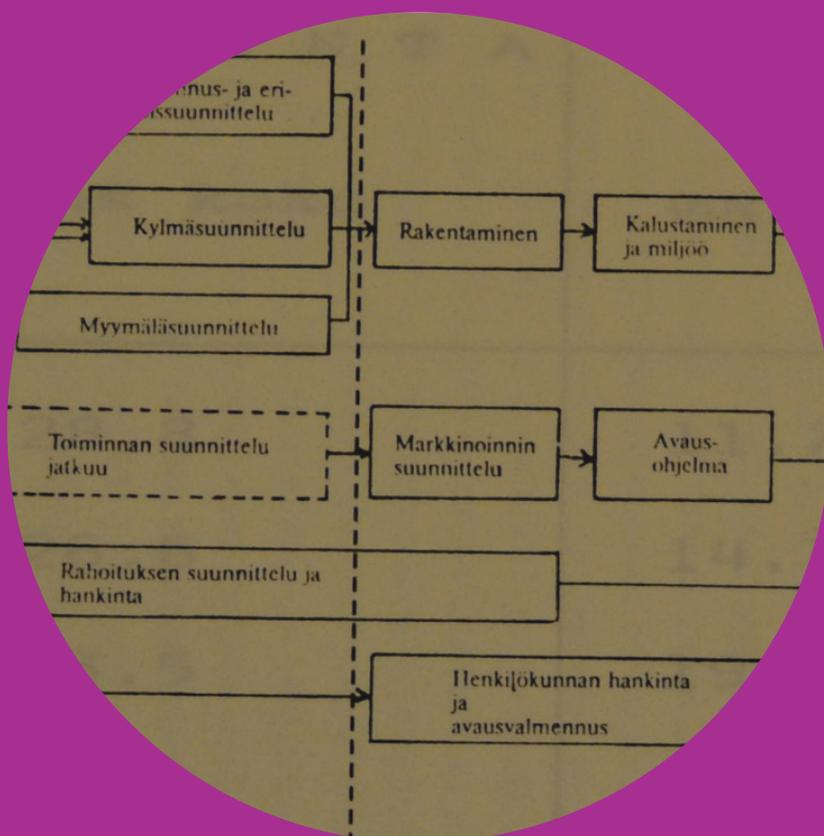


Essays on the behavioral foundations of competitive interaction

Jukka Luoma



Essays on the behavioral foundations of competitive interaction

Jukka Luoma

Aalto University publication series
DOCTORAL DISSERTATIONS 176/2013

© Jukka Luoma

ISBN 978-952-60-5410-0
ISBN 978-952-60-5411-7 (pdf)
ISSN-L 1799-4934
ISSN 1799-4934 (printed)
ISSN 1799-4942 (pdf)

Images: Central Archives for Finnish Business Records (Elka)

Unigrafia Oy
Helsinki 2013

Finland



Author

Jukka Luoma

Name of the doctoral dissertation

Essays on the behavioral foundations of competitive interaction

Publisher School of Business**Unit** Department of Marketing**Series** Aalto University publication series DOCTORAL DISSERTATIONS 176/2013**Field of research** Strategic marketing**Abstract**

The competitive dynamics perspective offers a micro-level, dynamic view of market competition. It is axiomatic for students of competitive dynamics that competitive actions and interactions are shaped by the boundedly rational decision making of organizational actors. Thus competitive behavior cannot be inferred directly from the objective characteristics of the competitive situation. Competitive dynamics researchers have combined rather eclectic theoretical perspectives to develop a plethora of insightful behavioral hypotheses about the predictors of firms' competitive conduct and about the performance implications of those choices. Partly as a result, however, there is a paucity of efforts to systematically explore the behavioral foundations of competitive interaction. In this study, I engage in such an endeavor and propose that a routine-based view of interfirm rivalry offers a fruitful but underexplored behavioral basis for understanding how the bounded rationality of organizational actors influences the process and outcomes of market competition.

The study consists of an overview and four essays, which contribute to a routine-based understanding of interfirm rivalry. I introduce and develop the concept competitive action routines, defined as repeated patterns of interaction between organizational members related to a firm's market moves. The first two essays study the role of competitive action routines in competition related to store openings between Finnish grocery retail organizations (1960-1995). Based on an in-depth qualitative investigation, I argue that competitive action routines are a valuable, often indispensable method with which firms cope with rapidly accelerating rivalry—contrary to the view held by many competitive dynamics scholars that routines are simply a source of inflexibility and inertia. The third essay is a quantitative empirical analysis of the evolution of product launch activities of Finnish mutual fund firms (1997-2009). The fourth essay explores the role of feedback in competitive interaction through a computational study. Together, these two studies suggest that environmental feedback is an important source of heterogeneity in competitive behavior because of the change in organizational routines and rules that the feedback generates.

Overall, the routine-based approach to the study of interfirm rivalry acknowledges that the firm's competitive behavior is a collective enterprise of multiple individuals within the firm. This balances the almost exclusive focus of existing competitive dynamics literature on the very top-level members of organizations. Moreover, the routine-based view implies that rivalry hinges on the firms' previous encounters with competitors. Relatedly, the routine-based view conceptualizes the relationship between competitive actions and performance as a feedback mechanisms, which adds boundary conditions to existing claims about the virtues of competitive aggressiveness. Finally, in terms of predicting competitive moves, a routine-based view suggest that the likelihood, speed and other characteristics of competitive actions are best predicted by the attributes of firms' behavior in the recent past.

Keywords competitive strategy, behavioral strategy, competitive dynamics, bounded rationality, organizational routines

ISBN (printed) 978-952-60-5410-0**ISBN (pdf)** 978-952-60-5411-7**ISSN-L** 1799-4934**ISSN (printed)** 1799-4934**ISSN (pdf)** 1799-4942**Location of publisher** Helsinki**Location of printing** Helsinki**Year** 2013**Pages** 215

Acknowledgements

It is hard to adequately express in writing how grateful I am for the help and support of so many people.

I am grateful for the intellectual and moral support of my supervisor and instructor, Professor Henrikki Tikkanen. He has an exceptional capability to see unsurfaced potential in people, and to nurture that potential into existence. I want to thank Professor Jaakko Aspara who also acted as an instructor of my studies. I have learned a lot from him and through our collaboration, and I continue to be inspired by his energetic and curious attitude towards a broad range of research topics. I am also grateful for the support and encouragement of other Professors at the Department of Marketing, including Arto Lindblom, Pekka Mattila, Kristian Möller and Petri Parvinen.

I wish to thank the preliminary examiners of the study, Professor Tomi Laamanen and Professor Ming-Jer Chen for their insightful comments concerning my work, which pushed me to significantly improve the quality of the manuscript and discover new research opportunities. In addition, I want to thank Professor Laamanen for acting as the official opponent in my doctoral defense, and Professor Chen for hosting my visit to the Darden School of Business in 2012. The dissertation manuscript has also benefited from the constructive feedback and discussions with several other people, including Johanna Frösén, Matti Jaakkola, Sami Kajalo, Tomi Nokelainen, Kristian Möller, Petri Parvinen, Olli Rusanen, Sampsa Ruutu, Jari Salo, Antti Sihvonen and Iiro Vaniala.

I have had the chance to collaborate with several senior professors who have all had an important role during my doctoral studies. First, this work would have probably never become a reality without the unfailing support and selfless guidance of Professor Juha-Antti Lamberg. Second, Professor Adelaide Wilcox King has taught me through our joint research many things about the craft of contributing to scholarly discussion. Third, the supervisor of my master's thesis and a co-author in a number of papers, Professor Raimo P. Hämäläinen, is the person who initially inspired me to pursue a doctoral degree and taught me the principles of scientific writing. Finally, I wish to thank Professor Esa Saarinen who has always encouraged me to follow my own path as a researcher, and insists on not imposing his own views on what that path might be.

The Department of Marketing has provided an excellent working environment. I have had inspirational conversations—and simply a good time—with many interesting individuals at the Department, too many to

list. Thank you all! I have also enjoyed sharing my journey with many colleagues and friends outside the Department, including Merja Fischer, Joonas Järvinen, Väinö Jääskinen, Frank Martela, Sampsa Ruutu—who is also a co-author in one of the essays in this study—and Timo Vuori.

The Central Archives for Finnish Business Records (Elka) has been an invaluable source of data and inspiration in my studies. I would like to thank Markku Alhava, Matti Kautto, Eino Perttilä and others who have inspired and helped me dig deeper into the history of Finnish retailing. My desire to do at least some justice to their first-hand experiences has pushed me to increase the empirical rigor of my work—however, any remaining errors and omissions are entirely mine. I would also like to thank Investment Research Finland and TNS Gallup for providing data concerning the Finnish mutual fund industry, and Anssi Markkula and Teemu Ruoppa for excellent research assistance.

I wish to acknowledge the financial support of the Finnish Graduate School of Marketing, Finnish Funding Agency for Technology and Innovation (Tekes), Foundation for Economic Education (LSR), Fulbright Center, and the Helsinki School of Economics Foundation.

As a final note, my sincere thanks go to my mom and dad, Aulikki and Heikki, my sister and brother, Merianna and Mikko, and my many good friends. My wife, Selma Gaily-Luoma, has been the informal reviewer and proofreader of my writings, test audience of my presentations, and an excellent discussant. More importantly, however, she is a wonderful companion, a superb wife and an outstanding mother to our lovely daughter Venla.

Helsinki, October 22th, 2013

Jukka Luoma

Table of contents

PART I: Overview	5
1. Introduction.....	7
1.1 Background.....	7
1.2 Research questions.....	8
1.3 Outline	10
2. Competitive dynamics	13
3. Behavioral assumptions.....	17
3.1 Micro-behavioral assumptions.....	17
3.2 Consequences of bounded rationality in organizations	19
3.3 Change in structures and routines	21
4. Routines as a behavioral foundation of competitive interaction .	25
4.1 Competitive actions and the market process	25
4.2 Routine-based view of interfirm rivalry	26
5. Methodology	29
5.1 Ontology and epistemology	29
5.2 Mixed methods and data triangulation	29
5.3 Empirical contexts and data	30
5.4 Methods	34
6. Results and contributions.....	37
6.1 Routine-based awareness, motivation and capability.....	37
6.2 Development of competitive interaction over time.....	40
7. Conclusions.....	43
7.1 Contributions.....	43
7.2 Limitations and future research	46
8. References.....	51
PART II: Essays	67
Essay I.....	69
Essay II	107
Essay III	143
Essay IV	179

Essays

Essay I: Jukka Luoma: Behavioral impediments to growing competitive activity: Insights from a longitudinal case study

Essay II: Jukka Luoma & Juha-Antti Lamberg: Competitive action routines and their role in interfirm rivalry

Essay III: Jukka Luoma, Jaakko Aspara & Henrikki Tikkanen: The effect of environmental feedback on firms' product launch activity in nascent product markets

Essay IV: Jukka Luoma, Sampsa Ruutu, Henrikki Tikkanen & Adelaide King: The behavioral feedback dynamics of rivalry: a simulation study of competitive interaction and firm performance

PART I: Overview

1. Introduction

“It is a profoundly erroneous truism, repeated by all copy-books and by eminent people making speeches, that we should cultivate the habit of thinking of what we are doing. The precise opposite is the case. Civilization advances by extending the number of operations which we can perform without thinking about them. Operations of thought are like cavalry charges in a battle—they are strictly limited in number, they require fresh horses, and must only be made at decisive moments.” (Whitehead, 2012 [1911]: 45-46)

1.1 Background

Competitive dynamics researchers conceptualize industry rivalry (Cool & Dierickx, 1993; Porter, 1979) as a process in which interdependent firms use externally directed competitive actions (e.g., product launches, geographical expansion, price changes) to compete for the same set of customers (e.g., Chen & Miller, 2012; Hutzschenreuter & Israel, 2009; Ketchen et al., 2004a, 2004b; Smith et al. 2001a, b). Competitive dynamics is an important strategic topic that concerns marketers (Kuester et al., 1999) and executives (MacMillan et al., 1985). Consequently, it has attracted a large number of researchers and a wide readership in marketing (Williams, 2007) and management (Narayanan et al., 2010). Moreover, a better understanding of competitive dynamics has the potential to shed new light on some of the fundamental questions concerning how competitive markets function (and fail) (e.g., Bromiley et al., 2002; Dickson, 1992, 1996; Dutta et al., 2003).

Competitive dynamics research has been eclectic and empirical. Researchers have drawn on a wide array of literature and theories to make hypotheses about competitive behavior and have tested them empirically (e.g., Smith et al., 2001a). This plethora of research inspirations has likely benefited competitive dynamics research, as it allows for the identification of novel insights (see Miller, 2007). The awareness-motivation-capability (AMC) framework has been proposed as a device for integrating these diverse research results (Chen & Miller, 1994, 2012; Chen et al., 2007). In

addition to these integrative efforts, however, we need more studies on the micro-behavioral foundations of competition. By these foundations, I refer to researchers' assumptions about individual-level behavior and the aggregate implications of these assumptions for the (collective) organization-level awareness, motivation and capability. What has been said about organizational capabilities is also valid advice for competitive dynamics researchers: "writers ... should devote more analytical energies to getting the micro-foundations right" (Foss, 2003: 198).

A better understanding of the behavioral foundations of competitive interaction can help elucidate how competitive strategies are executed as series of concrete actions (Hambrick & Fredrickson, 2005), identify new predictors of competitive moves (Coyne & Horn, 2008, 2009), and explain how variations in firm and industry performance emerge from the processes of competitive interaction (e.g., Chen et al., 2010b; Derfus et al., 2008; Ferrier, 2001; Ferrier et al., 1999; Young et al., 1996). While, in general, the interactive effects of behavioral and competitive forces on firm strategy have been studied extensively (e.g., Amit & Schoemaker, 1993; Barnett et al., 1997; Carroll & Harrison, 1994; Greve, 1995; Levinthal & Myatt, 1994; Lippman & Rumelt, 1982), a tighter focus on competitive interaction between firms (i.e., one of Porter's [1985] Five Forces) has the potential to reveal new insights about the broader theme of behavioral strategy and elucidate how known behavioral phenomena are manifested in the context of interfirm rivalry in particular (see Harris et al., 2013).

1.2 Research questions

The purpose of the study is not to propose novel behavioral assumptions about how organizations function and make strategic decisions. The novelty of the study stems from the systematic integration of the micro-behavioral assumption of bounded rationality into the competitive dynamics perspective and from my exploration of the repercussions of this integration in terms of patterns of competitive interaction and implications for performance (Epstein, 2006; Tsang, 2006). The assumption of bounded rationality is axiomatic in competitive dynamics research.¹ While the existing literature has combined rather eclectic theoretical perspectives to develop a plethora of insightful behavioral hypotheses about the predictors of firms' competitive conduct, there is also a need to systematically explore *the ways in which the bounded rationality of organizational members*

¹ If firms behaved according to the assumptions of economic rationality (von Neumann & Morgenster, 2007 [1947]), there would be little reason to study competitive interaction empirically. Competitive behavior could be simply inferred from the firms' resources and capabilities and/or industry structure (Porter, 1981).

influences a firm's awareness of a rival firm's actions or market opportunities, motivation to take competitive actions and capability to do so.

