This book addresses the question of how competition takes place in international manufacturing industries. There is a large catalog of literature about how large firms, oligopolists, compete in domestic markets and about how broadly competitive processes determine international trade. However, the intersection between these two areas is missing, and we know little about how oligopolists interact with each other across international boundaries. This book examines patterns of rivalry among firms from different countries across national boundaries and their influences on international trade and investment. Using various data on Japanese firms in manufacturing industries from the late 1950s through the early 2000s, the first part of this book presents a series of empirical analyses that examines effects of market structure on export pricing, linkages of domestic and foreign market structures on trade performance, and patterns of oligopolistic interactions among firms from different countries involved in exporting. The second part of this book deals with the impact of strategic interactions on foreign direct investment. In particular, this book examines bunching in foreign direct investment and strategic interactions in intra-industry cross-market foreign direct investment, and the effects of these actions and interactions on entry patterns and postentry performance.

Hideki Yamawaki is Professor of Management in the Peter F. Drucker and Masatoshi Ito Graduate School of Management at Claremont Graduate University. From 1990 to 1997, he was Professor of Economics at the Université catholique de Louvain in Belgium. From 1982 to 1990, he was Research Fellow at the Wissenschaftszentrum Berlin für Sozialforschung in Germany. In the past 20 years, he has published many articles in professional journals and volumes in the fields of industrial organization, international trade and investment, and international business strategy. His research has focused on examining the behavior and performance of U.S., European, and Japanese corporations in international markets. Professor Yamawaki has served as a consultant to the European Commission, the World Bank, and the OECD. In 1995, he was appointed a member of the Economic Advisory Group at the European Commission. He has served as an associate editor of the Review of Economics and Statistics and as Managing Editor of the International Journal of Industrial Organization.
Japanese Exports and Foreign Direct Investment

Imperfect Competition in International Markets

HIDEKI YAMAWAKI
Claremont Graduate University, California
To my mother

for many reasons
Contents

Tables

Figures

Preface

1. Introduction
   1.1. Objective 2
   1.2. Conceptual Framework for Empirical Analysis 5
   1.3. Japanese Exports and Outward Foreign Direct Investment: Overview 8
   1.4. Japan’s Corporate and Economic Organization 22
   1.5. Issues of Data 24

2. Export Pricing under Imperfect Competition
   2.1. Introduction 26
   2.2. Models of Export Pricing Behavior 29
   2.3. Hypotheses and Empirical Specifications 32
   2.4. Empirical Estimates of Export Price 33
   2.5. Conclusions 41

3. Export Price, Learning, and Domestic Demand Disturbances
   3.1. Introduction 43
   3.2. Estimation of Elasticity 45
   3.3. Determinants of Elasticity 49
   3.4. Domestic Price and Export Price 54
   3.5. Conclusions 58
## Contents

4. Foreign Market Structure, Export Price, and Profitability  
   4.1. Introduction  
   4.2. Model  
   4.3. Determinants of Price–Cost Margins on Exports  
   4.4. A Case of Japanese Entry into the U.S. Luxury Car Market  
   4.5. Conclusions  

5. Competitive Advantage and Export Performance  
   5.1. Introduction  
   5.2. A Model  
   5.3. Determinants of Japanese Import Share in the U.S. Market  
   5.4. Exports and Japanese Involvement in U.S. Marketing, Distribution, and Service  
   5.5. Conclusions  

6. Entry into the European and U.S. Manufacturing Industries  
   6.1. Introduction  
   6.2. The Data  
   6.3. Statistical Analysis of Entry Mode  
   6.4. Bunching in FDI  
   6.5. Conclusions  

7. Strategic Interactions in Cross-Market Entry  
   7.1. Introduction  
   7.2. Statistical Analysis of Retaliatory Entry into Foreign Markets  
   7.3. Entry and Exit of Foreign Firms in Japan  
   7.4. Entry and Exit Patterns of Domestic Firms  
   7.5. Conclusions  

8. Responses of Foreign Firms to Japanese Competition  
   8.1. Introduction  
   8.2. Competitive Interactions between Incumbents and New Entrants  
   8.3. Statistical Analysis of Price Reactions
## Contents

