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

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PRELIMINARY — VERY MUCH WORK IN PROGRESS

Empirical Management Conference  
December 2019
Introduction

**Big picture question:** Why do some firms avoid taxes and others do not? What drives/enables them?

**We know that:**

- There is large amount of tax avoidance, especially amongst MNEs.
  
  Panama and Paradise papers 2015, Torslov et al. 2018, Bilicka 2019
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- The extent of profit shifting has been increasing over time.  
  Clausing 2016, OECD 2017  
- Higher profits are linked to more structured management practices...  
  Bloom et al 2012, 2014

...**BUT**, unclear whether better management generates higher **taxable** corporate income or whether it also has a potential to enable **better avoidance** of legal taxation.
This paper: management practices and profit-shifting

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Note: GDP data from IMF.

Note: Tax rates data from OECD.

Note: Data from WMS, IMF and OECD. 15-year averages for GDP and corporate tax revenue.
This paper: management practices and profit-shifting

**Main research question:** What is the relationship between adoption of structured management practices and multinationals’ propensity to engage in profit shifting?

**What we use:** New matched firm data

- Firm management practices: World Management Survey

**What we do:**

1. Classify firms according to the corporate tax rate:
   - for every country-year cell.
   - by location of their operations (high/low tax subsidiary/headquarter).

2. Classify firms as “aggressive tax avoiders” in two ways:
   - if they report ROAs close to zero. Johannesen et al 2019
   - if they report large disparities in book tax differences (BTD).
     Desai 2003, Desai and Dharmapala 2006, Desai and Dharmapala 2009
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3. Document the relationship between reported ROA and structured management in each environment for each type of firm.
Overview of findings

1. Structured management is *positively* correlated with turnover for MNEs, but the correlation is *weaker* for ROA and ETRs.
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   - but a positive one in low-tax country-year.

Bilicka and Scur
The capacity to be aggressive

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Overview of findings

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2. There is a **negative** relationship between structured management and ROA for firms **operating** in high-tax country-years:
   - but a positive one in low-tax country-year.

3. This relationship is driven by firms with **HQ in high-tax country-years**:
   - **Structured management** firms with HQs in high-tax country-years report:
     - **higher** ROAs in **low-tax** countries
     - **lower** ROAs in **high-tax** countries.

4. Better managed firms are more likely to be **tax aggressive**.
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We argue that these patterns are **consistent with profit shifting behaviour**, suggesting that better managed firms are more likely to shift profits out of high-tax country affiliates into low-tax country affiliates.
CONCEPTUAL FRAMEWORK
Decision-making

- All firms have an objective function of **after-tax profit maximization**:
  - maximize production
  - maximize pre-tax profit
  - minimize tax
Decision-making

➤ All firms have an objective function of **after-tax profit maximization**:
  ➤ maximize production
  ➤ maximize pre-tax profit
  ➤ minimize tax

➤ Headquarters also strategize on **tax planning**
Objective function of the manager at the HQ includes:
  ➤ all of the affiliates profits and all the tax rates of affiliate locations.
  ➤ subsidiary can also be involved in tax planning decisions, but only together with HQ
How can firms shift profits?

- Debt shifting
- Transfer pricing
- Patent location
The role of management practices in tax planning

To maximize the after-tax profits, HQ employs a tax planning strategy.
- move profits from high-tax subsidiaries to low-tax subsidiaries.
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To enable such planning, the HQ needs its subsidiaries to have:

- **tractable** and **predictable** productivity
  - Tax planning is easier when the firm has clear production plans and a predictable income stream

- This allows the HQ manager to make production targets and profit **reallocating decisions** between subsidiaries.
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- We focus on how this organizational capacity enables MNEs to shift profit:
  ⇒ proxy using adoption of structured management practices
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We should observe firms with high organizational capacity reporting low pre-tax profits in high tax countries (and vice-versa).
DATA
Firm data: Orbis matched with World Management Survey

▶ Tax and performance data for **multinationals** come from BvD Orbis.

▶ WMS measures the **level of adoption** of structured management practices via phone surveys in mid-sized manufacturing firms (50-5000 employees).

▶ Main measure is the **average management score**.
  Includes 18 practices such as performance tracking and review, process documentation, target setting, people management.

▶ 1-hour interview with plant managers, responses scored on a 1-5 scale:
  - Score of 1: “little/no formal management practices”
  - Score of 2: “some informal management practices”
  - Score of 3: “formal practices with some weaknesses”
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Data structure

- **Financial** and tax data is a *annual panel* (2004-2018)
  - We match WMS MNEs into firm financial data to form our *baseline sample*
  - 2068 unique firms, yielding 26,251 observations
  - Main measure of profitability: ROA

- **Management** data is a *single measure* within the sample time period.
  - Management is a very slow-moving variable.
  - We use the index as a continuous variable and a binary index.
  - Main measure of org capacity: operations (avg 12 questions)

- **Ownership** data comes from Orbis and is the latest static information
  - for each firm in the matched Orbis-WMS we identify the HQ and its location
## Corporate group structure: baseline sample

