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Value Beyond Borders: Moderating Effects of Global Owners on the Negative Relationship between FDI and Sanctions Intensity

Maeve Walsh

Introduction

Daiichi-Sankyo is the leading pharmaceutical company in Japan, boasting its presence in 29 countries across 5 continents with nearly 18,000 employees. With over 120 years of experience in producing medications, Daiichi-Sankyo offers scientific expertise and innovation to the entire world. The mechanism that allows for such success in foreign markets is foreign subsidiaries. A foreign subsidiary is defined as a company operating abroad in a different country from where the parent company’s headquarters is. A caveat is that the subsidiary company must follow laws and regulations abroad. Furthermore, the subsidiary must adhere to local norms and regulations if it wants to succeed, since nations may have fundamental differences in the way businesses are expected to run. This idea can apply in many ways, such as language, culture, education, and religion. For example, a business may fail if there is a language barrier, since it will be difficult to communicate. Hence, foreign subsidiaries can benefit from local knowledge. Local regulations may also have restrictions on levels of ownership that foreign companies can retain in subsidiaries.

To explore the impact different factors have on subsidiaries, the top ten Japanese pharmaceutical companies’ data was collected. The companies include the following: Daiichi-Sankyo, Takeda Pharmaceutical, Chugai Pharmaceuticals, Astellas Pharma, Eisai, Otsuka Holdings, Shionogi & Co., Kyowa Kirin, Ono Pharmaceutical, and Rhoto Pharmaceutical (Statista). The listing was decided based on market capitalization from 2022 in Japanese yen converted to United States dollars.

Hypothesis Development

I focus on the relationship between restrictions on foreign investments and the levels of equity owned in a foreign subsidiary.

Foreign direct investment (FDI) is investments in productive assets, such as subsidiaries, abroad that give some level of managerial control to an investing entity. In the context of FDI ownership decisions, I can adopt a basic expectation that restrictions on FDI will have a negative relationship on levels of equity owned by Japanese pharmaceutical companies in foreign subsidiaries. For example, if a host country has greater restrictions on FDI inflows, a Japanese pharmaceutical company will own lower levels of equity in subsidiaries in the restrictive host country. However, if the investing company has more global owners, these owners may provide some sort of knowledge and boost confidence, to reduce the intensity of
the expected negative relationship between investment restrictiveness and a focal firm’s ownership percentage in subsidiaries.

Hypothesis 1. The negative relationship between FDI restrictions and foreign ownership percentage will be weakened when firms have greater levels of foreign ownership.

Methodology
Variables
Dependent Variables
Several factors may influence Foreign Direct Investment. I factored in numerous variables (see 4.2.2) to test the relationship each variable may have on FDI by Japanese pharmaceutical companies. In this study, FDI is operationalized as the percentage of equity owned.

Independent Variables
FDI restrictions data was collected from the Organization of Economic Co-operation and Development (OECD). The restrictiveness of a nation towards a foreign subsidiary ownership was measured on a scale of 0 to 1, with 0 being more ‘open’ and 1 being more ‘closed’. The percentage of foreign owners in each parent firm is described as the percentage of overall equity in the parent firm owned by non-Japanese owners. I expect this factor to be positively related to the percentage of equity. This was collected from the Japan Company Handbook. Employees is described as the count of total workers within the parent firm, meaning each employee of the subsidiary is included in this number. The employee count was included without expectation on the relationship with percentage of ownership. This was collected from the Japan Company Handbook. Parent age was calculated as the established year subtracted by the year the data was collected (ranging from 2018 to 2022) to explore the relationship between age and FDI. I expect this factor will have a positive relationship. The parent age was collected from the Japan Company Handbook. Similarly, subsidiary age was calculated as the subsidiary founding year subtracted by the year data was collected. I expect that this will have a positive relationship with FDI. The data was collected from Toyo Keizai’s “Japanese Overseas Investments” yearly reference book. Return on asset explores how profitable a company was in utilizing its assets. This was included without expectation on the relationship with percentage of ownership. This was collected from the Japan Company Handbook. Finally, the Mahalanabis based cultural distance index is a geometric measure of how nations vary in terms of things such as culture, expected to have a negatively related outcome. The data points for the analysis were obtained from a pre-calculated data set from Beugelsdijk.
Analysis

Table 1 presents a correlation matrix, depicting the correlations between each tested variable. The vast majority of correlation coefficients are low and not concerning for multicollinearity. The exception is the negative correlation between employees and ROA, which is consistent with expectations. Table 1 also lists basic descriptive statistics for convenience.

