Ownership Chains in Multinational Enterprises

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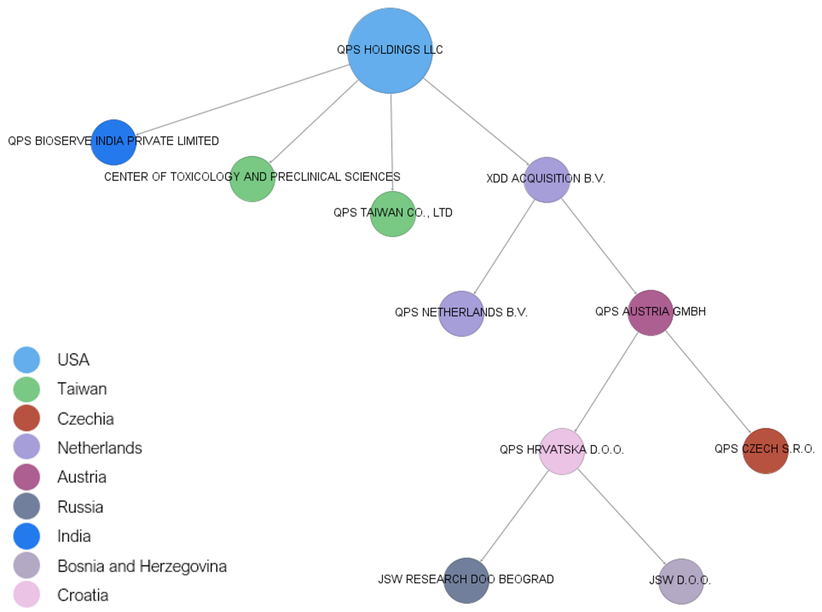
Abstract

In this work, we investigate the rationale of ownership chains developed by multinational enterprises (MNEs) across different national borders. We hypothesize locations along ownership chains to be driven by communication costs to transmit management decisions. In line with motivating evidence, we develop a theoretical model of competition for corporate control that allows parent companies to delegate the task of monitoring subsidiaries to middlemen located in intermediate jurisdictions. Our model returns a two-step empirical strategy with: i) a triangular gravity for establishing a middleman by the parent, conditional on final investments' locations; ii) a classical gravity for the location of final investments. Model predictions are confirmed in a sample of more than 200,000 MNEs: ease of communication between countries shapes the trajectory of global ownership chains.

Ownership chains within corporate boundaries

Figure 1:An example of corporate control structure



Introduction

A common feature in the organization of MNEs is the development of ownership chains crossing multiple country borders. We refer to the concept of companies as knowledge-based hierarchies (Garicano, 2000) and hypothesise that the rationale behind global ownership chains relates to the organization of efficient communication of management decisions between affiliates and parent companies scattered across different countries. We accordingly elaborate on the original intuition by Head and Ries (2008) on the emergence of a market for corporate control when parent companies and affiliates are located in different countries and extend their model to include cases of three-tier corporate structures. From our perspective, three-tier corporate structures are simplified ownership chains where (at least) a middleman subsidiary located in a country communicates management decisions from the parent company, which is located in an origin country, to a final subsidiary in a destination country. Eventually, we derive two estimable gravity equations to evaluate the role of communication frictions and explain the extensive margin of locating multinational firms' both final and intermediate investments.

Data

- Firm Global Ownership information for year 2019 are sourced from Orbis, by Bureau van Dijk
- Ownership info cover 208 countries
- Corporate control boundaries are identified according to the methodology by Rungi et al. (2017)
- The final sample includes more than 200,000 multinational corporate control networks

Delegation of monitoring model

A parent in country i cannot verify the effort of a subsidiary in country j without delegating to a third managerial unit, the **middleman**, in country k.
$\Rightarrow$ **Trilateral cost function**:

$$c_{ikj} = \delta_{ik} + \delta_{kj} - \epsilon_k$$

- δ_{ik} = cost for a parent in i to delegate to a middleman in k
- δ_{kj} = cost for a middleman in k to monitor a subsidiary in j
- $\delta_{kj} \geq \delta_{ik} \geq \mathbf{0} \Rightarrow$ delegation cost always higher than monitoring cost

Parent investment process occurs in two simultaneous steps:

1.Monitoring decision: probability that a parent in country i picks country k as monitoring location, conditional on investing in country j

$$\pi_{ik|j} = P(c_{ikj} \leq c_{i\ell j}, \forall \ell \neq k) = \frac{e^{-(\delta_{ik}+\delta_{kj})}}{\sum_{\ell} e^{-(\delta_{i\ell}+\delta_{\ell j})}} \quad (1)$$

- $C_{ij} = \ln \sum_{\ell} e^{-(\delta_{i\ell}+\delta_{\ell j})}$ = **expected cost of monitoring**

2.Competition for corporate control: probability that a parent in i wins the auction for a final subsidiary in j

$$\pi_{ij} = P(v_{ij}^{max} \geq v_{nj}^{max}, \forall n \neq j) \quad (2)$$

- v_{ij}^{max} is the highest bid and depends on C_{ij}

Empirical strategy and Results

Triangular gravity for middlemen location

$$\frac{M_{ikj}^{I}}{M_{ij}^{I}} = exp(\beta^{wh} wh_{ik} + \rho^{wh} wh_{kj} - \gamma_{ij} + \beta' \mathbf{x}_{ik} + \rho' \mathbf{x}_{kj}) \eta_{ikj} \quad (3)$$

Bilateral gravity for final subsidiaries location

$$M_{ij}^{A} = exp(-\theta \sqrt{\widehat{C_{ij}}} + \gamma_i + \gamma_j) e_{ij} \quad (4)$$

- M_{ikj}^{I} = number of indirect control paths connecting country i to country j and passing by country k
- M_{ij}^{I} = number of indirect control paths connecting country i to country j
- M_{ij}^{A} = total number of control paths (direct and indirect) connecting country i to country j
- wh_{ik} **and** wh_{kj}**= # of overlapping working hours between two countries** (Bahar, 2020)
- $\mathbf{x}_{ik}$ and $\mathbf{x}_{kj}$ = vectors of gravity controls

Table 1:Results

Location:	**Middlemen**	**Final subsidiaries**
Dep. var.	M_{ikj}^{I}/M_{ij}^{I}	M_{ij}^{A}
N. of overlapping working hours$_{ik}$	**0.051***** (0.005)	
N. of overlapping working hours$_{kj}$	**0.098***** (0.006)	
$\hat{C}_{ij}$		**-1.004***** (0.090)
Observations	1,288,546	7,309
Gravity Controls	YES	NO
Fixed effects	$i \times j$	i,j

Standard errors clustered by origin-destination dyads in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

- δ_{ik} and δ_{kj} captured by the number of overlapping working hours between locations

Robustness Checks

Consistency of results:

- when controlling for corporate tax differentials and labour cost differentials
- within subsamples defined by industry specialization

Conclusions

We confirm our model predictions that a decrease in delegation and monitoring costs discourage middlemen location. Increasing the ease of communication between middlemen and final subsidiaries lowers the expected share of indirect control paths passing through country k by an amount that is twice the effect we find between parents and middlemen. This supports our model assumption claiming the cost of delegation to be less binding than the cost of monitoring for a parent company. We derive and estimate a bilateral index capturing the expected cost for a parent company to monitor a remote target in a given location. As predicted by our model, we find the expected cost of monitoring to negatively affect MNEs investments.

References

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