A Behavioral Theory of Strategic Renewal: The Impact of Performance Feedback and Organizational Learning on Strategic Renewal Actions

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The President:

Prof. Dr. Thomas Bieger

Preface

This dissertation owes its existence to a personal quest for exceeding and extending limits, and I am indebted to several persons who have played a decisive role in various ways along the journey of this project.

To start with, I am grateful to Prof. Dr. Dodo zu Knyphausen-Aufseß and Prof. Dr. Lars Schweizer, who both have introduced me to management research and fuelled my interest in these topics back in the days of my studies at the University of Bamberg. Ever since we presented an article resulting from my master thesis (Diplomarbeit) at the Academy of Management Annual Meeting 2005 in Honolulu, I knew that I wanted to take on the challenge of a dissertation. I am personally indebted to Lars who has also supported and accompanied my way over the course of this project.

I would like to thank my colleagues and mentors from Booz & Company (formerly Booz Allen Hamilton), notably Dr. Klaus-Peter Gushurst and Dr. Joachim Deinlein, who have supported the firm's PhD sponsorship I gratefully received and have been great mentors along the way.

The contribution of my referees for my professional development as a prospective researcher (and practitioner) has been outstanding and personally very rewarding. I would like to thank Prof. Dr. Christoph Lechner for his advice and support during the entire dissertation project. Christoph has been a great academic teacher and has heavily influenced my perspective about what management research really means and how it should be conducted. His enthusiasm and drive for striving towards academic excellence and highest standards model the way. I am also indebted to Prof. Steven W. Floyd (PhD) for acting as a co-referee and for his active involvement in positively challenging my theorizing and thinking. Steve's courses and research seminars in St. Gallen were among the most memorable experiences I have of this project. His questions and input to this dissertation have helped me to improve it

considerably. I take pride in having had the opportunity to work with such great researchers. All remaining flaws in this dissertation remain mine.

Several researchers at the faculty of the University of St. Gallen and some peers at the doctoral program have made this journey the comprehensive, intense, and also pleasant experience it was. I would like to namely thank Markus Kreutzer, Markus Schimmer, Sven Kunisch, Daniel Schulze Lammers and Marko Rillo for having been part of it, besides many others. I am also indebted to Prof. Dr. Thomas Siedler and Dr. Priscila Ferreira at Essex Summer School for introducing me to the world of event-history analysis.

I owe my parents, Erika and Hans-August Rajes, a debt of gratitude, who have always supported me over the course of my life and my previous studies, thereby laying the foundation without which this work would not have been accomplished. I would also like to thank my parents-in-law, Elke and Reinhard Fischer, for their understanding and moral support, and particularly for supporting my wife and family during times when I was working on this dissertation.

Last but not least, this dissertation would not have been finalized without the support, understanding and love of my wife Corinna. This work not only took a PhD leave of absence from my job in consulting, but also parts of two parental leaves following the arrival of our two sons Moritz and Leo, not to forget several Christmas holidays and week-ends dedicated to this project. It has been a true family experience, which permitted me to spend more time at home and with my family during some periods, while it required discipline and forgoing of family time in other periods. I take pride in the fact I was able to accomplish this result while starting a family, to whom I dedicate this dissertation.

Nuremberg, July 2013

Martin Rajes

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List of abbreviations

AGF	Assurance Générales de France
AIC	Akaike Information Criterion
AIG	American International Group
AL	Aspiration level
CAQDAS	Computer Assisted Qualitative Data Analysis
CDF	Cumulative distribution function
CEO	Chief Executive Officer
CVC	Corporate Venture Capital
DAX	Deutscher Aktienindex (German stock index)
EDGAR	Electronic Data Gathering, Analysis and Retrieval
e.g.	exempli gratia (for example)
EPS	earnings per share
et al.	et alii (and others)
EU	European Union
F-20	Form 20-F (SEC filing)
GDP	Gross Domestic Product
HA	Historical aspiration level
IBES	Institutional Brokers Estimate System
i.e.	id est (that is to say)
ISI	Institute for Scientific Information
JV	Joint venture
Log	Logarithm
LT	Long-term
MANOVA	Multivariate analysis of variance
M&A	Mergers and Acquisitions
MBA	Master of Business Administration
MS	Microsoft
OECD	Organization for Economic Co-operation and Development
P/C	Property and Casualty

PDF	Probability distribution function
PIMCO	Pacific Investment Management Company
RAS	Riunione Adriatica die Sicurtà (former name of Italian subsidiary of Allianz SE)
RBV	Resource-based view
ROA	Return on assets
ROE	Return on equity
ROS	Return on sales
R&D	Research and development
RTF	Rich Text Format
SE	Societas Europeae (public European limited company)
SEC	Securities and Exchange Commission
SG&A	Sales, general and administrative
SIC	Standard Industrial Classification
TMT	Top-management team
UK	United Kingdom
US	United States of America
Vol.	Volume
vs.	versus (against)
XLS	Microsoft Excel file format

Abstract

This dissertation complements previous research on the behavioral theory of the firm and strategic renewal by analyzing the effects of performance feedback and momentum on strategic renewal. I present the theoretical background for strategic renewal research and performance feedback theory. Extending previous findings, I develop theoretical hypotheses which suggest how performance feedback and organizational learning reflected by momentum affect the rate of strategic renewal actions. Thereby, I consider different dimensions of strategic renewal in terms of content (explorative vs. exploitative actions) and context (external vs. internal actions). The key argument is that if performance falls below the aspiration level, behavioral responses in terms of problemistic search and heightened risk taking in decision making are triggered, leading to an increased rate of strategic renewal actions. I test this prediction together with further hypotheses related to slack, widening-sequence-of-search, and momentum. The analytical method is event-history analysis based on data from a leading global insurance firm, Allianz SE, from 1997-2010. I conclude by discussing the findings of this study together with its contributions, limitations and possible directions for future research.

Key words

Strategy process research, strategic change and renewal, strategic renewal actions, behavioral theory of the firm, organizational learning, performance feedback theory, aspiration level, slack, momentum, event-history analysis

Zusammenfassung

Diese Dissertation leistet einen Beitrag zur Forschung der verhaltenswissenschaftlichen Theorie der Unternehmung *(Behavioral Theory)* sowie dem Management der strategischen Erneuerung von Unternehmen *(Strategic Renewal)*. Der Fokus liegt auf der Analyse des Einflusses von Performance Feedback und Momentum auf Aktionen der strategischen Erneuerung und den diesbezüglichen organisatorischen Lernprozessen. Die Arbeit integriert den theoretischen Hintergrund zur strategischen Erneuerung mit Performance-Feedback Theorie als Bereich der verhaltenswissenschaftlichen Theorie der Unternehmung. In Erweiterung bisheriger Forschungsergebnisse werden theoriegestützte Hypothesen des Einflusses von Performance Feedback auf die Rate von Aktionen der strategischen Erneuerung abgeleitet. Hierbei wird nach inhaltlicher Dimension, im Sinne explorativer bzw. exploitativer Aktivitäten, sowie nach kontextueller Dimension, im Sinne externer bzw. interner Aktionen, differenziert. Zusätzlich werden Voraussagen hinsichtlich Slack-Effekten, erweitertem Suchverhalten und Momentum betrachtet. Die Hypothesen werden anhand einer empirischen Untersuchung mittels Ereignisanalyse auf Basis von Daten eines weltweit führenden Versicherungsunternehmens, der Allianz SE, im Zeitraum 1997-2010 getestet. Die Ergebnisse werden mit Blick auf die bisherige Forschung reflektiert. Forschungsbeitrag, Rahmenbedingungen und Einschränkungen werden zusammengefasst und ein Ausblick auf mögliche, zukünftige Forschung vorgenommen.

Schlüsselbegriffe

Strategische Prozessforschung, Management des strategischen Wandels und der strategischen Erneuerung, Verhaltenswissenschaftliche Theorie der Unternehmung, Organisatorische Lerntheorie, Performance-Feedback Theorie, Anspruchsniveau, Slack, Momentum, Ereignisanalyse

1. Introduction

1.1. Research objective and research question

Strategy processes influence a firm's adaptation in light of environmental opportunities and threats, as well as its self-renewal in terms of changes in capabilities and strategic intent (Chakravarthy and Doz 1992). Successful strategic renewal needs to address the tension between stability and change (Nelson and Winter 1982; Huff, Huff et al. 1992; Volberda, Baden-Fuller et al. 2001) and must overcome the inertial forces embedded in a firm's prior and existing strategy (Hannan and Freeman 1984; Miller and Chen 1994; Burgelman 2002). To achieve these objectives, firms undertake strategic renewal actions with which they pursue the exploitation of existing capabilities while exploring new ones (Floyd and Wooldridge 2000; Volberda, Baden-Fuller et al. 2001; Crossan and Bedrow 2003; Raisch, Birkinshaw et al. 2009). Thereby, they seek to develop or acquire the corresponding capabilities either internally or in conjunction with other organizations (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003; Agarwal and Helfat 2009; Capron and Mitchell 2009).

Firm-level strategic renewal actions often result from learning processes stretching across the different management levels of a firm (Burgelman 1988; Floyd and Lane 2000; Crossan and Bedrow 2003). Firms may thereby benefit from the integration of emergent strategic behavior as important component of their capability of organizational adaptation (Burgelman 1991; Burgelman 2002; Burgelman 2005). Given the challenges of balancing exploration and exploitation over time, as well as maintaining the simultaneity of deliberate and emergent strategic behavior, the processes of strategic renewal and organizational learning are closely associated (Burgelman 2002; Crossan and Bedrow 2003). In this respect, firms typically use standard operating procedures or routines associated with distinct strategic renewal actions (e.g. Ashkenas, DeMonaco et al. 1998; Floyd and Wooldridge 2000; Benner and Tushman 2003; Greve 2008b), and these routines are related to both operating processes as well

as to change and modification (Nelson and Winter 1982; Levitt and March 1988). The effects of routinization and organizational inertia also lead to a behavioral learning pattern known as "momentum", for which experience with prior changes is considered to increase the likelihood of subsequent changes (Amburgey, Kelly et al. 1993; Beck, Brüderl et al. 2008). From a dynamic momentum perspective, the elapsed time since the last change action is predicted to reduce the future probability of similar actions (Amburgey, Kelly et al. 1993).
In light of such implications, prior research on strategic renewal as a domain of strategy process research has emerged mainly based on ecological and evolutionary theories (Burgelman 1991; Burgelman 1996; Burgelman 2002). Subsequent contributions have broadened these frameworks and integrated further theory, as acknowledged in process theoretical perspectives of change and development and other reviews (Van de Ven and Poole 1995; Floyd and Wooldridge 2000). Examples of such contributions include studies that have proposed and considered "guided evolution" (Lovas and Ghoshal 2000), co-evolutionary lenses (e.g. Lewin and Volberda 1999; Volberda and Lewin 2003), social network theory perspectives (e.g. Pappas and Wooldridge 2007; Lechner, Frankenberger et al. 2010) or group influence activities (Lechner and Floyd 2012). The phenomenon of strategic renewal has also attracted the interest of scholars occupied with strategy content and dynamic capabilities research (see overview in Agarwal and Helfat 2009).

Despite such theoretical and conceptual advancements, a key focus of prior research was on the underlying processes and behaviors of strategic renewal. Only a limited number of studies have directly investigated the associations between strategic renewal and firm performance (e.g. Wooldridge and Floyd 1990; Floyd and Wooldridge 1997), or considered process and/ or economic outcomes of strategic renewal actions (e.g. Bryson and Bromiley 1993; McGrath 2001; Lechner, Frankenberger et al. 2010; Lechner and Floyd 2012). While the latter studies have analyzed performance as a dependent variable, so far no

analysis within strategic renewal research has empirically studied the effects of past performance on strategic renewal.

However, past performance is likely to affect strategic renewal. Strategic behavior is generally found dependent on environmental strategic assessments including those of organizational problems and opportunities as well as organizational performance (e.g. March and Simon 1958/1993; Burgelman 1983c; Guth and Ginsberg 1990; Barr, Stimpert et al. 1992). Managers are generally viewed to attend to specific goals and direct their attention to performance associated with these goals (March and Simon 1958/1993; Cyert and March 1963/1992; Ocasio 1997). Performance thereby is considered to affect managers' interpretations and cognitions and their related involvement in strategic processes (Wooldridge and Floyd 1990; Floyd and Wooldridge 1997; Crossan, Lane et al. 1999; Crossan and Bedrow 2003).

Moreover, recent advances of performance feedback theory as a direct descendent of the behavioral theory of the firm have increased our understanding of the importance of aspiration levels relative to organizational performance (e.g. Greve 2003c; Argote and Greve 2007). The key idea is that boundedly rational decision makers simplify their evaluations by comparing organizational performance to a reference point, the aspiration level, which represents the perceived borderline between success and failure (March and Simon 1958/1993; March 1988; Schneider 1992). Aspiration levels are formed and adjusted and have direct behavioral consequences with an impact on strategic change and renewal and their associated performance outcomes (Schulz 2002; Greve 2003c). Behavioral responses to performance feedback have also been found differ, depending on whether the feedback is positive, i.e. performance exceeds the aspiration level, or negative, i.e. performance falls short of aspirations (Greve 1998). The effects of past performance on strategic renewal are therefore considered here in terms of past performance relative to aspiration levels. The

likelihood of launching distinct strategic renewal actions is captured here in terms of rate of strategic renewal actions.

Similarly, organizational learning has been conceived as a key process of strategic renewal (Burgelman 1988; Crossan, Lane et al. 1999; Crossan and Bedrow 2003). With the exception of learning studies based on the 4I-learning framework (Crossan, Lane et al. 1999; Crossan and Bedrow 2003) and a study of learning activities in strategic initiatives (Lechner and Floyd 2007), we generally lack organizational learning research in the domain of strategic renewal. Prior research has selectively integrated constructs from organizational learning research, for example exploration and exploitation (e.g. Burgelman 2002; Crossan and Bedrow 2003) or search (e.g. Huygens, Baden-Fuller et al. 2001). However, these studies have not consistently applied an organizational learning perspective, which explains change based on teleology (Van de Ven and Poole 1995), such as facilitated by the behavioral theory of the firm and related organization theory (Simon 1947/1997; March and Simon 1958/1993; Cyert and March 1963/1992).

To analyze and integrate these shortcomings of previous research, this dissertation develops and applies a performance feedback theory framework (Greve 1998; Greve 2003c), which permits to link the study of performance implications of strategic renewal with a behavioral learning perspective (March and Olsen 1975; Levitt and March 1988; Miner and Mezias 1996; Schulz 2002), more specifically related to the learning pattern of momentum (Amburgey, Kelly et al. 1993; Beck, Brüderl et al. 2008). The proposed perspective thereby further extends prior research that has advanced conceptions of strategic renewal beyond evolutionary models (Lewin and Volberda 1999; Floyd and Wooldridge 2000; Lovas and Ghoshal 2000; Volberda and Lewin 2003). This dissertation targets to advance our knowledge by answering the following main research question:

How does organizational learning from performance feedback affect likelihood and pattern of strategic renewal actions?

The purpose of this study is to inform our understanding of the association between performance feedback and the rate of strategic renewal actions. In line with prior research (for an overview see Greve 2003c), performance feedback is conceived here in terms of past performance relative to aspirations together with slack search effects. The focal construct, the rate strategic renewal actions, together with the analytical method of event-history analysis, permits to capture the underlying time dimension relevant to the trajectory of strategic renewal actions.

The key argument is that the processes underlying performance feedback and momentum affect the rate of distinct strategic renewal actions. Negative performance feedback is suggested to trigger the behavioral processes of problemistic search and risk taking, which in turn increase the likelihood of strategic renewal actions taken by a focal firm. This prediction is tested for different strategic renewal actions, thereby considering both content (explorative vs. exploitative actions) and context dimensions (external vs. internal actions) of strategic renewal. In addition, repetitive momentum is predicted, considering the launch of subsequent strategic renewal actions of the same type more likely than the launch of an action of a different type, and suggesting that such an effect decreases dynamically over time. In this framework, related behavioral predictions about slack search and a widening-sequence-of-search are integrated. Event-history models are estimated based on empirical data from a leading global insurance firm, Allianz SE, covering the timeframe between 1997-2010.

1.2. Theoretical relevance and contribution

This dissertations mainly contributes to theory in at least two areas: (1) strategic renewal and (2) performance feedback theory.

(1) Strategic renewal: From a phenomenological strategic renewal lens, this dissertation contributes to achieve a more complete picture of strategic renewal by analyzing the relationship between past performance relative to aspirations and strategic renewal, a limitation emphasized by prior research (Wooldridge and Floyd 1990; Floyd and Wooldridge 1997). Effects from past performance on strategic renewal are particularly relevant since they inform our inferences of causation with respect to the association between strategic renewal and performance. The empirical study of this dissertation therefore increases our knowledge with respect to antecedents of strategic renewal, but also with direct relevance for the study of economic outcomes of strategic renewal.

In addition, in content-analytical studies based on publicly available data, strategic renewal actions have also been studied as a key instrument of strategic renewal. In particular, their patterns or trajectories are a key area of prior studies (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). The methodological approach of this dissertation follows and extends this line of research, and the methodological discussion as well as the empirical results of this dissertation are also informative to that research area.

Finally, this dissertation also contributes to two related discussions on strategic renewal: how to overcome limitations of ecological perspectives, such as reflected by "guided evolution" or co-evolutionary perspectives (Lewin and Volberda 1999; Lovas and Ghoshal 2000; Volberda and Lewin 2003), and how to advance our knowledge on the multifaceted nature of strategic renewal such as through the integration of strategy process and content perspectives (Agarwal and Helfat 2009).

- The behavioral perspective (Cyert and March 1963/1992; Greve 2003c) applied here provides for a competing perspective to existing frameworks of strategic renewal and addresses a call to integrate arguments from teleological and dialectical theory in order to achieve a more complete

picture of the underlying phenomena (Van de Ven and Poole 1995; Floyd and Wooldridge 2000). Recent research has partly responded to this call and advanced our understanding of dialectical aspects of strategic renewal (e.g. Lechner and Floyd 2012). With an analysis of behavioral responses to performance feedback, this dissertation emphasizes teleology.

– The analysis of strategic renewal actions along content (exploration vs. exploitation) and context dimensions (external vs. internal actions) facilitates the link with recent discussions taking a capability-perspective and thereby linking strategy process and content aspects (Agarwal and Helfat 2009; Capron and Mitchell 2009). The concept of strategic renewal actions thereby also captures the incremental nature of renewal, a key characteristic sometimes neglected by prior research focusing on transformational and disruptive effects (Agarwal and Helfat 2009).

(2) Behavioral Theory/ Performance Feedback Theory: From the perspective of the behavioral theory of the firm (Cyert and March 1963/1992), this dissertation provides additional empirical tests of core predictions related to the processes of performance feedback-based behavioral adjustment (Greve 2003c), as well as an extension of the domain of application yielding additional theoretical and methodological insights.

Performance feedback effects are conceived here in terms of effects between performance relative to aspiration levels and the rates of distinct types of strategic renewal actions. The study thereby contributes to related empirical research in this domain (see overviews in Greve 2003c; Argote and Greve 2007). As further detailed in the empirical study, predictions are generally supported for internal strategic renewal actions, and partly for exploitative strategic renewal actions (i.e. given negative aspiration performance). The failure to find similar effects for explorative and external strategic renewal actions may be due to the limitations of the empirical study. The dissertation also contributes to research

on the widening-sequence-of-search prediction (Cyert and March 1963/1992), which is supported for the context dimension of strategic renewal.

The domain extension to strategic renewal has implications for performance feedback theory research. While such theory has found considerable support in several studies of organizational learning and strategic change (Argote and Greve 2007), prior studies have not studied broader concepts such as strategic renewal actions, but focused on distinct organizational changes, such as changes in market niches (Greve 1998), R&D (Greve 2003a; Chen and Miller 2007), facility investments (Greve 2003b), interorganizational partnerships (Baum, Rowley et al. 2005) and M&A (Iyer and Miller 2008),. The findings of this study illustrate, that the predictions of performance feedback theory partly hold true for the broader construct of strategic renewal actions. They assume similarity in the underlying behavioral learning processes.

Given that strategic renewal actions are classified here in terms of their content (explorative vs. exploitative actions) and context (external vs. internal actions) dimensions, in line with prior research (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003), the theoretical model integrates key concepts from a behavioral view (March 1991) and follows behavioral organizational learning theory (Levitt and March 1988; Miner and Mezias 1996; Schulz 2002), while adding a specific focus on momentum (Amburgey, Kelly et al. 1993; Beck, Brüderl et al. 2008). The application of event-history analysis also mirrors more recent studies in product innovation (Greve 2007) and the timing of acquisitions (Iyer and Miller 2008) and provides a further application of this method.

1.3. Practical relevance and contribution

The managerial implications of this dissertation directly relate to how strategic renewal is affected by performance feedback. As discussed below in more detail, performance feedback learning and momentum entail both adaptive and maladaptive consequences. This is, on the one hand, reflected in successful

adaptation, performance improvement, and renewal, but on the other also in limitations of organizational learning, excessive risk taking, and strategic persistence and inertia (Levinthal and March 1993; Audia, Locke et al. 2000; Burgelman 2002; Harris and Bromiley 2007). Consequently, an increased awareness about the underlying performance feedback learning behaviors and momentum effects is beneficial to improve managerial decision making and action taking. The findings of performance feedback research represent a robust basis to derive design recommendations for formal performance feedback systems (see for example Greve 2010). Against this background, this dissertation discusses practical implications and presents design recommendations for performance feedback systems. The findings of the empirical study are also reviewed from a practitioner perspective.

