the coefficients using the sample of firms with formal management.

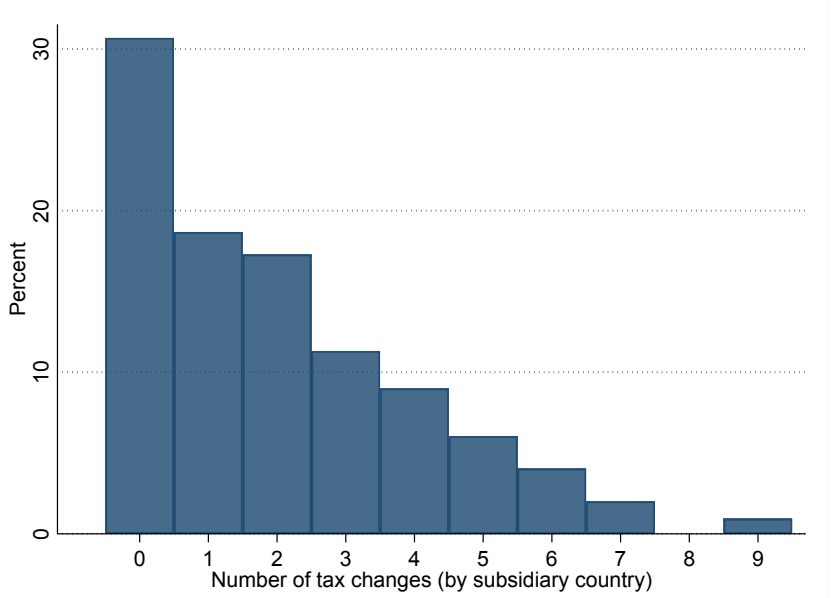
To further unpack these differences, we explore an alternative definition of "good management"

[13]The binning at the end-points of the window is the reason we do not not plot the endpoint estimates in the event study graphs.

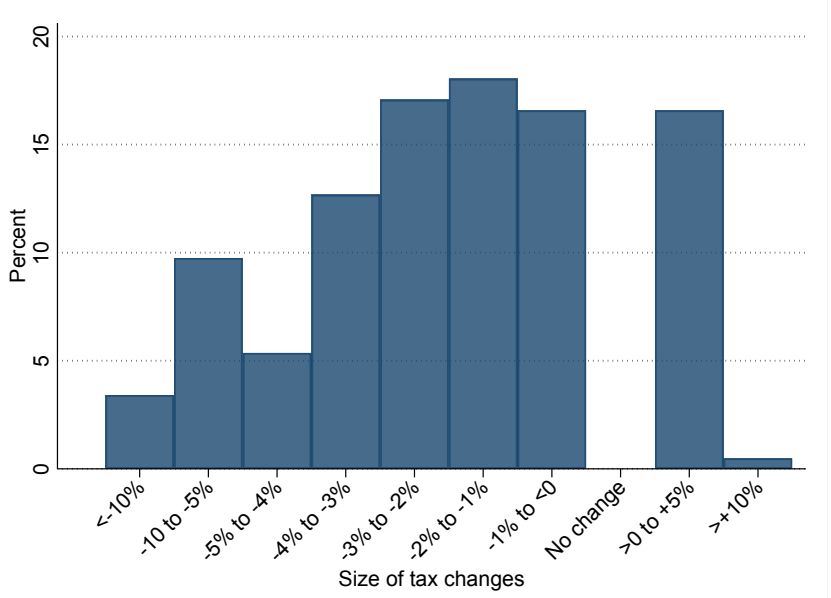
[14]Further, these tax rate increases were mainly small (over 80% under 2 percentage points) and often introduced as a surcharge on corporate tax rate or a local tax increase in response to poor macroeconomic conditions within a country. In contrast, tax rate cuts are often a part of package of larger tax reforms aiming to make a country a more competitive tax system (for example, the announced tax cuts in the UK from 2009).

[15]We do not include a control group in our event study analysis sample, as it is not clear what set of firms would constitute an appropriate control group. For example, if we were to use the set of country-years that did not experience any tax rate cuts, they would include mostly high tax countries, such as the US, France or Sweden. These are countries where MNEs tend to report lower profits anyway, not yielding a useful control group. We are exploring the possibility of constructing sythetic control groups and will include this in a future draft.