While this question is important, it also very broad. Namely, the assumption of bounded rationality simply recognizes that we are *not assuming* economic rationality. There are multiple models of bounded rationality, and each model has a multitude of implications for firms' competitive behavior. Thus, without claiming exhaustiveness, my conceptualization of bounded rationality draws on a specific stream of cognitive psychology literature that emphasizes the automaticity of information processing (e.g., Bargh & Chartrand, 1999; Evans, 2008) and the use of experientially derived, largely tacit knowledge in solving complex problems (e.g., Kahneman, 2003; Kahneman & Klein, 2009; Lipshitz et al., 2001).

These individual-level assumptions are consistent with a view of organizations as bundles of organizational routines and decision rules, a notion developed within the behavioral theory of the firm (Cyert & March, 1992 [1963]; March & Simon, 1993 [1958]) and further elaborated under the rubric of evolutionary organization theory (Nelson & Winter, 1982). Following earlier research, organizational routines are defined here as repetitive patterns of interaction between multiple organizational members (Becker, 2004). Decision rules are shared, sometimes implicit guidelines within a firm about how particular environmental stimuli should be reacted to (Bingham & Eisenhardt, 2011). Organizational routines and rules guide the attention and actions of individuals and thus economize their scarce cognitive resources (Becker, 2004; March & Simon, 1993; Nelson & Winter, 1982). The establishment of routines and rules is a central mechanism by which organizational actors with bounded rationality can collectively achieve more than they could individually (Grant, 1996; Simon, 1955; Winter, 2006). This is potentially true in the context of competitive actions as well. However, routines and rules also constrain behavior, which may reduce a firm's flexibility in responding to idiosyncratic market opportunities and new competitive threats. Although there is a burgeoning literature on organizational routines and rules, in general (Parmigiani & Howard-Grenville, 2011; Peteraf et al., 2013), less research focuses on how organizational routines and rules shape interfirm rivalry, in particular. Thus, the first research question of the study is as follows:

Research question 1: What is the role of organizational routines and rules in the determination of a firm's awareness of a rival firm's actions or

market opportunities, motivation to take competitive actions and capability to do so?

The answer to this question may not necessarily be readily extrapolated from the existing literature on organizational routines and rules and the associated literature on organizational capabilities. These streams of literature usually assume firm centrality (see Katila & Chen, 2008), meaning that the firm is conceptualized as a solitary actor in an exogenously defined environment. However, a key starting point for competitive dynamics research is that firms are not solitary actors; rather, their strategies depend on those of their rivals. From this perspective, it is necessary to identify how the role of routines in rivalry depends on the nature and intensity of competition between firms—not merely how the routines fit the environment (e.g., Eisenhardt et al., 2010).

Furthermore, given that routines and rules evolve through feedback (Bingham & Davis, 2012), it is crucial to acknowledge that organizational routines and rules affecting rivalry change over time. This implies that competitive relationships between firms are built over time as well (Kilduff et al., 2010)—a phenomenon that has received surprisingly little attention in the competitive dynamics literature (Chen & Miller, 2012). Thus, I supplement the first research question with the following question:

Research question 2: How does environmental feedback, by generating change in firms' organizational routines and rules, shape competitive interaction patterns and performance outcomes over time?

1.3 Outline

The study consists of an overview and four essays. Individually and collectively, the essays contribute to what I call a routine-based view of interfirm rivalry. I argue that the routine-based view of rivalry provides a fruitful but underexplored source of insight into how the bounded rationality of organizational members influences the process and outcomes of market competition. I introduce and develop the concept *competitive action routines*, defined as repeated patterns of interaction between organizational members related to a firm's market moves. Without an understanding of the firms' competitive action routines, which form the basis of the firm's competitive actions, or the patterns of environmental

feedback that create and change them, we can benefit from traditional analyses of rivalry only to a limited extent.²

Taken as a whole, the study has five important theoretical and practical implications. First, contrary to the view held by many competitive dynamics scholars (e.g., Miller & Chen, 1994; Smith et al., 2001a), I consider the firm's competitive action routines to be a valuable, often indispensable aspect of its competitive maneuvering. Routinization may be necessary even though routines are bound to become obsolete when the environment changes. Second, the existing literature on organizational routines, in general, conceptualizes the trade-offs of establishing routines as a matter of fit between a firm and its environment (e.g., Davis et al., 2009; Schilke, 2013). However, I argue that the trade-offs of routinizing competitive actions, in particular, cannot be fully understood without considering the nature and intensity of competition between firms as a source of additional trade-offs. Sometimes routinization is beneficial simply because it enables outcompeting rivals. Third, the firm's environmental feedback is an important source of heterogeneity in the use of competitive actions because of the change in routines and rules that the feedback generates. This notion highlights rivalry as a history-dependent phenomenon. Fourth, the routine-based view emphasizes that the relationship between competitive actions and performance constitutes a feedback mechanism rather than a unidirectional causal relationship. This insight suggests important boundary conditions on widely supported claims about the virtues of competitive aggressiveness. Finally, in terms of predicting competitive moves, a routine-based view of interfirm rivalry suggest that the likelihood, speed and other characteristics of a firm's competitive actions are best explained by the attributes of the firm's behavior in the recent past (Coyne & Horn, 2008, 2009).

² E.g., resource-based view (Barney, 1991; Peteraf, 1993) industrial organization economics, (McGee & Thomas, 1986; Porter, 1985), executive decision making (Marcel et al., 2010), TMT composition/dynamics (Chen et al., 2010b; Hambrick et al., 1996), and game theory (Chen et al., 1992; von Neumann & Morgenster, 2007).

2. Competitive dynamics

The competitive dynamics perspective conceptualizes competition as the exchange of market-oriented actions that firms use in order to sustain and gain competitive advantage (e.g., Ketchen et al., 2004a). The competitive dynamics perspective's focus on observable market behaviors, dynamic perspective on strategy and acknowledgement of both firms' internal processes and industry-specific factors as important determinants of firms' competitive conduct (Smith et al., 2001a) render the competitive dynamics "lens" a unique perspective of business strategy compared with existing approaches in strategic management and marketing (see Table 1).

Early competitive dynamics research (from the mid-1980s to the early 1990s) was mainly concerned with predicting the likelihood and speed of competitive reactions to various competitive actions, such as product introductions (e.g., Chen & MacMillan, 1992; Chen et al., 1992; Kuester et al., 1999; MacMillan et al., 1985). Subsequently, the likelihood and performance effects of the firm taking competitive initiative (rather than just responding to rivals) (e.g., Chen & Hambrick, 1995; Ferrier et al., 1999) captured researchers' attention as well. More recently, researchers have begun to pay attention to the antecedents and performance effects of firms' competitive conduct, by focusing on the timing (Boyd & Bresser, 2008), repertoires (Miller & Chen, 1994, 1996) and sequencing (e.g., Ferrier, 2001; Rindova et al., 2010) of actions as well as patterns of change in firms' competitive repertoires (Lamberg et al., 2009).

COMPARISON OF APPROACHES					
Approach	References	Theorizes on the basis of observable market behaviors	Dynamic in perspective in theorizing	Acknowledges industry structure in competition	Acknowledges the role of firm-internal processes in competition
<i>Strategic marketing</i>					
Market orientation	Kirca et al., 2005; Kohli & Jaworski, 1990; Kumar et al., 2011; Narver & Slater, 1990; Rong & Wilkinson, 2010	No	No	No	Yes
Marketing resources and capabilities	Hooley et al., 1999; Moorman & Sotegraaf, 1999; Sotegraaf et al., 2003; Song et al., 2005; Srivastava et al., 1999, 2001; Vorhies & Morgan, 2005	No	No	No	Yes
Marketing mix	Grönroos, 1991, 1994; Miller, 2006; Sotegraaf & Pauwels, 2008; Srinivasan et al., 2009; Swait & Erkin, 2002	Yes	Yes	No	No
Resource-advantage theory	Hunt & Lambie, 2000; Hunt & Morgan 1995; Morgan & Hunt, 1997	Yes, but not empirically	Yes	Yes	Yes
Theory of competitive rationality	Dickson, 1992, 1996	Yes, but not empirically	Yes	No	Yes
<i>Strategic management</i>					
Strategic groups	Caves & Porter, 1977; McGee & Thomas, 1986; Ponce et al., 1995; Reger & Huff, 1993	No	No	Yes	Yes, but mainly the cognitive stream
Dynamic capabilities	Eisenhardt & Martin, 2000; Teece, 2007; Teece et al., 1997; Winter, 2003	No	Yes	Yes	Yes
Red queen competition	Barnett, 1997; Barnett & Hanssens, 1996; Barnett & McKendrick, 2004; Barnett & Sorenson, 2002; Barnett & Pontikes, 2008	No	Yes	Yes	Yes
<i>Competitive dynamics</i>					
Competitive dynamics	Reviews: Chen & Miller, 2012; Hutzschenreiter & Isral, 2009; Ketchen et al., 2004a, b; Smith et al., 2001a, b	Yes	Yes	Yes	Yes

Table 1. Comparison of competitive dynamics to other theoretical approaches in strategic marketing and management

Perhaps the best-known framework for understanding competitive dynamics is the awareness-motivation-capability (AMC) framework (e.g., Chen & Miller, 1994; Chen et al., 2007; Smith et al., 2001a). This framework maps the reasons for why firms take or refrain from competitive action into three categories. *Awareness* pertains to the knowledge that a firm has of rival firm actions or market opportunities. Determinants of firm awareness include top management team's decision processes (Hambrick et al., 1996), executive cognition (Marcel et al., 2010) and organizational information-processing capability (Smith et al., 1991). *Motivation* to act may stem from firms' positioning vis-à-vis rivals (e.g., Chen, 1996), perceived problems or opportunities (Derfus et al., 2008; Boyd & Bresser, 2008), anticipation of the longer-term implications of competitive action (Chen et al., 1992; McGrath et al., 1998) and from managers' framing of decision alternatives (Chen, 1996; Ferrier et al., 2002). Finally, *capability* relates to the ability to carry out the competitive action. Determinants of firm capability include slack resources (Ferrier, 2001), organizational conflict (Lamberg et al., 2009), and learned action-taking procedures (Chen & Hambrick, 1995; Young et al., 1996).

The competitive dynamics perspective answers the call of Henry Mintzberg (e.g., Mintzberg, 1978; Mintzberg & Waters, 1985) to view strategy as the "pattern in a stream of decisions." A firm's competitive actions represent its *de facto* business strategy (i.e., how to compete in a particular business). While this starting point seems natural for all strategy research, competitive actions have traditionally been ignored in analyses of firms' strategies (e.g., Peteraf, 1993; Porter, 1981). If theories are considered tools of prediction, "black boxing" how the firm's resources and its competitive environment lead to action is justifiable when we assume that managers can optimally utilize their resources and capabilities and respond to market opportunities and threats. However, black boxing is somewhat undesirable from the perspective of a social science that aims to not just predict events but understand the mechanisms through which market competition works (Durand & Vaara, 2009; Miller & Tsang, 2011; Pajunen, 2008; Tsang, 2006).

Moreover, if competitive actions cannot be fully predicted on the basis of the firm- or industry-specific antecedents of performance, models omitting competitive actions can be misspecified (Wooldridge, 2002). The assumption of bounded rationality has precisely this implication. For example, if a firm does not understand its own capabilities (Danneels, 2011), it will also use them suboptimally, which leads researchers (as well as practitioners, for that matter) to misestimate the extent to which those particular capabilities produce superior performance (King, 2007). The

same goes for analyses of industry structure (see Cool & Dierickx, 1993). For related discussions, see Jacobson (1990) and Bromiley (2005).

Thus, bounded rationality provides a crucial background assumption (cf., Foss, 2003) that justifies the empirical analysis of competitive actions to better explain and/or more accurately predict market competition (Hambrick et al., 1996). The bounded rationality assumption is also the background assumption of many (social) psychological theories that have been used to explain competitive actions (e.g., Anand et al., 2009; Hambrick et al., 1996; Kilduff et al., 2010; Marcel et al., 2010). As already noted by MacMillan and colleagues (1985) and several subsequent works (e.g., Hambrick et al., 1996; Smith et al., 1991), there are cognitive, organizational, and political reasons why an organization's competitive actions do not fully reflect what an almighty or fully "rational" actor would do under the same circumstances. Despite the widespread acceptance and use of this assumption, however, it is my understanding that the ways in which bounded rationality influences competitive dynamics between firms has not been conclusively determined. It is the purpose of the following section to build an understanding of the behavioral foundations of competitive interaction by "working upward" from the assumption of bounded rationality at the individual-level toward the collective, organization-level of analysis (cf., Felin & Foss, 2011).

3. Behavioral assumptions

3.1 Micro-behavioral assumptions

The overarching micro-behavioral assumption of this study is bounded rationality, which refers to the fact that “human behavior is *intendedly* rational but only *boundedly* so” (Simon, 1997 [1947]: 88). Bounded rationality stems from the individual’s limited span of attention, ability to store and retrieve information from memory and capacity to perform complex calculations. Implications include that, in complex environments, boundedly rational individuals cannot know all possible courses of action (e.g., Knudsen & Levinthal, 2007). Individuals typically settle for a satisficing solution rather than optimize over a broad set of alternatives (Simon, 1997 [1947]). People tend to adapt to current circumstances rather than make far-reaching action plans (Dosi & Marengo, 2007). I consider the behavioral foundations of competitive dynamics to be those causal forces that emanate from the bounded rationality of individuals. More specifically, by the study of the behavioral foundations of competitive interaction, I refer to the study of the mechanisms that include the element of bounded rationality and that explain the presence or absence of a firm’s awareness of a rival firm’s actions or market opportunities, motivation to take competitive actions, and capability to do so.

As mentioned in the introduction to this study, one may build on multiple models of bounded rationality in competitive interaction.³ The assumptions about bounded rationality that I focus on include the automaticity of information processing and the importance of intuition judgment and decision making (e.g., Bragh & Chartrand, 1999; Evans, 2008; Kahneman, 2003; Lipshitz et al., 2001). This literature emphasizes that people have

³ For example, one may begin with the assumption that firms’ competitive actions are decided on the basis of elaborate but imperfect mental models, which capture the decision maker’s beliefs about how competitive actions relate to the firm’s profitability or other organizational goals (e.g., Barr et al., 1992). Thus, the firm’s competitive initiatives and responses are a function of the top management’s understanding of the competitive landscape (Marcel et al., 2010). Moreover, it would be possible to focus on, instead of differences in (causal) mental models, how managers cognitively construct the boundaries of markets (e.g., Clark & Montgomery, 1999; Porac et al., 1995) or prioritize competitors within those markets (Tsai et al., 2011). Finally, one might focus on how specific cognitive frames (Chen, 1996; Ferrier et al., 2002) or heuristics and biases (Barnett & Pontikes, 2008) shape whether, which and when a firm employs competitive actions.

much too limited memory and computational powers to be able pay attention to all possible relevant environmental stimuli, consider a large number of decision options and calculate which of the decision options maximizes payoff. Instead, many of the choices that individuals make are made intuitively, based on experience of what works and what does not. This view is consistent with the dual process theory of cognition (e.g., Evans, 2008; Kahneman, 2003). Dual process theory distinguishes between System 1, which refers to fast, automatic, associative and relatively effortless cognitive processes, and System 2, which describes slow, controlled, rule-governed and effortful cognitive processes.

Because System 2 demands so much of the individual's cognitive resources, it can be used only sporadically, while System 1 handles most of the individual's information-processing tasks. Thus, from the recognition of decision-making opportunities in the first place to the framing of information in relation to a decision problem, identifying decision alternatives and weighing the gains and losses associated with decision outcomes stem from the individual's intuitive reactions to stimuli, which accumulate through experience. Simon (1992: 155) describes the role of intuition in expert decision making: "The situation has provided a cue; this cue has given the expert access to information stored in memory, and the information provides the answer. Intuition is nothing more and nothing less than recognition."

There are generally two views of intuition (i.e., System 1): negative and positive. The negative view of System 1 states that System 1 often leads to faulty judgments, which reduces decision-making performance. The "heuristics and biases" school of behavioral decision research represents this view (e.g., Kahneman, 2003; Kahneman & Lovallo, 1993). Naturalistic decision-making researchers (e.g., Lipshitz et al., 2001) and the "fast and frugal" school of heuristics research (e.g., Gigerenzer, 2007; Gigerenzer et al., 1999) represent the positive view of intuition. This view of System 1, conversely, states that through experience, individuals can develop highly effective ways of dealing with decision problems intuitively. The study by Chase and Simon (1973) provides an example of highly functional intuitive decision making. They noticed that chess masters hold in their long-term memory tens of thousands of recognizable game patterns, with which they can arrive at good moves in the game with only a moderate amount of deliberation.

My assumption is that individuals may, through experience, develop effective ways of solving complex problems intuitively. System 2, that is, deliberation, can be used sporadically to complement intuition and, in some instances, to bypass dysfunctional intuitions. However, there are two

requirements for the evolution of appropriate intuitive responses (see Kahneman & Klein, 2009). First, the stimulus indicating a particular problem situation must be reliable; that is, the same stimulus should consistently represent the same decision-making situation. Second, the decision maker's environment must be sufficiently stable to allow for the cognitive establishment of effective stimulus-response pairs in the individual's long-term memory. To the extent that these conditions are met, individuals will develop expertise and skills that are specific to a particular domain. However, if the circumstances change, the individual's intuitive judgments inhibit effective decision making (Dane, 2010). In such cases, the individual may exercise deliberation to bypass dysfunctional intuitions. However, the use of System 2 does not free the individual from the influence of System 1, at least not fully. Consider the example described by Kahneman and Klein (2009: 521)

“Suppose some participants in an experiment are first asked ‘Is the average price of German cars more or less than \$100,000?’ before they are required to provide a numerical estimate of the average cost of German cars. Other respondents ... are first asked whether the average cost of German cars is more or less than \$30,000 ... The original question with the high anchor brings expensive cars to the respondents' mind: Mercedes, BMWs, Audis. The lower anchor is more likely to evoke the image of a beetle and the name Volkswagen. The initial question therefore biases the sample of cars that come to mind The process of estimating the average is a deliberate, System 2 operation, but the bias occurs in the automatic phase in which instances are retrieved from memory. The resulting anchoring effect is large and robust.”

What is worse, most of the intuitive judgments that the individual makes are invisible to the individual in question (Pronin et al., 2004). As a result, the faulty judgments made by System 1 affect the functioning of System 2 without the individual necessarily being aware of the influence. Therefore, deliberation (i.e., System 2) may reduce the biases of System 1 but can never completely eradicate them.

3.2 Consequences of bounded rationality in organizations

3.2.1 Organizational structures

The picture of the individual's cognitive limitations depicted above suggests that people can develop expertise only in narrowly defined domains. Through organizations, such individuals can collectively solve more complex problems (e.g., Bromiley, 2005; Gavetti et al., 2007; Jacobides,

2006; Simon, 1962). As noted by Simon (1955: 34), “organizational structure is inextricably connected with the fact that human rationality is extremely limited in its power in relation to the complexity of the problems with which it copes.” Organizational structures define stable, mostly explicit rules about task allocation, coordination, authority, and communication in the organization (e.g., Ocasio, 1997). The organizational structure decomposes a complex environment into smaller pieces, which are cognitively manageable for an individual equipped with bounded rationality.

Individuals in different parts of the organization frame incoming flows of information differently. They consider some stimuli to be pertinent, while other signals are completely disregarded (Ocasio, 1997). Marketing communications personnel do not need to care much about production, and accounting can ignore matters of product development. A Norway sales office can ignore what is happening in China—not always, of course. The effectiveness of organizational structure is essentially a function of whether the organizational structure decomposes environmental complexity in a way that leads to productive action (Normann, 1971; Simon, 1962).

Poorly designed organizational structures may lead to dysfunctional framing (Jacobides, 2006). For example, Jacobides’ (2007) study of the near war between Greece and Turkey highlights that the escalation of conflict may have been partly due to the narrow framing of issues resulting from the decision makers’ position within the nations’ political and military decision making structures. Other examples of dysfunctional framing include excessively short planning horizons, failures to see wider change patterns in the environment, and the emergence of blind spots between organizational units (Levinthal & March, 1993). Thus, while structures allow organizations to solve problems of much greater complexity than those solvable by individual human beings, any particular organizational form is viable only in particular environments and, if the environment changes, can be subjected to increasing survival hazard (e.g., Hannan & Freeman, 1984)

3.2.2 Organizational routines

Organizations establish routines to handle recurring problems facing the organization. Organizational routines are distinct from individual habits in that they involve interactions among multiple organizational members and are tacitly or explicitly shared within a firm (Becker, 2004; Nelson & Winter, 1982). Through repeating a particular organizational routine, individuals enact a skill, or capability, from the organizational memory without having to develop the skill themselves through repetition (Cohen &

Bacdayan, 1994). This saves the individual's time and effort and hedges against the possibility of skilled individuals leaving the organization (Aime et al., 2009).

One way in which organizations can develop routines is unconsciously, simply because the organization faces similar problem situations recurrently. Further, powerful organizational actors can use language to instruct people about which interaction patterns might be desirable from the point of view of the organization's collective goals. In this way, for example, the top management of the firm may give directions (Grant, 1996), develop manuals (Segelod, 1997), impose processes and rules (Eisenhardt & Sull, 2001), and disseminate information about best practices (Szulanski, 1996) to individuals in the organization, which influences organizational routines (but does not fully determine them) (Pentland & Feldman, 2008).

Routinization is a principal mechanism that explains how a contemporary business organization gets things done (Chandler, 1977; Nelson & Winter, 1982). Mass production is largely based on the routinization and optimization of production activities at the factory floor. Likewise, advertising campaigns are to large extent done similarly from one week to the next. Customer service may also be highly routinized by giving workers manuals and educating workers about how to interact with customers. Even highly complex tasks, such as surgery (Grant, 1996) or flight deck operations (Weick & Roberts, 1993), are largely routines, which reduces the cognitive strain of repetitive activities, allows for the flexible recombination of subroutines (Simon, 1962) and saves computational energy for solving exceptions that arise in the moment (Garicano, 2000). However, routines achieve their benefits by reducing the amount of thinking that goes into a particular activity (content or process). This, just like aircraft autopilots can misguide airplanes, routinization can lead to negative organizational outcomes (Turner & Rindova, 2012). Even when dysfunctional, routines may resist change (Feldman, 2003) and, as such, pose a survival hazard for organizations (Barnett & Hansen, 1996).

3.3 Change in structures and routines

3.3.1 Players as agents of change

A hierarchical organization that runs on organizational routines has been described using the metaphor of "autopilot" (Jacobides, 2007). However, both structure and routines are subject to change. One important agent of change is an individual, who is called a "player" (Ocasio, 1997: 197). An

executive, for example, may direct the sales representatives of different regional units to meet periodically to exchange ideas, and this can gradually develop into a routine. Players are individuals that have considerable power in the organization, and they exercise their discretion to “override” the organizational autopilot, develop new routines (Salvato, 2009) and disseminate best practices (Szulanski, 1996; Winter & Szulanski, 2001). Usually, these individuals are the CEO and his or her top management team. They can impose new rules, develop routines and engage in “exception management” in which they override rules and routines to directly make decisions about specific organizational actions (competitive or otherwise) (Zollo & Winter, 2002).

The players in the organization may oversee the organization and find that the organization is functioning as intended and consistently with what is going on in the environment. The authority provided by hierarchy allows certain individuals to detect and break dysfunctional routines (Teece, 2007) and counterproductive framing of the environment (Jacobides, 2007) and to aggregate and disseminate knowledge (Grant, 1996; Stieglitz & Heine, 2007). The top management can also solve internal disputes by fiat, although this depends on the power distribution of the organization.

3.3.2 Evolution of organizational routines

Organizational routines also evolve. First, organizations can invest in “meta-routines,” sometimes called “dynamic capabilities,” to change existing routines and provide a source of organizational renewal (Adler et al., 1999; Eisenhardt & Martin, 2000). Examples include business process re-engineering, continuous improvement, research and development and even strategic planning processes in general. Second, as argued by contemporary routine researchers, such as Feldman and Pentland (2003), routines should, at the outset, be conceptualized as a source of flexibility and change. Performances of a routine may follow a generic blueprint for action (called the ostensive aspect of a routine), but each performance is unique and may be adapted to local circumstances. Indeed, the routinization of work frees up cognitive resources and provides a sense-making framework with which to detect and adapt to changes in the environment (Weick & Roberts 1993; Becker 2004). Slight variations in the specific performances of routines “mutate” them, which leads to organizational change over time through selection and retention mechanisms (Nelson & Winter 1982; Feldman & Pentland 2003). Such organizational change can be aided by timely interventions by top management (e.g., Salvato, 2009).

However, the evolution of routines is contingent on the organizational structure, which defines who may override and redesign routines. In addition, the organizational structure limits whom people interact with and how. This naturally also constrains the evolution of routines. For example, if there is no interaction between the research and development department and the marketing department, a joint routine cannot develop. As such, organizational structure—if it mismatches the demands from the environment—can produce fatal patterns in the evolution of organizational routines. Here, too, the role of top management is important, as they can potentially see and intervene in a counterproductive drifting of organizational routines (Johnson, 1986).

4. Routines as a behavioral foundation of competitive interaction

4.1 Competitive actions and the market process

The core elements of the research framework are summarized in Figure 1. My conceptualization of competition rests on the concept of a market process, as articulated by Austrian economists (Kirzner, 1997; Jacobson, 1992). At any given point in time, there are market opportunities that result from the unsatisfied needs of existing and potential customers. There may be fragments of information that indicate opportunities (e.g., customer dissatisfaction with a product or service; growth in the number of users of a product), but the market opportunities become apparent only *ex post*, after firms take competitive action. Such actions include, for example, product launches, geographical expansion, advertising campaigns, and price changes. My definition of competitive action directly concerns competition within the product or service market, although they may presuppose actions in the factor market as well (e.g., actions to secure scarce resources) (e.g., Chen, 1996; Gardner, 2005). Competitive actions might also include those internal to the company (e.g., reconfiguration of resources) (e.g., Zott, 2003) and entries into novel markets (Barnett & Hansen, 1996), but such actions are outside the scope of this study.

The role of rival firms is threefold. First, the performance implications of the focal firm's actions depend on the actions of rival firms. An advertising campaign or price cut may increase the firm's market share but only if the rival firm does not immediately respond with an equally or more effective competitive move (Rust et al., 2004). Second, the rival firm's performance acts as a cue, which signals the firm about market opportunities and causes adjustment of the focal firm's performance aspiration levels (e.g., Greve, 2008). It is well established that firms use rivals as reference points in making their own decisions, which may sometimes lead to retaliatory behavior that erodes firm and industry profits (Armstrong & Collopy, 1996). Third, the rival firm's actions provide information about the effectiveness of

different competitive actions and indicate possible ways in which the firm should take action (Anand et al., 2009; Boyd & Bresser, 2008).

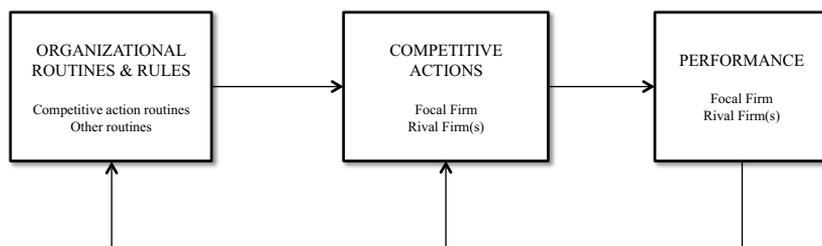


Figure 1. Research framework

4.2 Routine-based view of interfirm rivalry

In the previous section, we saw that multiple assumptions of bounded rationality are possible. One specific model was adopted, with an emphasis on automaticity in individual information processing, which gives rise to a routine-based view of firms, utilized, most notably, in the behavioral theory of the firm (Cyert & March, 1992; March & Simon, 1993; Gavetti et al., 2012) and evolutionary organization theory (Dosi & Marengo, 2007; Nelson & Winter, 1982). However, even within this narrower model of bounded rationality in competition, there are multiple avenues of research. One possibility is to focus on how organizational structure, through guiding attention and decision-making processes (Ocasio, 1997; Sah & Stiglitz, 1986) influences the competitive actions of a firm. Alternatively, one could conceptualize competitive maneuvering as a form of exception management (Garicano, 2000), where managers have to interpret competitive signals and implement appropriate responses within the constraints of the organizational structure and routines (Jacobides, 2007; Miller & Chen, 1994). Finally, one may take organizational routines and rules not as a constraint that managers have to consider in deciding on competitive actions but as the very foundation of the firm's capacity to compete in a particular market.

I adopt the last of these perspectives. The justification for this framing stems from the relative neglect of this perspective in the existing literature on competitive dynamics. The connection between individual-level assumptions and the nature of rivalry I make is largely consistent with the position taken by Winter (2013) about the micro-foundations of capabilities. He argues that recent psychological research about intuition and habit in individual-level decision making is consistent with the notion that the manner in which organizations became capable of performing tasks stems from the collective routinization of activities. My argument is that we

can better understand the phenomenon of rivalry by bringing the Winterian routine-based view of organizational capabilities into a dialogue with competitive dynamics. I see the intersection between the two disparate streams of literature as a fruitful source of new insights for understanding both competition and organizational capabilities.

All of a firm's routines potentially influence its competitive behavior. However, not all routines have the same effect. Dickson (2003) notes that routines are hierarchically organized. Firms have operational routines, which directly concern the processes that allow firms to make money. These routines include activities related to production, sales, and logistics. While operational routines make an organization operate efficiently, they constrain the firm's competitive activity, as competitive actions usually require reliance on and disruption of operational routines (Barnett & Hansen, 1996; Miller & Chen, 1994; Ferrier, 2001; Winter, 2006).

Routines that are related to competitive actions operate at a higher level (Collis, 1994; Winter, 2003) and are called *competitive action routines* in this study. Competitive action routines are related not only decision making concerning individual actions (e.g., Marcel et al., 2010) but also identifying opportunities to make a decision in the first place (Cohen et al., 1972; Mintzberg et al., 1976) as well as executing actions (e.g., Chen & Hambrick, 1995; MacMillan et al., 1985). Competitive action routines include routines related to market analyses, product development processes, pricing schemes, and decision-making policies, rules and procedures, as well as signaling to rivals, applying for permits or licenses for action, and copying and modifying existing operational routines. While these routines are evidently a crucial aspect of any firm's competitive maneuvering, they have received very little attention in the existing competitive dynamics literature.