1.4. Outline of the dissertation

This dissertation is structured in seven chapters. In chapter 1 – "Introduction", theory and empirical study are introduced and positioned within prior research. The research question is motivated, the purpose presented, and the contributions are summarized. Chapter 2 – "Theoretical background" – presents a comprehensive review of the existing literature related to both the phenomenological research domain of strategic renewal as well as the theoretical perspective of performance feedback learning as a direct descendent of the behavioral theory of the firm. For the purpose of clarity, overview tables of prior research contributions are included in the review sections. In chapter 3 – "Theoretical model and hypotheses" – the theoretical model is developed and testable hypotheses are derived and discussed. Chapter 4 – "Methods" details the methodological section of this dissertation, including research design considerations, data sources, variables and the analytical method. In chapter 5 – "Results" – the results of the empirical analyses are presented. Chapter 6 - "Discussion and implications" - provides a discussion of the results and presents implications relating to theory and managerial practice. Chapter 7 -

"Conclusions" - concludes this dissertation by presenting limitations, directions for future research, and the final conclusion.

2. Theoretical background

2.1. Strategic renewal

2.1.1. Introduction

The idea that strategic renewal is an integral part of strategic management can be traced back to the contributions that helped shaping the field (Schendel and Hofer 1979). In early contributions, "strategic self-renewal" was generally conceived as a transformation activity related to environment, objectives, strategy and/or structure to ensure long term survival (Chakravarthy 1984). From today's perspective, strategic renewal has evolved into a distinct research domain, mainly with researchers active in areas of (1) strategy process (e.g. Chakravarthy and Doz 1992; Floyd and Wooldridge 2000; Lechner 2006), (2) corporate entrepreneurship (e.g. Guth and Ginsberg 1990; Zahra 1993; Zahra 1995; Zahra 1996; Sharma and Chrisman 1999; Zahra, Nielsen et al. 1999), and (3) research more closely associated with strategic content, organizational design, and the dynamic capabilities literature (for an overview see Agarwal and Helfat 2009).

(1) In strategy process-oriented research of strategic management, strategic renewal is closely associated with strategic change. While strategic change represents a broad area of enquiry, as also mirrored in its theoretical pluralism (Rajagopalan and Spreitzer 1997), strategic renewal has emerged more specifically around evolutionary and ecological perspectives of strategy making (Floyd and Lane 2000).

(2) As reflected in its entrepreneurial character, strategic renewal also represents a phenomenon of interest within corporate entrepreneurship research (Guth and Ginsberg 1990; Zahra 1993; Zahra 1995; Zahra 1996; Sharma and Chrisman 1999; Zahra, Nielsen et al. 1999). Here, strategic renewal has become more narrowly associated with the study of renewal of established organizations, in contrast to corporate venturing, mainly related to birth of new businesses in existing organizations.

(3) Beyond these "traditional" research domains of strategic renewal, a more recent special issue of *Organization Science* has made the phenomenon accessible to a broader audience (Agarwal and Helfat 2009; Augier and Teece 2009; Benson and Ziedonis 2009; Capron and Mitchell 2009; Eggers and Kaplan 2009; Gulati and Puranam 2009; Kim and Pennings 2009; Knott and Posen 2009; Puranam, Singh et al. 2009; Salvato 2009; Tripsas 2009). As concluded by Agarwal and Helfat in their review of this body of research (2009: 290):

"…it [strategic renewal] is a phenomenon where the content and process of strategy are heavily intertwined, involving multiple dimensions of change including those with regard to competition, firm resources and capabilities, organizational structure, and cognition, as well as routines and processes for decision making and implementation."

Against this background, this dissertation more closely targets the strategy process domain and research community, while integrating the newly emerging perspectives where considered relevant.

2.1.2. Foundations and concept

An overview of selected definitions of strategic renewal is presented in *Figure 2-1.* Some important definitions from (1) strategy process, (2) corporate entrepreneurship, and (3) strategy content/ dynamic capabilities research are discussed briefly in this section in order to introduce the overall concept and to illustrate its evolution.

(1) Within one of the central evolutionary frameworks of strategy process, the intra-organizational ecology, strategic renewal is conceived as *"major strategic change preceded by internal experimentation and selection"* (Burgelman 1991). This conception emphasizes the importance of bottom-up learning processes of new capabilities and skills. Similarly, Floyd and Wooldridge (2000: 49) define strategic renewal as *"a managerial process associated with promoting and*

accommodating new knowledge and innovative behavior which results in change in an organization's product-market strategy and/or its core capabilities", and they emphasize that renewal not only relates to changes in product-market domains, but also to changes in strategically relevant capabilities. More recently, Volberda and colleagues (2001: 160-161) subsume under strategic renewal the *"activities a firm takes to alter its path dependence",* an idea that finds expression in studies from a co-evolutionary perspective (e.g. Flier, Van Den Bosch et al. 2003).

(2) Similar conceptions of strategic renewal can be found within the domain of corporate entrepreneurship. Guth and Ginsberg (1990) posit that strategic renewal characterizes "*the transformation of organizations through renewal of the key ideas on which they are built"* and differentiate it from internal venturing, the latter referring to the processes related to the birth of new business within existing organizations. Further frameworks of corporate entrepreneurship have built on this idea (e.g. Zahra 1993; Stopford and Baden-Fuller 1994; Zahra 1995; Zahra 1996), with a reconciliation of some definitional issues provided by Sharma and Chrisman (1999).

(3) Agarwal and Helfat (2009: 282) propose that strategic renewal encompasses process, content, and outcome dimensions as it *"…includes the process, content, and outcome of refreshment or replacement of attributes of an organization that have the potential to substantially affect its long-term aspects."* Their perspective delineates refreshment or replacement as relevant types of changes, and long-term prospects as the underlying time dimension. They also imply that renewal varies in terms of success and do not presuppose a specific outcome in their conception.

As illustrated by these definitions, the concept of strategic renewal includes both discontinuous and incremental changes. It comprises emergent, bottom-up learning processes which complement top-down driven, deliberate change. This

understanding of strategy stands in the tradition of contributions to strategy process research which give evidence of emergent behaviors in strategy making (Lindblom 1959; Bower 1970; Mintzberg 1978; Quinn 1980). With important renewal activities being located at middle or operating levels of the organization, a subset of this literature has developed a middle-management perspective focusing on the activities and roles of middle managers as important actors within strategic renewal processes (Floyd and Wooldridge 2000; Wooldridge, Schmid et al. 2008).

Scholars studying strategic renewal have received and developed theory from several perspectives. As noted, important contributions are based on evolutionary theories (Burgelman 1991; Lovas and Ghoshal 2000; Burgelman 2002), which is why strategic renewal is closely associated with evolutionary models of strategy making (Floyd and Lane 2000). Additional theoretical arguments have been made, for example, based on contingency theory (Chakravarthy 1984), cognitive perspectives (Hurst, Rush et al. 1989; Barr, Stimpert et al. 1992), social network theory (Floyd and Wooldridge 2000; Marx, Lechner et al. 2006; Pappas and Wooldridge 2007), role theory (Floyd and Lane 2000), and co-evolutionary perspectives (Lewin and Volberda 1999; Volberda and Lewin 2003). More recently, some scholars have also applied the dynamic capabilities view (Agarwal and Helfat 2009; Augier and Teece 2009; Capron and Mitchell 2009; Salvato 2009).

Author(s)	Definition	Focus
(Schendel and Hofer 1979)	"Strategic management is a process that deals with the entrepreneurial work of the organization, with organizational renewal and growth, and more particularly, with developing and utilizing the strategy which is to guide the organization's operations." (pg. 11)	– Strategic renewal as a key concern of strategic management
(Chakravarthy 1984)	Strategic self-renewal: "… the transformation of the environment, objectives, strategy, and/or structure of a business unit to ensure its long term survival…" (pg. 540)	– Strategic renewal as an alternative to strategic planning
(Guth and Ginsberg 1990)	"The topic of corporate entrepreneurship encompasses two types of phenomena and processes surrounding them: (1) the birth of new businesses within existing organizations, i.e. internal innovation or venturing; and (2) the transformation of organizations through renewal of the key ideas on which they are built, i.e. strategic renewal" (pg. 5). "Strategic renewal involves the creations of new wealth through new combinations of resources" (pg. 6)	– Strategic renewal and corporate venturing as domains of corporate entrepreneurship
(Burgelman 1991)	"To the extent that strategic context determination processes are effectively activated, the organization may learn new capabilities and skills in anticipation of making major changes in its strategy, but without knowing in advance how it should be changed. Changes of this sort form the basis for "strategic renewal" - major strategic change preceded by internal experimentation and selection." (pg. 254-255)	– Strategic renewal as strategic change preceded by bottom-up learning and experimentation

Figure 2-1: Selected definitions of strategic renewal

Author(s)	Definition	Focus
(Zahra 1993)	"Renewal has many facets, incl. the redefinition of the business concepts, reorganization and the introduction of system-wide changes for innovation."..." Renewal is achieved through the redefinition of a firm's mission through the creative redeployment of resources leading to new combinations of products and technologies." (pg. 321)	– Strategic renewal and corporate venturing (innovation) as domains of corporate entrepreneurship
(Stopford and Baden-Fuller 1994)	"Organizational renewal alters the resource pattern of business to achieve better and sustainable overall economic performance. To be sustainable, more pervasive effort is needed involving more than a few individuals and the finance function." (pg. 522)	– Strategic renewal as stage within a transition model of corporate entrepreneurship
(Zahra 1995; Zahra 1996)	"Renewal means revitalizing a company's business through innovation and changing its competitive profile. It means revitalizing the company's operations by changing the scope of its business, its competitive approaches or both. It also means building or acquiring new capabilities and then creatively leveraging them ..." (pg. 227; pg. 1715)	– Innovation, renewal and corporate venturing as domains of corporate entrepreneurship
(Sharma and Chrisman 1999)	"Strategic renewal refers to the corporate entrepreneurial efforts that result in significant changes to an organization's business or corporate level strategy or structure. These changes alter pre-existing relationships within the organization or between the organization and its external environment and in most cases will involve some sort of innovation. Renewal activities reside within an existing organization and are not treated as new businesses by the organization." (pg. 19)	– Strategic renewal as domain of corporate entrepreneurship

Figure 2-1 (Continued): Selected definitions of strategic renewal

Author(s)	Definition	Focus
(Floyd and Lane 2000; Floyd and Wooldridge 2000)	"Strategic renewal is a managerial process associated with promoting and accommodating new knowledge and innovative behavior that results in change in an organization's product-market strategy and/or its core capabilities." (pg. 49/ pg. 155)	– Strategic renewal as changes in strategic position and core capabilities based on new knowledge and innovative behavior
(Volberda, Baden-Fuller et al. 2001)	"Strategic renewal can be broadly defined as the activities a firm undertakes to alter its path dependence." (pg. 160)	– Strategic renewal as trajectories of actions
(Flier, Van Den Bosch et al. 2003)	"Strategic actions to align organizational competencies with the environment to increase competitive advantage." (pg. 2168)	
(Agarwal and Helfat 2009)	"Strategic renewal includes the process, content, and outcome of refreshment or replacement of attributes of an organization that have the potential to substantially affect its long-term prospects." (pg. 282)	– Strategic renewal as a variety of specific types of changes encompassing process, content, and outcome dimensions

Figure 2-1 (Continued): Selected definitions of strategic renewal

As will be further detailed in the theoretical model section, this dissertation builds on an understanding of strategic renewal as actions targeted at the development or renewal of capabilities associated with competitive advantage (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003; Lechner and Floyd 2007). The intent hereby is to consider a broad understanding of strategic renewal, not limited to changes in positioning or product-market niches, but encompassing change in ideas, knowledge and capabilities associated with strategically-relevant behavior in market and technology domains.

2.1.3. Literature review

Prior literature reviews of strategic renewal have been contributed mainly taking a middle management perspective (Floyd and Wooldridge 2000; Wooldridge, Schmid et al. 2008) and a strategy content and dynamic capabilities view (Agarwal and Helfat 2009). The review presented below extends and complements such overviews by focusing on strategic renewal as a specific phenomenon and domain of strategy process research. No specific perspective on strategy process is thereby presumed and encompasses both top management team and middle management perspectives on strategic renewal are considered (Hurst, Rush et al. 1989; Floyd and Wooldridge 2000; Wooldridge, Schmid et al. 2008). Recent contributions from a strategy content and dynamic capabilities view are integrated and discussed in connection with the "traditional" strategy process literature. This broader perspective is taken to open up for possible new avenues of future research.

Topic areas: The following topic areas are differentiated: (1) antecedents of strategic renewal, (2) subprocesses and instruments of strategic renewal, (3) managerial involvement and cognition underlying strategic renewal, (4) outcomes of strategic renewal, and (5) trajectories of strategic renewal. While these five areas provide for a comprehensive view, such a categorization is likely to neglect some complexity of the phenomenon. In particular, several studies make contributions to more than one of these categories, which is attempted to be reflected in the overview. Moreover, the underlying meaning of "process" associated with the study of the strategic renewal may differ between variance theory approaches and more holistic process studies (Van de Ven 1992; Van de Ven and Poole 2005). These considerations should be taken into account when reviewing this overview.

Figure 2-2 summarizes prior research in chronological order. It lists research focus, theoretical lens and/ or domain of application, method applied, and key findings per study. The articles were selected based on an analysis of the ISI

Web of knowledge which was conducted in summer 2009 as part of the pre-empirical research proposal stage of this dissertation. The set of relevant journals analyzed included research-oriented outlets (e.g. *Academy of Management Review*, *Strategic Management Journal*, *Administrative Science Quarterly*, *Organization Science*, *Journal of Management Studies*, *Management Science*, *Entrepreneurship Theory and Practice*, *Organization Studies*, *European Management Journal*, *International Studies of Management and Organizations*) and more practitioner-oriented publications (e.g. *Harvard Business Review*, *Long Range Planning*). The list of articles within which the term "strategic renewal" was found was complemented by additional articles associated with evolutionary strategy making and strategic initiatives that were deemed relevant for this review. A few articles were excluded given that they were considered unrelated to this body of research.

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Burgelman 1983a)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Grounded-theory building; resource allocation	Longitudinal field study of one US high technology company	Successful internal corporate venturing suggested depending on availability of autonomous strategic activity on the part of operational level participants, on ability of middle managers to conceptualize these initiatives in more general system terms, and on capability of top management to allow viable initiatives to change corporate strategy.
(Burgelman 1983b)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Grounded-theory building; resource allocation; organizational ecology	Conceptual/ theoretical article	Presented a model of strategic process under which the propositions "structure follows strategy" and "strategy follows structure" can be both subsumed. The current corporate strategy induces part of strategic activity; changes in strategy are effected by autonomous strategy behavior.
(Burgelman 1983c)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Grounded-theory building; resource allocation; Organizational ecology	Conceptual/ theoretical article	Presented conceptual framework for corporate entrepreneurship. Overall, corporate entrepreneurship was suggested unlikely to take place through the induced strategic behavior loop. "Autonomous strategic behavior provides the raw material – the requisite diversity – for strategic renewal" (pg. 1350).
(Chakravarthy 1984)	Subprocesses and instruments of strategic renewal	Contingency theory	Conceptual/ theoretical article	Evolution of planning systems has reached a new "era" beyond portfolio planning. Limitations of portfolio planning systems could be addressed by strategic self-renewal.
(Hurst, Rush et al. 1989)	Managerial involvement and cognition underlying strategic renewal	Cognitive perspective on TMT	Conceptual/ theoretical article	Suggested that TMT heterogeneity is associated with renewal and develops a model of behavioral requirements.

Figure 2-2: Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Wooldridge and Floyd 1990)	Outcomes of strategic renewal; managerial involvement and cognition underlying strategic renewal	Strategic decision making; strategic consensus	Semi-structured interviews and survey in 20 organiza-tions	Middle managers' involvement in strategic renewal suggested to have a positive impact on organizational performance through improved decisions and better implementation. Greater involvement had a positive effect on consensus; however, strategic consensus was not related to higher performance.
(Guth and Ginsberg 1990)	Others: Editorial on corporate entrepreneurship	Contingency theory	Conceptual article	Developed framework of corporate entrepreneurship research, comprised of two types of phenomena: internal innovation or venturing, and strategic renewal of established corporations.
(Burgelman 1991)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Organizational ecology	Longitudinal field study of US high-technology firm (Intel)	Consistently successful firms were characterized by top managements who simultaneously exercise the induced and autonomous strategy process; successful reorientations are likely be preceded by internal experimentation and selection processes effected through the autonomous process.
(Chakravarthy and Doz 1992)	Others: Editorial on strategy process research	diverse	Conceptual article	Challenges for strategy process research suggested to contain a focus on corporate self-renewal.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Barr, Stimpert et al. 1992)	Managerial involvement and cognition underlying strategic renewal	Cognitive perspective	Polar case of two US railroad companies. Analysis of causal maps based on annual report data. Longitudinal data: 25-year period (1949-1973)	Suggested that renewal requires a change in mental models. Renewal depends on being able to link environmental change to corporate strategy and to modify that linkage over time. Such learning behavior is exhibited in first and second order changes of mental maps.
(Dougherty 1992)	Subprocesses and instruments of strategic renewal	Practice-based perspective	Conceptual article with illustrative cases	Presented practice-centered model for organizational renewal through product innovation.
(Floyd and Wooldridge 1992)	Antecedents of strategic renewal; managerial involvement and cognition underlying strategic renewal	Strategy process; role theory	Theory testing Factor analysis, correlation analysis, MANOVA; sample of 25 US firms	Developed typology of middle management strategic roles and activities and applied it in strategic choice context. Highlighted relevance of middle managers in strategy making.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Huff, Huff et al. 1992)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal; outcomes of strategic renewal	Evolutionary	Simulation model of interaction between stress and inertia to explain renewal process (4-stage model)	Suggested differences underlying radical and state-maintaining renewal. Change was dependent on history of strategic change and initial levels of stress and inertia.
(Mintzberg and Westley 1992)	Others: Conceptual framework for analyzing strategic change	Strategy process; contingency theory; diverse	Conceptual article	Suggested research requirements for studies of change and renewal, e.g. conceptual clarity concerning the level where the change originates or is focused is essential, the richness of research, macro/micro levels, and diverse triggers.
(Bryson and Bromiley 1993)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal; outcomes of strategic renewal	Strategic planning; implemen-tation; strategic initiatives	Factors analysis of major factors affecting 68 major strategic change initiatives	Contextual antecedent suggested to affect process factors and to indirectly affect process outcomes through planning and implementation. Both process and context factors were found to directly affect outcomes of strategic change projects.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Murray and Mahon 1993)	Subprocesses and instruments of strategic renewal	Strategic alliances	Conceptual article	Analyzed strategic alliances as an instrument of strategic renewal in the context of the single European market.
(Burgelman 1994)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Organizational ecology; resource allocation; grounded-theory building	Longitudinal case study of US high-technology firm (Intel); comparative study of two semi-conductor businesses (data from 1971-1985)	Developed a theory of strategic business exit with several propositions on forms of inertia and the role of the internal selection environment.
(Simons 1994)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Control theory	Exploratory, longitudinal case study (10 newly appointed managers), duration: first 18 months of tenure	Emphasized the relevance of the use of formal management control systems as lever for strategic renewal.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Stopford and Baden-Fuller 1994)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	diverse	Longitudinal case study of 7 firms of UK manufacturing industries; data collection from 1985-1990; inclusion of prior events from docu-mentary review	Suggested that firms build attributes of corporate entrepreneurship over time in incremental, emergent patterns, and not by metamorphic change. These attributes appear in all three stages of individual entrepreneurship, renewal, and frame-breaking entrepreneurship, but change dramatically over time and at different rates.
(Burgelman 1996)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Organizational ecology; resource allocation; grounded-theory building	Longitudinal case study of US high-technology firm (Intel)	Organizational exit from core business was found to result from emergent strategy. Middle manager's choices laid the foundation for the redefinition of corporate strategy and core competencies.
(Noda and Bower 1996)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Organizational ecology; resource allocation	Longitudinal, polar case study of US telephone operator companies (BellSouth and US WEST); data collection 1992-1995	Compared resource allocation patterns in two companies. Findings highlight the role of differences in corporate contexts, the influence of early results, and document evidence for escalation or de-escalation patterns of strategic commitment.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Whitney 1996)	Subprocesses and instruments of strategic renewal	Practice-based perspective	Conceptual	Provided a prescriptive framework for an investigation of a business unit's current situation and a road map for transformation.
(Floyd and Wooldridge 1997)	Outcomes of strategic renewal; managerial involvement and cognition underlying strategic renewal	Role theory; organization ecology	Theory testing Sample of 259 middle managers in 25 firms, cross-industry	Supported the view that middle-management involvement in strategic renewal is associated with performance. In particular, consistency of downward influence and variation in upward influence is associated with higher performance.
(Baden-Fuller and Volberda 1997)	Subprocesses and instruments of strategic renewal	Strategy process; contingency theory	Conceptual typology of renewal, illustrated with case examples	Presented typology for different renewal motors based on technology and mechanisms of renewal.
(Hodgkinson 1997)	Managerial involvement and cognition underlying strategic renewal	Cognitive perspective	Longitudinal field study of UK real estate agency industry	Study found support for cognitive inertia. Respondents' cognitions in terms of mental maps of competitor assessments remained highly stable despite a deterioration of the market environment.
(Chakravarthy and Gargiulo 1998)	Antecedents of strategic renewal	Strategy process; political sociology	Conceptual based on single case study in European Telco supplier industry	Emphasized employee involvement as critical factor in strategic renewal process.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Ruiz-Navarro 1998)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Resource-based view of the firm	Case study of a Spanish shipyard	Reordering of peripheral competencies led to technical innovation as initial phase. Subsequent renewal processes depended on the development and acquisition of complementary resources to revitalize core competencies.
(Crossan, Lane et al. 1999)	Subprocesses and instruments of strategic renewal	Organizational learning; interpretative	Conceptual/ theoretical, illustrated with case example	Highlighted the relevance of organizational learning as a principal means of strategic renewal. Developed the 4I-framework of organizational learning (at individual, group, and organizational levels).
(Sharma and Chrisman 1999)	(Others: definitional issues of corporate entrepreneurship)	Corporate entrepreneurship	Conceptual	Reviewed, clarified and reconciled previous conceptions of Corporate Entrepreneurship. Follows Guth & Ginsberg (1990) in considering corporate venturing and strategic renewal as principal domains.
(Floyd and Lane 2000)	Subprocesses and instruments of strategic renewal; managerial involvement and cognition underlying strategic renewal	Evolutionary change; role theory	Theoretical	Emphasized strategic role conflict as an implication of strategic renewal. Discussed contingencies related to strategic role conflict and responses for its resolution. Conceptually clarified the concept of strategic renewal (definition, subprocesses).
(Lovas and Ghoshal 2000)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Organizational ecology; evolutionary change; grounded-theory building	Inductive, 8-month case study of a Danish hearing aid company (Oticon)	Provided competing approach to Bower-Burgelman model ("guided evolution"). It incorporated a more active role of top management and included human and social capital as units of selection within the evolutionary processes of strategy-making.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(McGrath 2001)	Antecedents of strategic renewal; Subprocesses and instruments of strategic renewal; outcomes of strategic renewal	Contingency theory; strategic fit; strategic initiatives	Regression analysis based on survey data for 56 new business development initiatives	Higher autonomy in terms of goal and supervision was found to increase learning effectiveness in exploratory, new business development initiatives. With decreasing degree of exploration, better results were associated with less autonomy.
(Volberda, Baden-Fuller et al. 2001)	Trajectories of strategic renewal	Co-evolutionary perspective	Conceptual paper based on illustrations of renewal journeys from Dutch and British multi-unit firms	Article presented co-evolutionary typology of ideal types of renewal journeys (emergent, directed, facilitated, and transformational) that organizations may adopt to cope with environmental pressures. Suggested that managers have to recognize the differences among renewal journeys when making choices.
(Huygens, Baden-Fuller et al. 2001)	Subprocesses and instruments of strategic renewal; trajectories of strategic renewal	Co-evolutionary perspective; behavioral theory	Inductive study of music industry	Suggested that search behavior drives co-evolution through competitive dynamics among new entrants and incumbents and manifests itself in the simultaneous emergence of new business models and new organizational forms.
(Volberda, van den Bosch et al. 2001)	Trajectories of strategic renewal	Co-evolutionary perspective	Longitudinal, quantitative study of Dutch & UK firms of fin. service industry (1990-1997)	Study concluded that industry-, country-, and firm-specific factors influence strategic renewal in distinctive and complementary ways. Firms were found to be able to take multiple trajectories of renewal.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Flier, van den Bosch et al. 2001)	Trajectories of strategic renewal	Co-evolutionary perspective	Longitudinal, quantitative study of European financial services firms (1990-1999)	Findings suggested patterns of an emergent hypercompetitive landscape for the European Financial Services sector based on diffusion of technological innovations and regulations, leading to new managerial challenges.
(Crossan and Bedrow 2003)	Subprocesses and instruments of strategic renewal	Organizational learning; interpretative	Single case study of Canada Post corporation	Applied the 4I framework of organizational learning. Organizational learning was characterized as a complex, multilevel phenomenon which is not inherently positive or negative and must embrace the tension between exploration and exploitation.
(Volberda and Lewin 2003)	Others: Editorial on co-evolutionary research	Co-evolutionary perspective	Conceptual article	Synthesized prior literature on co-evolution research. Discussed empirical requirements for empirical co-evolution research.
(Flier, Van Den Bosch et al. 2003)	Trajectories of strategic renewal	Co-evolutionary perspective	Explorative case study of UK, Dutch, and French financial incumbents; content-analytical coding of strategic renewal actions	Compared theoretical perspectives with respect to strategic renewal actions. Developed metrics linking strategic renewal actions to the effects studied.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Stienstra, Baaij et al. 2004)	Trajectories of strategic renewal	Institutional theory; strategic choice	Conceptual article including longitudinal case study of top 5 European Telco operators (1992-2001)	Study found support for emergent strategic renewal journeys reinforced by institutional context. Operators were suggested to have copied renewal actions of each other to a large extent. Going forward, idiosyncratic behavior would increase after resolving debt and performance issues.
(Marx, Lechner et al. 2006)	Managerial involvement and cognition underlying strategic renewal, outcomes of strategic renewal	Social network theory; strategic initiatives	Regression analysis based on survey data of 54 initiatives	Study suggested curvilinear, inverted u-shaped relationships between characteristics of intra-firm networks and the development and performance of strategic initiatives. Findings supported effects for initiative team's tie strengths and centrality.
(Ravasi and Lojacono 2005)	Subprocesses and instruments of strategic renewal	Contingency theory; product development	Conceptual based on case examples of firms in consumer product industries	Article suggested that careful management of the product design process can support strategic renewal. A prescriptive framework was presented including critical issues, potential sources of inefficiency, and indications of how managers may guide design-driven renewal.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Pappas and Wooldridge 2007)	Managerial involvement and cognition underlying strategic renewal	Social network theory	Correlation analysis based on quantitative survey (sample of 89 middle managers in US hospital); semi-structured interviews with top managers	Study applied social network theory perspective on strategic renewal with emphasis on divergent strategic activity and boundary spanning activity. Data suggested associations between forms of network centrality and divergent strategic activity.
(Lechner and Floyd 2007)	Subprocesses and instruments of strategic renewal; outcomes of strategic renewal	Strategic initiatives; learning perspectives; knowledge management	Qualitative results of study of 41 strategic initiatives in 3 firms of insurance industry	Article suggested that exploratory initiatives may fail when managers under-invest in key learning activities. The importance of four activities - searching, processing, codifying, and practicing – was discussed and practical implications were derived for exploratory learning in strategic initiative contexts.
(Bower and Gilbert 2007)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Organizational ecology; resource allocation	Conceptual article, illustrated with case examples	Article synthesized case examples and logic behind research related to the Bower-Burgelman model with a focus on managerial implications.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Agarwal and Helfat 2009)	Others: Editorial on Strategic renewal of organizations	Strategy content; dynamic capabilities; organizational cognition; diverse	Conceptual article; illustrative case study of IBM	Strategic renewal found to be an underinvestigated phenomenon likely to benefit from multiple lenses and literatures, including content and process of strategy.
(Augier and Teece 2009)	Managerial involvement and cognition underlying strategic renewal	Dynamic capabilities	Conceptual article	The dynamic capabilities framework was found to invite further research into entrepreneurship, organizational learning, and the role of managers and leaders in enterprise performance (which can be interpreted as compatible to strategic renewal).
(Benson and Ziedonis 2009)	Subprocesses and instruments of strategic renewal; managerial involvement and cognition underlying strategic renewal; outcomes of strategic renewal	M&A; innovation; absorptive capacity	Event study of 34 corporate investors' returns from acquiring 242 technology startups; sample of US information technology firms (1987-2003)	Findings suggested that corporate investors systematically differ in their abilities to derive added benefits from acquiring start-ups. As CVC investments increase relative to an acquirer's total R&D expenditures, acquisition performance improves at a diminishing rate.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Capron and Mitchell 2009)	Subprocesses and instruments of strategic renewal; managerial involvement and cognition underlying strategic renewal; outcomes of strategic renewal	Modes of capability acquisition; internal and external strategic renewal	Longitudinal survey study of international telecom industry; sample of 153 firms	Variations in a firm's ability to select external or internal strategic renewal, i.e. its mode of capability acquisitions, found to influence the ability to renew its capabilities and survive. Firms that take into account constraints based on their capabilities and internal social contexts when choosing between internal or external renewal will survive longer than firms that assess these constraints poorly.
(Eggers and Kaplan 2009)	Subprocesses and instruments of strategic renewal; managerial involvement and cognition underlying strategic renewal	Dynamic capabilities ; cognitive perspective; market entry	Longitudinal study of product market entry activity of 26 US technology firms; 307 observations (1976-2001)	Suggested that managerial cognition is a dynamic capability that can shape adaptation by established firms. The direction of CEO attention towards the emerging technology and the affected industry was associated with faster entry, and attention to existing technologies with slower progress. CEO attention could amplify timing effects of organizational orientations.
(Gulati and Puranam 2009)	Subprocesses and instruments of strategic renewal	Ambidexterity; reorganization; organization structure; formal and informal organization	Conceptual article based on illustrative, qualitative case study of Cisco Systems and game theoretic analysis	Inconsistencies between formal and informal organization arising from reorganizations were suggested to facilitate ambidexterity. Under some conditions, the informal organization could compensate for the formal organization and motivate a valuable form of employee behavior, i.e. compensatory fit.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Kim and Pennings 2009)	Trajectories of strategic renewal	Industry evolution; innovation	Count data analysis of 1,244 tennis racket introductions (1980-1992)	The launch of new product innovations was found to trigger competitive contagion in terms of imitative reactions when the product launch was accompanied by marketing such as product endorsement by high-profile players and advertising.
(Knott and Posen 2009)	Antecedents of strategic renewal; subprocesses and instruments of strategic renewal	Industrial organization; R&D; demand; technological opportunity; appropriability	Quantitative analyses of cross-industry sample of 2,785 listed US firms and 20,417 observations (1981-2000)	Proposed that the impact of industry characteristics on firms' R&D investment level is best explained by a model of innovation behavior in which firms invest in R&D principally to regain eroded advantage rather than to pursue the new frontier.
(Puranam, Singh et al. 2009)	Subprocesses and instruments of strategic renewal	M&A; postmerger integration; organization design	Logit regression analysis of 217 technology acquisitions by 49 acquirers of the US IT hardware industry (1988-1998)	Suggested that for the integration of acquired capabilities, structural coordination may be necessary to achieve coordination, but that preexisting common ground offers an alternate path to achieve coordination, which may be less disruptive.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Salvato 2009)	Subprocesses and instruments of strategic renewal	Dynamic capabilities; capability evolution; capability micro-foundations; new product development	Longitudinal case study of Italian design firm Alessi; analysis of 90 new product development processes (1988-2002)	Mindful micro-activities carried out by individuals in and around the organization and at all levels of the organizational hierarchy are central in shaping the content of the product development capability and its dynamic adaptation. Strategic renewal may be partially shaped by timely managerial interventions aimed at encoding successful experiments into higher-level organizational capabilities. Higher-level capabilities resulting from the conversion of heterogeneous experiences display higher process homogeneity and a permanent increase in performance, because of stabilization of managerial attention.
(Tripsas 2009)	Trajectories of strategic renewal	Organizational evolution; technological change; organizational identity; industry emergence	Grounded theory; inductive, longitudinal case study of entire life-history of Linco, a digital photograph company (1996-2006)	Identity-challenging technologies, i.e. technologies that deviate from the expectations associated with insider and outsider perceptions of what is core about an organization, are found difficult to capitalize on. Related opportunities may be missed since identity serves as a filter. Identity also becomes intertwined with routines, procedures, and beliefs of both organizational and external constituents.

Figure 2-2 (Continued): Literature overview of selected journal articles on strategic renewal

(1) Antecedents of strategic renewal: Prior research has analyzed the role of several categories of antecedents at different levels of analysis. For example, *environmental factors* are acknowledged in terms of competitive dynamics or industry contingencies (Stopford and Baden-Fuller 1994; Noda and Bower 1996; Ruiz-Navarro 1998), and institutional context (Murray and Mahon 1993; Knott and Posen 2009). *Organizational factors* consist of strategic type (Floyd and Wooldridge 1992), administrative or control systems (Simons 1994; Lovas and Ghoshal 2000), leadership legitimacy (Chakravarthy and Gargiulo 1998), or type of renewal efforts (Huff, Huff et al. 1992). *Group-level factors* contain constructs such as consensus (Floyd and Wooldridge 1992) or departmental power and responsibilities (Burgelman 1983a). *Individual-level factors* are reflected in organizational actors' network positions (Floyd and Wooldridge 1997). These findings are complemented with further insights from qualitative studies (e.g. Burgelman 1983a; Burgelman 1983b; Burgelman 1983c; Burgelman 1991; Burgelman 1994; Burgelman 1996; Noda and Bower 1996; Lovas and Ghoshal 2000; Burgelman 2002; Danneels 2002). Overall, these studies give evidence of a considerable number of identified antecedent effects on processes and outcomes of strategic renewal.

(2) Subprocesses and instruments of strategic renewal: The subprocesses of strategic renewal are mostly described along the evolutionary *variation-selection-retention* perspective, for example as idea generation (*variation*), initiative development (*selection*), integration/ execution (*retention*) (Floyd and Wooldridge 2000; Wooldridge, Schmid et al. 2008). This logic is reflected in the seminal evolutionary frameworks (Bower 1970; Burgelman 1983a; Burgelman 1983b; Burgelman 1991; Lovas and Ghoshal 2000) and subsequent advancements (Floyd and Wooldridge 2000; Wooldridge, Schmid et al. 2008). Most studies use similar conceptualizations.

Closely associated with descriptions and characterizations of the strategic renewal processes, prior research has also presented different instruments (or

tools) of strategic renewal. These instruments may be differentiated along a number of criteria, e.g. whether they stretch beyond firm boundaries and represent an internal or external mode of knowledge and capability development (Flier, Van Den Bosch et al. 2003; Agarwal and Helfat 2009; Capron and Mitchell 2009):

- In particular, *strategic initiatives* are considered as key instruments of internal strategic renewal. They are most prominently an integral part of the "classic" evolutionary frameworks (Bower 1970; Burgelman 1983a; Burgelman 1983b; Burgelman 1991; Lovas and Ghoshal 2000). More recently, they are increasingly analyzed in connection with performance implications based on questionnaire data (e.g. McGrath 2001; Marx, Lechner et al. 2006; Lechner and Floyd 2007).

- Closely associated with strategic initiatives and sometimes captured in connection with them (McGrath 2001), *product development and innovation* are portrayed as an important source of strategic renewal (Dougherty 1992; Danneels 2002; Salvato 2009).

- Prior research has also emphasized the relevance of external strategic renewal instruments, most importantly *strategic alliances* (Murray and Mahon 1993) and *M&A* (Benson and Ziedonis 2009; Puranam, Singh et al. 2009).

- Combining external and internal strategic renewal instruments, more integrative work analyzes renewal patterns by employing the broader construct of *strategic renewal actions,* mainly based on content analysis of publicly available firm and press reports (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). Strategic renewal actions have thereby been differentiated based on their content (exploration vs. exploitation) and context (external and internal) dimension (Volberda, van

den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003) incorporating all of the above instruments.

(3) Managerial involvement and cognition underlying strategic renewal: Strategic renewal is characterized to encompass the entire firm. This is why *managerial involvement* at different levels, including cross-level exchanges and interactions, is an important area of study (Floyd and Lane 2000). With strategic renewal conceptualized as bottom-up learning and experimentation processes (Burgelman 1988; Burgelman 1991), it is obvious that the analysis of organizational actors involved in these activities is of relevance to research. In particular, while the importance of middle managers is implicit in classic accounts (Bower 1970; Burgelman 1983a; Burgelman 1983b; Burgelman 1991), several studies have more explicitly adopted either a *top management* (Hurst, Rush et al. 1989; Hodgkinson and Wright 2002) or a *middle-management perspective* of strategic renewal (Floyd and Wooldridge 1992; Floyd and Wooldridge 1997; Floyd and Wooldridge 2000; Wooldridge, Schmid et al. 2008). Key features of this work also focus on the classification of *strategic roles* of the different managerial actors involved and analyze implications of their involvement (Floyd and Wooldridge 1992; Floyd and Wooldridge 1997; Floyd and Lane 2000).

Similar to the analysis of managerial involvement, *cognitive perspectives* of strategic renewal emphasize the relevance of strategic cognition at different levels of analysis (Barr, Stimpert et al. 1992; Hodgkinson 1997; Hodgkinson and Wright 2002; Eggers and Kaplan 2009). Cognition is particularly relevant, as changes in mental maps (Barr, Stimpert et al. 1992) or inertia associated with cognition are factors suggested to drive or impede strategic renewal (Hodgkinson 1997; Hodgkinson and Wright 2002). Managerial involvement is also reflected in studies that adopt a social network perspective (Marx, Lechner et al. 2006; Pappas and Wooldridge 2007). Floyd and Wooldridge (2000) give a conceptual overview of the theoretical basis of the social network literature and its

implications. A social network perspective, for example, provides for predictions associated with individual-level activities such as divergent middle management behavior (Pappas and Wooldridge 2007). Moreover, characteristics of intra-firm networks, such as of strategic initiative teams, may impact the development and performance of strategic initiatives (Marx, Lechner et al. 2006).

(4) Outcomes of strategic renewal: Research that analyzes outcomes of strategic renewal, in particular economic performance, is comparably scarce Only a limited number of studies have contributed to our knowledge in this respect so far.

Wooldridge and Floyd (1990) study the impact of middle managers' involvement in strategic renewal on organizational performance. Hypothesizing that middle management involvement might improve organizational performance in two ways, i.e. through improving the quality of strategic decision, or through improving understanding and commitment to deliberate strategy, their findings suggest that the positive effect of the former is stronger than the latter. Greater involvement in strategic decisions has a positive effect on consensus, defined as strategic understanding and commitment. However, increased strategic consensus is not related to higher performance (Wooldridge and Floyd 1990). Illustrating the general importance of middle managers' involvement in strategy formation, the study suggests that improved performance is more likely to result from superior strategies than from improved implementation.

In a subsequent study based on a more differentiated conceptualization of middle managers' strategic involvement, Floyd and Wooldridge (1997) analyze non-linear performance effects of middle managers' strategic influence in strategic renewal and organizational performance. They hypothesize that variety in upward influence activities facilitates adaptation in light of strategically important, environmental changes, and is therefore associated with higher organizational performance (Floyd and Wooldridge 1997). In contrast,

downward influence is supposed to positively affect implementation of deliberate strategy and subsequently organizational performance, given consistency in such influencing behavior (Floyd and Wooldridge 1997). In addition to some more specific findings the data supports both hypotheses (Floyd and Wooldridge 1997).

Prior research has also studied the relationship between strategic initiatives and initiative performance. Based on a broad measure of project performance ratings, the effect of both process and context factors on outcomes of strategic change projects is supported (Bryson and Bromiley 1993). The social context in terms of embeddedness of initiative team members is found to be associated with initiative performance (modeled as achievement of goals and objectives) in the form of an inverted u-shaped relationship (Marx, Lechner et al. 2006). In another study, higher autonomy in terms of goal and supervision is held to increase the learning effectiveness in new business development projects (McGrath 2001), an intermediate outcome closely associated with initiative performance. Other intermediate outcomes, such as learning or capability development are partly recognized in studies focusing on strategic renewal subprocesses.

Furthermore, recent work suggests that differences between firms with respect to their strategic renewal capabilities impact the performance of their strategic renewal actions (Benson and Ziedonis 2009) and firm survival (Capron and Mitchell 2009). These studies also suggest the relevance of further capability-oriented work for the study of outcomes of strategic renewal in the future.

(5) Trajectories of strategic renewal: Prior research has also taken a longitudinal perspective, and has thereby conceptualized the underlying patterns of actions as journeys or trajectories (Flier, van den Bosch et al. 2001; Volberda, Baden-Fuller et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003; Volberda and Lewin 2003). Such a perspective is also implicit in the analysis of managerial epochs (e.g. Burgelman 2002; Burgelman 2005). Other

work has studied organizational evolution in connection with identity-challenging technologies (Tripsas 2009), or the evolution of industries in connections with the introduction of new product innovations (Kim and Pennings 2009).

Scholars have also attempted to classify renewal trajectories (Volberda, Baden-Fuller et al. 2001) by comparing their evolution over time (Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). The relative influence of environmental vs. firm-specific factors on strategic renewal is particularly considered, mainly based on a co-evolutionary perspective of strategic renewal (Lewin and Volberda 1999; Volberda and Lewin 2003). These studies find specific support for both types of effects (Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003; Stienstra, Baaij et al. 2004).

2.1.4. Discussion and implications

As briefly reviewed, our knowledge about strategic renewal has advanced. However, there remain selective gaps. Overall, prior research has emphasized antecedents and process descriptions of strategic renewal, including its subprocesses, instruments, and managerial involvement and cognition. While we have also gained insights in intermediate process outcomes of renewal, studies on relationships between strategic renewal and economic performance are still relatively scarce. We also lack comparative analyses that study different modes of strategic renewal, for example associated with choices between internal and external strategic renewal actions.