8.4. Market Share and Exchange Pass-Through  
8.5. Conclusions  

9. Exit in the U.S. Manufacturing Industries  
9.1. Patterns  
9.2. Hypotheses on Concentrated Entry and Exit  
9.3. Statistical Analysis  
9.4. Conclusions  

10. Interpreting the Empirical Findings  
10.1. Major Findings  
10.2. International Competition and Japan’s Corporate and Economic Organization  

11. Implications  
11.1. Conceptual Framework  
11.2. Foreign Market Entry and Oligopolistic Interactions  
11.3. Foreign Direct Investment and the Firm’s Proprietary Assets  
11.4. Evolution of International Competitiveness  
11.5. Government Policy  
11.6. Future Research  

Appendixes  
Appendix to Chapter 1  
Appendix to Chapter 2  
Appendix to Chapter 3  
Appendix to Chapter 4  
Appendix to Chapter 5  
Appendix to Chapter 6  
Appendix to Chapter 7  
Appendix to Chapter 8  
Appendix to Chapter 9  

References 233  
Author Index 255  
Subject Index 261
# Tables

1.1 Overview of the book.  
1.3 Sources of gain in exports for Japan for the machinery, electrical equipment, and transportation equipment sectors, 1963–1974.  
1.4 Sources of gain in exports for Japan for the machinery, electrical equipment, and transportation equipment sectors, 1975–1985.  
2.2 Results of hypothesis tests on export pricing behavior.  
2.3 Classification of industry according to the hypothesis tests.  
2.4 Classification of industry according to the estimated parameters in export price equation.  
3.1 Estimates of elasticity of export price with respect to domestic demand disturbances \((a_3)\).  
3.2 Estimates of elasticity of export price with respect to accumulated output \((a_7)\) and the estimated slopes of the learning curve.  
3.3 Determinants of elasticity of export price.  

---

© Cambridge University Press  
www.cambridge.org
4.2 Estimates of price–cost margins for domestic and export sales, 1970s, elected industries. 68
5.1 Regression equations explaining the share of Japanese imports in the U.S. market, 1977 (USMJ). 85
5.2 Employment of nonbank U.S. subsidiaries by country of ultimate beneficial owner, 1986. 89
5.3 Regression equations explaining total Japanese exports to the U.S. market (EXP) and total employment of personnel in U.S. distributions subsidiaries of Japanese manufacturing companies (DIST). 91
6.1 Ownership patterns for Japanese firms and their subsidiaries in the United States and Europe, 1990. 98
6.2 Parent firms by year and sequence of entry in the United States and Europe. 99
6.3 Japanese subsidiaries by mode and year of entry in the United States and Europe, 1990. 100
6.4 Japanese subsidiaries by mode of entry and degree of diversification in the United States and Europe, 1990. 101
6.5 Japanese acquisitions and green-field investments in the United States and Europe, by industry, 1990. 102
6.6 Logit estimates of entry mode, U.S. and Europe (dependent variable: EMODE). 108
6.7 Logit estimates of entry mode, pooled U.S. and European sample (dependent variable: EMODE). 110
6.8 OLS estimates of determinants of pressure to respond to rivals’ entries into the United States. 116
7.2 Exit of subsidiaries of foreign MNEs from Japanese manufacturing industries, 1973–1996. 132
7.3 Probit estimates of determinants of exit (dependent variable: EXIT). 139
8.1 Estimated elasticity of price with respect to rivals’ price for BMW, Mercedes–Benz, and Lexus, 1991–2001. 156
Tables

8.2 Estimated elasticity of price with respect to rivals’ price for Audi, Jaguar, Cadillac, and Lincoln, 1991–2001. 157
9.1 Number of Japanese entries and exits by year of entry, United States. 163
9.2 Probit estimates of determinants of exit with ECI (dependent variable: EXIT). 172
9.3 Probit estimates of determinants of exit with GFECI and AQECI (dependent variable: EXIT). 173
9.4 Logit estimates of determinants of entry mode and diversified entry. 175
9.5 Probit estimates of determinants of exit with EMODE*DIV (dependent variable: EXIT). 176
Figures