<table>
<thead>
<tr>
<th>Firms in the same corporate group count</th>
<th>Total factories N</th>
<th>Subsidiary factories N</th>
<th>HQ factories N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1446</td>
<td>958</td>
<td>488</td>
</tr>
<tr>
<td>2</td>
<td>294</td>
<td>286</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>129</td>
<td>125</td>
<td>4</td>
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<tr>
<td>4</td>
<td>84</td>
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<tr>
<td>5</td>
<td>60</td>
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<tr>
<td>6</td>
<td>30</td>
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<td>0</td>
</tr>
<tr>
<td>8</td>
<td>16</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2068</strong></td>
<td><strong>1567</strong></td>
<td><strong>501</strong></td>
</tr>
</tbody>
</table>
Empirical Strategy

\[ ROA_{it} = \alpha + \beta_1 M_i + \beta_2 HTSub_{ct} + \beta_3 M_i \times HTSub_{ct} + \eta_c + \delta_t \]

- \( ROA_{it} \) is the ratio of profits to total assets in the subsidiary in time \( t \)
- \( M_i \) is operations management score
- \( HTSub_{ct} \) is a dummy whether a subsidiary operates in low or high tax country-year
- \( \eta_c \) are country fixed effects
- \( \delta_t \) are year fixed effects

We run a pooled OLS analysis, for now not using the time series dimension.

Today, primarily a descriptive story establishing new stylized facts.
RESULTS
Result 1: Firms with more structured management...
Result 2: Firms with more structured management...

... report lower profits in high-tax countries.
Result 3: Firms with more structured management...

... headquartered in high-tax countries report lower profits in high-tax countries, but higher profits in low-tax countries.
But is this a good proxy for within-group tax planning?

- For a subset of firms, we have data for multiple subsidiaries of the same HQ.

- Using only these firms, we look at the relationship for subsidiaries with different tax rates belonging to the same HQ: the relationship holds.
Evidence of aggressive tax planning?

We interpret the evidence as suggestive that better managed firms may be better at aggressive tax planning.

To dig further, proxy for aggressive tax avoidance using:

- Book tax differences (BTDs) measures the difference between pre-tax book earnings and taxable income.
  - the literature has linked this measure with tax avoidance activities of MNEs (with caveats!)
  - we calculate the size of BTDs for each firm, scale it by total assets and define aggressive taxation behavior as having above median BTDs.
- Near zero ROAs
  - the literature has considered firms bunching around zero ROAs as a good proxy for aggressive tax avoidance
    Johannesen et al 2019, Bilicka 2019
Result 5a: Aggressive tax avoiders...

...report ↑ ROAs in low-tax countries if they have structured management (relative to high-tax countries and to non-aggressive firms).
Result 5b: Firms with more structured management...

... bunch more around zero ROA in high-tax countries.
Result 5c: Aggressive tax avoiders...

Formal management

... bunch more around zero ROA in high tax countries if they have structured management.
Result 5c: Aggressive tax avoiders...

...not true for firms not adopting structured management.
## Summary of results for baseline sample

<table>
<thead>
<tr>
<th></th>
<th>(1) ROA</th>
<th>(2) ROA</th>
<th>(3) ROA</th>
<th>(4) ROA</th>
<th>(5) ROA</th>
<th>(6) ROA</th>
<th>(7) ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal management=1</td>
<td>0.018***</td>
<td>-0.001</td>
<td>0.051***</td>
<td>0.022</td>
<td>0.073***</td>
<td>0.051**</td>
<td>0.025***</td>
</tr>
<tr>
<td>High tax subsidiary</td>
<td>-0.006</td>
<td>0.009</td>
<td>(0.007)</td>
<td>(0.007)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal management=1 × High tax subsidiary</td>
<td>-0.004</td>
<td>-0.022***</td>
<td>(0.006)</td>
<td>(0.007)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsidiary Corporate Tax Rate</td>
<td>-0.121</td>
<td>-0.151</td>
<td>-0.038</td>
<td>-0.227**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal management=1 × Subsidiary corp tax rate</td>
<td>-0.127**</td>
<td>-0.077</td>
<td>-0.249***</td>
<td>-0.093</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BTD above median</td>
<td>(0.051)</td>
<td>(0.073)</td>
<td>(0.052)</td>
<td>(0.073)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal management=1 × BTD above median</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Year x Country FE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>HQ FE</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>26333</td>
<td>26333</td>
<td>26333</td>
<td>10610</td>
<td>10989</td>
<td>13899</td>
<td>24888</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.0154</td>
<td>0.374</td>
<td>0.0160</td>
<td>0.0199</td>
<td>0.0441</td>
<td>0.0296</td>
<td>0.0926</td>
</tr>
<tr>
<td>Sample</td>
<td>Baseline</td>
<td>Baseline</td>
<td>Baseline</td>
<td>High tax HQ</td>
<td>BTD above median</td>
<td>BTD below median</td>
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Discussion

**Main economic question of firm behavior:** does organizational capacity affect more than just productivity?

- Labour markets. Song et al 2019, Cornwell et al 2019
- Tax planning. [this paper!]

**Governments want…**

- to spur as much firm productivity and growth as possible.
- to maximize tax revenues without creating distortions.

Policies that help firms improve management do (1), but may also affect (2).

Insofar as governments have started funding management-improvement projects, **this matters.**
Thank you! Thoughts welcome! Download the paper here: