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Essays on Exchange Rates and International Trade:
Firms, Products, and Value-added Trade

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Exchange rate movement and international trade is a classic topic in international economics. It is an extremely important topic because it directly measures the price competitiveness of a country's exports. Since the collapse of the Bretton Woods system, researchers and policymakers have tried to analyze the impact of exchange rate movements (appreciation and depreciation) and volatility on international trade. Most recently, world leaders at the G20 Hangzhou and G7 Ise-Shima summits issued statements regarding this topic, and President Trump's abrupt comments on trade and on the exchange rate policies of China and Japan reignited the exchange rate and trade debate in the policy circle.

This dissertation consists of three empirical studies that examine the relationship between exchange rates and international trade from three different angles: firms, products, and value-added trade. The research is built upon the abundant literature on exchange rates and trade. The ambiguity of empirical findings and the dynamics of the Asia Pacific Region in international trade motivated me to conduct this comprehensive analysis. The results also have several important policy implications, especially during this time in which the current global trade system faces unprecedented challenges and the exchange rate policy could be used again as an instrument by governments to boost domestic export.

The first essay examines currency appreciation and exporter heterogeneity in ASEAN, which is on track to replicate China's export-driven economic miracle amidst rising Chinese labor costs. The study fills a gap in the literature of exchange rates movements and firm heterogeneity in South East Asia and solves the zero-trade problem often found in trade studies. The results suggest that first, contrary to the macro-picture, exchange rate appreciation does discourage ASEAN companies' exports. Second, firms' responses to currency appreciation varies. While SMEs and new exporters are more vulnerable to exchange rate movements, exporters can mitigate exchange rate risks through foreign and domestic affiliation, but foreign owners are much more helpful. Third, firms whose exports consist of foreign inputs are less affected by the rise of local currency. Lastly, firms in the service sector are more sensitive to currency appreciation than manufacturers.

The second essay examines the relationship between USD/RMB exchange rates and Chinese exports to the US and the dynamics of Chinese exports in connection with its neighbors from 1989 to 2015 using HS 10-digit commodity data. In addition, to solve the aggregation problem, this essay contributes to the literature by providing a comprehensive look at whether China's rise is a threat or a windfall to the region. Employing the Fixed Effects model with clustering effects, the findings are presented as follows. USD/RMB appreciation discourages Chinese exports to the US. The effect is more pronounced at a product level than at an aggregated level. Second, the impact is heterogeneous by sector, time period, and product category; capital-intensive industries and differentiated goods are more sensitive to changes of exchange rate, and exchange rate effects increased after China's WTO accession and during the 2008 Global Financial Crisis. Third, overall, China is competing with almost all Asian countries in the US market, but China may cooperate with some Asian countries in certain sectors through the global production network. Fourth, although exchange rates affect Chinese exports, US demand is by far the most important determinant.

The third essay studies the impact of exchange rate volatility on value-added trade. A traditional approach using gross trade data to measure and study trade faces challenges and criticisms due to "double counting" and multi-country production chains, and some evidence indicates that the rise of Global Value Chains (GVCs) and Global Production Networks (GPNs) has weakened the link. The literature presents no consensus on the relationship between exchange rate volatility and gross trade, and few to no empirical studies have examined the impact of these variables on value-added trade. To fill the gap, this study empirically re-examines the relationship between exchange rate volatility and trade using new value-added bilateral trade data for 41 countries during 1995~2013 in comparison with the gross trade. The results of using the Poisson Pseudo-Maximum-Likelihood (PPML) method provide several findings. First, exchange rate volatility discourages trade in general, but more significantly for value-added trade. Second, trade costs caused by geographical distance, common language, and border effects between two countries becomes less important in value-added trade. Third, like in gross trade, the empirical results of real exchange and nominal exchange on trade are similar in value-added trades, and companies respond to the volatility of previous years in making export decisions for the current year. Fourth, developed countries face lower exchange rate risks. Last, intra-regional trade is less responsive to exchange rate volatility in East Asia and NAFTA, especially in NAFTA.

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