Figure 9: Number and scale of tax changes between 2004 and 2016



(a) Number of tax changes

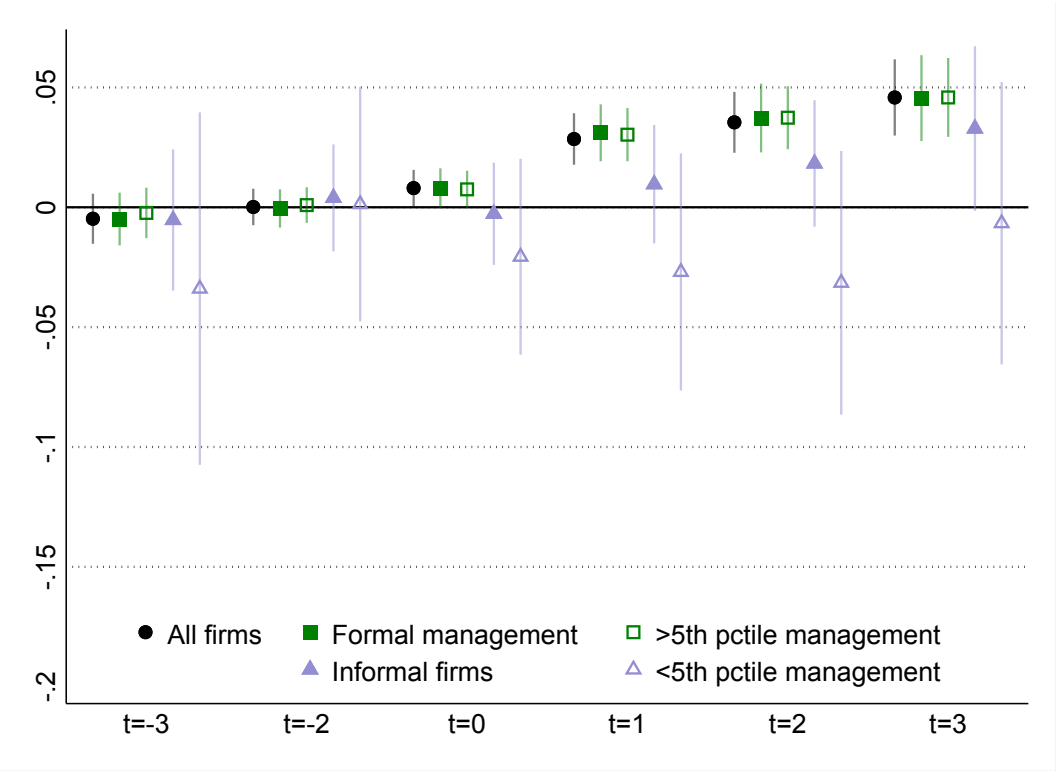


(b) Scale of tax changes

Note: Data from Orbis and the Oxford Centre for Business Taxation.

focusing on the tails of the distribution as in Bender et al. [2018]. This is especially salient in our MNE sample as the majority of multinationals adopt some basic level of formal management practices. While we see results that are consistent with our conceptual framework when separating firms under the formal and informal management definition, we may expect the MNEs at the bottom of the distribution of this well-managed sample are the least likely to be able to respond to changes in tax rates. These are firms with management scores below 2.5, suggesting there are no areas of operations management that are properly formalized. The hollow squares and triangles show the point estimates of the coefficients for regressions using the sample of firms above and below the 5th percentile of the management distribution respectively. There is no discernible trend in the profit reporting behavior of the "worst managed" firms, and this is a statistically significant difference from those above the 5th percentile.[16]

Figure 10: Event study: tax cuts and reported profits



Note: Data from Orbis and the Oxford Centre for Business Taxation.