A firm's routines and rules are a function of experience, which most notably consists partly of the firm's performance feedback that informs which of the firm's routines and rules work and which do not (Eisenhardt & Sull, 2001; Felin & Foss, 2011). Thus, the firm's past competitive actions—through affecting firm performance—generate a residual effect on future competitive actions. This residual effect has been identified in prior research as well. For example, Kilduff et al. (2010) note that past experiences of rivalry increase the likelihood of rivalry between firms in the future. Similarly, Marcel et al. (2010) finds that the competitive actions of a firm are a function of executive cognitive frameworks, which emerge partly from the firm's past competitive experiences. Barnett and Pontikes (2008) recognize that past successes result in managerial overconfidence, which may trigger further action. I assume that the effect of history on the present occurs through the cumulative change in organizational routines and

routines that, in turn, are a function of the firm's past competitive actions. Environmental feedback generates cumulative effects on a firm's competitive behavior by gradually shaping the competitive action routines and decision rules in the organization. Thus, the firm's actions typically are influenced by the firm's history, not just by the objective competitive circumstances of the present moment and the rival firms' actions in the past year or quartile (Cohen & Bacdayan, 1994)

Finally, the firm's top management (or other powerful individuals in the organization) may override the firm's customary way of doing things. These individuals can impose new rules, develop routines and engage in "exception management" in which they directly make decisions about some "sporadic" competitive actions (Winter, 2003; Zollo & Winter, 2002). Sporadicity is a logical consequence of the bounded rationality of the top management team members. As the number of actions of a firm increases, it become simply impossible—as is the case with any organizational activity—for a few individuals to cognitively handle all the parts of the system. Thus, the firm's competitive activity is an aggregation of routinized actions and actions improvised by individuals in the organization that have the power to do so. The essential meta-level decision problem of the key individuals in an organization is to decide the extent to which the firm should improvise its actions and to what extent actions can be routinized.

With this theoretical frame in mind, the purpose of the four essays is to contribute to our understanding of routines as a behavioral foundation of competitive interactions. The four essays in the study not only (i) directly contribute to our understanding of competitive dynamics, by using routines and rules as central explanatory constructs, but also (ii) demonstrate the explanatory potential of the routine-based view of interfirm rivalry.

5. Methodology

5.1 Ontology and epistemology

This study adopts the perspective of critical realism (e.g., Bhaskar, 2008; Sayer, 2000), which has become a popular alternative to positivism in marketing (Easton, 2010), strategic management (Miller & Tsang, 2011), and economics (Downward & Mearman, 2007). The ontological assumption of critical realism is that there is a material world, which exists independently of the human mind (Bhaskar, 2008: 13). The social domain is thought to exist independently of the scientists that observe it—but not of the humans that constitute it (Kwan & Tsang, 2001: 1165). Reality consists of interacting open systems, in which the systems and their parts possess causal powers (Bhaskar, 2008: 14, 49-50), i.e., the potential to change the behavior of other parts of the system or other systems. The epistemology of critical realism is centered on the notion of mechanistic (Tsang, 2006: 999) or mechanistic (Glennan, 2002: 342) explanation. Critical realism refers to the idea that researchers try to identify causal mechanisms and interactions among multiple system parts, which produce events and outcomes. This notion of causality is contextual, meaning that the same mechanisms can produce different outcomes and events in different circumstances, that mechanisms do not always produce empirical regularities (e.g., correlations), and that mechanisms can be counteracted by other mechanisms. Hence, the positivist ideal of immutable laws that take the form of correlational patterns is rejected (Ron, 2002).

5.2 Mixed methods and data triangulation

This study adopts a mixed methods approach, that is, combines qualitative and quantitative methods to address a research problem (Jick, 1979). In addition, I use multiple empirical contexts. In other words, I engage in both data and methodological triangulation (Downward & Mearman, 2007). From the point of view of critical realism, the desirability of mixed methods research (and data triangulation) stems from the nature of research

methods. As the point of research methods is to guide the researcher's attention in a systematic way to produce insights, any method will be able to give only certain kinds of insights while suppressing other viewpoints (Mingers & Brockelsby, 1997: 492). As we have seen, the point of critical realism is to produce knowledge about the causal mechanisms underlying empirical phenomena (possibly regularities) (Goldthorpe, 2001). Thus, by mixing methods, the researcher is more likely to identify different mechanisms connected with the same set of phenomena (Downward & Mearman, 2007). This is the motivation of mixed methods research. Different methods provide different "clues" for the researcher who, like a detective, tries to uncover evidence that indicates the (non-) existence of different causal mechanisms.

Unlike in positivism, in the critical realist perspective, data triangulation is not considered primarily as a means to confirm the results of one study in another context. Nor is there a sharp distinction between qualitative research as a theory-development method and quantitative research as a theory-testing method. Instead, mixing methods and data is seen as an approach that produces complementary pieces of knowledge about causal mechanisms (Downward & Mearman, 2007). The diversity of methods and empirical contexts will more likely lead to a richer understanding of the causal mechanisms at play in relation to the research problem compared to an approach that relies on only one context and method.

5.3 Empirical contexts and data

5.3.1 Finnish grocery retailing industry (1960-1995)

I will briefly introduce the empirical contexts here and point out some of their interesting characteristics from the point of view of the research questions. The Finnish retail industry was very fragmented in the 19th century. During the first half of the 20th century, four groups of retailers were formed. Thus, competition changed from that between independent shops to that between networks of retail organizations. The networks were organized hierarchically in the sense that their cooperation was coordinated by four nationwide central organizations. Two of these were central organizations of for-profit retailers, while two were owned by consumer co-operatives. The two privately owned firms were Tuko and Kesko, the market leader and the market challenger in terms of grocery sales volumes in 1960. Essays I-II focus on the competitive behavior of these two organizations. The time period of interest is 1960-1995 because it represents a stage where the speed and frequency of competitive actions,

namely, new store openings, was essential for the competitiveness of the retail organizations. Kesko was generally more active in store openings than Tuko, which caused the firms' market positions to be reversed by the mid-1990s. Moreover, both firms progressively routinized their store-opening actions. Together, these characteristics of the empirical context indicate that studying Kesko and Tuko provides an exceptional opportunity to analyze the role of organizational routines in shaping the firms' awareness, motivation and capability to perform competitive actions.

The data encompass thousands of pages of *in situ* evidence of the decision making and competitive actions of the competing organizations. The evidence includes annual reports, personnel magazines, letters, meeting minutes, market analysis reports, unit-level periodical reports, memos, manuals, and other documents. These data were mainly gathered from the archives of the organizations. The total amount of archive material used was about 20,000 pages, which were selected from about over 100 shelf meters of archives for closer inspection. To illustrate, Figure 2 shows an excerpt of Kesko's internal memo (October 28th, 1976) which specifies rules for store placing rules for different store types. This piece of evidence gives an indication that the organization's search for new retail outlets has been directed by a relatively clear vision of appropriate search procedures in this particular point in time. Pieces of evidence such as this were used to reconstruct how the competition unfolded over time and to track changes in how the firms organized and routinized their competitive maneuvering internally. Details of these data and their use are provided in Essays I-II.

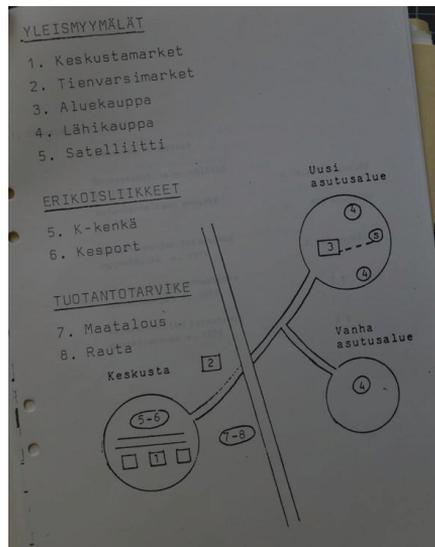


Figure 2. Evidence of Kesko's store location criteria (mid-1970s).

In addition, three sources were used to supplement the primary evidence. First, existing historical accounts (e.g., Lainema, 2009; Hoffman, 1990) and

previous academic studies of the context (e.g., Lamberg & Tikkanen, 2006; Lamberg et al., 2009; Valorinta et al., 2011) were used as sources of additional holistic understanding. Second, I also personally interacted with six former executives and managers from the two organizations. Forms of interaction included semi-structured interviews, emails, phone conversations, face-to-face discussions and commentaries on earlier versions of Essay II. Some individuals also shared with me material from their personal archives. One informant sent me his retrospective essays concerning competition in Finnish retailing from the point of view of his organization and joined me on one of my trips to the company archives. Third, two of my co-authors, the second author in Essay II and third author in Essay IV, had performed extensive archival research and several interviews with various industry informants (including, but not limited to the managers of the focal organizations) for over a decade before I started this research project. They openly shared their data about the industry, which was used to the extent possible.

In sum, the research results are based on archival evidence and historical accounts (written and oral). The retrospective interviews and discussions with informants were mainly used as a way to navigate the archives rather than as evidence in themselves, mainly because of the potential biases stemming from retrospective accounts (Golden, 1992). However, the benefits of these interviews and discussions should not be underestimated. Even the material that I handpicked for closer inspection was very extensive. More importantly, the archival evidence is not written with a future researcher in mind. Understanding what is going on in the data requires a good understanding of the history and logic of the industry for the material to make any sense. Thus, what in the beginning of the research project might have seemed like a useless piece of paper turned out later in the research project, as my understanding deepened, to be invaluable evidence. Thus, the holistic understanding built through interviews and discussions helped me to make important discoveries from the archival material.

5.3.2 Finnish mutual fund industry (1997-2009)

The Finnish retail industry presents a context characterized by relatively intense store-opening competition for store sites and moderately low level of environmental unpredictability. As such, this context is not very different from extant competitive dynamics studies, which have focused on mature industries (Smith et al., 2001a). Some of the important behavioral mechanisms behind firms' competitive interaction may have been missed because of this focus. Against this backdrop, the Finnish mutual fund

industry is interesting for its rapid growth, uncertainty and dynamism during the study period. The industry may provide different kinds of insights about the role of organizational routines and rules in the determination of the firm's competitive actions. These data are used in Essay III.

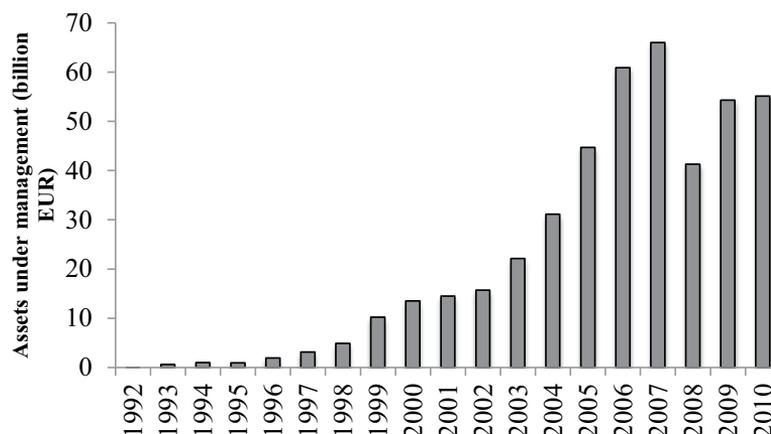


Figure 3. Growth of the Finnish mutual fund industry

The Finnish mutual fund industry was established in 1987. However, because of the banking crisis in the late 1980s and the early 1990s, the sales, entry and competitive activity of the industry did not take off until the mid-1990s. The focal study period begins in 1997 when sales in the industry were starting to take off. This is illustrated in Figure 3. Simultaneously, the number of new mutual funds launched, and entries into the industry started to increase.

The data from this empirical context are quantitative in character, encompassing a database of the firm's competitive actions and various firm and industry variables that may drive the firms' competitive behavior. The data were aggregated mainly from *Mutual Fund Reports* published by Investment Research Finland Ltd. These reports contain information about each fund registered in Finland, providing a detailed view of changes in how firms competed with each other in the industry. Several other data sources were used to obtain information about the firms' financial status (e.g., *Voitto+*), mergers and acquisitions (e.g., Annual Reports) and advertising expenditure (e.g., TNS Gallup). Qualitative data (e.g., annual reports, fund prospectuses, thousands of scanned pages from several mutual fund firms' customer magazines [e.g., Aktia's *Rahastosäästäjä*, Evli's *Luotain*, eQ's *Meklari*, Nordea's *Rahastot Nyt*] and *Arvopaperi*, a magazine for investors) were used to support the quantitative analysis.

5.4 Methods

The details of the analytical techniques are presented in the individual essays, but I will present here an overview of the chosen approaches. First, historical research is applied in Essay I and Essay II. Historical management research involves starting with an interesting outcome or pattern of events and tracing the causal mechanisms leading to that outcome (Burgelman, 2011). Historical researchers use what is known as retroduction (Hanson, 1958; Steel, 2004; Pajunen, 2008), which combines existing theoretical knowledge with analysis of empirical material to explain observed events. The historical research method in organizational and management studies differs from “pure” historical research in that there is an interest in not only to explain a particular (historically unique) outcome but also to draw more general theoretical conclusions. As the real world is always more complex than any model of it, historical evidence highlights exceptions, contradictions and gaps in established theory. These discrepancies represent gaps in the literature that can be filled with further theorizing based on the historical evidence (Danneels, 2011). Historical researchers strive to make analytical instead of statistical generalizations about the case (Eisenhardt, 1989; Siggelkow, 2007). However, the researcher will often remain agnostic about the possibility that the proposed causal mechanisms produce certain kinds of empirical regularities in other contexts (Goldthorpe, 2001; Pajunen, 2008).

Second, Essay III uses regression analysis. Critical realists disagree about whether regression analysis is appropriate for the social sciences. Some argue from a critical realist perspective that the regularities, which mechanisms give rise to, are not an important focus of research (Pajunen, 2008: 1450). However, Miller and Tsang (2010: 151) argue that regression analysis can be an important tool for a researcher operating within the critical realist paradigm. Regression analysis can be used to test for the effects of causal mechanisms (Ron, 2002). Correlation patterns between variables may be taken as indirect evidence of the existence of a causal mechanism (*ibid.*: 148). Thus, unlike for a positivist, for a critical realist, the identification of correlation patterns is not the end or goal of empirical inquiry, but its starting point. A researcher who uses regression analysis can identify empirical regularities and use retroductive reasoning (Hanson, 1958) to infer the causal mechanisms that might explain those regularities. The properties of a regression model (e.g., statistical significance, explanatory power, regression coefficients) are not a characterization of some population characteristics based on a sample (Miller & Tsang, 2010: 151). Instead, these properties help the researcher in the effort to

understand which kinds of causal mechanisms are at play in the particular context the researcher is investigating (Ron, 2002).