It has been proposed that richer conceptions of strategic renewal result from integrating additional aspects of organizational change, in particular from dialectical and teleological theory (Floyd and Wooldridge 2000). This suggestion is based on a process theoretical framework of ideal-type theories of change based on different "motors" (Van de Ven and Poole 1995). In this framework,

arguments are derived of how the interplay between different motors provides opportunities to develop new theory with stronger and broader explanatory power (Van de Ven and Poole 1995) – as also reflected in a more detailed discussion by Floyd and Wooldridge (2000). Following this reasoning, the conception of a co-evolutionary perspective of strategic renewal (Lewin and Volberda 1999; Volberda and Lewin 2003), for example, can be interpreted as an approach of complementing evolutionary theory at the industry level with teleological and dialectical elements of managerial choices of individual organizations. Similarly, a guided evolution approach includes teleological elements in terms of strategic intent (Lovas and Ghoshal 2000). In light of these considerations, there remain opportunities to further advance our knowledge and to create more integrative and richer models of strategic renewal.

A possible first step towards such more integrative theory development is to uncover similarities in seemingly different theories and to highlight the "differences that make a difference" in explanations (Van de Ven and Poole 1995). Evolutionary theory has been particular useful in supporting explanations of changes in populations, with change proceeding in cycles of variation, selection, and retention (Campbell 1969; Hannan and Freeman 1977; Aldrich 1979; Hannan and Freeman 1989). Burgelman has applied the evolutionary model at the intra-organizational level to explain strategy making processes within firms (Burgelman 1991). Such a theoretical account of a purely ecological description of selection processes is, however, likely to be incomplete, as it neglects the dialectical character of top management's intent and middle managers' political behaviors (Floyd and Wooldridge 2000). An evolutionary perspective of strategic renewal also assumes that a sufficient variety of ideas and initiatives is a given. Without such a variety there is no possibility of organizational adaptation, making variation an indispensable precondition for strategic renewal (Floyd and Wooldridge 2000).

Unlike the importance of variation in evolutionary perspectives of renewal, evolutionary theory is restricted in explaining the origin and extend of such variation. In particular, as argued by Van de Ven and Poole (1995), evolutionary theory follows a *prescribed* mode of change, associated amongst others with smaller and more predictable changes within an existing framework. In contrast, changes that break with past basic assumptions or frameworks, or that lead to more unpredictable outcomes because of discontinuity with the past, follow a *constructive* mode of change (Van de Ven and Poole 1995). Teleological and dialectical motors incorporate such a constructive mode of change (Van de Ven and Poole 1995). They are particularly relevant given that strategic renewal comprises both incremental renewal as well as discontinuous transformations (Agarwal and Helfat 2009). Theory based on dialectical motors is particularly well equipped in explaining political dimensions of processes, such as divergent strategic behavior or coalition-building, whereas teleological arguments permit to integrate goal orientation and more deliberate strategy processes (Floyd and Wooldridge 2000). The former aspect has been studied in relation to strategic initiatives (Lechner and Floyd 2005) and the latter has been partly integrated in conceptions such as 'guided evolution' (Lovas and Ghoshal 2000). While a guided evolution conception still rests on evolutionary theory, this dissertation builds on the teleological change motor inherent in performance feedback learning models, as reviewed below in more detail.

Finally, it seems that the majority of prior studies has focused on single instruments of strategic renewal. With the exception of a limited number of comparative studies (Flier, Van Den Bosch et al. 2003; Capron and Mitchell 2009), we lack knowledge with respect to choices between different modes and instruments of renewal over time. As proposed in the remainder of this document, a behavioral perspective of strategic renewal seems particularly helpful to complement the phenomenological lens of strategic renewal and to advance our knowledge based on a teleological conception of change and development, while also addressing some shortcomings of prior research.

2.2. Performance feedback theory

2.2.1. Introduction

Performance feedback learning (Greve 2003c) can be considered a direct descendent of the behavioral theory of the firm (Cyert and March 1963/1992). The related theory of aspiration levels, performance feedback, and problemistic search has been recently found to have *"increased to the point where it is one of the most active research streams on strategic change of firms"* (Argote and Greve 2007). Several studies published in leading outlets of management research and organization theory have applied behavioral models based on performance feedback theory to a wide array of topics, as further discussed below. In this dissertation, it is argued to broaden the domain of application from strategic change to strategic renewal. The resulting theoretical implications will be discussed.

The process of performance feedback within the behavioral theory of the firm is described along the logic of an organizational decision process (Cyert and March 1963/1992). Characterizing firms as goal oriented entities that use feedback-react decision procedures to solve problems, Cyert and March (1963/1992) predict that firms which fall short of their objectives initiate problemistic search processes. Moreover, successful performance is also considered to lead to organizational slack, for example, available as a source for innovations (Cyert and March 1963/1992). As will be shown, the process steps of performance evaluation, search, and decision making as well as slack search, are key concepts for the study of performance feedback effects on strategic renewal actions.

Aspiration levels are conceived as the borderline between perceived success and failure of a boundedly rational decision maker (March and Simon 1958/1993; Greve 2003c). They are an expression of the goal orientation of organizations and contain two important properties: goal dimension and level (Bromiley 2005). An aspiration level corresponds to a reference point (i.e. *level*) relevant to a certain organizational goal (i.e. *dimension*). Performance is compared to the

aspiration level and therefore sometimes also referred to as aspiration performance (Baum, Rowley et al. 2005; Baum and Dahlin 2007). Prior research has mostly focused on aspiration performance in terms of economic performance, and the construct may be also applied to further organizational goal dimensions such as size goals (Greve 2008a). Important categories of aspiration levels relate to historical aspiration levels, which are determined by a firm's past performance (Cyert and March 1963/1992), and to social aspiration levels, which are based on comparison to similar others (Festinger 1954; Cyert and March 1963/1992).

These key concepts seem largely established from today's point of view; yet a first empirical test of the problemistic search prediction based on quantitative methods did not appear before 1978 (Manns and March 1978; Argote and Greve 2007). Further theoretical advances were needed before this research perspective could develop into one of the most active research streams of change in firms (Argote and Greve 2007), as further detailed in the following.

2.2.2. Foundations and concept

Some comments are helpful to facilitate an understanding of how performance feedback learning relates to the behavioral theory, how it has emerged as a distinct research area, and on which conceptual cornerstones it is built.

First, several different research traditions have contributed to the development of performance feedback theory. Greve (2003c) discusses as such the contributions of the behavioral theory of the firm (Cyert and March 1963/1992), social psychology (Lewin, Dembo et al. 1944) – with its different streams on goal-setting research (Locke and Latham 1990), risk research (Kahneman and Tversky 1979), escalation of commitment research (Staw, Sandelands et al. 1981), social comparison theory (Festinger 1954), and group decision making (Kameda and Davis 1990; Davis 1992) –, and economics (Sauermann and Selten 1962; Selten 1998; Hennig-Schmidt 1999). Out of these different research

traditions, the behavioral theory of the firm is the most direct theoretical origin of performance feedback theory (Greve 2003c). The contributions of the further research traditions relevant to performance feedback learning are discussed selectively below; a more detailed discussion can be found elsewhere (Greve 2003c).

Second, the evolution of the behavioral theory of the firm and respective research on organizational theory needs to be considered to better understand the foundations of performance feedback learning. Since the apparition of the original works of the Carnegie school, including the behavioral theory of the firm in 1963 (Cyert and March 1963/1992), a vast number of contributions applied and extended the theory with respect to different research domains and questions. This is also reflected in the emergence of organizational learning research (Argote and Greve 2007). Some important examples of this work include publications on top-level corporate decisions (Carter 1971), garbage can decision making (Cohen, March et al. 1972), organizational learning under ambiguity (March and Olsen 1975; March and Olsen 1976), and organizational change (March 1981). Further articles discuss aspects of experiential learning and provide applications by using simulation models (Herriott, Levinthal et al. 1985; Lounamaa and March 1987; March, Sproull et al. 1991). Other articles focus on models of organizational adaptation, search, and risk taking (Levinthal and March 1981; March and Shapira 1987; March 1988; March and Shapira 1992). Finally, contributions on exploration and exploitation (March 1991), absorptive capacity (Cohen and Levinthal 1990), and myopic learning (Levinthal and March 1993) provide important findings that have found widespread attention beyond the scope of the behavioral theory of the firm. Overall, as also commented in a recent review article, research based on the seminal work of the Carnegie school (Simon 1947/1997; March and Simon 1958/1993; Cyert and March 1963/1992) is characterized by its pluralism (Gavetti, Levinthal et al. 2007). Along these lines, the behavioral theory seems to represent more of an intellectual collage than a tightly integrated theoretical edifice (Gavetti,

Levinthal et al. 2007), which is consequently reflected in the presence of many behavioral theories of the firm with different assumptions and predictions (Argote and Greve 2007). Against this background, I follow closely the behavioral perspective of performance feedback theory as originally proposed by Greve (1998; 2003c) in this dissertation.

Third, the conceptualization of aspiration levels, performance feedback and problemistic search according to the behavioral theory of the firm provides a main cornerstone of performance feedback theory. Cyert and March (1963/1992) present an abstract organizational decision process based on variable categories of organizational goals, organizational expectations, and organizational choices, and connected by relational concepts among these variables. In this way. organizational decision-making mirrors the characterization of organizations as *routine-based*, *history-dependent*, and *goal-oriented* entities which learn by exhibiting adaptive behavior over time (Levitt and March 1988). Organizations are routine-based as they adapt their routines and standard operating procedures, and they are history-dependent and goal-oriented as they react to performance feedback in two main ways: (1) in case of failure (i.e. organizational goals are not met), they initiate problemistic search processes to generate solution alternatives; (2) in case of successful performance (i.e. current performance exceeds aspiration levels), they tend to accumulate slack resources available, which may be used, for example, as a source for innovations (Cyert and March 1963/1992).

Building on these theoretical foundations, three articles are particularly recognized as important conceptual cornerstones for the emergence of performance feedback theory as a distinct research domain (Greve 2003c; Argote and Greve 2007). These articles focus on risk taking (Bromiley 1991), aspiration level adaptation (Lant 1992), and risky choices as antecedents of strategic change (Greve 1998).

As a first conceptual cornerstone relevant for the emergence of performance feedback theory, Bromiley (1991) presents and tests a dynamic model of the determinants of risk taking and performance. Using longitudinal accounting data from Compustat and analyst forecast data from IBES in a large-scale sample of manufacturing companies, he derives predictions based on the behavioral theory of the firm and enriches his discussion by findings of risk research in strategic management (Bowman 1980; Fiegenbaum and Thomas 1988). Overall, his findings suggest that low performance increase risk taking and that risk taking lowers subsequent performance (Bromiley 1991). Further interesting findings include the association of organizational search with increased risk (Bromiley, Miller et al. 2001) and an integration of self-relevant and social-relevant performance measures of aspiration levels. The latter is modeled in a non-linear risk function, which sees firms' risk taking increase as firms move further below industry average performance, with risk taking for firms above industry average being dependent on its current performance relative to its past performance (Bromiley, Miller et al. 2001).

As a second conceptual cornerstone, Lant (1992) introduces a method for directly investigating aspiration levels. She studies the behavior of aspiration levels over time in a classroom simulation game and provides findings on the processes of aspiration level formation and adaptation. In her experimental study, MBA students represent members of a firm's top management with different functional or product-market related responsibilities. Comparing different aspiration level adaptation models based on a broader theoretical discussion of behavioral theory and economics, Lant (1992) finds support for the fact that the attainment discrepancy model represented the most robust description of aspiration formation. Attainment discrepancy is defined as difference between actual performance and aspiration level (Lant 1992). The attainment discrepancy model is based on a simple decision rule of adjusting to performance feedback by considering the difference between aspired and actual performance; it can be represented as a linear process with a single-period lag:

(2.1) $$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2[Z_{t-1} - Y_{t-1}] + \varepsilon,$$

where Y_t is the aspiration level in time period t, Z_t is the performance at t, and $\alpha_0 \ldots \alpha_3$ are parameters (Lant 1992). The predictions underlying this model are that both the coefficient of the past aspiration level and the coefficient of the attainment discrepancy in the last period are positive ($\alpha_1>0$; $\alpha_2>0$) and ($\alpha 0$) represents a constant term. A positive coefficient of the past aspiration level ($\alpha_1>0$) reflects an upward pressure by firms on their current aspiration level. A positive coefficient on the attainment discrepancy ($\alpha_2>0$) mirrors the sensitivity in firms' adjustment of aspiration levels. In either case of a positive or negative discrepancy, aspiration levels adjust more quickly than the corresponding changes in performance (Lant 1992).

The article by Lant (1992) is important to the development of performance feedback learning for several reasons. First, it presents a method for direct investigation of aspiration levels as key construct of performance feedback learning. Second, despite the results showing some degree of similarity between aspiration and expectation models, it contributes to conceptually clarify the relationship between incremental adaptation models based on aspirations (representing levels of performance on an organizational goal dimension sought to achieved), and rational expectation models from the economics literature (expectations conceived as anticipations of future events based on the optimal use of information available). Third, the attainment model provides a more formalized, general description compared to the earlier formulations (Cyert and March 1963/1992; Levinthal and March 1981). Further models of aspiration level adaption have been subsequently presented in the literature and improved applications in response to certain conditions and contexts.

Third, by integrating these prior contributions, Greve (1998) studies the effect of performance feedback on risky organizational changes within firms' product-market domains in terms of format changes of US radio stations. He extends

previous research by formally and empirically testing for the effects of both historical and social aspiration levels and the form of their association with the probability of change, and he finds empirical support for a kinked-curve relationship between past performance relative to aspirations and organizational change.

Based on the arguments provided by behavioral theory and these conceptual articles, subsequent interest in research on performance feedback learning has increased. In particular, it is recognized as a distinct domain of organizational learning research (Schulz 2002). Greve (2003c) provides a book-length review of the theoretical foundations, applications and future perspectives of performance feedback learning. Synthesizing the representations of Cyert & March's abstract organizational decision process (Cyert and March 1963/1992) and March's expanded model of satisficing search (March 1994), he presents the underlying process model of performance feedback learning as following three interrelated process stages of *performance evaluation*, *search*, and *decision making (Figure 2-3)* (Greve 2003c).

First, the aspiration level is compared with performance feedback, observed or obtained from the environment *(Performance evaluation).* Second, *search* activity is affected depending on the performance feedback. Search can be differentiated into *problemistic search* (motivated and increased by negative performance feedback), *slack search* (resulting from extra resources available for experimentation), and *institutionalized search* (facilitated by specialized organizational units such as R&D, market research, or strategic planning; being deliberately managed) (Greve 2003b; Greve 2003c). While closely connected to all these types of search, performance feedback most directly relates to problemistic search. Third, organizational *decision-making* is susceptible to degrees of risk tolerance. Organizational risk tolerance increases with past performance below aspirations, whereas it is decreases in the case of positive

performance feedback. Decisions are taken based on risk tolerance, the solutions available, and the problems to be solved.

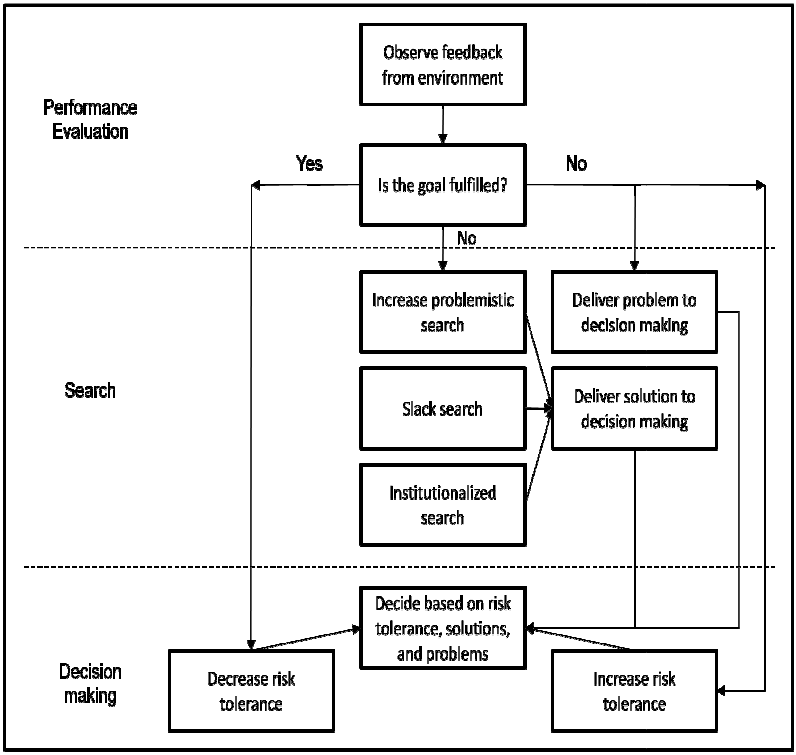

Figure 2-3: Conceptual process model of performance feedback theory (Greve 2003c)

In addition to the general process model, the kinked-curve prediction of performance feedback theory needs to be further considered. The graphical representation of this result is most frequently expressed in a changing slope response curve (Greve 1998; Greve 2003c). As performance relative to social

and historical aspiration levels increases, the likelihood of organizational change decreases, the effect being stronger above the aspiration level than below. This result mirrors the idea that failure drives search and ultimately change, but that organizations are not fully responsive to a reduction of performance below aspiration level (Cyert and March 1963/1992; Greve 1998). There are different types of responses to performance feedback, and Greve (1998) discusses these models together with several explanatory factors.

The underlying argumentation of the kinked-curve prediction is shown in *Figure 2-4*. Picture 1 conceptually shows the relation between the effect of performance on change, given no effect of performance, neither above nor below aspiration level. Given the theoretical predictions related to arguments from problemistic search, problem availability and risk tolerance, this relation shifts in such a way that change is more probable below and less probable above the aspiration level (Picture 2). With picture 2 still representing a constant-slope response, additional theoretical arguments have been introduced to explain the changing-slope response. It is thus predicted that organizational decision makers tend to behave in a risk seeking manner, which shifts the curve upward below the aspiration level (Picture 3), and that organizations are faced with inertia in the light of failure, twisting the curve downwards (Picture 4). The latter represents the conceptual relationship that has been identified by several studies of empirical research (Greve 2003c).

The possibility of a changing-slope response has some methodological implications relevant to the design of corresponding studies (Greve 2003c). In particular, two variables are generally defined and used reflecting positive (i.e. performance - aspiration level > 0) and negative aspiration performance (i.e. performance - aspiration level < 0). In this way, the empirical models can be fit to the different relations discussed above.

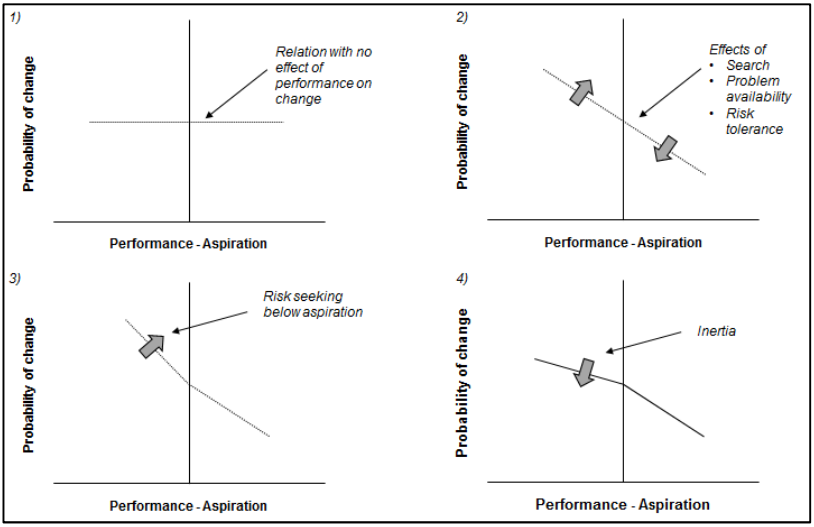

Figure 2-4: Reaction to performance feedback (Greve 1998)

2.2.3. Literature review

Previous reviews of the behavioral theory of the firm have generally taken a specific perspective, such as focusing on strategic management and its rationality assumptions (Bromiley 2005), organizational learning (Levitt and March 1988; Miner and Mezias 1996), or risk taking (Bromiley, Miller et al. 2001; Nickel and Rodriguez 2002). In addition, a brief overview of performance feedback research can be found in a review of organizational learning (Schulz 2002) and a detailed monograph (Greve 2003c). Recent special editions of the behavioral theory of the firm (e.g. *Organization Science*, Vol. 18(3), 2007; *Journal of Economic Behavior & Organization*, Vol. 66, 2008) have generally not included a formal review of the fast-growing body of performance feedback learning literature. The literature review presented below was prepared as part of the research proposal of this dissertation, and it extends prior reviews by adding several additional studies.

Topic areas: Research streams within performance feedback theory include *aspiration level adaption* (or adjustment) and *behavioral adjustment* (Schulz 2002). The first category relates to studies which have focused on a direct investigation of aspiration levels and their development over time. The latter category comprises the behavioral consequences of performance feedback learning, reflected in search, decision making, and (most notably) the subsequent changes. With increasing sophistication in their theoretical models, researchers have also analyzed combined effects of aspiration level adaptation and behavioral consequences. This review further differentiates between studies that examine the effect of *past performance*, and those that consider *past performance relative to aspiration levels*. Performance feedback theory generally refers to the latter case, following more directly the behavioral theory of the firm. Some studies, which have analyzed effects of past performance without directly including aspiration levels in their models (e.g. Audia, Locke et al. 2000), are included in this review, as their findings have informed performance feedback theory and are frequently referred to within the related literature. Since performance compared to aspiration levels has also been referred to as *aspiration performance* (Baum, Rowley et al. 2005; Baum and Dahlin 2007); this term is used in the following overview for reasons of clarity.

