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Introduction

How do firms compete in international markets? This question is a central concern of modern corporations that operate across national boundaries. Despite its importance, it is only in the past 25 years that economists have addressed this question and offered new theoretical approaches. The field of international economics was the likely candidate to address such a question. Central to the concerns of conventional trade theory, however, was explaining trade patterns by differences among countries in their relative endowments of factors of production. The theory of international trade has depended on the assumption of purely competitive markets. The questions of how firms compete and the effects of interfirm rivalry in international markets were only infrequently addressed within a conventional framework of international economics.

The study of industrial organization, by contrast, addresses explicitly the question of how firms are organized and how they compete in imperfect markets. It does not depend on the premise of a perfectly competitive model but, instead, takes into account real-world frictions such as imperfect information, barriers to entry of new firms into a market, transaction costs, and government policies. Central to the concerns of the study of industrial organization is thus the effect of market structure on behavior and performance, and their interactions. The models of industrial organization proved to be useful, particularly in the economic analysis of multinational corporations, in the analyses of the effects of oligopolistic sellers on international trade, and in determining the effects of international trade on market structure and performance

long before a new theory of international trade emerged (Caves, 1971, 1974).

The study of international trade underwent a significant change when this new trade theory, which incorporates the models of industrial organization, flourished in the 1980s. The central aspect of this new trade theory is the introduction of *scale economies, product differentiation*, and *imperfect competition* to the trade model. This new approach grew out of a frustration over the conventional trade theory, which often lacked the power sufficient to explain the emerging pattern of intraindustry trade, intrafirm trade, and foreign direct investment in the real world (Helpman and Krugman, 1985). Here, the new approach finally showed ways in which firms from different countries compete in international markets in the form of a formal model, suggesting the possibility that sellers in national markets interact with sellers from foreign markets across national boundaries.

1.1. Objectives

The purpose of this study is to present empirical evidence on how firms compete in international markets. In particular, this book deals with rivalry among firms in national markets and among firms originating from different national markets across national boundaries, and their influences on international trade and international investment. The first part of this book presents a series of empirical models in which firms choose price and quantity for exports under the assumption of international oligopoly. Chapters 2–5 and 8 examine the effects of market structure on export pricing, oligopolistic interdependence among firms in export pricing, the systematic linkage of competition across national boundaries, and the oligopolistic influence on international trade. The second part of the book mainly deals with the impact of market structure on foreign direct investment. Its focus is again on interfirm rivalry. Chapters 6 and 9 examine the impact of oligopolistic rivalry among sellers in a national market on foreign direct investment, especially on their choices of entry mode and postentry performance. Chapter 7 looks at the issue of strategic interactions in foreign direct investment among firms from different countries.

Because the purpose of this book is to present empirical analysis of firm behavior in the international context rather than in a theoretical model, it depends heavily on empirical data. In this study, we use several sets of historical data on Japanese firms and industries and their foreign counterparts over the period from the late 1950s through the 1990s. Using Japanese data to test hypotheses on international oligopoly is justified for several reasons.

First, the pattern of Japanese competitiveness evolved over time in the period between the late 1950s and the late 1990s. The unprecedented success of Japanese firms in industries such as electrical machinery, non-electrical machinery, office machines, instruments, and automobiles in penetrating the world markets was perhaps the most startling record in international industrial competition from the late 1970s through the early 1990s. Japanese exports in textiles, pottery products, iron and steel, metal products, and general machinery were the key industrial products that contributed to Japan's high growth rate between 1955 and 1970. This historical pattern of Japan's industrial competitiveness provides us with a rich opportunity to examine if the behavior of Japanese firms changed as their international competitiveness evolved over time.

Second, Japan's major exporting industries improved their competitive positions and grew to be a major competitive force in international markets by the early 1980s. During the period of 1975–1984, Japanese products, such as TV and radio receivers, hi-fi equipment, motorcycles, motor vehicles, watches, cameras, office machines, and optical equipment were well accepted by the consumers worldwide, and thus attained the largest shares in the total exports from the European Community (E.C.), United States, and Japan. The growth of Japanese firms and industries in the world market during the late 1970s and the 1980s provides us with empirical evidence to test the hypothesis that oligoplistic rivalry across national boundaries influences international trade.