Third, Essay IV uses a computational approach. Historical research and regression methods, by themselves, have some limitations when identifying and testing for the existence of causal mechanisms in an empirical setting. Researchers employing both types of methods typically use natural language to describe mechanisms. Given the imprecision of natural language but, more important, the inability of natural language to capture dynamic phenomena, researchers may attribute more to the causal mechanisms that they identify than what the mechanisms actually explain (Sastry, 1997: 237). Alternatively, when researchers propose causal mechanisms, they may not be fully able to infer all the implications of the causal mechanisms. In both cases, the difficulties arise from the *researcher's* own bounded rationality. He or she cannot fully grasp the dynamic patterns that might arise from a set of proposed mechanisms (see Cronin et al., 2009).

Computation modeling, or computer simulation, can address this challenge. Computational modeling involves specifying a set of assumptions and using computer simulations to gauge the possible behavioral patterns that can emerge from the assumptions (Burton & Obel, 2011: 1195). In this way, a critical realist researcher can both determine whether a causal mechanism can indeed be responsible for a specific outcome, pattern or empirical regularity and gain additional insights from existing knowledge, which is cognitively inaccessible to the researcher because of the difficulty of mentally inferring the full implications of the complex interactions of multiple causal mechanisms.

In sum, all three methods have different kinds of limitations. Historical research is an intensive research approach that identifies causal mechanisms related to a specific outcome in a specific context. Regression analysis can be used to infer causal mechanisms in a more extensive research design, which facilitates reasoning about the relative strength of different mechanisms. However, this comes at the cost of empirical precision. There are more gaps in the evidence that have to be filled with theoretical assumptions. Computational modeling may be used to complement both historical research and regression-based knowledge about causal mechanisms. Computational modeling can be used to draw new conclusions from established knowledge about causal mechanisms as well as to scrutinize claims made about causal mechanisms. Thus, combining the insights produced by the different methods may lead to a more rounded understanding of the role of organizational routines and rules in rivalry.

6. Results and contributions

6.1 Routine-based awareness, motivation and capability

The first research question concerned understanding the role of organizational routines and rules as a basis of the firm's competitive actions. Essays I-II use the case of competition related to store openings in the Finnish retail industry to demonstrate the importance of "competitive action routines" as a foundation for a firm's capacity to maneuver in a rapidly changing competitive landscape. Competitive action routines are defined as repeated patterns of interaction through which a firm performs its competitive actions. While the existing literature often portrays routines as a bureaucratic obstacle to creative and flexible competitive maneuvering (e.g., Miller & Chen, 1994; Ferrier, 2001), I argue that the speed of change in the environment faced by large and complex organizations renders the routinization of competitive actions a necessary administrative solution that helps to keep up with the challenges of rivalry, despite the inertia and momentum that is, at the same time, unavoidably associated with routinization.

Essay I proposes competitive action routines as a part of an answer to the question of how firms can grow their level of competitive activity. Rivalry consists of not only acting and reacting in familiar ways but also adopting new competitive actions and increasing the volume of activity in those actions. The study focuses on the efforts of a collective of Finnish wholesalers and their central organization, Tuko, to increase their activity in store openings. For these organizations, store openings used to be a peripheral action in the competitive repertoires of the firms. However, the economic growth, population movement and growth and de-regulation occurring after the Second World War created the need for the wholesalers to adopt a more proactive approach to renewing their store portfolios than before. In other words, activity in store openings needed to increase to ensure survival.

The case study identifies three interacting behavioral preconditions to growing competitive activity: cognitively re-framing competition throughout the organization, establishing new competitive action routines,

and enabling adequate resource coordination. With these results, the study elucidates what I call the growth trajectory of the firm's competitive activity, an issue that has received very little attention in the competitive dynamics literature. Usually growing competitive activity is seen as a strategic choice by a firm in the face of possible retaliation by rivals (Baum & Korn, 1996; Chen et al., 2007; McGrath et al., 1998). Conversely, I view growing competitive activity as an administrative problem faced by the firm's managers who must overcome several cognitive and political barriers when trying to increase the competitive activity of their firm.

The most important contribution of the essay with regard to the overall theme of the study is the re-framing of the argument made in the existing competitive dynamics literature about the role of organizational routines as a foundation of a firm's awareness of rival firm actions or market opportunities, motivation to act and capability to do so. While the existing literature suggests that the *presence* of old routines in the organization blocks competitive actions (e.g., Ferrie, 2001; Miller & Chen, 1994; Smith et al., 2001a), I argue that it is the *absence* of new competitive action routines that blocks the firm's capacity to grow its level of activity in the use of new competitive actions.

While Essay I takes a broad view of competition related to store openings in Finnish retailing, situating routines are part of a larger configuration of elements influencing the firm's competitive actions, Essay II focuses more specifically on the nature and consequences of store-opening routines of Tuko and Kesko. This tighter focus enables a more elaborated exposition of the role of competitive action routines in rivalry. By studying the same routines in two very different organizations, the study also indicates that competitive action routines may be useful across organizational forms. The case study depicts competitive decision making as a largely distributed activity, where the role of the top management team is not to design individual actions but rather to engage in administrative activities that create and shape new competitive action routines.

The most important contribution of the study is the recognition that the trade-offs associated with the routinization of competitive actions cannot be fully captured by investigating the matter as the balance between flexibility with respect to environmental dynamism and efficiency with respect to the need to keep the costs of organizational activities in check (Davis et al., 2009; Eisenhardt et al., 2010). The case study demonstrates that the interactions between rivalrous firms should be regarded as a "meso-level" between the firm and its environment that can reveal new trade-offs pertaining to the routinization of competitive actions. My co-author and I argue that to the extent that the routinization of competitive actions

provides *comparative* advantages over rivals, they need not be beneficial for the firm in a more absolute sense. Thus, firms may outcompete their rivals with routines, even though these routines potentially diminish the fit between the firm and its environment.

More specifically, in certain competitive settings, routinization is beneficial despite the fact it results in some degree of inflexibility in a firm's competitive actions. First, we find that contexts in which competitive actions can be used to pre-empt rivals the speed gains associated with routinization increase in value. Pre-emption is possible when, for example, there is a scarcity of resources that are required by the actions, when regulations or laws limit the number of actions that can be taken, when customers' switching costs are high or when actions require exclusive partnerships with other organizations. Second, contexts in which past competitive activity has strong positive feedback effects that facilitate subsequent actions can make the transient advantages of routinization more permanent. Positive feedback effects refer here to economies of scale, market power, network externalities and relationships with suppliers and other stakeholders, which accumulate through past competitive activity and facilitate subsequent actions. Under these two conditions (i.e., pre-emption and positive feedback), routinization may be necessary to survive the short-term challenges of rivalry despite the potential downsides of routinization in the long term (Levinthal & Posen, 2007).

Essay III investigates the role of routines in rivalry in a nascent market context. By drawing on the concept of competitive action routines, my co-authors and I seek to understand how the amount of past experience of Finnish mutual fund companies with product-line extensions shaped their subsequent product launch activities. Drawing our behavioral assumptions from the routine (e.g., Turner & Rindova, 2012) and organizational capability literature (e.g., Barnett & Hansen, 1996; Bingham et al., 2007), my co-authors and I hypothesize that the firm's recent experiences are useful but that more distant experiences begin to cognitively close off opportunities. Thus, the progressive routinization of competitive actions initially helps but eventually hampers a firm's capacity to capture new opportunities. Surprisingly, a superior fit with the data is obtained with a simpler hypothesis. This hypothesis is based on the additional behavioral assumption that organizations have a capacity to forget past lessons (de Holan & Phillips, 2004), through bypassing, redesigning, dismantling and reducing adherence to old routines (e.g., Teece, 2007). We find the result consistent with this assumption that experience has mainly a positive effect on subsequent activity, but this effect additionally wears off over time. Consequently, at least in the nascent product market that we study,

although experience seems to have a diminishing effect of subsequent competitive activities, organizational forgetting may protect most firms from the cognitive entrenchment stemming from routinization based on past experiences.

6.2 Development of competitive interaction over time

The second research question focused on the role of environmental feedback in shaping competitive interaction patterns and performance outcomes over time. In Essay III, one particularly interesting empirical phenomenon was that in the Finnish mutual fund industry, there has been a clear industry-level pattern in product launch activity, but the firms have adopted very different strategies in terms of when and how often to launch new products. By controlling for a number of differences between firms in terms of strategy and resources, as well as for differences in the environmental conditions, the results indicate that feedback can result in substantial *ex post* intraindustry heterogeneity in terms of competitive activities—potentially even when the firms are *ex ante* identical. The identified effect between the firms' product launch experience and subsequent activity is a positive feedback mechanism that tends to amplify small differences among firms by generating divergent paths of organizational evolution in terms of routines and rules. Thus, while, on average, the product launch activity follows a very clear pattern, the firm-specific experiences may generate very different patterns of market expansion through the introduction of new products.

In Essay IV, my co-authors and I continue with the same theme of explaining the cumulative effect of feedback on the evolution of competitive interaction patterns. It has been acknowledged that firms rely on simple decision rules in deciding on competitive actions (Marcel et al., 2010), and these decision rules are known to change in response to performance feedback (e.g., Bingham et al., 2007). However, while these assumptions suggest that several feedback loops affect rivalry, the patterns of competitive interaction resulting from these feedback loops have not been thoroughly studied. Our computational modeling (e.g., Jacobides, 2008; Zott, 2003), specifically, system dynamics (Sastry, 1997), provides a suitable method for addressing this question.

The study offers a parsimonious model of the behavioral dynamics of market competition, based on the cognitive psychological (e.g., Kahneman & Klein, 2009; Lipshitz et al., 2001) and organization theoretical (e.g., Bingham & Eisenhardt, 2011; Cyert & March, 1992) notion that that boundedly rational managers make decisions on the basis of simple

decision rules that emerge and evolve in response to experience. This model has two important emergent properties.

First, the study reconciles earlier tension about the performance effects of competitive actions (e.g., Derfus et al., 2008; Young et al., 1996). We argue that the notion of feedback—more specifically, the assumption that the consequences of past competitive actions shape the decision rules with which firms decide on future actions—explains why a high level of competitive activity increases firm performance but tends to erode industry profits at the same time. We explain why empirical evidence and practical experience may suggest that increasing the firm’s level of competitive activity increases performance, even if the “true” relationship between competitive activity and performance follows an inverted U-shaped curve. Second, we use the model to show how heterogeneity in competitive behavior can be traced to differences in decision rules and differences in firms’ information processing abilities. However, heterogeneity in firms’ levels of competitive activity can also emerge purely as the result of the “process” of competition among *ex ante* identical firms (Ferrier, 2001; see also Essay III). This last point underscores the importance of paying attention to the history of competition between firms to understand how they engage with rivals in the present moment.

7. Conclusions

7.1 Contributions

7.1.1 Research contributions

The purpose of the study was to elucidate the behavioral foundations of competitive interaction. As noted by Chen and Miller (2012: 162), “[e]arly competitive dynamics work tended to be phenomenon-driven and aimed to articulate some important competitive concerns. At the same time, it applied theories from relevant fields and adopted quite rigorous empirical and methodological standards.” The authors argue that the awareness-motivation-capability perspective provides a “research platform” that can aggregate research results and inform further inquiry. While I agree that this is a useful approach, I additionally argue that we need to pay more attention to the micro-behavioral foundations of our theories of competitive interaction. There is a need to “work up” from a set of micro-behavioral assumptions in order to develop broader theoretical frameworks, which can inform theoretical and empirical inquiry (cf., Bromiley et al., 2002; Felin & Foss, 2011; Foss, 2003; Teece, 2007).

In this study, I built on the micro-behavioral assumption of bounded rationality and explored the possibility of a routine-based understanding of the determination of firms’ competitive conduct. Even though the routine-based lens on interfirm rivalry is intuitively valid, it has been studied to a relatively limited extent in the competitive dynamics literature. Admittedly, my study represents an “interim struggle,” rather than a strong theory about routine-based rivalry (Weick, 1995). Nevertheless, I have taken a step toward a better understanding of routines as a behavioral foundation of competitive interaction and hope that this study will help stimulate future research in the area.

The purpose of the four essays was to put flesh around the bones of a routine-based understanding of interfirm rivalry. The historical case studies demonstrate the importance of developing appropriate competitive action routines in the context of competition related to store openings in Finnish grocery retailing. On the one hand, when firms need to grow their activity in

the use of a competitive action, such as store openings, large organizations may have serious difficulties in doing so without establishing appropriate competitive action routines (see Essay I). On the other hand, certain features of rivalry—e.g., the extent to which the opportunities for action are restricted (e.g., due to resource scarcity or regulation) and the strength of positive feedback effects from past to subsequent activity (e.g., economies of scale)—can increase the benefits of routinization even further. Thus, while many competitive dynamics scholars view routinization of actions in a negative light (e.g., Miller & Chen, 1994; Smith et al., 2001a), I portray organizational routines as a valuable, often indispensable foundation of the firm's capacity to maneuver at an adequate speed in the competitive landscape.

The quantitative study of the Finnish mutual fund industry (Essay III) and computational study (Essay IV) provide complementary evidence and add to our understanding of the routine-based view of interfirm rivalry. Essay III demonstrates empirically that the assumption that firms develop various competitive action routines to guide their attention and responses to market opportunities helps explain intraindustry variation in product launch activities in a nascent market context. In a similar vein, Essay IV, which focuses on simulating decision rules that shape firms' decisions about their levels of competitive activity, shows that existing empirical regularities pertaining to the competitive behavior and performance of firms can be explained purely as the result of a feedback mechanism through which firms' decision rules evolve. Taken together, environmental feedback can generate heterogeneity in the ways in which firms compete with each other by changing organizational routines and rules, even if organizational resources and industry structure are held constant.

In addition to the contributions of the individual essays, the study taken as a whole offers novel research contributions to the literature on strategic management and marketing. First, the routine-based view of interfirm rivalry balances the almost exclusive focus of existing competitive dynamics literature on the very top-level members of organizations (however, see, MacMillan et al., 1985). Researchers have explained competitive behavior at the firm level mainly with behavioral factors related to the chief executive officer (CEO) (e.g., Marcel et al., 2010) and top management team (TMT) (e.g., Hambrick et al., 1996). Conversely, the routine-based approach to the study of interfirm rivalry acknowledges that the firm's competitive behavior is a collective enterprise of multiple individuals who have limited understandings of the competitive situation. Through routines, large organizations are able to perform much more complex competitive actions than any small number of individuals could (e.g., top management team).

At the same time, the participation of several individuals makes it clear that the firm's actions may be challenging to perform, not only because of problems with coordination, but also because of organizational politics (Zbaracki & Bergen, 2010).

Second, the study as a whole contributes to the more general discussion about the role of behavioral factors in strategy (e.g., Gavetti, 2012; Levinthal, 2011; Powell et al., 2011; Winter, 2012). The essays indicate that the interactions between rivalrous firms constitutes a *meso-level of analysis*, which is important when explaining heterogeneity that results from various behavioral factors. As noted by Katila and Chen (2008), most of the behavioral strategy research tends to ignore this fact. For many behavioral strategy scholars, performance heterogeneity emerges from firms' imperfect understanding of their environments, which are complex. However, the environment is usually taken as given (cf., Hoffman, 2007). The rival-centric thinking of the competitive dynamics perspective is important for "behavioral strategists" because competitive interdependence between firms is an additional source of complexity, which generates heterogeneity between firms. As firms have agency over competition, competitive interdependence does not fit comfortably within the broad "environment" construct. Thus, performance heterogeneity emanates not only the degree of fit between the firm and its environment (e.g., Levinthal, 1997; Lenox et al., 2006, 2007; Pérez-Nordvedt et al., 2008) but also the firm's ability to outcompete rivals (e.g., Carroll & Harrison, 1994; Levinthal & Posen, 2007).