Figure 2-5 summarizes prior performance feedback learning research in chronological order. It lists research focus, theoretical lens, methodology, and key findings. It has been compiled based on prior reviews (Schulz 2002; Greve 2003c; Argote and Greve 2007) and an analysis of relevant articles of an ISI Web of knowledge search for the terms “performance feedback” and “aspiration levels”. Related research on organizational learning and strategy process was also scanned for respective contributions and is listed here as appropriate. The resulting studies include publications from a broad selection of journals (e.g. *Academy of Management Journal*, *Administrative Science Quarterly*, *Organization Science*, *Strategic Management Journal*, *Management Science*, *Industrial and Corporate Change*; *Journal of Economic Behavior &*

Organization). Some studies more closely related social psychology and economics are excluded, as they are discussed in some detail by Greve (2003c). Some studies closely related to risk taking aspects are also excluded, as they are reviewed elsewhere (Bromiley, Miller et al. 2001; Nickel and Rodriguez 2002).

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Manns and March 1978)	Behavioral adjustment (past performance)	Performance feedback; university curriculum changes	Quantitative responsiveness analysis comparing changes in curriculum variables between conditions of adversity (1971-1973) and relative prosperity (1964-1966)	Data suggested that curriculum changes were responsive to changes in financial conditions with departments of stronger research reputation being less responsive than those of weaker reputation.
(Levinthal and March 1981)	Aspiration level adaptation; behavioral adjustment (aspiration performance)	Incremental adaptation models (behavioral); organizational learning	Stochastic analysis, time-series simulation model of organizational search	In stable environments, success favored innovation, whereas failure favored refinement. Relative search benefits depended on time horizon, with fast learning not generally being superior to slow adaptation.

Figure 2-5: Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Singh 1986)	Behavioral adjustment (past performance)	Performance feedback; organizational risk taking; slack; decentralization	Structural equation model based on data of 64 medium to large US and Canadian corporations of different industries (1973-1975); multiple informants in top management	Performance suggested having both direct and indirect effects on risk taking. Poor performance was related to high risk taking and good performance related to low risk taking. Good performance was also related to high absorbed and unabsorbed slack. Absorbed slack was related to increased risk taking with unabsorbed slack found not to have a relationship with risk taking. Poor performance reduced decentralization whereas good performance increases it.
(Lant and Montgomery 1987)	Aspiration level adaptation; behavioral adjustment (aspiration performance)	Incremental adaptation models (behavioral)	Experiment/ classroom simulation (Markstrat game) with faculty members	Decision makers were found to adapt their aspiration levels based on their past aspiration level and past performance relative to this level. Risk taking found to be a function of past risk and attainment discrepancy. Innovativeness of search suggested augmenting with increasingly negative attainment discrepancy.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(March 1988)	Aspiration level adaptation; behavioral adjustment (aspiration performance)	Incremental adaptation models (behavioral); organizational risk taking	Stochastic analysis; simulation model of variable risk preferences	Success (increases in wealth levels) decreased risk taking whereas failure increased it. Decreases in aspirations decreased risk taking. When aspiration levels adapted to past performance, they lead to behavior smoothing with slower adaptation making risk raking less sensitive to variations in current performance outcomes, and more sensitive to performance history.
(Grinyer and McKiernan 1990)	Behavioral adjustment (aspiration performance)	Performance feedback; problemistic search; crisis-driven change	Quantitative analysis based on interview data from 25 UK companies	Major change found to be associated with a gap between aspirations and realized performance which will create internal dissatisfactions sufficient to create a sense of crisis and surrounding drama.
(Bromiley 1991)	Behavioral adjustment (past performance)	Performance feedback; organizational risk taking	Longitudinal regression analysis; COMPUSTAT and IBES data on 288 manufacturing companies (1976-1987)	Poor performance increased risk taking, which subsequently resulted in further poor performance suggested that firms performing poorly make risky and low-payoff strategic choices.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Milliken and Lant 1991)	Behavioral adjustment (aspiration performance)	Performance feedback; strategic persistence; psychological and inertial processes	Conceptual paper	Performance feedback may activate psychological and inertial processes that bias managers' strategic thinking and interpretations of environment. The cumulative effect of these processes is to incline managers towards strategic persistence for both situations of positive and negative performance feedback.
(March and Shapira 1992)	Behavioral adjustment (aspiration performance)	Performance feedback; incremental adaptation models; problemistic search; slack; organizational risk taking; threat-rigidity	Stochastic analysis; simulation model of variable risk preferences	Managers were suggested focusing on two reference points: a survival and an aspiration level. Managers who focused on survival were risk averse but willing to increase risk taking as organizational performance improves. Managers increased risk taking when performance diverges from the aspiration level in either direction.
(Lant and Mezias 1992)	Behavioral adjustment (aspiration performance)	Incremental adaptation models; punctuated equilibrium; strategic persistence; radical environmental change; experiential learning	Longitudinal simulation model of experiential learning	An adaptive, routine based learning model exhibited change patterns consistent with punctuated equilibrium, with a similarity between the processes that lead to convergence and reorientation. Adaptive search showed higher responsiveness to environmental change. High performance drove inertia inhibiting future change. Ambiguity decreases firms' responsiveness.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Lant, Milliken et al. 1992)	Behavioral adjustment (aspiration performance)	Performance feedback; punctuated equilibrium; strategic persistence; radical environmental change; TMT heterogeneity	Regression models based on data of firms in the US furniture and computer software industry	Past performance, environmental turbulence, TMT heterogeneity and CEO turnover increased the likelihood of strategic reorientation. The factors differently affected reorientation in stable vs. turbulent environmental contexts.
(Bolton 1993)	Behavioral adjustment (past performance)	Performance feedback; problemistic search; innovation; R&D consortia	Regression models based on data from 74 US high-technology firms	Substandard performance stimulated early joiners of R&D consortia whereas more risk-averse, high-performing firms were found to be late adaptors. Relationship between performance and innovation involved initial decision (adopt/non-adopt) and related one about adoption timing (early/late).
(Miller and Chen 1994)	Behavioral adjustment (past performance)	Performance feedback; competitive inertia; strategic persistence; radical environmental change	Regression models based on data of 963 competitive action reports of US airline industry (1979-1986)	Poor performance drove tactical adjustments whereas strategic adjustments were less responsive to past performance. Good past performance contributed to inertia. Performance implications of inertia depended on the environment, with low positive effects decreasing with increases in market diversity.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Boeker 1997)	Behavioral adjustment (past performance)	Performance feedback; product-market changes; TMT heterogeneity	Regression models based on data from 67 semi-conductor producers (1978-1992)	Poor performance, long CEO and TMT tenures, and high TMT diversity were found to be associated with higher levels of strategic change. Poor performance moderated the relationship between managerial characteristics and strategic change increasing the likelihood of the latter.
(Greve 1998)	Behavioral adjustment (aspiration performance)	Performance feedback; problemistic search; organiza-tional risk taking; product-market changes; social comparison	Logit regression models based on data from radio station format changes in 160 US radio markets	Organizational change depended on performance relative to social and historical aspiration levels. Failure increased the probability of change much more slowly than success decreases it.
(Audia, Locke et al. 2000)	Behavioral adjustment (past performance)	Performance feedback; strategic persistence; radical environmental change	Archival study of airline and trucking industries; laboratory study based on cellular in-dustry business game with US graduate students	Past success was found to increase strategic persistence after radical environmental change, which induced declines in performance. Rigidity effects of individual psychological processes mediated the success-persistence relationship and lead to dysfunctional persistence.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Mezias, Ya-Ru et al. 2002)	Aspiration level adaptation	Incremental adaptation models (behavioral); social comparison	Quantitative analysis based on field study; quarterly data on 95 retail units of US financial services holding (1995-1997)	Past aspiration level and attainment discrepancy had a positive effect on the current aspiration level. Social comparison (defined as focal unit's past performance minus past performance of comparable other units) had a negative effect on the current aspiration level, reflecting managerial efforts to reduce performance differences among comparable units.
(Greve 2002)	Aspiration level adaptation	Incremental adaptation models (behavioral); environmental selection	Simulation study and empirical analysis (radio broadcasting industry)	Slow aspiration level updaters dominated under certain conditions. Stronger selection environments lead to quicker replacements of rapid aspiration level updaters by slow aspiration level updaters.
(Greve 2003a)	Behavioral adjustment (aspiration performance)	Performance feedback; problemistic search; organizational risk taking; slack search; R&D; innovation	Regression models based on data on innovations in Japanese shipbuilding industry (1971-1996)	R&D expenses increased when negative performance feedback triggers problemistic search, and when excess resources cause slack search. Innovations generated by search were launched if low performance feedback increases risk tolerance.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Greve 2003b)	Behavioral adjustment (aspiration performance)	Performance feedback; problemistic search; organizational risk taking; slack search; social comparison; facility investment	Regression models based on data on Japanese shipbuilding industry (1964-1995)	Positive performance feedback caused low facility investment. The effect of negative performance feedback on asset growth was suggested to be canceled out by inertia. No significant influence found from social comparison. No effect of slack search was found.
(Miller and Chen 2004)	Behavioral adjustment (aspiration performance)	Performance feedback; incremental adaptation models (behavioral); problemistic search; slack; organizational risk taking; threat-rigidity	Regression models based on COMPUSTAT data (1991-2000) of US firms in manufacturing industries (SIC codes 2000-3999)	Empirical test of predictions of March & Shapira (1992) model. Findings supported idea of managers shifting attention from bankruptcy to aspiration levels. Organizations with poor performance increased risk with rising proximity to bankruptcy. Negative effects of performance on risk were larger for firms with moderate performance than for those with high or low performances. Some firms lowered risk as performance relative to aspirations increased.
(Baum, Rowley et al. 2005)	Aspiration level adaptation; behavioral adjustment (aspiration performance)	Performance feedback; problemistic search; organizational risk taking; interorganizational collaboration	Regression models; data on underwriting syndicate ties of Canadian investment banks	Performance far from historical and social aspiration levels increased willingness to accept uncertainty and risk of nonlocal inter-organizational partnerships. Inconsistent performance feedback, i.e. performance above either historical or social aspirations but below the other, triggered the greatest risk taking.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Audia and Greve 2006)	Behavioral adjustment (aspiration performance)	Performance feedback; problemistic search; organizational risk taking; factory expan-sion; firm size; structural inertia; threat rigidity	Regression models based on data on Japanese shipbuilding industry (1974-1995)	Data supported a shifting-focus model of risk, i.e. small firms responded differently to low performance than large firms. Performance below aspirations reduced risk taking in small firms, but not affected or increased risk taking in large firms.
(Chen and Miller 2007)	Behavioral adjustment (aspiration performance)	Performance feedback; problemistic search; organizational risk taking; slack search; institutionalized search; threat rigidity; R&D	Regression models based on firms from manufacturing industries (SIC codes 2000-3999); (data from 1980-2001)	Data supported stable, firm-specific institutionalized search activity reflected in R&D investment patterns with R&D intensity varying depending on firms' situations, including performance relative to aspirations, proximity to bankruptcy, and slack. Results also suggested shifts in the focus on attention explaining R&D search intensity for firm subsamples.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Greve 2007)	Behavioral adjustment (aspiration performance)	Performance feedback; problemistic search; slack search, exploration and exploitation; routinization; organizational momentum; innovation	Continuous-time event history models based on data on Japanese shipbuilding industry (1971-2000)	Paper developed theory for different effects of problemistic search, slack, momentum on exploration and exploitation competing for resources. Date suggested, contrary to expected differences, that reductions of performance significantly increased rates for both exploration and exploitation innovation. Moreover, unabsorbed slack was found to affect exploitation innovations. Data failed to support direct tradeoff between exploration and exploitation.
(Harris and Bromiley 2007)	Behavioral adjustment (aspiration performance)	Corporate misconduct, financial misrepresentation ; incentive compensation	Regression models based on data on US firms with financial restatements due to financial irregularity (sample of 434 misrepresen-ting firms)	Poor relative performance and CEO incentives positively influenced the probability of accounting misrepresentation. Relative performance was found to have highly nonlinear influence of behavior; in particular, misrepresentation occurred almost exclusively at extreme values of performance relative to aspirations.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Baum and Dahlin 2007)	Behavioral adjustment (aspiration performance)	Learning from failure; experiential learning; learning curves	Regression models based on data on US Class I freight railroads' accident cost (1975-2001)	When a railroad's accident rate deviated from aspiration levels, the railroad benefited more from other railroads' operating and accident experience than from its own. Performance near aspirations fostered local search and exploitative learning, while performance away from aspirations stimulated nonlocal search and exploration.
(Park 2007)	Behavioral adjustment (aspiration performance)	Strategic positioning; strategic convergence-divergence (i.e. the extent to which a focal firm draws closer or further away from a competitor by changing its strategic position)	Regression models based on dyad-level data in 315 firms of US food processing industry (1985-2000)	Study suggested a negative relationship between firm performance vs. aspiration levels and strategic convergence-divergence), where the slope is steeper above the aspiration level; and a positive relationship between a target firm's performance relative to a focal firm's performance and strategic convergence-divergence, where the slope is steeper when a target firm's performance is below a focal firm's performance.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Reference	Research Focus	Theory lens/ Domain of application	Method	Core Findings
(Greve 2008a)	Behavioral adjustment (aspiration performance)	Sequential attention to goals, firm size; social comparison	Regression models based on data on 161 firms of general insurance industry in Norway (1911-1996)	Performance and size goals jointly affected growth supporting the sequential attention to goal hypothesis. Firms grew more when below the aspiration level for size, in particular when performance goals were satisfied.
(Iyer and Miller 2008)	Behavioral adjustment (aspiration performance)	Acquisitions; slack search; threat rigidity	Event-history models; data on acquisition announcements in manufactu-ring industry firms (SIC codes 2000 to 3999); sample of 9114 acquisition announcements (1980-2000)	Acquisition activity increased as performance increased among firms with performance below aspirations, but decreased among firms performing above aspirations. Slack showed a positive relation with acquisitions. Financial distress showed support for threat rigidity.

Figure 2-5 (Continued): Literature overview of selected journal articles on performance feedback learning

Aspiration level adaptation: As previously indicated, historical and social aspiration levels are the most important categories studied by prior research on aspiration level adaptation. While there are further sources of aspiration levels, such as natural aspiration levels as the status quo or direct learning (e.g. the requirement, that all General Electric business units needed to belong to the top two firms within their industry (Slater and Welch 1993; Greve 2003c), prior research has mainly focused on historical and social aspiration levels or combined these two categories.

Based on the experience of a given firm with respect to its own performance history, *historical aspiration* levels can be analyzed. A historical aspiration level can be formed by a rule which transforms the input of historical performance into an output of an aspiration level that is applied to evaluate future performance (Greve 2003c). Early conceptions of a historical aspiration level present a stochastic analysis of an exponentially weighted average model, where the aspiration level is gradually updated when new information becomes available (Levinthal and March 1981; March 1988). Formally expressed (with an alignment of the nomenclature), it results that (Levinthal and March 1981):

$$Y_t = b_1 Y_{t-1} + (1-b_1) Z_{t-1,} \tag{2.2}$$

where Y_t is the aspiration level or performance target in time period t, Z_t is the performance at t, and b_1 is an adjustment parameter ranging from values between 0 and 1 indicating the weight of the previous aspiration level (respectively new information) when forming the new one. When b_1 is high (low), low (high) weight is put on new information.

A reformulation of (2.2) by inserting the previous-period aspiration level leads to:

$$Y_t = (1-b_1) \sum_{S=1,\,\infty} b_1^{\,s-1} Z_{t-s} \tag{2.3}$$

This makes the adjustment parameter b_1 a discount rate for evaluating the relevance of past performance in aspiration level updating, with a high b_1 giving a relatively greater weight to past performance (Greve 2003c).

Empirical evidence on historical aspiration level updating is presented by two experiments with MBA and executive students based on a market simulation game (Lant and Montgomery 1987; Lant 1992) and one field study of retail banking units' sales targets (Mezias, Ya-Ru et al. 2002). The experiments find support for the aspiration level adaptation model presented in equation (2.1). Their model is a more general expression of the above formulation, which tests for whether or not the weights assigned to the previous performance and aspiration level add up to one, and also integrates a constant term in order to allow for potential bias in updating (Greve 2003c). While the experiments find support for a positive constant, reflecting a positive upward-striving bias or optimism of decision makers when updating their aspiration levels, the results of the field studies are insignificant in this respect (Lant and Montgomery 1987; Lant 1992; Mezias, Ya-Ru et al. 2002). The experiments also find the weights to exceed one, generally corroborated by the field study (Lant and Montgomery 1987; Lant 1992; Mezias, Ya-Ru et al. 2002).

In addition to historical aspiration levels, prior research has also analyzed how decision makers use information on comparable organizations or unit in terms of *social aspiration levels*, following predictions of the behavioral theory of the firm (Cyert and March 1963/1992). As indicated by social comparison theory, individuals evaluate their opinions and capabilities by comparing themselves with standards, or, when standards are not available, by comparing themselves with others (Festinger 1954; Greve 2003c). Accordingly, whereas historical aspiration levels indicate a trend – i.e. whether firm or unit performance is improving, worsening, or stable over time –, social aspiration levels provide a benchmark level of whether firm performance is above, below, or similar to its peers (Baum, Rowley et al. 2005).

Empirical work on social aspiration levels, in general together with historical aspiration levels, has become frequently used within a number of studies that combine aspects of aspiration level updating together with behavioral adjustment (Greve 1998; Greve 2002; Mezias, Ya-Ru et al. 2002; Greve 2003a; Greve 2003b; Baum, Rowley et al. 2005; Audia and Greve 2006; Greve 2007; Harris and Bromiley 2007; Park 2007; Iyer and Miller 2008; Greve 2008a). In these studies, researchers generally average performance measures of comparable others without applying weights to the different members of the referent group (Greve 2003c). However, an example of related and more fine-grained approaches can also be found (Baum, Rowley et al. 2005).

Some further findings are noteworthy. First, a study based on a simulation model and an empirical analysis provides further evidence on the *time perspective of aspiration level updating* (Greve 2002). Exploring whether organizations with different weights on past aspiration will obtain different strategic positions of different value, and whether these differences will favor either slow or quick updaters in selection processes, Greve (2002) finds support for a domination of slow updaters under certain conditions, and that stronger selection environments lead to quicker replacements of rapid updaters by slow updaters. His empirical analysis of radio stations format changes corroborates these findings and finds slow updaters to be prevalent with slow adjustments in competitive markets (Greve 2002). The study thereby provides insights in dynamic aspects of performance feedback learning.

Second, with historical and social aspiration levels providing for two different indicators relevant to decision makers' performance evaluations, prior research has also analyzed the consequences of *consistent vs. inconsistent feedback.* Consistency in this respect is given, when performance feedback compared to both the historical and social aspiration level is either above or below in both comparisons (Baum, Rowley et al. 2005). Different rules for how decision makers' attention may shift between different aspiration levels had been previously suggested, but no evidence for attention shifting had previously been

found (Greve 1998). For inconsistent performance feedback, Baum and colleagues find support for the greatest risk taking in the context of nonlocal inter-organizational partnering between Canadian investment banks' underwriting syndicate ties (Baum, Rowley et al. 2005). With its emphasis on the relative importance of historical and social aspiration levels, this study also highlights the importance of social aspiration reference groups.

Behavioral adjustment: The conceptual work on aspiration levels and their adaptation represents a prerequisite of the enquiry of behavioral adjustment based on aspiration performance. Therefore, research in this domain has increased remarkably after these methodological aspects had been introduced. The focus of performance feedback learning research has thereby shifted towards explaining risky, strategically relevant changes in a wide array of topic areas, e.g. university curriculum changes (Manns and March 1978), product-market strategy (Greve 1998), innovation (Bolton 1993; Greve 2007), R&D (Greve 2003a; Chen and Miller 2007), facility investment (Greve 2003b), interorganizational partnerships (Baum, Rowley et al. 2005), financial misrepresentation (Harris and Bromiley 2007), experiential learning (Baum and Dahlin 2007), M&A (Iyer and Miller 2008), and growth strategy (Greve 2008a). In addition, several studies have applied similar theoretical arguments and studied effects of past performance without explicitly using aspiration level models in their analysis (Manns and March 1978; Singh 1986; Bromiley 1991; Bolton 1993; Boeker 1997; Audia, Locke et al. 2000).

Overall, the selection of studies listed here illustrates that performance feedback theory has evolved into a distinct research domain with robust support for its theoretical predictions. Prior research has repeatedly tested patterns of aspiration level adaptation behavioral adjustment, and interactions between these two categories. It has found support for its predictions both for a wide array of strategically relevant changes and in different industry contexts. While this body of literature documents that a considerable range of strategic behaviors has already been studied, there remain tangible opportunities for future research.

2.2.4. Discussion and implications

As indicated, prior performance feedback research has focused on studying different types of strategic changes, but so far, it has not been applied to strategic renewal. The extension of performance feedback theory to strategic renewal proposed in this dissertation adds a number of theoretical considerations.

First, following a process theoretical view, such a perspective shifts the focus from change to development; *change* being understood as an empirical observation of difference in form, quality, or state over time, and *development* referring to the underlying process of such change in terms of a progression of actions or events (Van de Ven and Poole 1995). As reflected in an definition of strategic renewal as *"major strategic change preceded by internal experimentation and selection"* (Burgelman 1991), considerations relating to development processes are central to strategic renewal. When following an understanding of strategy understood as a pattern in a stream of decision and actions (Mintzberg and Waters 1985; Mintzberg 1987), this implies that research can analyze strategic renewal by studying strategic actions and needs not directly study managerial decisions (Floyd and Wooldridge 2000). Behavioral patterns underlying strategic renewal may thus be inferred from the analysis of strategic renewal actions. Given that strategy process research has generally provided evidence of more complex strategy processes than typically delineated by rational-analytical models (e.g. Bower 1970; Mintzberg 1978; Mintzberg and Waters 1985; Burgelman 1991; Burgelman 1994), the focus on patterns of strategic renewal actions provides a linking point to parts of this complexity within models of performance feedback learning.

Second, it should be noted that strategic renewal refers to strategy making processes across the entire organization (Burgelman 1983a; Burgelman 1983b; Burgelman 1991; Floyd and Lane 2000; Crossan and Bedrow 2003). Such a broader perspective is also in line with more recent arguments of performance feedback theory, which, in addition to the discussion of feedback effects at the organizational levels, provides theory for routine changes of individuals and

groups (Greve 2008b). It also mirrors the original focus of the behavioral theory at the organizational subunit level (Cyert and March 1963/1992) and acknowledges insightful remarks on the level of analysis in studies of organizational learning (Simon 1991).

Third, prior studies on performance feedback learning have generally focused on the analysis of a specific type of change and not investigated different types of actions within single studies. As illustrated by one study that has investigated a broader array of major, fundamental changes in stagnating companies (Grinyer and McKiernan 1990), there exists the opportunity to increase our knowledge by studying performance feedback effects on different modes of strategic renewal or types of strategic renewal actions over time.

2.3. Theoretical integration

To conclude the literature review, key takeaways from the discussion sections of the prior literature reviews are summarized below across the phenomenological and theoretical views. The summary thereby indicates the potential contribution of this dissertation to each of the literatures based on their integration. These considerations are further extended and substantiated for empirical study in the theoretical model section of this dissertation.

Phenomenological lens of strategic renewal:

- First, this dissertation contributes to address a current gap by analyzing the relationship between strategic renewal and firm performance. Thereby, it takes a different perspective by studying the effects of past performance relative to aspiration levels on strategic renewal actions. While in prior studies, the relationships with economic outcomes of strategic renewal have generally considered performance as a dependent variable, this study analyzes it as an independent variable.

- Second, this study further enriches prior research on strategic renewal which has extended evolutionary views on renewal by integrating additional theory.

This literature has proposed important additions to evolutionary models in terms of guided evolution and co-evolutionary perspectives (e.g. Lewin and Volberda 1999; Lovas and Ghoshal 2000; Volberda and Lewin 2003). Along these lines, it has been argued that evolutionary processes can be indirectly guided (March 1994), in particular by strategic intent of the top management and/ or administrative systems, including formal structures and organizational routines (Lovas and Ghoshal 2000). Moreover, it has been claimed that such a "guided evolution" mirrors a more realistic role of leadership (Lovas and Ghoshal 2000). The behavioral perspective taken here can be considered to conceptually align with guided evolution, given that aspiration levels reflect the objective function of strategic intent, and that the design of performance feedback systems corresponds to administrative systems. Based on such a perspective, a behavioral view on strategic renewal stresses that even if an evolution is guided, it is constrained to behavioral limitations of organizational decision-making and learning (Simon 1947/1997; Cyert and March 1963/1992; March and Olsen 1975). Therefore, what is conceived to be guided, is in fact considered to be guided in a limited manner.

- Third, by studying a longitudinal pattern of different types of strategic renewal actions, this dissertation seeks to increase insights with respect to different modes of renewal and the respective effects of prior performance relative to aspirations on related choices. Such research is important as both managing the dichotomies of exploration vs. exploitation as well as external vs. internal renewal are a precondition for firm success and survival over time (Agarwal and Helfat 2009). The focus taken here is thereby different from prior research which has compared different renewal patterns across firms (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). This study aims to analyze a single firm in more detail, in line with prior arguments that emphasize the multifaceted nature consisting of several heterogeneous elements, including as well more incremental strategic renewal actions (Agarwal and Helfat 2009).

Theoretical perspective of the behavioral theory of the firm:

- First, this dissertation extends the domain of application of performance feedback theory to the phenomenon of strategic renewal. The analysis of performance effects on different types of strategic renewal actions thereby broadens prior analyses limited to singular types of strategic changes. What has thus been previously conceived to apply for single types of changes only, is suggested here to be applicable to the more encompassing, broader concept of strategic renewal actions.

- Second, the integration of the phenomenon of strategic renewal and behavioral theory has some implications from a process-theoretical perspective (Van de Ven and Poole 1995). In teleological theories such as performance feedback theory, change takes places as purposeful, adaptive behavior, similar to the described model of performance evaluation, search, and decision making. Organizational change and its underlying development process thereby follow a constructive mode of change, which means that the sequence of events leading to change are not prescribed in terms of a necessary sequence, but instead reflected by movement towards an end state of achieving an organizational goal (Van de Ven and Poole 1995). In contrast, prior evolutionary models of strategic renewal conceptually follow a prescribed mode of change (Van de Ven and Poole 1995), focused on the necessary steps and sequence of variation – selection – retention. Considering the nature of strategic renewal more closely, it seems that such research could benefit in terms of consistency from theory which follows a constructive and not prescribed mode of change. In particular, strategy process research has generally been extended beyond rational-analytic dichotomies of strategy formulation vs. implementation towards a broader strategy formation perspective (Mintzberg 1978; Mintzberg and McHugh 1985; Mintzberg and Waters 1985; Floyd and Wooldridge 2000). Decision-making models have been conceived more openly, including examples such as emergent strategic behavior and ex-post ratification of previously implemented strategies (Burgelman 1991; Burgelman 1994; Floyd and Wooldridge 2000; Burgelman

2002). Therefore, it is suggested here that what has previously been conceived and explained based on a necessary sequence of events, may in fact benefit from a more open representation by focusing on the development process towards an end state. The domain extension of performance feedback theory to strategic renewal facilitates such consistency between phenomenon and theory. In return, the phenomenon of strategic renewal reminds performance feedback theory of the more complex and iterative nature of its underlying behavioral processes, reflected in timing aspects relevant to search and decision-making (Greve 2003c).

- Third, the analysis of different types of strategic renewal actions and their patterns is closely associated with theoretical considerations related to risk taking and the locus of search. These constructs have been of special interest to prior research, which has found different behaviors in terms of risk taking between small and large firms and also sought to reconcile related theoretical predictions with threat rigidity theory (Audia and Greve 2006; Shimizu 2007; Greve 2011). The analysis of similarities or differences between the content (exploration vs. exploitation) and context (external vs. internal) dimensions of strategic renewal (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003) can shed light on the question of whether predictions disintegrated by prior research are in fact integrated, or are disintegrated in a more complex manner than previously conceptualized.

3. Theoretical model and hypotheses

3.1. Summary of the argument

The following section develops and extends theory regarding the effects of performance feedback on strategic renewal actions and their patterns over time. Thereby, the different modes of strategic renewal (Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003) are considered as *content* (explorative vs. exploitative actions) and *context* (external vs. internal actions) *dimensions*, and the *process dimension* of strategic renewal is captured in line with momentum theory (Amburgey, Kelly et al. 1993). The "classic" behavioral predictions of problemistic search, risk taking and slack search (Cyert and March 1963/1992; Greve 2003c) are applied and extended for different types of strategic renewal actions, together with an integration of behavioral predictions related to repetitive momentum and further dynamic considerations. The chapter is concluded by presenting the conceptual model of this dissertation and by reviewing selected theoretical challenges.

3.2. Strategic renewal actions

Strategic renewal is considered here in terms of *strategic renewal actions* targeted at the development or renewal of capabilities associated with competitive advantage (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003; Lechner and Floyd 2007). This view follows Floyd and Wooldridge (2000), as it includes strategic change in domain and positioning as well as changes in core capabilities into the concept of strategic renewal, which is a broader view than originally proposed by Burgelman (1991). The broader perspective is also compatible with recent contributions from a dynamic capabilities view, which emphasized amongst others the multifaceted nature of strategic renewal (Agarwal and Helfat 2009) and suggested to adopt an integrative view of the strategic renewal phenomenon bridging process and content (e.g. Agarwal and Helfat 2009; Augier and Teece 2009). The focal construct is the *rate of strategic renewal actions*, which links to the topic area of trajectories of strategic renewal (Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003; Volberda and Lewin

2003) and permits integration with behavioral predictions from momentum theory (Amburgey, Kelly et al. 1993; Beck, Brüderl et al. 2008). As will be further detailed in the method section, the rate of strategic renewal actions is operationalized empirically as hazard rate.

Conceptually and empirically, strategic renewal actions are those major actions or events which are confirmed and communicated from a firm to general public, and are identified here based on content analysis of publicly available information. This comprises major actions with strategic relevance at the firm and/ or corporate portfolio level (including key subsidiaries), which are observable by the relevant stakeholders, reported by the firm through annual reports, and received and discussed in major business press outlets or industry-specific publications. In adopting strategic renewal actions as a key construct, this study follows prior research in strategic renewal (e.g. Barr, Stimpert et al. 1992; Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). The construct is also compatible with prior performance feedback studies (e.g. Grinyer and McKiernan 1990; Miller and Chen 1994).

Strategic renewal actions are characterized by three dimensions: *content, context, and process*: (Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). The *content* dimension relates to the dichotomy of *explorative* as opposed to *exploitative actions*. The two categories build on prior work of organizational learning (March 1991; Gupta, Smith et al. 2006) applied to the domain of strategic renewal (e.g. Volberda, Baden-Fuller et al. 2001; Burgelman 2002; Crossan and Bedrow 2003; Burgelman 2005). The *context* dimension denotes whether or not actions are developed and pursued within the boundaries of a firm *(internal actions)*, or whether they concern relationships with outside of firm boundaries and/ or with other firms *(external actions)*. The context dimension thereby reflects recent arguments that firms need to develop competence in both internal development and external capability sourcing to renew their capabilities and succeed over time (e.g. Helfat,

Finkelstein et al. 2006; Capron and Mitchell 2009). It is also considered as a central tension in research on organizational ambidexterity (Raisch, Birkinshaw et al. 2009). The *process* dimension reflects the temporal dimension of strategic renewal and captures the *rate* at which explorative vs. exploitative and external vs. internal strategic renewal actions are taken, including the respective *duration* between different actions. With respect to these key concepts, the process dimension is compatible with momentum theory (e.g. Amburgey, Kelly et al. 1993).

3.3. A behavioral perspective of strategic renewal actions

As introduced by the prior literature review, performance feedback theory is based on the processual perspective of the organizational decision process as described by the behavioral theory of the firm (Cyert and March 1963/1992; March 1994). In a simplified view, this process can be described in three main steps: performance evaluation, search and decision making (Greve 2003c):

In this view, organizational members attend to specific organizational goals, reflected in aspiration levels, and observe feedback from the environment as to whether the goal is fulfilled or not. Thereby, performance is typically related to a specific goal dimension and level reflected in the concept of aspiration level. In case the goal is not fulfilled, search behavior is triggered, which is directed to finding a solution to this problem. This behavior of problemistic search is characterized as simple-minded, which means that it starts locally, in the neighborhood of the current problem or a prior solution, and expands in case that it is not successful at local level. Organizational decision making is then conceived as the third process step based on performance feedback from the environment, solutions generated by search and decision rules governing the decision-making.

Building on this conception, performance feedback is a driver or inhibitor of the subsequent processes of search and decision making, ultimately at the origin of organizational change and strategic renewal. The "classic" prediction of

performance feedback theory considers performance feedback to affect both levels of problemistic search and decision makers' risk taking propensities, leading to an increased or decreased level of strategically relevant change (Greve 2003c). The key argument thereby is that negative performance relative to the aspiration level increases the likelihood or rate of change, with performance above the aspiration level being more sensitive to changes in performance (Greve 1998; Greve 2003c).

Regarding trajectories of strategic renewal or patterns of strategic renewal actions over time, prior strategic renewal research has informed our understanding of the relative importance of both firm-specific and environmental factors (e.g. Volberda and Lewin 2003). Momentum theory builds on behavioral theory and is therefore consistent with prior theoretical arguments. The core predictions of momentum (Amburgey, Kelly et al. 1993) are that prior actions increase the likelihood of repetition of actions of the same type, and that the rate of actions decreases with duration since the last actions of the same type. Analyzing the different dimensions of renewal along those lines relates to theoretical discussions about the balance between different dimensions of renewal, i.e. exploration and exploitation (Gupta, Smith et al. 2006; Raisch, Birkinshaw et al. 2009) and external and internal renewal (Agarwal and Helfat 2009; Capron and Mitchell 2009). The common claim of those discussions is that such a balance is important to firm success and survival in the long run.

As also detailed in the literature review section of this dissertation, the basic theoretical arguments of performance feedback theory have been studied and supported by several studies for a variety of strategic changes and within different industries (Greve 2003c). Shifting its domain of application to the phenomenon of strategic renewal, as done here, yields additional considerations, both from a conceptual and contextual view. To analyze these points, a well-established process-theoretical framework is used (Van de Ven and Poole 1995), that compares different theoretical approaches to explain organizational change or strategic renewal.

A behavioral theory of strategic renewal focusing on performance feedback learning represents teleological theory (Van de Ven and Poole 1995). Such a perspective shifts the previously mainly evolutionary conceptions towards a more open view regarding the underlying processes of decision-making and action-taking. In particular, teleological theory is characterized by a constructive mode of change (Van de Ven and Poole 1995). This means that the sequence of events leading to change are not prescribed as a necessary sequence or by probabilistic laws, but instead reflected in a developmental processes moving towards an end state such as achieving an organizational goal (Van de Ven and Poole 1995) or aspiration level.

The phenomenon of strategic renewal seems well fit to this perspective. For example, prior research has studied aspects such a emergent strategic behavior, ex-post ratification of previously implemented strategies, and a broader and more general strategy formation concept (Mintzberg 1978; Mintzberg and McHugh 1985; Mintzberg and Waters 1985; Burgelman 1991; Burgelman 1994; Floyd and Wooldridge 2000; Burgelman 2002). More recent studies have complemented evolutionary perspectives on strategic renewal with guided evolution models (Lovas and Ghoshal 2000) and co-evolutionary perspectives (Lewin and Volberda 1999; Volberda and Lewin 2003). The benefits of integrating both teleological and dialectical theory into evolutionary models are well-established (Floyd and Wooldridge 2000). With a focus on the performance feedback theory domain of behavioral theory, this dissertation focuses on teleology.

Contextually, prior studies of strategic change have focused on distinct types of strategically relevant changes (see for example overview in Greve 2003c). This situation may be partly explained by different foci of prior research with regards to phenomena of interest studied. One study on strategic change and momentum has also suggested that availability of data may be a reason for such limitation (Beck, Brüderl et al. 2008). In contrast, analyzing the more inclusive concept of strategic renewal actions, as studied here, is based on the assumption that the

behavioral causes and effects of the different kinds of actions are homogeneous at a sufficiently meaningful level. The behavioral theory of the firm makes no limitation in this respect and also prior related research has empirically studied many different phenomena separately, which are two important factors supporting this approach.

3.4. Hypotheses and justification

3.4.1. Strategic renewal actions and performance feedback

According to the "classic" prediction of the behavioral theory of the firm and its direct descendent performance feedback theory, negative performance feedback increases the level of problemistic search for remedial alternatives and actions as well as decision makers' risk tolerance (Cyert and March 1963/1992). These behavioral effects have an impact on organizational decision making and lead to an increased likelihood of a firm taking strategic renewal actions.

This prediction has been analyzed for a broad array of specific type of actions, such as related to product-market strategy (e.g. Greve 1998), product innovation (e.g. Greve 2003a; Greve 2007), M&A (e.g. Iyer and Miller 2008), or inter-organizational partnerships (e.g. Bolton 1993; Baum, Rowley et al. 2005). The cumulative basis of prior research suggests that performance feedback effects are similar for the different types of strategic renewal actions considered here. To differentiate between content (exploration vs. exploitation) and context (external vs. internal) dimensions of renewal, additional theoretical arguments are required, as developed further below.

One conceptual aspect of performance feedback should be noted, given that it has conceptual (and empirical) implications. Following the kinked-curve prediction of performance feedback theory (Greve 1998), performance relative to the aspiration level is conceptualized here as a spline specification (i.e. two variables are considered: Performance – AL > 0 and Performance – AL < 0), allowing for different responses above and below the aspiration level. Prior research has found this distinction to be an important theoretical addition (Greve

2003c), and all predictions below conceptualize performance feedback in this way.

Based on the above, negative performance feedback is predicted to generally increase the rate of strategic renewal actions taken by a firm.

Hypothesis 1: When performance relative to the aspiration level decreases, the rate of taking strategic renewal actions increases.

3.4.2. Performance feedback and the content dimension of strategic renewal actions

The content dimension of strategic renewal actions relates to the dichotomy of explorative vs. exploitative strategic renewal actions based on the seminal article by March (1991). Following prior research, *explorative strategic renewal actions* are considered either as actions that add new activities to the current repertoire of the organization, actions that increase the geographical scope, and/ or actions that explore new competencies (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). In contrast, *exploitative strategic renewal actions* are actions that either elaborate on the current range of activities or competencies, actions that fall within the current geographical scope, and/ or actions that rationalize activities (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003).

To distinguish effects between explorative and exploitative strategic renewal actions, differences in risk implications can be considered. These lead to separate predictions for explorative as opposed to exploitative strategic renewal actions.
Explorative actions are characterized as relatively more risky than exploitative actions, since the returns for exploration are uncertain, distant, and often negative, whereas those for exploitation are positive, proximate, and predictable (March 1991). For example, strategic context determination and dissolution processes (Burgelman 2002) adhere to the risk propensities of organizational decision makers, which in turn are affected by performance feedback.

Organizations seem to be more susceptible to explore in the product development process than in their subsequent innovation launches, with exploration or risk taking in their launch decisions being responsive to performance feedback (Greve 2007). Results from exploration may not be realized or launched due to a perceived lack of fit with the current strategy (Dougherty 1992; Dougherty and Heller 1994; Greve 2007).

This suggests that in cases of low performance, organizational decision makers may be willing to accept the inherently higher level of risk and be prone to more significantly turn towards explorative actions (Greve 2007). Since we also know that increased risk taking can be generally predicted for negative aspiration performance, though moderated by organizational inertia, performance is predicted to have a stronger effect on exploration than on exploitation, making exploration actions more responsive to performance than exploitation actions.

Hypothesis 2: Performance relative to the aspiration level has a stronger effect on explorative strategic renewal actions than on exploitative strategic renewal actions.

3.4.3. Performance feedback and the context dimension of strategic renewal actions

The context dimension of strategic renewal actions is related to the dichotomy of external vs. internal actions. *External strategic renewal actions* are defined as being undertaken in conjunction with other organizations and are means of external sourcing of knowledge and capabilities from outside the firm, whereas internal strategic renewal actions originate from within the firm and are means of firm internal development of knowledge and capabilities (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003; Agarwal and Helfat 2009; Capron and Mitchell 2009).

In order to differentiate between external and internal strategic renewal actions, a different type of theoretical argument is required than for the content dimension,

given that both of these types of actions can be similarly explorative or exploitative and thus be associated with both higher or lower levels of risk. Accordingly, there is no systematic difference between external and internal actions in terms of levels of risk involved. In particular, external actions such as mergers and acquisitions have been considered a high risk strategy for strategic renewal, as they may subsequently lead to reduced levels of innovation (e.g. Hitt, Hoskisson et al. 1990; Hitt, Hoskisson et al. 1991; Hitt, Ireland et al. 2001). In addition, inter-organizational partnerships may involve a tradeoff between their potential contribution to competitive advantage and the considerable risk and uncertainty associated with entering such partnerships (e.g. Kogut 1988; Podolny 1994; Baum, Rowley et al. 2005). Also internal actions such as exploratory strategic initiatives are characterized by a high failure rate mirroring problems associated with learning and accumulation of new knowledge (Lechner and Floyd 2007).

However, in line with the definition of the context dimension of strategic renewal actions, the *locus of search* provides for a theoretical argument compatible with established theory including risk arguments, still permitting to differentiate between external and internal strategic renewal actions. Such theory is particularly relevant since managing both external and internal modes of renewal has been found crucial for firm performance and survival (Huygens, Baden-Fuller et al. 2001; Agarwal and Helfat 2009; Capron and Mitchell 2009). The locus of search is for example reflected in studies that illustrate the benefits of boundary spanning across organizational and technological boundaries (Rosenkopf and Nerkar 2001), illustrating one option of overcoming the rigidities of local search. Considering the seminal article by March (1991), it should also be kept in mind that the discussion of balancing exploration and exploitation is closely related to the role of aspiration levels for search, but that the concepts of exploration and exploitation are conceived much broader than the distinction between local and distant search.
Regarding the locus of search, behavioral theory predicts that negative performance feedback triggers local search, and that in case of continued

performance problems, organizations engage into more complex and distant search (Cyert and March 1963/1992). Search is thus initially simple-minded and local, which means that search behavior is targeted either towards the neighborhood of the problem or towards the neighborhood of the current alternative (Cyert and March 1963/1992). It becomes increasingly distant when it is not successful.