We conducted a series of robustness and sensitivity checks with various definitions of event windows and event definitions. We conducted the following exercises using the same definition of *event*: accounting for multiple tax changes within the sample period, accounting for the size of the

[16]This is also consistent with emerging evidence suggesting that most of the profit shifting is done by primarily the "most successful" (largest) multinationals (Wier and Reynolds [2018]).

tax change, including only subsidiaries in a balanced sample. We also conducted exercises changing the definition of the event to a tax increase rather than a tax cut, and to an event when the tax rate fell below the median tax rate that each MNE is exposed to (rather than the yearly median). We report the results of these exercises in the appendix.

Finally, we explore the propensity of subsidiaries to report near-zero profits in response to a tax cut. Figure A1a shows the results for the samples of firms with formal management in all countries in our sample, as well as only those in high tax country-years and low tax country years. The results suggest that subsidiaries in this sample located in high tax countries are less likely to report near-zero profits after a tax cut. There are no discernible patterns in the response of firms with informal management in place (Figure A1c). These results are consistent with the bunching graphs in Figure 6, where firms with formal management were more likely to bunch around zero ROAs when the tax rates were higher than the median. This implies that a drop in in a corporate tax rate should induce a firm to reduce the likelihood of reporting near zero ROAs.

6 Discussion

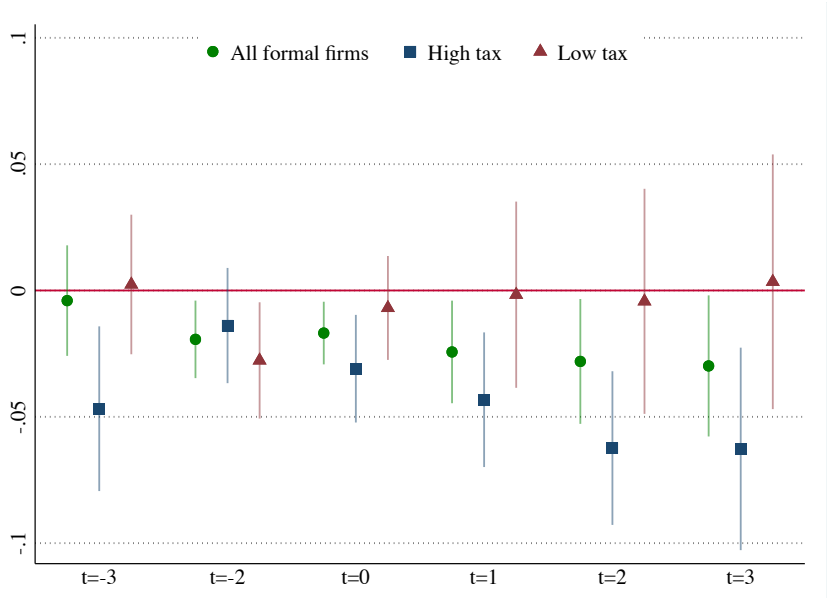
In this paper, we present evidence that is suggestive of the presence of tax (avoidance) planning practices among firms with more structured management practices in our sample. This is the first look at the issues of profit shifting and aggressive tax avoidance from an organizational economics lens. Using proprietary accounting data, we have shown correlations between measures associated with profit shifting behaviour and structured management, which we use as a proxy for a firm's organizational capacity.

The results in this paper are important from a policy perspective. Management has been shown to improve productivity and this has resulted in multiple countries introducing government funded policies to improve management quality of firms. However, our results suggest that, in addition to increasing revenues, more formal management practices at the firm level may lead to lower reported profits and effective tax rates in high tax countries. This means that governments in high tax countries, may struggle to raise enough corporate tax revenues, as MNEs contribute a large proportion of corporate tax revenues (for example, close to 90% in the UK, see Bilicka [2019]).