Third, the study extends the methodological smorgasbord of competitive dynamics research. Most of the existing competitive dynamics research has used regression analyses and large-scale competitive action databases to test theories about competitive interaction. The use of in-depth historical research as well as computational modeling has been largely missing from the study of competitive interaction, at least within the awareness-motivation-capability stream of research. The study provides examples of how these historical and computational methods can be used to address research problems that competitive dynamics scholars are concerned with and, hopefully, will stimulate more research of this sort. I see combining historical and computational modeling as an especially fruitful avenue for future competitive dynamics research.

7.1.2 Managerial implications

In general, the routine-based view of interfirm rivalry instructs managers to focus not only on specific important competitive actions (Smith et al., 2001b; Hambrick & Fredrickson, 2005) but also on the overall processes

and structures within the firm that guide its competitive behavior (Ketchen et al., 2004b). Naturally, these perspectives are complementary, but the latter has received less attention in the literature. Beyond this general remark, the study has three implications for managers. First, the routine-based view of firms' competitive actions implies that rivalry is a history-dependent phenomenon (Kilduff et al., 2010). This has two important implications: (1) if history dependence is not acknowledged, traditional analyses of firms' resources and capabilities can lead to over- and underattribution of performance heterogeneity to underlying capability differences (cf., Tang & Liou, 2010); (2) likewise, variations in the intensity of competition might be only weakly related to the industry structure (Cool & Dierickx, 1993; Porter, 1974).

Second, a key motivation of competitive dynamics research is to help managers predict the competitive actions of their rivals (Hambrick et al., 1996; MacMillan et al., 1985). If the firm's competitive decision making rests on organizational routines and rules, which change slowly, firms have little possibility of changing their competitive behavior in the short term. Thus, surprisingly, the best predictor of a firm's competitive moves—their likelihood, frequency, variety and speed—might be the firm's behavior in the recent past (Coyne & Horn, 2008, 2009).

Third, the study adds important boundary conditions to previous normative claims about the benefits of competitive aggressiveness (e.g., Smith et al., 2001b). The study shows that the established empirical regularity between competitive aggressiveness and performance may be the result of a feedback process. Thus, increases in competitive activity or aggressiveness may have modest and even negative effects on performance. Likewise, idealization of competitive aggressiveness can lead to an escalation of competition, with detrimental effects on the viability of all firms in the industry.

7.2 Limitations and future research

7.2.1 Methods and empirical contexts

Any choice of methods and contexts necessarily implies a set of limitations and avenues for further inquiry. Here, I identify four of them. First, the historical studies (Essay I and II) identify how organizational routines affect the competitive actions of firms. It would be valuable to test and study the mechanisms in different empirical contexts. The study context was the Finnish retail industry, which, while characterized by intense competition and rapid change, was rather predictable even from the point

of view of the organizational actors at the time. It would be interesting to study the trade-offs of establishing competitive action routines in more unpredictable environments.

Second, while the regression analysis of the Finnish mutual fund industry provided additional support the routine-based view of rivalry, without detailed qualitative studies of the specific causal mechanisms proposed in the study, conclusions about them must be considered tentative. Alternatively, experiments or an experiential simulation approach (Chen et al., 2010a) could be used to test for the existence of the proposed mechanisms, but such studies may suffer from external validity problems (Miller & Tsang, 2011).

Third, the findings from the simulation study (Essay IV) need empirical testing. Namely, the study makes assumptions about how decision rules evolve and affect competitive actions and uses these assumptions to make predictions about competitive behavior. Naturally, the simulation study cannot confirm its own predictions. Instead, in order to verify the proposed mechanisms and their potential outcomes, statistical testing could be used. Likewise, it would be interesting to study, in-depth, specific cases instances of competitive decision making in order to make more fine-grained (but perhaps less general) computational models of competitive interaction.

Fourth, taken together, the essays indicate that a mixed methods approach provides complementary insights. Therefore, future research should more extensively explore the alternatives to the predominant mode of research, that is, regression analysis of panel data pertaining to competitive actions. This research partly provides insight into how the methodological toolkit can be extended, but other approaches should be kept in mind as well. In particular, the use of different kinds of experiments (laboratory, field, quasi, natural) may be a promising avenue for future competitive dynamics research (e.g., Chen et al., 2010a; Clark & Montgomery, 1998).

7.2.2 Analytical focus and behavioral assumptions

The analytical focus on the firm's competitive actions and the set of behavioral assumptions that this study drew on result in three limitations. First, the main construct of interest was firms' competitive activity, which was operationalized as the frequency of competitive actions taken by a firm. This is a central concern in many industries, such as those studied here. However, it would be interesting to start with the same explanatory concepts (e.g., competitive action routines) but to study their effect on other important dimensions of firms' competitive behavior. Characteristics of competitive behavior worth considering include the magnitude, content,

and sequencing of competitive actions as well as potential complementarities within a firm's competitive repertoire (see Chen & Miller, 2012). Likewise, I have focused my analysis on actions, which are taken on a continuous basis. The firm's established competitive action routines might have a very different effect on its sporadic competitive actions, such as entries into new domains or attempts to create entirely new product markets (or categories) (e.g., Barnett & Pontikes, 2008).

Second, my study takes competitive activity mainly as a dependent variable. However, as indicated by Essay IV, the last word on the implications of competitive activity on firm performance might not have been said. More research is required to investigate the boundary conditions of existing assertions concerning the implications of competitive actions on firm performance by conducting studies in novel empirical contexts, using multi-industry samples and using formal and computational modeling that facilitates counterfactual reasoning. It would also be interesting to investigate more how the *explanans* of the study (e.g., routines) explain more fundamental *explanandum* (e.g., organizational survival, industry structure, and technological development).

Third, because of my reliance on the concepts of organizational routines and rules as the main behavioral forces driving competition, I may have ignored other important behavioral constructs that might affect competitive behavior. On the one hand, I have continued the individualistic tradition of competitive dynamics research in that I—in principle—reduce organizational phenomena to individual-level cognitive processes. This leads to the omission of collectivist explanations of competitive behavior, such as ideology, culture, or discourse, which may be very important in understanding why firms behave the way that they do. On the other hand, I have adopted a cognitivist approach, thus largely ignoring emotions and psychodynamic aspects of strategic decision making. I believe collectivist and non-cognitivist approaches to competitive dynamics will produce interesting new insights into the phenomenon of interfirm rivalry in the future. In the spirit of incrementalism, however, I have started from relatively well-established behavioral assumptions concerning bounded rationality and tried to systematically develop the behavioral foundations of competitive interaction from there onward.

My intention is not to try to carve in stone the routine-based view as the only potential starting point for understanding market competition. I have chosen this perspective out of my own interest and personal belief in its utility. I believe that the eclectic approach to competitive dynamics can and should be continued but that researchers should increasingly pay attention to the micro-behavioral assumptions of their approaches. This approach

will generate not one unified approach but several behavioral foundations for understanding competitive interaction.

7.2.3 Viewpoint adopted

Research is social action that may create change in the world (Midgley, 2003). Therefore, it is the moral duty of a researcher to reflect on the potential impact of his or her research on the society at large (Ghoshal, 2005). The first and foremost goal of this study is the production of knowledge to elucidate how organizations behave in a competitive context. Who uses this knowledge and to what ends is always beyond the direct control of researchers, but this is not to say that he or she has no agency in this respect. For instance, I drew managerial implications from my findings, not public policy or consumer implications. Perhaps more importantly, the research questions were largely framed in terms of managerial concerns. Thus, like strategic marketing and management research in general, my study produces knowledge, which provides managers with knowledge and questions that may help them improve the performance of the firms that they run (Stoelhorst & van Raaij, 2004). Sometimes, this goal is also in the interest of the society at large (Jacobson, 1992), but not always (Maxfield, 2007). I have confined my analysis to the concerns of managers because of my own cognitive limitations, time and space limitations and to increase the clarity of the presentation.

I see opportunities for future research, which could look into how and to what extent the (managerial) normative implications of my findings are consistent with the interest of the broader social sphere. Such research might not only have practical relevance to actors other than managers but also advance our theoretical understanding of market competition. To give an example, the routinization of competitive actions (see Essays I-III)—while it may have positive effects on firm performance—may create barriers to entry and, as such, lead to a loss of consumer welfare (Dickson et al., 2001). That said, routinization increases the efficiency of organizations, which should theoretically lead to lower product prices (Peteraf, 1993). Likewise, the study shows how the bounded rationality of managers may lead firms to collectively construct different kinds of industries (Essay IV), even if the underlying technology and industry structure are the same. What are the implications for regulatory and public policy? This is not addressed by the study, but it seems to provide an interesting avenue for future research. At any rate, a dynamic lens of competition—such as the one proposed in the present study—is necessary for adequately addressing these interesting and important questions.

8. References

- Adler, P. S., Goldoftas, B., & Levine, D. I. 1999. Flexibility versus efficiency? A case study of model changeovers in the toyota production system. *Organization Science*, 10(1): 43–68.
- Aime, F., Johnson, S., Ridge, J. W., & Hill, A. D. 2009. The routine may be stable but the advantage is not: Competitive implications of key employee mobility. *Strategic Management Journal*, 31(1): 75–87.
- Amit, R., & Schoemaker, P. J. H. 1993. Strategic assets and organizational rent. *Strategic Management Journal*, 14(1): 33–46.
- Anand, J., Mesquita, L. F., & Vassolo, R. S. 2009. The dynamics of multimarket competition in exploration and exploitation activities. *Academy of Management Journal*, 52(4): 802–821.
- Armstrong, J. S., & Collopy, F. 1996. Competitor orientation: Effects of objectives and information on managerial decisions and profitability. *Journal of Marketing Research*, 33(2): 188–199.
- Bargh, J. A., & Chartrand, T. L. 1999. The unbearable automaticity of being. *American Psychologist*, 54(7): 462–479.
- Barnett, W. P. 1997. The dynamics of competitive intensity. *Administrative Science Quarterly*, 42(1): 128–160.
- Barnett, W. P., Greve, H. R., & Park, D. Y. 2006. An evolutionary model of organizational performance. *Strategic Management Journal*, 15(S1): 11–28.
- Barnett, W. P., & Hansen, M. T. 1996. The red queen in organizational evolution. *Strategic Management Journal*, 17(S1): 139–157.
- Barnett, W. P., & McKendrick, D. G. 2004. Why are some organizations more competitive than others? Evidence from a changing global market. *Administrative Science Quarterly*, 49(4): 535–571.
- Barnett, W. P., & Pontikes, E. G. 2008. The red queen, success bias, and organizational inertia. *Management Science*, 54(7): 1237–1251.
- Barnett, W. P., & Sorenson, O. 2002. The Red Queen in organizational creation and development. *Industrial and Corporate Change*, 11(2): 289–325.

- Barney, J. B. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17(1): 99–120.
- Barr, P. S., Stimpert, J. L., & Huff, A. S. 1992. Cognitive change, strategic action, and organizational renewal. *Strategic Management Journal*, 13(S1): 15–36.
- Baum, J. A. ., & Korn, H. J. 1996. Competitive dynamics of interfirm rivalry. *Academy of Management Journal*, 39(2): 255–291.
- Becker, M. C. 2004. Organizational routines: A review of the literature. *Industrial and Corporate Change*, 13(4): 643–678.
- Bhaskar, R. 2008. *A Realist Theory of Science*. London, UK: Routledge.
- Bingham, C. B., & Davis, J. P. 2012. Learning Sequences: Their Existence, Effect, and Evolution. *Academy of Management Journal*, 55(3): 611–641.
- Bingham, C. B., & Eisenhardt, K. M. 2011. Rational heuristics: The “simple rules” that strategists learn from process experience. *Strategic Management Journal*, 32(13): 1437–1464.
- Bingham, C. B., Eisenhardt, K. M., & Furr, N. R. 2007. What makes a process a capability? Heuristics, strategy, and effective capture of opportunities. *Strategic Entrepreneurship Journal*, 1(1-2): 27–47.
- Boyd, J. L., & Bresser, R. K. F. 2008. Performance implications of delayed competitive responses: Evidence from the U.S. retail industry. *Strategic Management Journal*, 29(10): 1077–1096.
- Bromiley, P. 2005. *The Behavioral Foundations of Strategic Management*. Malden, MA: Blackwell Publishing.
- Bromiley, P., Papenhausen, C., & Borchert, P. 2002. Why do gas prices vary, or towards understanding the micro-structure of competition. *Managerial and Decision Economics*, 23(4-5): 171–186.
- Burgelman, R. A. 2011. Bridging history and reductionism: A key role for longitudinal qualitative research. *Journal of International Business Studies*, 42(5): 591–601.
- Burton, R. M., & Obel, B. 2011. Computational modeling for what-is, what-might-be, and what-should-be studies—and triangulation. *Organization Science*, 22(5): 1195–1202.
- Carroll, G. R., & Harrison, J. R. 1994. On the historical efficiency of competition between organizational populations. *American Journal of Sociology*, 100(3): 720–749.
- Caves, R. E., & Porter, M. E. 1977. From entry barriers to mobility barriers: Conjectural decisions and contrived deterrence to new competition*. *The Quarterly Journal of Economics*, 91(2): 241–261.
- Chandler, A. D. 1977. *The Visible Hand: The Managerial Revolution in American Business*. Cambridge, MA: Belknap Press.

- Chase, W. G., & Simon, H. A. 1973. Perception in chess. *Cognitive Psychology*, 4(1): 55–81.
- Chen, E. L., Katila, R., McDonald, R., & Eisenhardt, K. M. 2010. Life in the fast lane: Origins of competitive interaction in new vs. established markets. *Strategic Management Journal*, 31(13): 1527–1547.
- Chen, M. J., & MacMillan, I. C. 1992. Nonresponse and delayed response to competitive moves: The roles of competitor dependence and action irreversibility. *Academy of Management Journal*, 35(3): 539–570.
- Chen, M. J., & Miller, D. 1994. Competitive attack, retaliation and performance: An expectancy-valence framework. *Strategic Management Journal*, 15(2): 85–102.
- Chen, M., Su, K., & Tsai, W. 2007. Competitive tension: The awareness-motivation-capability perspective. *Academy of Management Journal*, 50(1): 101–118.
- Chen, M.-J. 1996. Competitor analysis and interfirm rivalry: Toward a theoretical integration. *Academy of Management Review*, 21(1): 100–134.
- Chen, M.-J., & Hambrick, D. C. 1995. Speed, stealth, and selective attack: How small firms differ from large firms in competitive behavior. *Academy of Management Journal*, 38(2): 453–482.
- Chen, M.-J., Lin, H.-C., & Michel, J. G. 2010. Navigating in a hypercompetitive environment: the roles of action aggressiveness and TMT integration. *Strategic Management Journal*, 31(13): 1410–1430.
- Chen, M.-J., & Miller, D. 2012. Competitive dynamics: Themes, trends, and a prospective research platform. *Academy of Management Annals*, 6(1): 135–210.
- Chen, M.-J., Smith, K. G., & Grimm, C. M. 1992. Action characteristics as predictors of competitive responses. *Management Science*, 38(3): 439–455.
- Clark, B. H., & Montgomery, D. B. 1998. Competitive reputations, multimarket competition and entry deterrence. *Journal of Strategic Marketing*, 6(2): 81–96.
- Clark, B. H., & Montgomery, D. B. 1999. Managerial identification of competitors. *Journal of Marketing*, 63(3): 67–83.
- Cohen, M. D., & Bacdayan, P. 1994. Organizational routines are stored as procedural memory: Evidence from a laboratory study. *Organization Science*, 5(4): 554–568.
- Cohen, M. D., March, J. G., & Olsen, J. P. 1972. A garbage can model of organizational choice. *Administrative Science Quarterly*, 17(1): 1–25.
- Collis, D. J. 1994. How valuable are organizational capabilities? *Strategic Management Journal*, 15(S1): 143–152.