1.1 Determinants of international trade and investment. page 6
1.2 a) Japanese exports, b) outward foreign direct investment, and c) Yen/Dollar exchange rate, 1950–2005. 10
1.3 Japanese outward foreign direct investment (FDI), 1965–2004. 19
1.4 Japanese outward foreign direct investment by region, 1965–2004. 20
4.3 U.S. sales of luxury cars, 1986–1997. 74
Preface

I owe many people debts of gratitude for their help in the development of this book. Certain parts of this book were written and published in various forms while I was at the Wissenschaftszentrum Berlin from 1982 to 1990 and Université catholique de Louvain from 1990 to 1997. I benefited greatly from the research opportunities and the intellectual environments that these institutions provided. I am particularly indebted to Paul Geroski, Alexis Jacquemin, Dennis Mueller, Hiroyuki Odagiri, F. M. Scherer, and Leonard Weiss for their criticisms and suggestions on various papers that are now integrated in this book. I thank David Audretsch, Manfred Fleischer, Elizabeth de Ghellinck, Christian Huveneers, Joachim Schwabach, and Leo Sleuwaegen for their advice and encouragement.

José de la Torre, Marvin Lieberman, and Mariko Sakakibara at UCLA’s Anderson Graduate School of Management offered many insights and useful comments on certain parts of this book. I thank my colleagues at the Peter Drucker and Masatoshi Ito Graduate School of Management at Claremont Graduate University for their moral support and encouragement.

Over the years, I have had many opportunities to present the material in this book in various forms at seminars and conferences. I extend my thanks to Nicola Acocella, Luca Barbarito, Jean-François Hennart, Fukunari Kimura, Bruce Kogut, Franco Malerba, Jean-Louis Mucchielli, Yoko Sazanami, and Klaus Zimmermann for such opportunities and their valuable comments.

I would like to thank my coauthors of various papers for allowing me to use certain parts of the results of our joint research in this book: parts
of Chapter 1 are the result of joint research with David Audretsch and Leo Sleuwaegen; parts of Chapter 5 are the result of joint research with David Audretsch; and parts of Chapter 9 are the result of joint research with Shigeru Asaba. I also want to thank the Review of Economics and Statistics, the International Journal of Industrial Organization, and the Journal of Industry, Competition, and Trade for granting me permission to include parts of my articles in Chapters 4, 5, 7, and 8 in this book. I would like to thank the three Cambridge University Press referees for their insights and useful suggestions on an earlier draft of this book.

I was fortunate to receive stimulation and direction from many great teachers in my student days many years ago. I owe a special debt to Masu Uekusa, whose undergraduate seminars at Keio University in the mid-1970s exposed me to the field of industrial organization for the first time and gave me a lasting impression of the importance of empirical research in industrial organization. Fumimasa Hamada showed me the importance of time-dependent factors in industry and firm analysis. Robert Fogel inspired me to introduce historical perspectives into the empirical analysis of market structure and behavior. Michael Spence showed me the importance of the industry case approach in empirical research of strategic behavior in markets.

My greatest intellectual debt is to Richard Caves, whose help and encouragement extend back to my first days in graduate school in the United States. He read almost all of the major articles I wrote from graduate school through the 1990s, shared his numerous insights and invaluable suggestions, and showed me numerous research avenues at the intersection of the fields of industrial organization and international economics.

The idea of writing this book first came when I encountered a book, Japan in the Beginning of the 20th Century (published by the Department of Agriculture and Commerce, Japan, in 1904) in the main library of the Claremont Colleges few years ago. In its preface, Haruki Yamawaki wrote, "the knowledge which the world possesses about things Japanese is at best superficial, . . . chiefly because reliable publications . . . giving a succinct account of the economic and other affairs of Japan have not existed." In the past 60 years, a vast amount of research on Japan’s economy, industry, and business has been conducted by many researchers and has created a
large body of knowledge about Japanese industry. This book is intended to make a small contribution to this end.

Hideki Yamawaki
Claremont, California