**Table 1: Correlation Matrix**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ownership Percentage</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. FDI Restrictions</td>
<td>-0.10</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Foreign Owners</td>
<td>0.00</td>
<td>-0.10</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Employees</td>
<td>-0.03</td>
<td>-0.05</td>
<td>0.11</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Parent Age</td>
<td>0.05</td>
<td>-0.00</td>
<td>0.27</td>
<td>0.23</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. ROA</td>
<td>-0.00</td>
<td>0.02</td>
<td>0.24</td>
<td>-0.39</td>
<td>0.02</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sub Age</td>
<td>0.00</td>
<td>-0.00</td>
<td>-0.05</td>
<td>0.13</td>
<td>-0.55</td>
<td>-0.15</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>8. Cultural Distance</td>
<td>0.02</td>
<td>-0.016</td>
<td>-0.06</td>
<td>0.03</td>
<td>0.08</td>
<td>-0.04</td>
<td>0.04</td>
<td>-</td>
</tr>
<tr>
<td>Mean</td>
<td>98.35</td>
<td>0.11</td>
<td>37.60</td>
<td>18693</td>
<td>72.16</td>
<td>5.54</td>
<td>25.31</td>
<td>3.63</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>8.42</td>
<td>0.08</td>
<td>12.87</td>
<td>14045</td>
<td>26.78</td>
<td>6.69</td>
<td>24.61</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Results

Table 2 presents the three multiple regression models used to test the hypothesis in the study. Model 1 includes the basic model with no control variables. Model 1 only looks at FDI restrictions and the main effect between FDI restrictions and the percentage of ownership in a foreign subsidiary. This model does control for the observation year. The result is a negative and significant (p<0.001) coefficient, supporting the idea that there is a negative direct effect between FDI restrictions and percentage of equity owned. This result is consistent with expectations.

Model 2 adds the foreign owners independent variable. Again, the direct effect of FDI restrictions is negative and significant (p<0.001). The only control variables that are significant are employees, having a negative coefficient (p<0.05), and parent firm age, having a positive coefficient (p<0.05).

Model 3 includes the ‘interaction term’ between FDI restrictions and foreign owners. This interaction is used to test the hypothesis. The resulting correlation coefficient is positive and significant (p<0.001), which is consistent with the hypothesis. The significant result suggests that the negative relationship between FDI restrictions and the percentage of equity in a foreign subsidiary owned by a company is reduced (positively moderated) by the existence of foreign owners of a corporation. Once again, this result lends strong support for the hypothesis in this analysis.
Additionally, the adjusted R-squared terms between the three models consistently get larger, suggesting that the inclusion of the interaction term explains greater level of variance in foreign direct investment ownership decisions compared to the basic model. Specifically, the third model has an adjusted R square value of 6.78% meaning that the interaction between FDI restrictions and foreign owners along with the control variables explains 6.7% to the variance in ownership percentage in foreign subsidiaries. Considering the magnitude of these investments, this result is not trivial.

Furthermore, the direct effect of FDI restrictions in models one through three is large, indicating how important regulatory restrictions are in FDI decisions. The interaction term in model three suggests that an increase in foreign ownership of only one percent is associated with a moderating effect that decreases the direct negative effects between FDI restrictions and ownership percentage by 1%. Roughly, this means a 20% increase in foreign ownership would reduce the negative relationship between FDI restrictions and foreign ownership by 20%. This is a large effect.