- Cool, K., & Dierickx, I. 1993. Rivalry, strategic groups and firm profitability. *Strategic Management Journal*, 14(1): 47–59.
- Coyne, K. P., & Horn, J. 2009. Predicting your competitor's reaction. *Harvard Business Review*, 87(4): 90-97.
- Coyne, K. P., & Horn, J. T. 2008. How companies respond to competitors. *McKinsey Quarterly*, April 2008: 1-9.
- Cronin, M. A., Gonzalez, C., & Sterman, J. D. 2009. Why don't well-educated adults understand accumulation? A challenge to researchers, educators, and citizens. *Organizational Behavior and Human Decision Processes*, 108(1): 116–130.
- Cyert, R.M., & March, J.G. 1992. *A Behavioral Theory of the Firm*, 2nd ed. Malden, MA: Blackwell Publishing.
- Dane, E. 2010. Reconsidering the trade-off between expertise and flexibility: A cognitive entrenchment perspective. *Academy of Management Review*, 35(4): 579–603.
- Danneels, E. 2011. Trying to become a different type of company: dynamic capability at Smith Corona. *Strategic Management Journal*, 32(1): 1–31.
- Davis, J. P., Eisenhardt, K. M., & Bingham, C. B. 2009. Optimal structure, market dynamism, and the strategy of simple sales. *Administrative Science Quarterly*, 54(3): 413–452.
- De Holan, P. M., & Phillips, N. 2004. Remembrance of things past? The dynamics of organizational forgetting. *Management Science*, 50(11): 1603–1613.
- Derfus, P. J., Maggitti, P. G., Grimm, C. M., & Smith, K. G. 2008. The red queen effect: Competitive actions and firm performance. *Academy of Management Journal*, 51(1): 61–80.
- Dickson, P. R. 1992. Toward a general theory of competitive rationality. *Journal of Marketing*, 56(1): 69–83.
- Dickson, P. R. 1996. The static and dynamic mechanics of competition: A comment on Hunt and Morgan's comparative advantage theory. *Journal of Marketing*, 60(4): 102–106.
- Dickson, P. R. 2003. The pigeon breeders' cup: A selection on selection theory of economic evolution. *Journal of Evolutionary Economics*, 13(3): 259–280.
- Dickson, P. R., Farris, P. W., & Verbeke, W. J. M. . 2001. Dynamic strategic thinking. *Journal of the Academy of Marketing Science*, 29(3): 216–237.
- Dosi, G., & Marengo, L. 2007. On the evolutionary and behavioral theories of organizations: A tentative roadmap. *Organization Science*, 18(3): 491–502.

- Downward, P., & Mearman, A. 2007. Retrodution as mixed-methods triangulation in economic research: Reorienting economics into social science. *Cambridge Journal of Economics*, 31(1): 77–99.
- Durand, R., & Vaara, E. 2009. Causation, counterfactuals, and competitive advantage. *Strategic Management Journal*, 30(12): 1245–1264.
- Dutta, S., Zbaracki, M. J., & Bergen, M. 2003. Pricing process as a capability: A resource- based perspective. *Strategic Management Journal*, 24(7): 615–630.
- Easton, G. 2010. Critical realism in case study research. *Industrial Marketing Management*, 39(1): 118–128.
- Eisenhardt, K. M. 1989. Building theories from case study research. *Academy of Management Review*, 14(4): 532–550.
- Eisenhardt, K. M., Furr, N. R., & Bingham, C. B. 2010. Microfoundations of performance: Balancing efficiency and flexibility in dynamic environments. *Organization Science*, 21(6): 1263–1273.
- Eisenhardt, K. M., & Martin, J. A. 2000. Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10/11): 1105–1121.
- Eisenhardt, K. M., & Sull, D. N. 2001. Strategy as simple rules. *Harvard Business Review*, 79(1): 106–119.
- Epstein, J. M. 2006. *Generative Social Science: Studies in Agent-Based Computational Modeling*. Princeton, NJ: Princeton University Press.
- Evans, J. S. B. T. 2008. Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, 59(1): 255–278.
- Feldman, M. S. 2003. A performative perspective on stability and change in organizational routines. *Industrial and Corporate Change*, 12(4): 727–752.
- Feldman, M. S., & Pentland, B. T. 2003. Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*, 48(1): 94–118.
- Felin, T., & Foss, N. J. 2011. The endogenous origins of experience, routines, and organizational capabilities: The poverty of stimulus. *Journal of Institutional Economics*, 7(S2): 231–256.
- Ferrier, W. J. 2001. Navigating the competitive landscape: The drivers and consequences of competitive aggressiveness. *Academy of Management Journal*, 44(4): 858–877.
- Ferrier, W. J., Fhionnlaioich, C. M., Smith, K. G., & Grimm, C. M. 2002. The impact of performance distress on aggressive competitive behavior: A reconciliation of conflicting views. *Managerial and Decision Economics*, 23(4/5): 301–316.

- Ferrier, W. J., Smith, K. G., & Grimm, C. M. 1999. The role of competitive action in market share erosion and industry dethronement: A study of industry leaders and challengers. *Academy of Management Journal*, 42(4): 372–388.
- Foss, N. J. 2003. Bounded rationality and tacit knowledge in the organizational capabilities approach: an assessment and a re- evaluation. *Industrial and Corporate Change*, 12(2): 185–201.
- Gardner, T. M. 2005. Interfirm competition for human resources: Evidence from the software industry. *Academy of Management Journal*, 48(2): 237–256.
- Garicano, L. 2000. Hierarchies and the organization of knowledge in production. *Journal of Political Economy*, 108(5): 874–904.
- Gavetti, G. 2012. Toward a behavioral theory of strategy. *Organization Science*, 23(1): 267–285.
- Gavetti, G., Greve, H. R., Levinthal, D. A., & Ocasio, W. 2012. The behavioral theory of the firm: Assessment and prospects. *Academy of Management Annals*, 1–40.
- Gavetti, G., Levinthal, D., & Ocasio, W. 2007. Neo-Carnegie: The Carnegie school's past, present, and reconstructing for the future. *Organization Science*, 18(3): 523–536.
- Ghoshal, S. 2005. Bad management theories are destroying good management practices. *Academy of Management Learning & Education*, 4(1): 75–91.
- Gigerenzer, G. 2007. *Gut Feelings: The Intelligence of the Unconscious*. New York, NY: Viking Books.
- Gigerenzer, G., Todd, P. M., & The ABC Research Group. 1999. *Simple heuristics that make us smart*. New York, NY: Oxford University Press.
- Glennan, S. 2002. Rethinking mechanistic explanation. *Philosophy of Science*, 69(S3): S342–S353.
- Golden, B. R. 1992. The past is the past--or is it? The use of retrospective accounts as indicators of past strategy. *Academy of Management Journal*, 35(4): 848–860.
- Goldthorpe, J. H. 2001. Causation, statistics, and sociology. *European Sociological Review*, 17(1): 1–20.
- Grant, R. M. 1996. Prospering in dynamically-competitive environments: Organizational capability as knowledge integration. *Organization Science*, 7(4): 375–387.
- Greve, H. R. 1995. Jumping ship: The diffusion of strategy abandonment. *Administrative Science Quarterly*, 40(3): 444.

- Greve, H. R. 2008. A behavioral theory of firm growth: Sequential attention to size and performance goals. *Academy of Management Journal*, 51(3): 476–494.
- Grönroos, C. 1991. The marketing strategy continuum: Towards a marketing concept for the 1990s. *Management Decision*, 29(1).
- Grönroos, C. 1994. From marketing mix to relationship marketing: Towards a paradigm shift in marketing. *Management Decision*, 32(2): 4–20.
- Hambrick, D. C., Cho, T. S., & Chen, M. J. 1996. The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly*, 41(4).
- Hambrick, D. C., & Fredrickson, J. W. 2001. Are you sure you have a strategy? *Academy of Management Executive*, 15(4): 48–59.
- Hannan, M., & Freeman, J. 1984. Structural inertia and organizational change. *American Sociological Review*, 49(2): 149–164.
- Hanson, N. R. 1958. The logic of discovery. *Journal of Philosophy*, 55(25): 1073–1089.
- Harris, J. D., Johnson, S. G., & Souder, D. 2013. Model-theoretic knowledge accumulation: The case of agency theory and incentive alignment. *Academy of Management Review*, 38(3): 442–454.
- Hoffman, K. 1990. *Kesko 1940-1990*. Kauppiaitten kustannus.
- Hoffmann, W. H. 2007. Strategies for managing a portfolio of alliances. *Strategic Management Journal*, 28(8): 827–856.
- Hooley, G., Fahy, J., Cox, T., Beracs, J., Fonfara, K., & Snoj, B. 1999. Marketing capabilities and firm performance: A hierarchical model. *Journal of market-focused management*, 4(3): 259–278.
- Hunt, S. D., & Lambe, C. J. 2000. Marketing's contribution to business strategy: market orientation, relationship marketing and resource-advantage-theory. *International Journal of Management Reviews*, 2(1): 17.
- Hunt, S. D., & Morgan, R. M. 1995. The comparative advantage theory of competition. *Journal of Marketing*, 59(2): 1–15.
- Hutzschenreuter, T., & Israel, S. 2009. A review of empirical research on dynamic competitive strategy. *International Journal of Management Reviews*, 11(4): 421–461.
- Jacobides, M. G. 2006. The architecture and design of organizational capabilities. *Industrial and Corporate Change*, 15(1): 151–171.
- Jacobides, M. G. 2007. The inherent limits of organizational structure and the unfulfilled role of hierarchy: Lessons from a near-war. *Organization Science*, 18(3): 455–477.

- Jacobides, M. G. 2008. How capability differences, transaction costs, and learning curves interact to shape vertical scope. *Organization Science*, 19(2): 306–326.
- Jacobson, R. 1990. Unobservable effects and business performance. *Marketing Science*, 9(1): 74–85.
- Jacobson, R. 1992. The “Austrian” school of strategy. *Academy of Management Review*, 17(4): 782–807.
- Jick, T. D. 1979. Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, 24(4): 602–611.
- Johnson, G. 1988. Rethinking incrementalism. *Strategic Management Journal*, 9(1): 75–91.
- Kahneman, D. 2003. A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist*, 58(9): 697.
- Kahneman, D., & Klein, G. 2009. Conditions for intuitive expertise: A failure to disagree. *American Psychologist*, 64(6): 515–526.
- Kahneman, D., & Lovallo, D. 1993. Timid choices and bold forecasts: A cognitive perspective on risk taking. *Management Science*, 39(1): 17–31.
- Katila, R., & Chen, E. L. 2008. Effects of search timing on innovation: The value of not being in sync with rivals. *Administrative Science Quarterly*, 53(4): 593–625.
- Ketchen, David J., Snow, C. C., & Hoover, V. L. 2004. Research on competitive dynamics: Recent accomplishments and future challenges. *Journal of Management*, 30(6): 779–804.
- Ketchen, D.J., Snow, C. C., Street, V. L., & Hoover, V. L. 2004. Improving firm performance by matching strategic decision-making processes to competitive dynamics. *Academy of Management Executive*, 18(4): 29–43.
- Kilduff, G. J., Elfenbein, H. A., & Staw, B. M. 2010. The psychology of rivalry: A relationally dependent analysis of competition. *Academy of Management Journal*, 53(5): 943–969.
- King, A. 2007. Disentangling interfirm and intrafirm causal ambiguity: A conceptual model of causal ambiguity and sustainable competitive advantage. *Academy of Management Review*, 32(1): 156–178.
- Kirca, A. H., Jayachandran, S., & Bearden, W. O. 2005. Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. *Journal of Marketing*, 69(2): 24–41.
- Kirzner, I. M. 1997. Entrepreneurial discovery and the competitive market process: An Austrian approach. *Journal of Economic Literature*, 35(1): 60–85.

- Knudsen, T., & Levinthal, D. A. 2007. Two faces of search: Alternative generation and alternative evaluation. *Organization Science*, 18(1): 39–54.
- Kohli, A. K., & Jaworski, B. J. 1990. Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing*, 54(2): 1–18.
- Kuester, S., Homburg, C., & Robertson, T. S. 1999. Retaliatory behavior to new product entry. *Journal of Marketing*, 63(4): 90.
- Kumar, V., Jones, E., Venkatesan, R., & Leone, R. P. 2011. Is market orientation a source of sustainable competitive advantage or simply the cost of competing? *Journal of Marketing*, 75(1): 16–30.
- Kwan, K.-M., & Tsang, E. W. K. 2001. Realism and constructivism in strategy research: a critical realist response to Mir and Watson. *Strategic Management Journal*, 22(12): 1163–1168.
- Lainema, M. 2009. *Oman Onnensa Sepät: T-ryhmän Vaiheet 1960-luvulta Vuoteen 1996*. Suomen Tukkukauppiain Liitto.
- Lamberg, J. A., & Tikkanen, H. 2006. Changing sources of competitive advantage: Cognition and path dependence in the Finnish retail industry 1945-1995. *Industrial and Corporate Change*, 15(5): 811-846.
- Lamberg, J. A., Tikkanen, H., Nokelainen, T., & Suur-Inkeroinen, H. 2009. Competitive dynamics, strategic consistency and organizational survival. *Strategic Management Journal*, 30(1): 45–60.
- Lenox, M. J., Rockart, S. F., & Lewin, A. Y. 2006. Interdependency, competition, and the distribution of firm and industry profits. *Management Science*, 52(5): 757–772.
- Lenox, M. J., Rockart, S. F., & Lewin, A. Y. 2007. Interdependency, competition, and industry dynamics. *Management Science*, 53(4): 599–615.
- Levinthal, D. A. 1997. Adaptation on rugged landscapes. *Management Science*, 43(7): 934–950.
- Levinthal, D. A. 2011. A behavioral approach to strategy—what’s the alternative? *Strategic Management Journal*, 32(13): 1517–1523.
- Levinthal, D. A., & March, J. G. 1993. The myopia of learning. *Strategic Management Journal*, 14(S2): 95–112.
- Levinthal, D., & Myatt, J. 2006. Co- evolution of capabilities and industry: The evolution of mutual fund processing. *Strategic Management Journal*, 15(S1): 45–62.
- Levinthal, D., & Posen, H. E. 2007. Myopia of selection: Does organizational adaptation limit the efficacy of population selection? *Administrative Science Quarterly*, 52(4): 586–620.