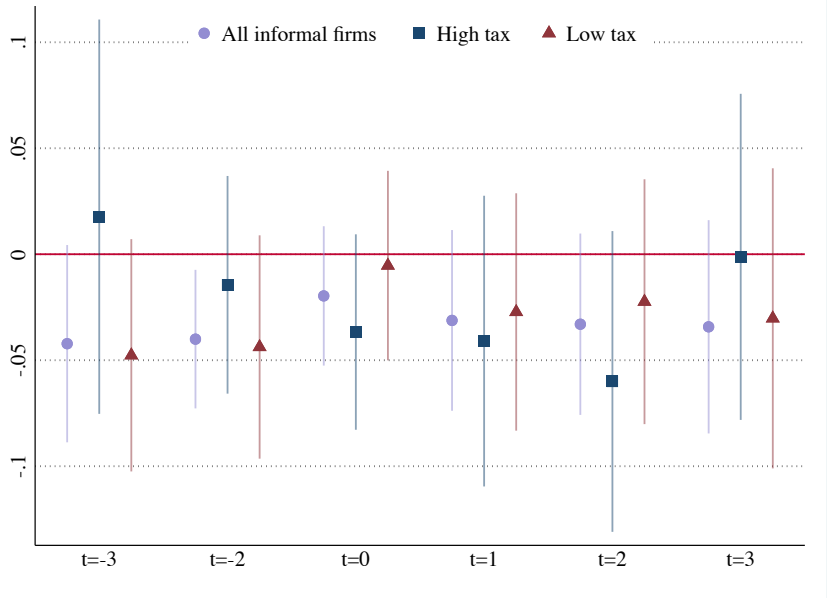
The literature shows that using accounting data to uncover profit shifting practices comes with its own limitations. Profits reported by firms are generally different between tax returns and accounting statements. Bilicka [2019] shows that accounting profits overstate what is reported for tax purposes on tax returns. This difference is markedly larger for multinational firms. This has two main implications for our work. First, the evidence shown here may be even more pronounced, if we use tax returns data instead of accounting data for reported MNE profits. Second, having only accounting level data prevents us from identifying potential tax avoiders carefully, as proxies from accounting data are unreliable.

One solution is to use administrative data instead, as in Bilicka [2019]. She identifies zero

Figure 11: Event study: tax cuts and the propensity to report zero profits



(a) Firms with formal management



(b) Firms with informal management

Note: Data from Orbis and the Oxford Centre for Business Taxation.

taxable profit reporting firms in the UK as aggressive tax avoiders. In a companion project, we conduct an alternative exploration of the relationship presented in this paper, using a combination of three detailed datasets from the UK: HMRC (UK tax authorities) administrative tax data, FAME accounting data, and the WMS UK and ONS (Office for National Statistics) MOPS data. We think the UK is a good case study for four reasons. First, the UK makes the full population of tax returns available to researchers. The set of firms in Orbis data with available financial information is skewed towards MNEs, as the share of MNEs in the sample is much higher than in the random sample of WMS data for a number of countries. This means that in this paper, we focus on MNEs only for WMS data. Having access to full population of tax returns enables us to consider domestic firms in addition to MNEs. Second, the UK corporate tax rate has been cut substantially from 30% in 2007 to 20% in 2015, moving the UK from a high-tax to a low-tax environment during the sample period. This would allow us to study the relationship between tax planning practices and management in both high and low tax environments and how it changes as tax rates change. Third, UK has introduced a anti-tax avoidance regulation in 2010, which we could explore as a natural experiment. Fourth, the WMS has over 1,000 observations for UK firms, including 4 waves of panel data (2004, 2006, 2010, 2014) and the ONS also has new data on management practices from 2018 onwards (ONS MOPS data). This combined dataset will allow us to conduct a substantially more comprehensive exploration of our research question.