Given that local search also means finding a new solution near an old one, the repetition of a focal type of a strategic renewal action (i.e. external or internal) is generally predicted to be a more likely outcome than the change from a prior external action to an internal action or vice versa. In contrast, the latter change is predicted to be more probable whenever local search is unsuccessful. The likelihood of change in renewal context is thus predicted to increase with search becoming increasingly distant, which is the case in situations of negative performance feedback.

Hypothesis 3: ***When performance relative to the aspiration level decreases, the rate of change between external and internal strategic renewal actions increases.***

3.4.4. Performance feedback and slack search

Prior theoretical arguments have been based on the key behavioral concepts of problemistic search and risk taking. In addition to those, slack has also been considered as an important construct and antecedent of organizational change and strategic renewal. As an integral part of the original formulation of behavioral theory, slack search is defined as a key source for innovation (Cyert and March 1963/1992). This is amongst others explained by the fact that slack resources are "excess" resources permitting experimentation and allowing for less strict performance monitoring (Lounamaa and March 1987). Slack has also been found to facilitate lower level renewal actions that in case of resource scarcity would not have been approved (Cyert and March 1963/1992; Levinthal and March 1981). Slack also permits firms to undertake M&A activities and to

buffer them from the risk associated with these strategic actions (Iyer and Miller 2008). More generally, slack is conceived to absorb excess resources and to retard upward adjustment of aspirations in relatively good times, whereas it provides a pool of emergency resources and permits aspirations to be maintained in relatively bad times (Cyert and March 1963/1992). This is also why it is important to include slack into the analysis of performance feedback effects based on aspiration levels.

Prior research has conceptualized slack along a number of dimensions. The key argument to distinguish different dimensions has been based on the ease-of-recovery argument (e.g. Bourgeois and Singh 1983; Singh 1986; Nohria and Gulati 1996). In particular, *unabsorbed slack* has been found easy to recover, as for example reflected in liquid financial resources (Singh 1986). *Absorbed slack* is considered generally recoverable with some effort, and it is represented by already absorbed resources beyond what would be required for certain operations to work and maintain their purpose (Singh 1986). Absorbed slack, which is also referred to as recoverable slack, is for example expressed in excess overhead costs (Bourgeois and Singh 1983). *Potential slack* is reflected in the ability of an organization to generate additional resources from its environment, for example by raising additional debt or equity capital (Bourgeois and Singh 1983). While the dimensions of unabsorbed, absorbed and potential slack are interrelated, they are conceptually different and prior research has generally studied differentiated empirical relationships (e.g. Bourgeois and Singh 1983; Singh 1986; Bromiley 1991; Greve 2007).

The above arguments suggest that different levels of slack affect the rate of strategic renewal actions. The general prediction is that availability of slack resources has a positive effect on the rate and that this applies equally for unabsorbed, absorbed and potential slack resources. One prior study on product innovation has theorized that slack has a stronger effect on exploration than exploitation but did not find empirical support (Greve 2007). Given that not only product innovation but a much broader scope of strategic renewal actions is

considered here, it seems more appropriate not to expect and predict differentiated effects.

Hypothesis 4: When unabsorbed, absorbed and potential slack resources increase, the rate of taking strategic renewal actions increases.

3.4.5. Momentum and the process dimension of strategic renewal

The process dimension of strategic renewal actions relates to the *rate* at which strategic renewal actions are taken and the *duration* between different actions, as typically studied in terms of trajectories or patterns of strategic renewal (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). This perspective mirrors momentum theory, which is based amongst others on the behavioral theory of the firm and related organizational learning (e.g. Miller and Friesen 1980; Kelly and Amburgey 1991; Amburgey and Miner 1992; Amburgey, Kelly et al. 1993). A key concept used in the theoretical development of this line of research has been the concept of standard operating procedures (Cyert and March 1963/1992), which has later also been integrated in the concept of routines in evolutionary theories of change (e.g. Nelson and Winter 1982). In addition, it is established that firms also develop procedures or routines for change (Amburgey, Kelly et al. 1993) and that those may be subject to change themselves (Feldman and Pentland 2003; Greve 2008b), in particular if their previous application does not meet aspirations (Cyert and March 1963/1992). Beck et al. (2008) provide a recent overview of subsequent studies related to momentum.

There exists considerable evidence of the relevance of momentum for strategic renewal (e.g. Burgelman 1994; Miller and Chen 1994; Boeker 1997; Audia, Locke et al. 2000; Greve 2007; Greve 2008b), both from a content as well as context perspective. In general, strategic renewal actions can be considered to regularly result from a firm's standard operating procedures, as predicted by behavioral theory (Cyert and March 1963/1992). For example, explorative and exploitative strategic renewal actions have been characterized as iteratively self-

reinforcing (Gupta, Smith et al. 2006). While exploitation may seem more susceptible to repetition, because of its emphasis of predictability, there is also evidence for related exploration procedures (e.g. Leonard-Barton 1992; Dougherty and Heller 1994; McGrath 2001). Firms regularly engage in external actions, such as in the case of acquisitions (e.g. Ashkenas, DeMonaco et al. 1998; Haleblian and Finkelstein 1999; Hayward 2002; Haleblian, Kim et al. 2006; Laamanen and Keil 2008) or inter-organizational partnerships (e.g. Hoang and Rothaermel 2003; Heimeriks and Duysters 2007), and the implications for internal actions have also been analyzed (e.g. Leonard-Barton 1992; McGrath 2001; Greve 2007). Accordingly, momentum is considered as impact factor relevant to strategic renewal actions across content and context dimension.

Momentum theory contains two key predictions relevant to strategic renewal. The first prediction is that strategic renewal actions are subject to *repetitive momentum* (Amburgey, Kelly et al. 1993). This means that a firm has a tendency to repeat a previous action, and that a relationship exists between prior and focal action in terms of occurrence dependence. This is supported by the observation that efficiency in search improves with the increasing use of its underlying standard operating procedures or routines (Levinthal and March 1981). While negative performance feedback could be considered to curb or counter repetitive momentum, prior research has also provided a number of reasons, mainly based on interpretational, political and cognitive arguments, while even in these situations the likelihood that a specific type of action increases is assumed (Levitt and March 1988; Amburgey and Miner 1992). Therefore, a positive relationship between the number of prior strategic renewal actions of the same type as a focal action and the rate of these actions is predicted.

Hypothesis 5: The rate of taking strategic renewal actions of a given type increases with the number of prior actions of the same type.

Since firms pass through periods of relative stability vs. volatility (e.g. Tushman and Romanelli 1985), the second key prediction takes a dynamic view on

momentum and change (Amburgey, Kelly et al. 1993). In particular, prior research has found that the likelihood of a given standard operating procedure being used increases when it has been performed recently (Cyert and March 1963/1992; Levitt and March 1988; March, Sproull et al. 1991). Moreover, actions recently taken have higher consideration in decision-making processes (March, Sproull et al. 1991). The likelihood of repetition thus decreases with increasing time since the last action. Therefore, a negative relationship between the duration since the last strategic renewal action of the same type as a focal action and the rate of these actions is predicted.

Hypothesis 6: The rate of taking strategic renewal actions of a given type decreases with the duration since the last recent strategic renewal action of the same type.

3.4.6. Theoretical integration and implications

Figure 3-1 summarizes the above hypotheses within a simplified conceptual model. The theoretical constructs and their relationships are pictured. The conceptual and contextual assumptions are explicated.

As illustrated, the focal construct is the rate of strategic renewal actions. The predicted direct effects of the independent variables are indicated. The baseline case relating to the rate for all strategic renewal actions is further broken down into subset cases of rates for the different types of strategic renewal actions for both content (exploration vs. exploitation) and context (external vs. internal) dimensions. As also further detailed below, this dichotomous view is consistent with the analytical method used in terms of competing risk event-history models.

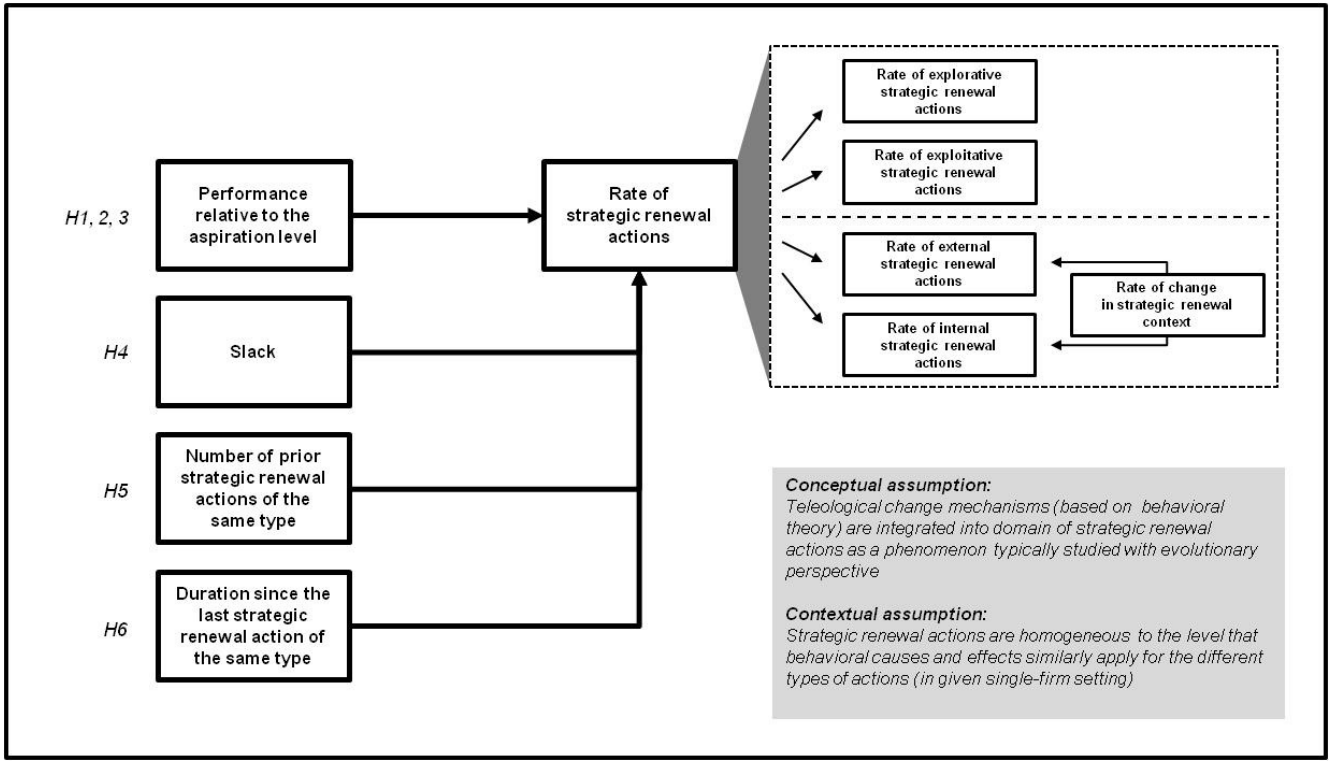

Figure 3-1: Conceptual model of this dissertation

Some further theoretical considerations are presented here before the discussion of empirical methods. These considerations relate to possible theoretical problems identified by prior research, also considered in the results and discussion sections of this dissertation.

First, when predicting strategic renewal as a result of both problemistic search and slack search, these factors may seem to have opposing effects. Problemistic search is predicted to increase in case of negative aspiration performance. In contrast, slack search is assumed to intensify in case of increasing slack resources; slack resources increase in cases of positive or high performance, and decrease in cases of negative or low performance. These considerations lead to the question of whether or not firm performance and slack are correlated (Greve 2007). However, prior research has generally integrated both predictions and some studies have provided conceptual arguments in favor of an inclusion of both of these concepts (see Greve 2003a; Greve 2007 for a discussion of the following arguments).

A key argument in prior research is that problemistic search and slack search are conceptually (and empirically) different and are both key constructs when predicting strategic relevant behavior. Whereas slack refers to a stock of resources available to an organization, firm performance does not necessarily relate to resource acquisition given competing firm goals; even in cases in which it does, managers are considered to be more oriented towards "flow goals" such as profits for a given period, as they are themselves assessed based on those goals by investors (Greve 2003a). Moreover, managers evaluate performance relative to the aspiration level, which is a subjective evaluation decoupled from resource flows (Levinthal and March 1981) and thus success also depends on how the aspiration level is adjusted (Greve 2003a; Greve 2007). Finally, performance is more subjective, short-term and volatile than slack (Greve 2003a).
Given the theoretical importance of slack in the context of the behavioral theory of the firm (Cyert and March 1963/1992), the general conclusion of these prior

studies is to consider problemistic search and slack search predictions together. It has been suggested that this issue also remains an empirical question (Chen and Miller 2007; Greve 2007).

Second, the theoretical predictions of momentum have been challenged recently, as one study has found support for the fact that deceleration and refinement exist instead of momentum (Beck, Brüderl et al. 2008). The key argument of that study is that proponents of momentum seem to neglect the fact that change and renewal are aimed at improving organizational structures and processes. Given that these are refined, there should be less need for additional actions of the same type. While they acknowledge that unsuccessful refinement of search and attention rules is possible, it is disputed that repetitive momentum or "failure traps" are a general tendency, as this assumes that a majority of firms continuously draw wrong conclusions from prior change. Beck et al. (2008) therefore claim that a firm can evaluate subsequent actions on the basis of refined aspirations, thereby relating momentum to performance feedback theory. The refinement argument is analogous to Feldman and Pentland's (2003) reconceptualization of routines, which challenges the traditional inertia-creating view and allows for stability and change.

Beck and colleagues also argue that a methodological problem exists which previous studies of momentum have not sufficiently taken into account: unobserved heterogeneity in the inherent change propensities of organizations (Beck, Brüderl et al. 2008). The almost uniform finding of prior research of a positive effect of prior changes on subsequent changes may therefore be resulting from bias introduced by unobserved heterogeneity. In particular, they argue that not accounting for differences in the inherent change propensities of organizations may have biased the estimation results of prior research. As some organizations accumulate more changes over time, they dominate the risk set at high numbers of prior changes. Consequently, the rate of further change might be estimated to depend positively on the number of prior changes, even though the "true" effect is zero or even negative. To overcome these shortcomings, Beck

et al (2008) propose a fixed-effects error component model as a solution to account for differences in change propensity. By applying this methodology, they find support for refinement as opposed to repetitive momentum.

There are some critical remarks to the suggestions and findings of Beck et al. (2008), which are further addressed in the empirical study of this dissertation. To start with, the incorporation of an error term and its splitting into components is arbitrary and potentially problematic. As argued by Blossfeld et al. (2007, 264) in discussing unobserved heterogeneity for event-history models: *"Misspecification of the transition rate by neglecting the error term might be replaced by misspecification of the parametric distribution of the error term… it is very unlikely that any theory can provide solid guidance to a specific parametric distribution of the error term … misspecification is likely to occur"*. Moreover, the fixed effects approach by Beck et al. (2008), suggested to capture an organization's change propensity, is based on the assumption of an unit-specific error term which is constant over time. They explain the differences in change propensities of organizations by differences in the turbulence of firm environments and differences in "change sensitivity" of firms. However, an unresolved question is whether and why the assumption of a *constant* difference in change propensity is supposed hold true over time, in particular given that some of the studies cover a very long timeframe (e.g. Amburgey et al. 1993 study Finnish newspaper firms over a time-period of 193 years). Finally, Beck et al. (2008) suggest that an inclusion of performance and slack in the estimations would have been desirable but acknowledge this as a limitation in their study. As will be detailed below, a different approach is proposed here to advance the momentum vs. deceleration debate and to overcome some of the above mentioned challenges.

Third, both problemistic search and risk taking arguments predict an increased probability of a firm launching strategic renewal actions given low performance. However, when performance becomes that low that it is considered as a threat, it is predicted to lead to threat rigidity (Staw, Sandelands et al. 1981). Threat

rigidity is different from performance feedback, in which within threat rigidity theory, decision makers focus on a feared failure level, whereas in performance feedback theory, performance is relates to hoped-for target level of performance or aspiration level (March and Shapira 1992; Greve 2003c). Prior research has sought to resolve this apparent conflict (e.g. March and Shapira 1992; Wiseman and Bromiley 1996; Miller and Chen 2004; Shimizu 2007) and suggested that for most cases of (low) performance, the classic hypotheses derived should hold, whereas only for very low performance levels (i.e. those threatening the existence of firms) threat rigidity effects may counter the effects of performance problems. The possibility of threat rigidity thus needs to be acknowledged from a theoretical level; however, as detailed below, the choice of the empirical subject of this study practically excludes threat-rigidity considerations, given the performance levels of the incumbent studied.

As an aside, it may be noted that following the research line of the RBV (Barney 1991; Barney 1996), organizational capabilities are characterized to be causally ambiguous with respect to performance (Barney 2001). This ambiguity is predicted between resource accumulation actions and their outcomes, making it in turn difficult for competitors to imitate or develop a focal firm's valuable resources. From this perspective, it may seem problematic to relate publicly reported actions to firm performance, however, it must be noted that the theoretical perspective taken here is different in at least two aspects: (i) performance feedback theory considers performance as an antecedent, and not a consequent, of strategic renewal actions, and (ii) according to behavioral theory, decision makers are assumed to behave only boundedly rational, because organizational responses to performance feedback are inherently faced with biases and ambiguity, as for example studied in behavioral models of incomplete learning (Simon 1947/1997; March and Olsen 1975; March and Olsen 1976). In contrast, it is important from a behavioral perspective that performance feedback triggers a response in terms of behaviors and actions.

4. Methods

4.1. Research design

The research question of this dissertation addresses the nature of the relationship between the effects of performance feedback and momentum on the rate strategic renewal actions. Predictions are derived from theory which target to satisfy the quality criteria of being clear, specific, answerable, interconnected, and substantively relevant (Punch 2005). In particular, they are aimed to be clear as they pertain to specific cause-effect relationships. The constructs used are specific as they have been established, applied and also tested by prior research. The hypotheses are considered answerable, as the predictions will be either supported or rejected by the empirical study. Several sections of this dissertation together with the conceptual model also address how the research question and hypotheses are interconnected, and why they are substantively relevant, also with respect to outlining the contribution of this study.

A deductive theory testing design is followed based on a formal test of hypotheses derived from theory. In terms of methodological fit, which refers to the internal consistency among elements of a research project (Edmondson and McManus 2007), prior theory for the phenomenological lens of strategic renewal and the theoretical perspective of performance feedback and organizational learning is considered to be mature. This is reflected in established constructs which have been studied over time by prior research with increasing precision. The proposed domain shift to the broader concept of strategic renewal is new, and further additional theoretical and methodological implications of this study also relate to prior studies. In line with the generally observable mean tendency of management research (Edmondson and McManus 2007), the study builds on quantitative, longitudinal data, which supports methodological fit given the presented research question and hypotheses.

The empirical study of this dissertation represents a quantitative analysis of a single firm (Allianz SE) based on longitudinal data generated from content analysis and collected from relevant databases and web-pages. The intended

research strategy thereby is not to study the phenomenon of strategic renewal actions within its real-life context. In line with methodological treatments (e.g. Yin 2003), this study should therefore not be considered as a case study. The single-firm setting is purposefully chosen. In particular, the concept of strategic renewal actions studied here is broader than the analysis of distinct changes by prior research. Therefore, homogeneity in underlying behavioral processes is considered important, which is facilitated by focusing on strategic renewal actions of a single firm. Moreover, the theoretical claim supporting the 'deceleration' prediction (Beck et al. 2008) is based on issues of prior research regarding unobserved heterogeneity in terms of different change propensities of firms studied. The analysis of strategic renewal actions from a single firm permits to test this theoretical argument in a setting where no differences in firm change propensity apply. Atlas.ti6 and Stata/IC 12 are used as analytical software.

To conclude with the research design, some comments also seem helpful in terms of the underlying research orientation. In general, a positivist research paradigm is adopted consistent with the quantitative methodology applied here. In making reference to prior treatments of the research paradigm discussion (Guba 1990; Guba and Lincoln 1994), the ontology (i.e. the nature of reality) can be characterized as realism, and the epistemology (i.e. the relationship between the researcher and the world) is objectivist. The author of this dissertation is still aware of the potential limitations of such an approach in explaining a multifaceted phenomenon such as strategic renewal over a timeframe of several years.

4.2. Data

The empirical study of this dissertation analyzes strategic renewal actions based on data of one of the leading multi-line insurance companies of the world, Allianz Group. Allianz represents one of the largest global financial service firms, with diversified interests in property & casualty, life and health insurance as well as in asset management. In 2006, Allianz parent company adopted the new legal form of Societas Europeae, which is a new legal form for European stock corporations. The headquarter of Allianz SE is located in Munich, Germany. Its key insurance competitors are firms such as AIG, AXA, Aviva, Generali and Zurich.