- Lippman, S. A., & Rumelt, R. P. 1982. Uncertain imitability: An analysis of interfirm differences in efficiency under competition. *Bell Journal of Economics*, 13(2): 418–438.
- Lipshitz, R., Gary Klein, Judith Orasanu, & Eduardo Salas. 2001. Taking stock of naturalistic decision making. *Journal of Behavioral Decision Making*, 14(5): 331–352.
- MacMillan, I., McCaffery, M. L., & Van Wijk, G. 1985. Competitors' responses to easily imitated new products-exploring commercial banking product introductions. *Strategic Management Journal*, 6(1): 75–86.
- Marcel, J. J., Barr, P. S., & Duhaime, I. M. 2011. The influence of executive cognition on competitive dynamics. *Strategic Management Journal*, 32(2): 115–138.
- March, J.G., & Simon, H.A. 1993. *Organizations*, 2nd ed. Cambridge, MA: Blackwell Publishing.
- Más-Ruiz, F. J., Nicolau-Gonzálbez, J. L., & Ruiz-Moreno, F. 2005. Asymmetric rivalry between strategic groups: response, speed of response and ex ante vs. ex post competitive interaction in the spanish bank deposit market. *Strategic Management Journal*, 26(8): 713–745.
- Maxfield, S. 2007. Reconciling Corporate Citizenship and Competitive Strategy: Insights from Economic Theory. *Journal of Business Ethics*, 80: 367–377.
- McGee, J., & Thomas, H. 1986. Strategic groups: Theory, research and taxonomy. *Strategic Management Journal*, 7(2): 141–160.
- McGrath, R. G., Chen, M.-J., & MacMillan, I. C. 1998. Multimarket maneuvering in uncertain spheres of influence: Resource diversion strategies. *Academy of Management Review*, 23(4): 724–740.
- Midgley, G. 2003. Science as systemic intervention: Some implications of systems thinking and complexity for the philosophy of science. *Systemic Practice and Action Research*, 16(2): 77–97.
- Miller, D. 2007. Paradigm prison, or in praise of atheoretic research. *Strategic Organization*, 5(2): 177–184.
- Miller, D., & Chen, M. J. 1994. Sources and consequences of competitive inertia: A study of the US airline industry. *Administrative Science Quarterly*, 39(1): 1–23.
- Miller, D., & Chen, M.-J. 1996. The simplicity of competitive repertoires: An empirical analysis. *Strategic Management Journal*, 17(6): 419–439.
- Miller, K. D., & Tsang, E. W. K. 2011. Testing management theories: Critical realist philosophy and research methods. *Strategic Management Journal*, 32(2): 139–158.
- Mingers, J., & Brocklesby, J. 1997. Multimethodology: Towards a framework for mixing methodologies. *Omega*, 25(5): 489–509.

- Mintzberg, H. 1978. Patterns of strategy formation. *Management Science*, 24(9): 934–948.
- Mintzberg, H., Raisinghani, D., & Théorêt, A. 1976. The structure of “unstructured” decision processes. *Administrative Science Quarterly*, 21(2): 246–275.
- Mintzberg, H., & Waters, J. A. 1985. Of strategies, deliberate and emergent. *Strategic Management Journal*, 6(3): 257–272.
- Möller, K. 2006. The marketing mix revisited: Towards the 21st century marketing by E. Constantinides. *Journal of Marketing Management*, 22(3-4): 439–450.
- Moorman, C., & Slotegraaf, R. 1999. The contingency value of complementary capabilities in product development. *Journal of Marketing Research*, 36(2): 239–257.
- Morgan, R. M., & Hunt, S. D. 1994. The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3): 20–38.
- Narayanan, V. K., Zane, L. J., & Kemmerer, B. 2011. The cognitive perspective in strategy: An integrative review. *Journal of Management*, 37(1): 305–351.
- Narver, J. C., & Slater, S. F. 1990. The effect of a market orientation on business profitability. *Journal of Marketing*, 54(4): 20–35.
- Nelson, R. R., & Winter, S. G. 1982. *An Evolutionary Theory of Economic Change*. Cambridge, MA: Harvard University Press.
- Neumann, J. von, & Morgenstern, O. 2007. *Theory of Games and Economic Behavior (60 Years Commemorative Edition)*. Princeton, NJ: Princeton University Press.
- Normann, R. 1971. Organizational innovativeness: Product variation and reorientation. *Administrative Science Quarterly*, 16(2): 203–215.
- Ocasio, W. 1997. Towards an attention- based view of the firm. *Strategic Management Journal*, 18(S1): 187–206.
- Pajunen, K. 2008. The nature of organizational mechanisms. *Organization Studies*, 29(11): 1449–1468.
- Parmigiani, A., & Howard-Grenville, J. 2011. Routines revisited: Exploring the capabilities and practice perspectives. *Academy of Management Annals*, 5(1): 413–453.
- Pentland, B. T., & Feldman, M. S. 2008. Designing routines: On the folly of designing artifacts, while hoping for patterns of action. *Information and Organization*, 18(4): 235–250.
- Perez-Nordtvedt, L., Payne, G. T., Short, J. C., & Kedia, B. L. 2008. An entrainment-based model of temporal organizational fit, misfit, and performance. *Organization Science*, 19(5): 785–801.

- Peteraf, M. A. 1993. The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14(3): 179–191.
- Peteraf, M., Di Stefano, G., & Verona, G. 2013. The elephant in the room of dynamic capabilities: Bringing two diverging conversations together. *Strategic Management Journal*, Published online.
- Porac, J. F., Thomas, H., Wilson, F., Paton, D., & Kanfer, A. 1995. Rivalry and the industry model of scottish knitwear producers. *Administrative Science Quarterly*, 40(2): 203–227.
- Porter, M. E. 1974. Consumer behavior, retailer power and market performance in consumer goods industries. *Review of Economics and Statistics*, 56(4): 419–436.
- Porter, M. E. 1979. The structure within industries and companies' performance. *Review of Economics and Statistics*, 61(2): 214–227.
- Porter, M. E. 1981. The contributions of industrial organization to strategic management. *Academy of Management Review*, 6(4): 609–620.
- Porter, M. E. 1985. *Competitive Advantage*. New York, NY: Free Press.
- Powell, T. C., Lovallo, D., & Fox, C. R. 2011. Behavioral strategy. *Strategic Management Journal*, 32(13): 1369–1386.
- Pronin, E., Gilovich, T., & Ross, L. 2004. Objectivity in the eye of the beholder: Divergent perceptions of bias in self versus others. *Psychological Review*, 111(3): 781–799.
- Reger, R. K., & Huff, A. S. 1993. Strategic groups: A cognitive perspective. *Strategic Management Journal*, 14(2): 103–123.
- Rindova, V., Ferrier, W. J., & Wiltbank, R. 2010. Value from gestalt: How sequences of competitive actions create advantage for firms in nascent markets. *Strategic Management Journal*, 31(13): 1474–1497.
- Ron, A. 2007. Regression analysis and the philosophy of social science: A critical realist view. *Journal of Critical Realism*, 1(1): 119–142.
- Rong, B., & Wilkinson, I. F. 2011. What do managers' survey responses mean and what affects them? The case of market orientation and firm performance. *Australasian Marketing Journal*, 19(3): 137–147.
- Rust, R. T., Ambler, T., Carpenter, G. S., Kumar, V., & Srivastava, R. K. 2004. Measuring marketing productivity: Current knowledge and future directions. *Journal of Marketing*, 68(4): 76–89.
- Sah, R. K., & Stiglitz, J. E. 1986. The architecture of economic systems: Hierarchies and polyarchies. *American Economic Review*, 76(4): 716–727.
- Salvato, C. 2009. Capabilities unveiled: The role of ordinary activities in the evolution of product development processes. *Organization Science*, 20(2): 384–409.

- Sastry, M. A. 1997. Problems and paradoxes in a model of punctuated organizational change. *Administrative Science Quarterly*, 42(2): 237–275.
- Sayer, A. 2000. *Realism and Social Science*. London, UK: SAGE.
- Schilke, O. 2013. On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic Management Journal*, Published online.
- Segelod, E. 1997. The content and role of the investment manual. *Management Accounting Research*, 8(2): 221–231.
- Siggelkow, N. 2007. Persuasion with case studies. *Academy of Management Journal*, 50(1): 20–24.
- Simon, H. A. 1955. A behavioral model of rational choice, *Quarterly Journal of Economics*, 69(1): 99–118.
- Simon, H. A. 1962. The architecture of complexity. *Proceedings of the American Philosophical Society*, 106(6): 467–482.
- Simon, H. A. 1992. What is an “explanation” of behavior? *Psychological Science*, 3(3): 150–161.
- Simon, H. A. 1997. *Administrative behavior: A Study of Decision-Making Processes in Administrative Organizations*. New York, NY: Free Press.
- Slotegraaf, R. J., Moorman, C., & Inman, J. J. 2003. The role of firm resources in returns to market deployment. *Journal of Marketing Research*, 40(3): 295–309.
- Slotegraaf, R. J., & Pauwels, K. 2008. The impact of brand equity and innovation on the long-term effectiveness of promotions. *Journal of Marketing Research*, 45(3): 293–306.
- Smith, K. G., Ferrier, W. J., & Grimm, C. M. 2001. King of the hill: Dethroning the industry leader. *Academy of Management Executive*, 15(2): 59–70.
- Smith, K. G., Ferrier, W. J., & Ndofor, H. 2001. Competitive dynamics research: Critique and future directions. In M. A. Hitt, R. E. Freeman, & J. S. Harrison (Eds.), *Blackwell Handbook of Strategic Management*: 315–361. Oxford, UK: Blackwell.
- Smith, K. G., Grimm, C. M., Gannon, M. J., & Chen, M. J. 1991. Organizational information processing, competitive responses, and performance in the US domestic airline industry. *Academy of Management Journal*, 34(1): 60–85.
- Song, M., Droge, C., Hanvanich, S., & Calantone, R. 2005. Marketing and technology resource complementarity: an analysis of their interaction effect in two environmental contexts. *Strategic Management Journal*, 26(3): 259–276.

- Srinivasan, S., Pauwels, K., Silva-Risso, J., & Hanssens, D. M. 2009. Product innovations, advertising, and stock returns. *Journal of Marketing*, 73(1): 24–43.
- Srivastava, R. K., Fahey, L., & Christensen, H. K. 2001. The resource-based view and marketing: The role of market-based assets in gaining competitive advantage. *Journal of Management*, 27(6): 777–802.
- Srivastava, R. K., Shervani, T. A., & Fahey, L. 1999. Marketing, business processes, and shareholder value: An organizationally embedded view of marketing activities and the discipline of marketing. *Journal of Marketing*, 63: 168–179.
- Steel, D. 2004. Social mechanisms and causal inference. *Philosophy of the Social Sciences*, 34(1): 55–78.
- Stieglitz, N., & Heine, K. 2007. Innovations and the role of complementarities in a strategic theory of the firm. *Strategic Management Journal*, 28(1): 1–15.
- Stoelhorst, J. W., & van Raaij, E. M. 2004. On explaining performance differentials: Marketing and the managerial theory of the firm. *Journal of Business Research*, 57(5): 462–477.
- Swait, J., & Erdem, T. 2002. The effects of temporal consistency of sales promotions and availability on consumer choice behavior. *Journal of Marketing Research*, 39(3): 304–320.
- Zsulanski, G. 1996. Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17(Winter Special Issue): 27–43.
- Tang, Y.-C., & Liou, F.-M. 2010. Does firm performance reveal its own causes? the role of Bayesian inference. *Strategic Management Journal*, 31(1): 39–57.
- Teece, D. J. 2007. Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13): 1319–1350.
- Teece, D. J., Pisano, G., & Shuen, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7): 509–533.
- Tsai, W., Kuo-Hsien, S., & Chen, M.-J. 2011. Seeing through the eyes of a rival: Competitor acumen based on rival-centric perceptions. *Academy of Management Journal*, 54(4): 761–778.
- Tsang, E. W. K. 2006. Behavioral assumptions and theory development: The case of transaction cost economics. *Strategic Management Journal*, 27(11): 999–1011.
- Turner, S. F., & Rindova, V. 2012. A balancing act: How organizations pursue consistency in routine functioning in the face of ongoing change. *Organization Science*, 23(1): 24–46.

- Valorinta, M., Schildt, H., & Lamberg, J.-A. 2011. Path dependence of power relations, path-breaking change and technological adaptation. *Industry & Innovation*, 18(8): 765–790.
- Vorhies, D. W., & Morgan, N. A. 2005. Benchmarking marketing capabilities for sustainable competitive advantage. *Journal of Marketing*, 69(1): 80–94.
- Weick, K. E. 1995. What theory is not, theorizing is. *Administrative Science Quarterly*, 40(3): 385–390.
- Weick, K. E., & Roberts, K. H. 1993. Collective mind in organizations: Heedful interrelating on flight decks. *Administrative Science Quarterly*, 38(3): 357–381.
- Whitehead, A. N. 2012. *An Introduction to Mathematics*. Project Gutenberg.
- Williams, S. D. 2007. Gaining and losing market share and returns: A competitive dynamics model. *Journal of Strategic Marketing*, 15(2): 139–148.
- Winter, S. G. 2003. Understanding dynamic capabilities. *Strategic Management Journal*, 24(10): 991–995.
- Winter, S. G. 2006. Toward a neo-Schumpeterian theory of the firm. *Industrial and Corporate Change*, 15(1): 125–141.
- Winter, S. G. 2012. Purpose and progress in the theory of strategy: Comments on Gavetti. *Organization Science*, 23(1): 288–297.
- Winter, S. G. 2013. Habit, deliberation, and action: strengthening the microfoundations of routines and capabilities. *Academy of Management Perspectives*, 27(2): 120–137.
- Winter, S. G., & Szulanski, G. November. Replication as strategy. *Organization Science*, 12(6): 730–743.
- Wooldridge, J. M. 2002. *Econometric Analysis of Cross Section and Panel Data*. Boston, MA: MIT press.
- Young, G., Smith, K. G., & Grimm, C. M. 1996. “Austrian” and industrial organization perspectives on firm-level competitive activity and performance. *Organization Science*, 7(3): 243–254.
- Zollo, M., & Winter, S. G. 2002. Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, 13(3): 339–351.
- Zott, C. 2003. Dynamic capabilities and the emergence of intraindustry differential firm performance: Insights from a simulation study. *Strategic Management Journal*, 24(2): 97–125.



ISBN 978-952-60-5410-0
ISBN 978-952-60-5411-7 (pdf)
ISSN-L 1799-4934
ISSN 1799-4934
ISSN 1799-4942 (pdf)

Aalto University
School of Business
Department of Marketing
www.aalto.fi

**BUSINESS +
ECONOMY**

**ART +
DESIGN +
ARCHITECTURE**

**SCIENCE +
TECHNOLOGY**

CROSSOVER

**DOCTORAL
DISSERTATIONS**