Table 2: Regression Analysis

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>100.290***</td>
<td>100.901***</td>
<td>104.836***</td>
</tr>
<tr>
<td>FDI Restrictions ($X_1$)</td>
<td>-21.865***</td>
<td>-24.729***</td>
<td>-61.214***</td>
</tr>
<tr>
<td>Foreign Owners ($X_2$)</td>
<td>-0.020</td>
<td>-0.1249**</td>
<td></td>
</tr>
<tr>
<td>$X_1 * X_2$ (Hypothesis: +)</td>
<td></td>
<td></td>
<td>0.982***</td>
</tr>
<tr>
<td>Control variables:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employees</td>
<td>-0.000*</td>
<td>-0.000 Ψ</td>
<td></td>
</tr>
<tr>
<td>Parent Firm Age</td>
<td>0.027*</td>
<td>0.025</td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>-0.038</td>
<td>-0.030</td>
<td></td>
</tr>
<tr>
<td>Subsidiary Age</td>
<td>0.008</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Cultural Distance</td>
<td>-0.240</td>
<td>-0.225</td>
<td></td>
</tr>
<tr>
<td>Controls for observation year</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.049</td>
<td>0.055</td>
<td>0.068</td>
</tr>
</tbody>
</table>

Table notes: Ψ, *, **, *** significant at p<0.10, 0.05, 0.01, and 0.001, respectively. Cultural distance is operationalized as the Mahalanabis Index using globe dimensions between home and host country.

Conclusion and Discussion

The negative and significant coefficients for FDI restrictions across all three models demonstrate the influence of regulatory constraints on FDI ownership decisions. For businesses, this finding carries several implications: First, companies must be aware of the
regulations in potential target markets. Regulatory restrictions can significantly affect the feasibility and profitability of FDI projects. Firms must conduct market research to assess the potential barriers posed by these restrictions and explore strategies to navigate them effectively. Second, this emphasizes the importance of flexibility in international business strategies. Given the negative direct effects of FDI restrictions, companies should consider diversifying their portfolio of investments across multiple markets, balancing those with more and less restrictive regulations. Diversification can help mitigate the impact of regulations on their overall FDI performance.

Model 2 introduces control variables that demonstrate their significance in shaping ownership decisions. The number of employees and the age of the parent firm emerge as influential factors. The negative coefficient for the number of employees implies that larger firms may have a different approach to FDI ownership. This suggests that businesses need to tailor their strategies in relation to size and capacity. Smaller companies may find it advantageous to partner with larger firms in their target markets, while larger corporations may need to carefully consider how their size impacts their FDI approach.

Moreover, the positive coefficient for parent firm age indicates that more established companies may have a greater capacity to navigate FDI challenges. Benefits include more experience with markets, greater relationships with local firms, and expansive research of regulatory practices. Younger firms may need to focus on building a robust knowledge base and partnerships to overcome similar regulatory hurdles effectively. Finally, the results show a negligible impact of cultural distance. In other words, the difference in cultures is not strongly associated with ownership outcomes. The reason for this may be extensive market research to ease the subsidiary into the foreign nation.

Model 3 reveals a positive and significant interaction term between FDI restrictions and foreign ownership, suggesting that the presence of foreign owners can mitigate the negative impact of regulatory constraints. This has significant implications for business decisions. Companies engaging in FDI should consider the strategic benefits of foreign partnerships and collaborations. Joint ventures and alliances with foreign corporations can be avenues to ease regulatory challenges and facilitate market entry. This finding emphasizes the importance of building strong international networks and partnerships as part of the FDI strategy.

In conclusion, the findings from the analysis of FDI ownership decisions have direct and vital implications for businesses. FDI restrictions are practical hurdles that companies must address to be successful abroad. Understanding the effects of control variables, foreign ownership, and the magnitude of these effects can guide businesses in making informed and strategic decisions when venturing into foreign markets. Flexibility, adaptability, strategic partnerships, and a comprehensive understanding of regulatory landscapes are essential for navigating the complex world of FDI ownership.
Acknowledgements

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References


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