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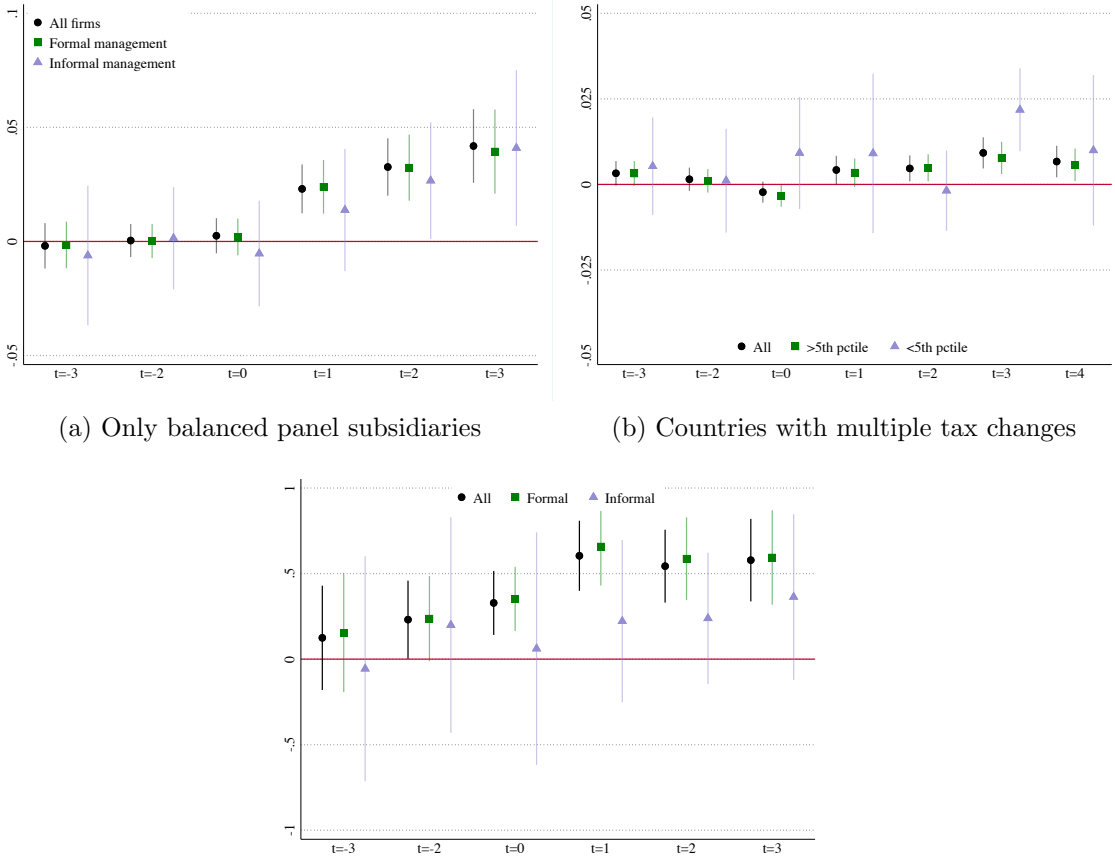
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Appendices

Figure A1: Event study sensitivity analysis



(a) Only balanced panel subsidiaries

(b) Countries with multiple tax changes

(c) Accounting for tax change size

Note: Data from Orbis and the Oxford Centre for Business Taxation.

Table A1: Summary of results: effective tax rate

	(1) ETR	(2) ETR	(3) ETR	(4) ETR	(5) ETR	(6) ETR	(7) ETR
Formal management=1	0.008	-0.002	0.076*	0.017	-0.038	0.158***	0.009
	(0.012)	(0.030)	(0.040)	(0.064)	(0.053)	(0.060)	(0.014)
High tax subsidiary	0.039	0.095***					
	(0.025)	(0.031)					
Formal management=1 × High tax subsidiary	-0.053***	-0.092***					
	(0.020)	(0.033)					
Subsidiary corp tax rate			0.998***	0.767*	0.423	1.378***	
			(0.277)	(0.443)	(0.343)	(0.422)	
Formal management=1 × Subsidiary corp tax rate			-0.337**	-0.176	0.018	-0.561***	
			(0.149)	(0.214)	(0.205)	(0.217)	
BTD above median							-0.106***
							(0.016)
Formal management=1 × BTD above median							-0.046**
							(0.019)
Year x Country FE	✓	✓	✓	✓	✓	✓	✓
HQ FE		✓					
Observations	24884	24884	24884	10039	10989	13895	24884
R-squared	0.00890	0.146	0.00918	0.0122	0.00875	0.0109	0.0188
Sample	**Baseline**	**Baseline**	**Baseline**	**High tax HQ**	**BTD above median**	**BTD below median**	**Baseline**

Note: Data from Orbis and the World Management Survey. Sample includes all subsidiary and HQs directly matched between WMS and Orbis. ETR is the Effective Tax Rate.