

Chapter 6

Conclusion

1. Summary

This thesis theoretically and empirically examines the relationship between exchange rate movements and the timing of FDI in which a real options approach is adopted. In contrast to the traditional investment theory which assumes that an investment decision is to be taken now or never, the real options theory emphasizes the option value of the flexibility that allows a firm to possibly delay the investment decision in order to obtain more information about the future.

This thesis contributes to the literature in illustrating the importance of heterogeneous motives of investing firms in examining the relationship between exchange rate movements and foreign direct investment. To show the importance of the diversity of the motives in investigating this issue, four different types of FDI are discussed in this thesis: market-seeking FDI, reverse-importing FDI, export-substituting FDI, and antidumping-jumping (AD-jumping) FDI.

Chapter 2 develops an integrated model of FDI under uncertainty to illustrate the impact of exchange rate movements on the timing of FDI activity for the first three motives of the firms. Extending Dixit and Pindyck's real options model, we show that the relationship between exchange rate movements and FDI varies with the extent of the exposure to exchange rate risk which is determined by investing motives. For instance, while exchange rate uncertainty tends to delay the FDI activities of a market-seeking firm and a reverse-importing firm, it actually may accelerate the FDI activity of an export-substituting firm if the degree of risk aversion of the firm is high

enough. The rationale behind these results is that market-seeking FDI and reverse-importing FDI may increase the exposure of the firm's profits to exchange rate risk, while export-substituting FDI might reduce it. In addition, we find that the relationship between the exchange rate level and FDI also varies over different types of FDI. While the depreciation of a host country's currency tends to stimulate the outward FDI activity of export-substituting firms and reverse-importing firms, it might deter the outward FDI activity of market-seeking firms. Our theoretical results can be viewed as a synthesis of many previous studies on this issue.

Chapter 3 and Chapter 4 employ industry panel data and firm-level data on Taiwan's outward FDI in China over the period 1987-2002 to test the validity of the prediction from a theoretical framework. The empirical findings indicate that the exchange rate level and its volatility have a significant impact on Taiwanese firms' outward FDI into China. It demonstrates that real exchange rate volatility tends to stimulate export-substituting FDI while it tends to deter market-seeking FDI and reverse-importing FDI. In addition, while the depreciation of RMB to NTD tends to stimulate the outward FDI activity of export-substituting firms and reverse-importing firms, it tends to deter the outward FDI activity of market-seeking firms. In general, the empirical results are consistent with the prediction in the theory. Our results reveal that the relationship between exchange rate movements and FDI is crucially dependent on the motives of the investing firms. Hence, it is essential to consider this factor in an empirical model so that the testing results are free from aggregation bias.

Can the findings in Chapters 2, 3, and 4 contribute anything to the policy debate about whether a foreign firm's location decisions are dependent on the level and most importantly the volatility of the exchange rate? For instance, is it likely that foreign firms may leave or choose not to invest in the UK if the UK continues to remain out

of the Euro area? Will the inward FDI into China or Malaysia decrease sharply when they abandon their pegged USD policy? On a general level, our results suggest that these concerns may not be a credible threat, since the effect of exchange rate level and its volatility on FDI is different across various types of investment. The overall effect depends on the relative importance of the various motives of the foreign investing firms in these countries.

Chapter 5 considers the impact of exchange rate movements on dumping occurrence, AD-jumping FDI, and the social welfare effect of an AD policy. A simple real options model with imperfect competition is established. We show that the exchange rate volatility has asymmetric effects on the probability of dumping occurrence, which are different from the case of cost dumping illustrated by Dixit (1989b). Moreover, we find that exchange rate volatility is positively related with AD-jumping FDI, which might cause the AD policy to hurt local producers and benefit consumers in the importing countries - in stark contrast to the prediction of the traditional theory. Finally, we illustrate that an AD policy certainly improves the social welfare only if the exchange rate level is low enough and it does not induce AD-jumping FDI.

Chapter 5 provides two testable implications for empirical studies. First, the asymmetric effect of exchange rate uncertainty, which has been explored in recent literature, seems also to have emerged in its relationship with dumping occurrence. Second, the effect of an AD policy on the occurrence of AD-jumping FDI is necessary in order to control for the influence of tariffs or other trade costs on FDI in order to identify the net effect of an AD policy on FDI activity.

Chapter 5 also provides some policy implications. For instance, it suggests that countries with a high tariff rate, especially developing countries, should be very

careful in using an AD policy to protect domestic firms since an AD policy may induce an AD-jumping FDI so as to hurt local firms and reduces tariff revenue as well. In addition, an AD-policy might be welfare-worsening if it induces AD-jumping FDI, which is also contrary to the prediction of the earlier literature on strategic trade policy.

2. Limitations and possible extensions

There are several limitations in this thesis. First, in our two-country model the option to choose investment location is not considered. To investigate the behavior of large multinational firms that choose to invest among many countries, this option should be incorporated into the theoretical framework and empirical model as well.

Second, this thesis does not consider the case of export-oriented FDI, which refers to the situation whereby the firm invests and produces in the host country, but exports its products to the third countries. Particularly, this type of FDI may account for an important part of some countries' FDI outflows, e.g., Taiwan, South Korea, and Japan. The model developed in Chapter 2 can be extended to deal with this issue.

Third, the entry of potential exporting firms is not considered in Chapter 5 when we discuss the impact of exchange rate movements on dumping occurrences. As evidenced in the earlier literature, the exchange rate pass-through is related to market structure. Hence, it seems worthwhile to endogenize the number of the firms when discussing how exchange rate movements affect dumping occurrence.

Fourth, the changes in FDI policy in mainland China are ignored in our empirical study due to the multi-collinearity problem. For instance, the increasing openness of its domestic market to foreign investors in recent years might have attracted a lot of market-seeking FDI into the mainland. However, the considerable reduction in its

tariff rates after mainland China's accession to WTO might have deterred tariff-jumping FDI to some extent. Further research along this line indeed seems warranted.