Third, Japanese firms were involved intensively in foreign direct investment (FDI) in the United States and Europe beginning in the mid-1980s. Indeed, the flow of Japanese manufacturing FDI in North America surged from US$1.2 billion in 1985 to US$4.6 billion in 1987, and peaked in 1989 at US$9.6 billion. Japanese firms entered into a cross section of U.S. and European industries through new-plant investments and acquisitions of

local firms. This record of foreign direct investment by Japanese firms will provide us another opportunity to investigate the impact of market structure and oligopolistic rivalry among sellers in a national market on foreign direct investment.

Finally, the business environment surrounding Japanese firms changed markedly since the early 1990s when Japan's so-called bubble economy collapsed. Japan's distinctive institutions and business practices that contributed to the competitiveness of Japan's industrial firms in the past decades have adapted to the new environments. Although they are often reluctant, Japanese firms have found it necessary to overhaul and revamp their business strategies and operations worldwide. Many of their foreign subsidiaries were shut down and sold, and many firms exited from the new business lines they entered hastily in the late 1980s and early 1990s. This provides us a rare opportunity to investigate the relationship between oligopolistic behavior, in particular bunching behavior, in foreign direct investment and in the postentry performance.

As noted above, although this study relies on data on Japanese firms and industries and examines their behavior in international trade and investment, it does not intend to provide a thorough explanation for the international competitiveness of Japanese firms and industries, nor does it intend to be an exhaustive list of Japan's distinctive features in its institutions, industrial organization, and business practices that underlie its competitiveness. Because there is a large catalog of literature on the sources of Japanese competitiveness, those interested in these subjects should refer to this literature.[1] This book also does not deal with the subject of Japanese foreign direct investment in a comprehensive manner. Again, my focus in this book is to examine an oligopolistic influence on foreign direct investment and its impact on performance. Thus, the reader will not find much analysis of the incidence and development of Japanese multinational firms and the financial factors of Japanese foreign direct investment.[2]

[1] The most recent study on Japanese competitiveness is Porter, Takeuchi, and Sakakibara (2000). See Chapter 10 of this book for the literature that explains the source of Japanese firms' competitive advantages.

[2] See Caves (1993, 1996) for an extensive survey on these subjects.

1.2. Conceptual Framework for Empirical Analysis

The central aspect of the theoretical framework used in this study is the premise that most of trade and foreign direct investment is in the industries that are characterized as oligopolies. The new trade theory departed from the traditional premise at least in two aspects (Krugman, 1989). One is the introduction of economies of scale and product differentiation into the model. The second aspect is the introduction of imperfect competition in the model. Here the old assumption of pure competition is replaced by the assumption that domestic and foreign firms are oligopolies and form oligopolistic interdependences. Although their specific aims were different, the models developed by Brander (1981), Brander and Krugman (1983), Spencer and Brander (1983), Krugman (1984), and Helpman and Krugman (1985) were fundamentally concerned with modeling the role of imperfect competition in international trade. Chapters 2, 3, 4, and 8 of this book examine the export pricing behavior in imperfect markets, and Chapter 5 is concerned with the impact of international oligopoly on trade performance. In all these chapters, the theoretical models are essentially inspired by this line of literature and use the assumption that domestic and foreign firms engage in oligopoly games.[3]

Although the statistical model in Chapters 2 and 3 is derived directly from the profit-maximization problem of an exporting oligopoly, the models developed in Chapters 4 and 5 incorporate a new aspect into the theory of international oligopoly. Figure 1.1 is provided to illustrate this point. As noted earlier, the central aspect of the international oligopoly approach is the introduction of imperfect competition and hence market structures of both home and foreign countries into the model. Suppose there are two countries, A and B, each with one firm in industry X. The firms in both countries engage in international trade. Assume that the firms in both countries maximize profits while behaving as oligopolists. For the firm in country A, its profit-maximizing level of output for export

[3] This approach that assumes that domestic and foreign firms interact in oligopolies deviates also from the early literature in industrial organization that examined the impact of market structure on trade performance (e.g., Hufbauer, 1970; Pugel, 1978; Caves, Porter, and Spence, 1980; Marvel, 1980) and the impact of international trade on industry performance (e.g., Khalizadeh-Shirazi, 1974; Pugel, 1978, 1980). See Caves (1989) for a survey on the early literature.

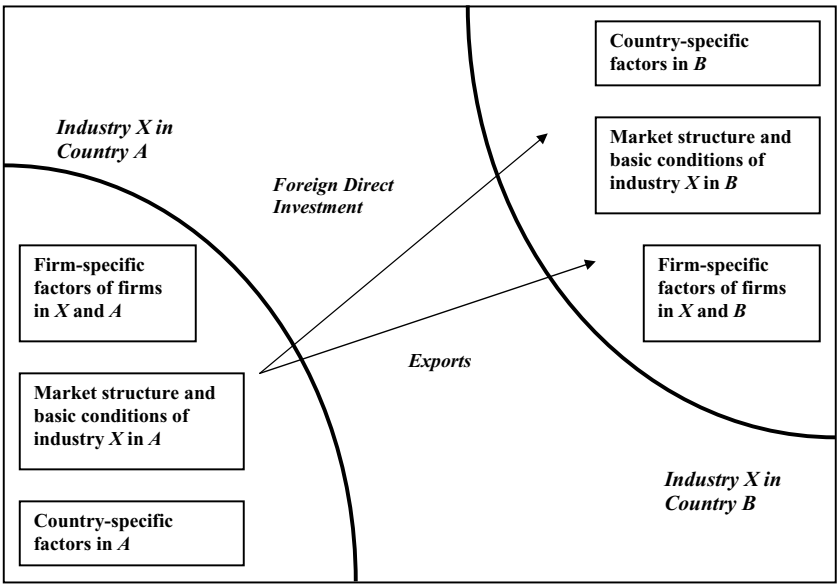

Figure 1.1. Determinants of international trade and investment.

and the export price are determined by the elements of market structure and basic conditions in the home market as well as foreign market. This model differs significantly from the model used in the early empirical literature in industrial organization that regards only the home country's market structure in explaining the trade behavior and performance. It also deviates from the traditional trade literature that takes into account primarily country-specific conditions.

In general, the empirical analysis of this book considers seller concentration, barriers to entry, product differentiation, and barriers to exit as key elements of market structure. In addition, it takes into account several factors as determinants of basic conditions for a particular industry. They include technology, cost structures, scale economies, learning, location, demand elasticity, cyclical character of demand, rate of growth, and consumer's purchase method. Chapter 3 demonstrates the systematic linkage of competition between U.S. and Japanese firms in a given industry. The statistical analysis finds that the profits on exports of Japanese firms increase with Japanese market structures as well as U.S. market structures.

Chapter 4 then confirms this finding by using a model that is a corollary to the model of Chapter 3, showing that the Japanese import share in the U.S. market increases with the competitive advantages of the Japanese industry relative to the U.S. advantages. Competitive advantages are measured here by a number of market-structure and cost-related variables.

Although industry-specific market structure plays an important role as a determinant of export behavior and performance, it is, in fact, the firms that engage in exporting activities in an industry. This point reminds us that firm-specific factors also play a role as a cause of trade and determinant of performance. The analysis in Chapter 8 investigates this issue specifically by using firm-specific data and provides evidence on export pricing behavior in international oligopoly in the luxury car market in the United States. Here the firm-specific factors are introduced in addition to market-structure variables as determinants of export pricing.

To investigate an oligopolistic influence on foreign direct investment requires that the role of firm-specific factors be taken into account. The previous research on the presence of multinational enterprises (MNEs) found that FDI is industry-specific as well as firm-specific.[4] When the investment behavior of multinational firms is investigated in Chapters 6, 7, and 9, the firm-specific factors are explicitly taken into account in the empirical analysis. Firm-specific factors here refer to a number of variables such as tangible assets; intangible assets such as technological skills, know-how, reputation, and brands; financial resources; and capabilities in distribution, sales, marketing, and service. The statistical analysis in Chapters 6 and 9 finds that Japanese foreign direct investment in the United States in the late 1980s was influenced by oligopolistic interactions among Japanese firms after controlling for a number of firm-specific characteristics. And, Chapters 7 and 9 find that the postentry performance of foreign affiliates in Japan and the postentry performance of Japanese affiliates in the United States were both determined by their corporate strategies.

In addition to industry- and firm-specific factors, country-specific factors have been proven to determine trade and investment patterns, and national competitive advantage of an industry. Conventional trade

[4] See Caves (1996) for a survey.

theory has suggested that differences among countries in their endowments of factors of production cause international trade. The study of multinational corporations suggests the importance of country-specific factors in its location decision (Dunning, 1977; Markusen, 2002). A study of national competitive advantage has proposed that a set of country-specific factors determine a country's international competitiveness in a particular industry (Porter, 1990).[5] And, a country's regions may play a significant role in international trade (Fujita, Krugman, and Venables, 1999). As noted earlier, the principal focus of the book is on examining the pattern of oligopolistic interactions among firms in national markets and across national boundaries, and their influence on trade and investment. Therefore, in this study, the impact of country-specific factors is incorporated generally as controlling factors in the statistical specification. As a consequence, there is only a minimal amount of analysis of country-specific factors in the book, except the analysis of foreign exit from Japan in Chapter 7.

1.3. Japanese Exports and Foreign Direct Investment: Overview

Although the main theme of this book is to examine the pattern of international competition engaged in by Japanese firms and their foreign rivals, individual chapters address different questions on their exporting and FDI behaviors that pertain to specific time periods. Table 1.1 provides an overview on the principal focus of each chapter and the time period for which data are constructed for empirical analysis. Chapters 2–5 and 8 examine export competition, and Chapters 6–7 and 9 are concerned with foreign direct investment. To put the empirical analysis of each chapter into perspective, this section provides a brief overview of the historical trends of Japanese exports and outward FDI in the post–World War II era and highlights their key features at an aggregate level.

[5] These are factor conditions; demand conditions; the existence of related and supporting industries; the national environment in which firms are organized, managed, and compete; and the role of government. Porter (1990). See Yamawaki (2002b) for the importance of industrial clusters in Japan.

Table 1.1. *Overview of the book*

Chapter	Analysis	Period
2	Market structure and export pricing behavior.	1970–1984
3	Technology, demand, and export pricing behavior.	1970–1984
3	Domestic and export pricing behaviors in the steel industry.	1957–1975
4	Foreign market structure and profitability.	Late 1960s–early 1970s
5	Oligopolistic interactions in U.S. imports.	Late 1970s
5	FDI in distribution and exports.	Mid-1980s
6	FDI in the United States and Europe.	The 1970s–the 1990s
6	FDI and entry mode.	The 1980s
7	Strategic interactions between Japanese and foreign firms, and exit of foreign firms in Japan.	1973–1994
7		
8	Foreign rivals' responses in the U.S. luxury car market.	1986–2001
9	Exit in the United States.	1985–2000

Exports

The upper panel of Figure 1.2 presents Japanese exports measured in the value of the Japanese yen between 1950 and 2004. Although the general pattern that emerges is an upward trend, there are at least several distinctive periods between 1950 and 2004 that differ markedly in their growth patterns. Japan's exports grew steadily during the 1950s, but it was during the 1960s that Japanese industries rapidly expanded their international market presence and experienced unprecedented high growth. Although the shift to the floating exchange-rate system in the beginning of 1973 and the first oil crisis in the autumn of 1973 changed the international environment in which Japanese firms operate, Japan's exports surged strongly after 1973 and continued to grow remarkably through 1985. Japan's exporting industries faced another challenge when the U.S. dollar depreciated against the Japanese yen after the Plaza Accord in 1985. Japanese exporters whose main production facilities were located in Japan found their international competitiveness significantly eroded as the high value of the yen diminished their cost advantages measured in the U.S. dollar. Consequently, Japan's exports declined sharply in 1986. The Japanese economy grew slowly and remained sluggish through

