

Adaptation, Specialization, and the Theory of the Firm

This invaluable book provides the foundations for a new theory of the firm, drawing on Birger Wernerfelt's landmark work on economic theory and the resource-based view of the firm. It addresses a vigorous and long-standing academic debate over what exactly a "firm" is, both in the field of management and economics. Wernerfelt revisits his classic articles, including an extensively revised "A Resource-Based View of the Firm" (1984), which have been updated and synthesized to provide precise and accessible concepts and predictions. By offering future directions for research and practice, this book will be of interest to students and scholars of management and economics alike.

BIRGER WERNERFELT is the J. C. Penney Professor of Management at the MIT Sloan School of Management.

Adaptation, Specialization, and the Theory of the Firm

Foundations of the Resource-Based View

Birger Wernerfelt

MIT Sloan School of Management



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press & Assessment
 978-1-107-13440-9 — Adaptation, Specialization, and the Theory of the Firm
 Birger Wernerfelt
 Frontmatter
[More Information](#)



CAMBRIDGE
 UNIVERSITY PRESS

Shaftesbury Road, Cambridge CB2 8EA, United Kingdom
 One Liberty Plaza, 20th Floor, New York, NY 10006, USA
 477 Williamstown Road, Port Melbourne, VIC 3207, Australia
 314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India
 103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

We share the University's mission to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781107134409

DOI: 10.1017/9781316466872

© Birger Wernerfelt 2016

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press & Assessment.

First published 2016

A catalogue record for this publication is available from the British Library

Library of Congress Cataloging-in-Publication data

Names: Wernerfelt, Birger, author.

Title: Adaptation, specialization, and the theory of the firm : foundations of the resource-based view / by Birger Wernerfelt, J. C. Penney Professor of Management, MIT Sloan School of Management.

Description: Cambridge, United Kingdom : Cambridge University Press, [2016] | Includes index.

Identifiers: LCCN 2016017702 | ISBN 9781107134409 (Hardback) | ISBN 9781107595781 (Paperback)

Subjects: LCSH: Industrial organization (Economic theory) | Economic specialization. | Diversification in industry.

Classification: LCC HD2326 .W467 2016 | DDC 338.5–dc23 LC record available at <https://lccn.loc.gov/2016017702>

ISBN 978-1-107-13440-9 Hardback

ISBN 978-1-107-59578-1 Paperback

Cambridge University Press & Assessment has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Cambridge University Press & Assessment

978-1-107-13440-9 — Adaptation, Specialization, and the Theory of the Firm

Birger Wernerfelt

Frontmatter

[More Information](#)

For Bjoern

Contents

<i>List of Figures</i>	<i>page</i> ix
<i>List of Tables</i>	x
<i>Preface</i>	xiii
Part I Agenda	1
1 Introduction	3
2 Preview: Small Forces, High Frequencies, and Large Firms	10
Part II The Main Argument	31
3 Adaptation Costs in One Dimension: Firms, Contracts, and Price Lists	33
4 Adaptation Costs in Three Dimensions: Firms, Markets, and Contracts	58
5 All Adaptations Are Not the Same: The Scope of Firms and the Size of Markets	83
6 Resources and the Scope of the Firm	101
Part III Implications	113
7 The Allocation of Asset Ownership	115
8 Communication within and between Firms	128
9 The Power of Incentives within and between Firms	150
10 Decision-Making in Large Organizations	161
	vii

viii	Contents	
	Part IV Empirical Tests	179
11	Bargaining Costs: Existence and Sub-Additivity	181
12	Adaptation Frequency and the Boundary of the Firm	201
13	Asset Ownership and Externalities	229
	Part V Foundations	251
14	Endogenously Incomplete Contracts	253
15	Multiple Equilibria and Firm Heterogeneity	272
16	On the Endogenous Amplification of Small Differences	284
	Part VI Postscript	299
17	Summary and Final Reflections	301
	<i>Index</i>	303

Figures

2.1	Most efficient mechanisms and changing needs 1	<i>page</i> 18
2.2	Most efficient mechanisms and changing needs 2	19
2.3	Most efficient mechanisms and changing needs 3	20
3.1	Most efficient mechanisms	41
4.1	Most efficient mechanisms by frequency of change and switching costs	72
4.2	Most efficient mechanisms by frequency of change and gains from service specialization	72
4.3	Most efficient mechanisms by frequency of change and number of needs	75
5.1	A two business–two service economy	90
6.1	Resource–product matrix	103
6.2	Sequential entry	107
6.3	Exploit and develop	109
6.4	Stepping stone	110
7.1	The value–depreciation frontier	117
8.1	Conditional posterior density of c_l if the seller did not find the new design ($F = U$)	136
8.2	Conditional posterior densities of c_l if seller found, but did not offer, new design ($F = U$)	137
8.3	Conditional posterior densities of c_h if seller offered the new design ($F = U$)	139
11.1	Schematic screen-shot of the bargaining environment for the buyer	185
11.A-1	Frequency of settling times by experimental treatment	200
14.1	$\{k, r \mid \text{The buyer will cede decision } d \text{ to the seller}\}$	265
15.1	Possible linear codes when $V = 4$	276

Tables

3.1	Kendall rank correlations	<i>page</i> 51
3.2	Correlation coefficients	52
3.3	t-Values from regressions	52
4.A-1	Components of efficiency and performance of mechanisms	79
7.1	Questionnaire	123
11.1	The tendency to pool for increasing costs of pooling	187
11.2	The tendency to pool for different costs and benefits of pooling	189
11.3	The role of time-savings in the tendency to pool	189
11.4	The role of anonymity in the tendency to pool	190
11.5	Number of offers in one period negotiations and pooling prices	191
12.1	List of parts	207
12.2	Descriptive statistics by production system	208
12.3	Probability of pair-wise co-production by adaptation frequency	210
12.4	Sum of internalized adaptation frequencies by production system	212
12.5	Models of $\max \sum_{ij} x_{ij}(\beta) [\beta f_{ij} + e_{ij}]$	217
12.6	Sum of squared production system residuals (SSR) by alternative models	219
12.7	Sum of squared firm residuals (SSR) by alternative models	220
12.A-1	Adaptation frequencies from interviews and co-production data for production system A	224
12.A-2	Descriptive statistics by production system	226
12.A-3	Probability of pair-wise co-production by adaptation frequency	226
12.A-4	Sum of internalized adaptation frequencies by production system	227

List of Tables	xi
12.A-5 Models of $\max_{ij} x_{ij}(\beta) [\beta f_{ij} + e_{ij}]$	227
12.A-6 Sum of squared production system residuals (SSR) by alternative models	228
12.A-7 Sum of squared firm residuals (SSR) by alternative models	228
13.1 Summary statistics	240
13.2 Rank-order correlation of the measures	245
13.3 Multivariate analysis	245
13.4 Modified multivariate analysis	248
15.1 Number of rounds when one member uses code A and the other uses code B	278
15.2 Number of rounds when both members use code A	278
15.3 Number of rounds when both members use code B	278

Preface

This book is based on fifteen papers written over a thirty-year period. Two of them, “A Resource-Based View of the Firm” (proposing what is now called the RBV) and “On the Nature and Scope of the Firm” (proposing what is here called the “Adaptation Cost,” or just AC, theory of the firm¹) were written a few years apart in the 1980s. While both papers aim to characterize the sets of activities that should and should not be undertaken by firms, I long considered them incompatible. One was about excess capacity of certain productive assets and the other was about the costs of adapting contracts. Only when writing what is now Chapter 4 did I realize that the sub-additive bargaining costs underlying the AC theory could make productive assets *de facto* indivisible and capable of existing in excess capacity, thus taking me directly to the RBV.

The main purpose of the book is to clarify the AC–RBV relationship and this is done in two steps. In “Adaptation Costs in Three Dimensions: Firms, Markets, and Contracts,” I derive the AC theory under gains from specialization, and in “All Adaptations Are Not the Same: The Scope of Firms and the Size of Markets,” I develop the resulting theory of the scope of the firm and compare it to the RBV. To make the linkage as clear as possible, the four key chapters have been placed in sequence at the start of the book. The remaining eleven chapters look, theoretically and empirically, at important implications and foundations of the AC/RBV.

Most chapters have their basis in a single stand-alone paper, some published several years ago. All have been rewritten for consistency of notation and terminology and updated to reflect other literature published between their original publication date and now. I do not flag the parts that are most extensively rewritten, but the reader should be aware that there may be significant differences between the original

¹ In its first incarnation, the theory was, at the suggestion of a referee, labelled the “Adjustment Cost” Theory. However, that term is also used in the macro literature where it denotes a different phenomenon.

articles and the versions found here. It should also be mentioned that the introductions to individual chapters may repeat a bit of material covered in earlier chapters. This is done to make each chapter almost self-contained and thus allow readers to skip one or more chapters. The title page before each part contains a note about the extent to which the chapters depend on each other.

Since the ideas in the book have been developed over such a long time, I have benefited from a very large number of colleagues, readers, seminar audiences, referees, and editors. The most important and consistent of these have been Bob Gibbons, Oliver Hart, and Steve Tadelis. I have learned a lot from them and the work is profoundly influenced by their willingness to repeatedly discuss on my premises. I would also like to thank Tore Ellingsen, Nicolai Foss, Drew Fudenberg, Bengt Holmstrom, Patrick Legros, Jin Li, Niko Matouschek, Roger Myerson, Mike Powell, Peter Norman Soerensen, Jean Tirole, Mike Whinston, and Oliver Williamson for one or more discussions, questions, or comments that ended up being important to some of the ideas presented here. More generally, I would like to thank everybody who has been a member of the vibrant Organizational Economics community in Cambridge at any point during the last twenty-five years.

Three of the chapters are based on papers coauthored with colleagues and I would like to acknowledge the collaborations of Boris Maciejovsky, Sharon Novak, and Duncan Simester. A couple of papers would not have been possible without the help of research assistants and I particularly want to thank Carol Meyers for her help with what is now Chapter 12. In the later stages of the manuscript preparation, Xinyu Cao provided excellent proofreading and checking assistance.

As mentioned above, most of the Chapters are based on previously published work. Chapter 2 is based on “Small Forces and Large Firms: Foundations of the RBV” (*Strategic Management Journal*, 34, no. 6, pp. 635–43, 2013); Chapter 3 is based on “On the Nature and Scope of the Firm” (*Journal of Business*, 70, no. 4, pp. 489–514, 1997); Chapter 4 is based on “The Comparative Advantages of Firms, Markets, and Contracts” (*Economica*, 82, no. 236, pp. 350–67, 2015); Chapter 6 is based on “A Resource-Based View of the Firm” (*Strategic Management Journal*, 5, no. 2, pp. 171–80, 1984); Chapter 7 is based on “Why Should the Boss Own the Assets?” (*Journal of Economics and Management Strategy*, 11, no. 3, pp. 473–85, 2002); Chapter 8 is based on “Bargaining Before or After Communication?” (*Journal of Institutional and Theoretical Economics*, 164, no. 2, pp. 211–29, 2008); Chapter 9 is based on “Robust Incentive Contracts” (*Journal of Institutional and Theoretical Economics*, 160, no. 4, pp. 545–54, 2004); Chapter 10 is based on “Delegation,

Committees, and Managers” (*Journal of Economics and Management Strategy*, 16, no. 1, pp. 35–51, 2007); Chapter 11 is based on “Costs of Implementation: Bargaining Costs Versus Allocative Efficiency” (with Boris Maciejovsky in *Journal of Economic Behavior and Organization*, 77, no. 3, pp. 318–25, 2011); Chapter 12 is based on “On the Grouping of Services into Firms: Make-or-Buy with Interdependent Parts” (with Sharon Novak in *Journal of Economics and Management Strategy*, 21, no. 1, pp. 53–77, 2012); Chapter 13 is based on “Determinants of Asset Ownership: A Study of the Carpentry Trade” (with Duncan I. Simester in *Review of Economics and Statistics*, 87, no. 1, pp. 50–58, 2005); Chapter 14 is based on “Renegotiation Facilitates Contractual Incompleteness” (*Journal of Economics and Management Strategy*, 16, no. 4, pp. 893–910, 2007); Chapter 15 is based on “Organizational Languages” (*Journal of Economics and Management Strategy*, 13, no. 3, pp. 461–72, 2004); and Chapter 16 is based on “Why Do Firms Tend to Become Different?” (Chapter 9, pp. 121–33 in Constance Helfat (ed.), *Handbook of Organizational Capabilities*, Malden, MA and Oxford, UK: Blackwell, 2003). I am grateful for the respective publishers for granting permission to use their articles in this volume and to Jason Clinkscales of MIT for collecting those permissions.

I would like to thank the University of Michigan, Northwestern University, the University of Copenhagen, and particularly MIT for providing me with stimulating work environments. And last, but not least, Paula Parish of the Cambridge University Press for believing in the project and helping me through the writing and publication process.