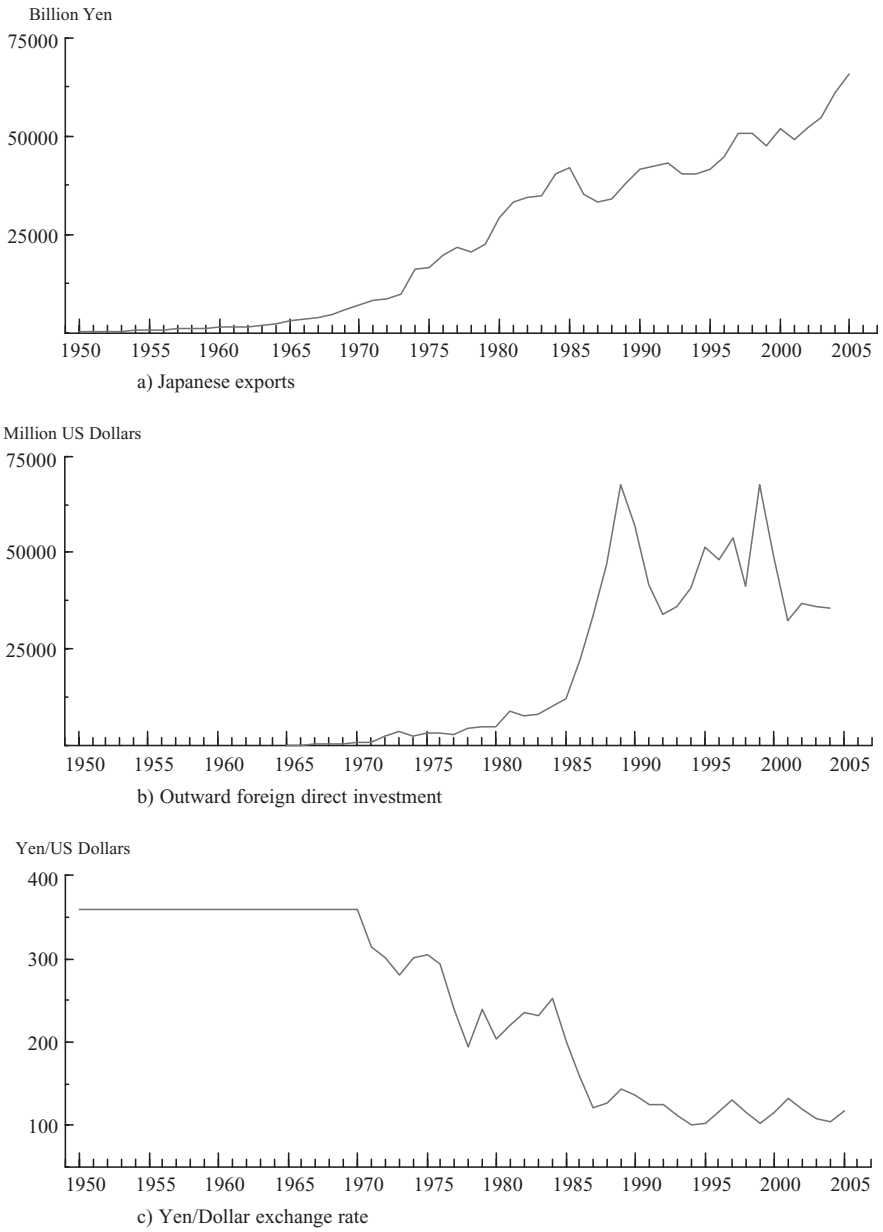

Figure 1.2. a) Japanese exports, b) Outward foreign direct investment, and c) Yen/Dollar. Exchange rate, 1950–2005.
Source: Ministry of Finance, Japan.