The sample selection of strategic renewal actions of a single large incumbent insurance firm is chosen on purpose. Financial services and insurance are well known industry contexts in studies of strategic renewal and performance feedback learning (Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003; Baum, Rowley et al. 2005; Lechner and Floyd 2007; Greve 2008a) and also beyond this immediate research scope (for overviews on the insurance industry, see e.g. Mehr, Cammack et al. 1985; Trieschmann, Gustavson et al. 2001). Insurance companies are generally known to operate in a closely regulated and monitored industry context, for which accuracy and reliability of firm reports are key requirements. Studying a large, diversified and globally operating incumbent of this industry also captures a larger part of industry activity and market share. Incumbents are generally key players in shaping their industry and thus regularly concerned with strategic renewal (Agarwal and Helfat 2009). Diversification across financial service offerings and different lines of insurance should provide further impetus for different renewal actions. Finally, Allianz Group as a key German global player is of special interest to the author of this study, who has gained some practical experience and familiarity in one of its international subsidiaries some years ago.
The size of the sample of strategic renewal actions must fit the requirements of the method to produce sound results, but also the cost of data generation should be considered. In this study, data for 552 strategic renewal actions is used, which

is more than in some related studies where event data was manually gathered (e.g. Haleblian and Finkelstein 1999; Greve 2007 with 449 respectively 273 events) but less than in studies based on already available datasets (Iyer and Miller 2008 with over 1400 acquisitions). The data was generated following a content-analytical procedure based on firm and press reports further described below.

The time period studied is between 1997-2010, with some data used directly before and after this timeframe to initiate selected variables and omit missings. Financial data has been downloaded from the Worldscope database accessible via Thomson One Banker. Select firm data has also been compiled from annual reports for pragmatic reasons, as described when presenting the variables.

The unit of analysis is a strategic renewal action at the firm or subsidiary level. This mirrors a corporate portfolio perspective in line with suggestions of prior behavioral theory research (Donaldson 1999; Iyer and Miller 2008). It is suggested that a diversified multi-line insurance firm such as Allianz Group, particularly fits this research interest, as diversification and activities across different insurance lines provide an interesting basis for studying strategic renewal. For example, the acquisition of Dresdner Bank announced in 2001 and, following its restructuring and turnaround, its divestment in 2008, represent major events for Allianz Group, connected to its entry and (partial) exit of banking. Similarly, the acquisition of PIMCO in 1999 marked the entry into asset management. However, while a strategic renewal action may relate to a subsidiary, a necessary condition was that is was reported in connection with Allianz Group.

4.3. Issues of reliability and validity

Prior to presenting the variables used, a few comments on measurement and quality assurance seem required, in particular given the use of quantitative data based on qualitative content analysis, and also with respect to common methodological concerns (e.g. Miles and Huberman 1994; Scandura and

Williams 2000; Punch 2005). Reliability and validity are key concepts to be considered in this respect.

Reliability primarily concerns consistency in measurement, mainly related to (i) consistency over time or test-retest reliability, and (ii) internal consistency, for example measured for multi-item measures by Cronbach's coefficient alpha (Punch 2005). *Validity* addresses the extent to which a measurement instrument empirically represents the concept it aims to measure, which is important in terms of inference (Punch 2005). Validity is typically considered in different forms such as content validity (= whether or not the full content of a conceptual definition is reflected in the measure), criterion-related validity (= how well does an indicator compare with another measure in which a researcher has confidence), and construct validity (= how well a measure conforms with theoretical expectations) (Punch 2005).

This dissertation seeks to address the above concerns by using previously established measures which were generally tested for possible reliability and validity issues by prior research, and which were generally subject to reviews in well-established research outlets. In addition to this strategy, some additional steps have been considered in this dissertation in line with methodological literature on content analysis (Jauch, Osborn et al. 1980; Weber 1990; Duriau, Reger et al. 2007) to further improve the quality related to the coding of strategic renewal actions. The coding of strategic renewal actions presented below is based on an established coding scheme from prior research, the recording units and coding categories were clearly defined, and a sample of test was test coded until the application of the coding scheme was found satisfactorily reliable assessed by discussions with a research assistant. Moreover, the entire coding process was managed based on theAtlas.ti6 software, and the underlying annual report data was triangulated with data from business press and industry publications to overcome any potential self-representation concerns. The set of resources used for generating the business press reports was also refined based on test coding results to improve the richness of data beyond prior levels. This

step was taken given that prior studies have partly limited their content-analytical review to specific sections of annual reports (e.g. Volberda, van den Bosch et al. 2001).

4.4. Dependent variables

4.4.1. Approach and coding scheme

An event history of strategic renewal actions has been compiled by content analysis of annual reports and business press articles over an event history window of 14 years (1997-2010). Thereby, a number of key steps have been followed as summarized in *Figure 4-1*.

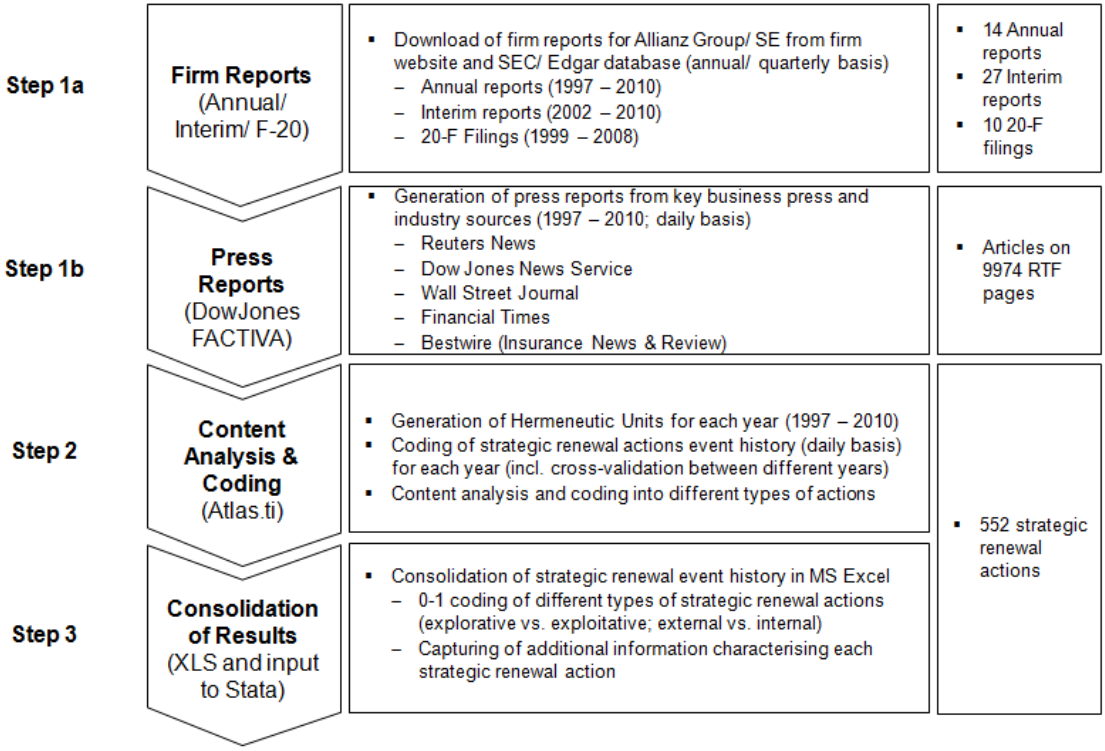

Figure 4-1: Approach for generation of strategic renewal action event history

(1) In step 1a, firm reports were downloaded from the Allianz Group webpage respectively the SEC EDGAR database. Annual reports were retrieved for the entire period between 1997-2010. To facilitate an inclusive analysis, quarterly interim reports available for the timeframe of 2002 - 2010 and 20-F filings available between 1999 - 2008 were also included. In total, 14 annual reports, 27 interim reports and 10 20-F filings were retrieved and considered for review.

In addition to firm reports, press reports for Allianz Group were generated in step 1b via the Dow Jones Factiva database covering key business press and industry sources. Sources included were Reuters News, Dow Jones News Service, Wall Street Journal, Financial Times, and Bestwire including Best Insurance News and Best Review. These reports covered the timeframe between 1997-2010 and contained reports on a daily basis. This level of precision permits to determine exact dates for the event-history of strategic renewal actions. These reports were generated for each year in several batches of MS Word/ RTF files. Duplicate articles were excluded as part of the data request. In total, 65 files were received with articles mounting to a total sum of over 9900 pages.

The use of annual report data is in line with prior related studies. Most directly related to this study, prior research into trajectories of strategic renewal has used selected parts of annual reports only, such as the report of the management board (for Dutch firms) or the letter to the shareholders (for UK firms) as basis for the coding of strategic renewal actions (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). Furthermore, a number of researchers have studied competitive actions identified through documentary analysis (i.e. the US airline data set based on the trade journal Aviation Daily (Smith, Grimm et al. 1991; Chen and MacMillan 1992; Miller and Chen 1994; Chen and Hambrick 1995; Hambrick, Cho et al. 1996). It has also been applied in studies of cognitive perspectives of strategic renewal (Barr, Stimpert et al. 1992) and of relative success or lack of success (Bowman 1978) as well as corporate strategy and risk (Bowman 1982; Bowman 1984). In order to improve the data quality of the underlying firm and press reports and to respond to recent advancements in

strategic renewal research emphasizing as well the incremental nature of strategic renewal, a more inclusive approach was adopted in this dissertation that did not restrict its review to any specific sections of reports. In this way, it was attempted to secure a data basis as comprehensive as reasonably possible based on publicly available data.

The content-analytical approach used here was also comprehensively assessed in research method treatments and methodological articles (Jauch, Osborn et al. 1980; Ginsberg 1988; Duriau, Reger et al. 2007). In particular, Duriau et al. (2007) consider a number of specific advantages and disadvantages of annual report data. Advantages of using qualitative annual report data are that (i) they are particularly reliable compared to interviews and questionnaires of senior executives, (ii) they do not suffer from retroactive sensemaking, (iii) they are non-intrusive, and (iv) they are appreciated for their validity, as senior executives are assumed to ensure diligent writing and editorial review. Disadvantages of using qualitative annual report data are that (i) they can be prepared by public relations specialists, (ii) they can suffer from significant bias in the attribution of organizational actions and related outcomes, and (iii) they are likely to be influenced by communication strategies of senior executives with external stakeholders. For the application in this study, the advantages are considered to outweigh the disadvantages. Using external press reports and industry magazine articles as additional data source also limits potential self-representation concerns associated with annual reports. Moreover, 20-F filings have been integrated for the time of the US listing of the Allianz Group, which contributes to additional data quality given regulatory requirements to be covered when publishing such reports. Finally, it should be kept in mind that the empirical study of this dissertation does not attribute any kind of effects or subsequent outcomes to actions based on qualitative annual report data. Instead strategic renewal actions are divided into different categories of types of renewal actions, and firm performance relative to the aspiration level is used as an antecedent and not consequent.

When preparing the strategic renewal data generation approach, a number of specifications were tested to improve efficiency and to restrict the review to selected parts of the reports, such as letters to the shareholders, only. However, the results of such a restricted review were not found to return a satisfactorily complete picture in terms of the number of strategic renewal actions and information relevant to perform the coding, which is why a more inclusive approach was adopted.

(2) In step 2, firm and press reports were analyzed using Atlas.ti6, a software tool supporting Computer Assisted Qualitative Data Analysis (CAQDAS) (see Lewins and Silver 2007 for a general overview). Thereby, for each year a new file (hermeneutic unit), was generated and all relevant firm and press reports were uploaded as primary documents. The totality of these reports were reviewed by performing content analysis and coding of an event history of strategic renewal actions. As a first step, an event-history of strategic renewal action was compiled along a daily timeline and the relevant document paragraphs of all primary documents were allocated to a each action. The strategic renewal actions thereby received a code in line with the following pattern:

– *<YYYY-MM-DD> <SCOPE/ COUNTRY> <NAME OF ACTION> <ACTION TYPE DESCRIPTION>.*

An example of a strategic renewal actions along this structure is:

– *2008-04-09 (Corporate) EulerHermes World Agency created - P/C, specialty - diversification.*

In this structure, event histories of actions were compiled for each year. Cross validation between the years was also performed given that some data contained in primary documents for a given reporting year referred to an action of a different calendar year. Strategic renewal actions were considered for those data,

where sufficient information related to that action in terms of its date and its content and context dimension were available. Rumors or speculations of market participants preceding the confirmation of some strategic renewal actions were not considered for the determination of the date; instead, it was attempted to consider the announcement date as precisely as possible when an action was (officially) confirmed.

Based on event-history data compiled as described above, a number of steps were taken to code the different types of strategic renewal actions (i.e. explorative vs. exploitative; external vs. internal). To facilitate the coding process, prior research which had applied automatic coding procedures was reviewed (in particular Uotila, Maula et al. 2009). This approach was tested using Atlas.ti6 functionality. The coding scheme of Uotila and colleagues for exploration and exploitation actions is based on March (1991); similar schemes for external and internal actions with frequently associated words from previous manual coding were also developed and tested here. However, the results of this procedure were not considered sufficiently reliable to justify automatic coding (in particular, the words or word roots of 'risk', 'play', and 'execut' proved problematic). Therefore, the automated coding procedure was used as an additional validation step coding, based on the Atlas.ti6 functionality of co-occurring codes, but all data was eventually coded manually by the author of this dissertation.

To perform the manual coding, a coding scheme based on prior literature and established constructs was established in line with suggestions of the related methodological literature (Weber 1990; Duriau, Reger et al. 2007). Following these recommendations, the recording units (= paragraphs) and coding categories (see below) were clearly defined and the coding scheme was iteratively tested on samples, reviewed for its accuracy and reliability, and revised based on the results of the test coding. A sample of coded actions were also reviewed by a research assistant and the feedback was integrated in the coding scheme.

The coding process is based on previously established constructs and considers strategic renewal actions as characterized by content (explorative vs. exploitative), context (external vs. internal), and process dimension (rate of actions; duration between actions) (Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). These dimensions are mirrored in recent discussions of how to integrate content and process dimensions within strategic renewal from a capabilities view (Agarwal and Helfat 2009). The coding scheme differentiates between explorative vs. exploitative and external vs. internal strategic renewal actions *(Figure 4-2).*

According to March (1991), exploration includes things captured such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation, whereas exploitation includes things as refinement, choice, production, efficiency, selection, implementation, execution. Following this distinction, Flier at al. (2003) and Volberda et al. (2001) have captured *explorative strategic renewal actions* as actions that add new activities to the current repertoire of the organization, or that increase the geographical scope of the firm, or that explore new competencies. An example is bank-assurance. *Exploitative strategic renewal actions* comprise actions that elaborate on the current range of activities or competencies, fall within the current geographical scope, or rationalize activities (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). Examples are cost savings initiatives, the dissolution of product ranges, or M&A activities to increase scale.

External strategic renewal actions include M&A transactions, joint ventures, and alliances; *internal strategic renewal actions* comprise strategic initiatives such as those related to the start-up of new businesses, new product launches, close-down of offices and activities, reorganization activities (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003).

▪ **Exploration** (origin): "... includes things such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation"; "The essence of exploration is experimentation with new alternatives" *(March 1991)*	▪ **Explorative strategic renewal actions** (application): Actions that add new activities to the current repertoire of the organization; actions that increase the geographical scope; actions that explore new competencies; *Examples: Direct insurance, Bank-assurance;* *(Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003)*
• **Exploitation** (origin): "... refinement, choice, production, efficiency, selection, implementation, execution"; "The essence of exploitation is the refinement and extension of existing competences, technologies, and paradigms" *(March 1991)*	• **Exploitative strategic renewal actions** (application): Actions that elaborate on the current range of activities or competencies; actions that fall with the current geographical scope; actions that rationalize activities *Examples: Cost savings initiatives, dissolution of product ranges, M&A activities to increase scale* *(Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003)*

Figure 4-2: Coding Scheme for Strategic Renewal Actions

In addition to the content and context dimensions of strategic renewal, the process dimension is captured in terms of the rate at which strategic renewal actions are taken and the duration between the different actions, which follows prior research (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003) in conjunction with (Amburgey and Miner 1992; Amburgey, Kelly et al. 1993; Greve 2007).

▪ **External strategic renewal actions** – are undertaken in conjunction with other organizations – are a means of external sourcing (development, acquisition and adaptation) of knowledge and capabilities *Examples: M&A, joint ventures, alliances* *(Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003) in conjunction with (Agarwal and Helfat 2009; Capron and Mitchell 2009)*
▪ **Internal strategic renewal actions** – originate from within the firm – are a means of internal development of knowledge and capabilities *Examples: starting up new businesses, closing offices, reorganizing activities, launching new product* *(Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003) in conjunction with (Agarwal and Helfat 2009; Capron and Mitchell 2009)*

Figure 4-2 (Continued): Coding Scheme for Strategic Renewal Actions

(3) In step 3, the results of the event-histories were consolidated in MS Excel and prepared for the import into Stata/IC 12. Thereby, the different types of strategic renewal actions were coded as dummy variables (0;1). The action dates were reformatted to facilitate the consolidation of the financial data. *Figure 4-3* illustrates a selected sample of coded actions.

Based on the results of the coding, summary overviews of the Allianz Group trajectory of strategic renewal actions have been generated following prior research (Volberda, van den Bosch et al. 2001). In these overviews, the content and context dimensions are reflected in terms of ratios, i.e. the exploration/ exploitation ratio, defined as the number of explorative strategic renewal actions related to the total number of actions, and the external/ internal ratio, defined as the number of external strategic renewal actions related to the total number of actions (Volberda, van den Bosch et al. 2001).

Date	Description	Content Dimension	Context Dimension
08.10.1997	Set-up of new Asset Management Division	Exploration	Internal
17.11.1997	AGF Takeover bid announced	Exploration	External
21.09.1998	Dresdner Asset Mgmt. JV announced	Exploitation	External
05.10.1999	PIMCO acquisition announced	Exploration	External
03.02.2000	Restructuring of cross-shareholdings announced	Exploitation	External
19.10.2000	Nicholas Applegate buyout announced	Exploration	External
28.03.2001	Announcement of Dresdner Bank takeover and subsequent restructuring	Exploration	External
27.09.2002	Dresdner Bank Turnaround 2003 program announced	Exploitation	Internal
18.12.2002	CEO Succession: Appointment of M. Diekmann announced	Exploitation	Internal
13.08.2003	New Dresdner restructuring program announced	Exploitation	Internal
14.11.2003	"3 + 1" program launched	Exploration	Internal
24.09.2004	Allianz Rosno Life Insurance JV launched	Exploration	External

Figure 4-3: Examples of Strategic Renewal Actions

Date	Description	Content Dimension	Context Dimension
11.09.2005	Allianz SE conversion and RAS merger announced	Exploitation	External
22.06.2006	New restructuring announcements for German Operation and New Dresdner Plus	Exploitation	Internal
17.01.2007	Shareholdings consolidation: Offer for outstanding AGF and Leben shares	Exploitation	External
01.02.2007	Italy subsidiaries consolidation announcement	Exploitation	Internal
14.03.2008	Reorganization: Dresdner split in legally separate units	Exploitation	Internal
31.08.2008	Sale of Dresdner Bank announced	Exploitation	External
22.09.2009	Allianz shares delisting from US stock exchange	Exploitation	Internal
15.01.2010	Set-up of alternative investments/ private equity unit	Exploration	Internal

Figure 4-3 (Continued): Examples of Strategic Renewal Action

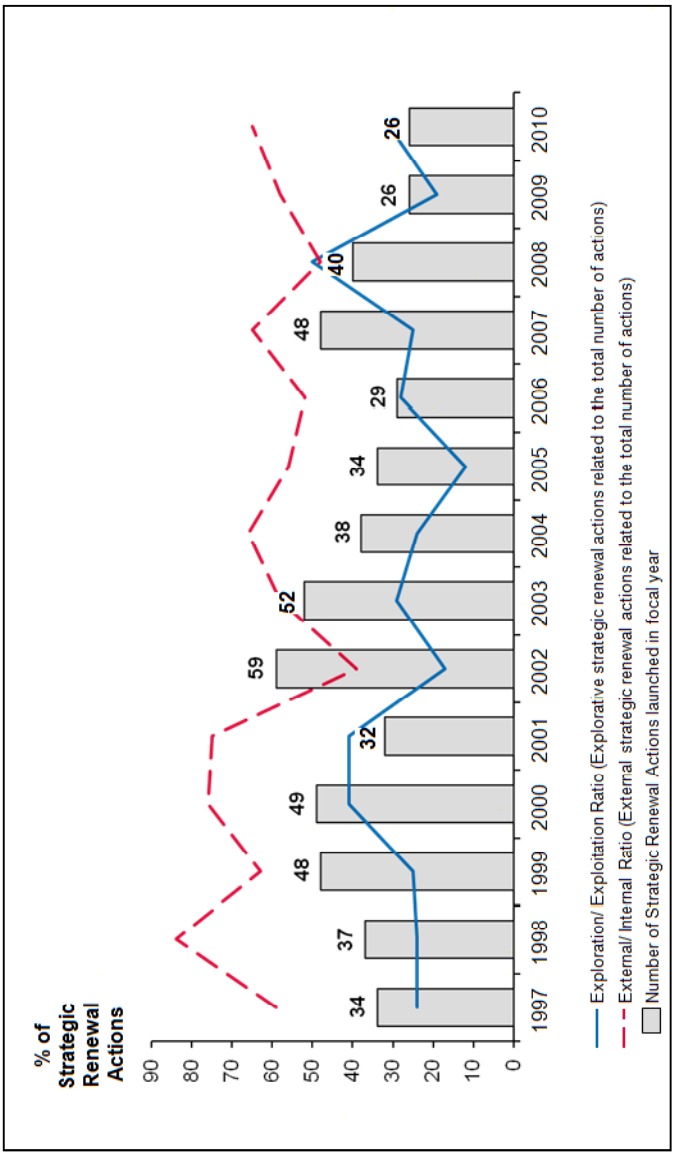

Figure 4-4: Allianz Group Trajectory of Strategic Renewal Actions (1/2)

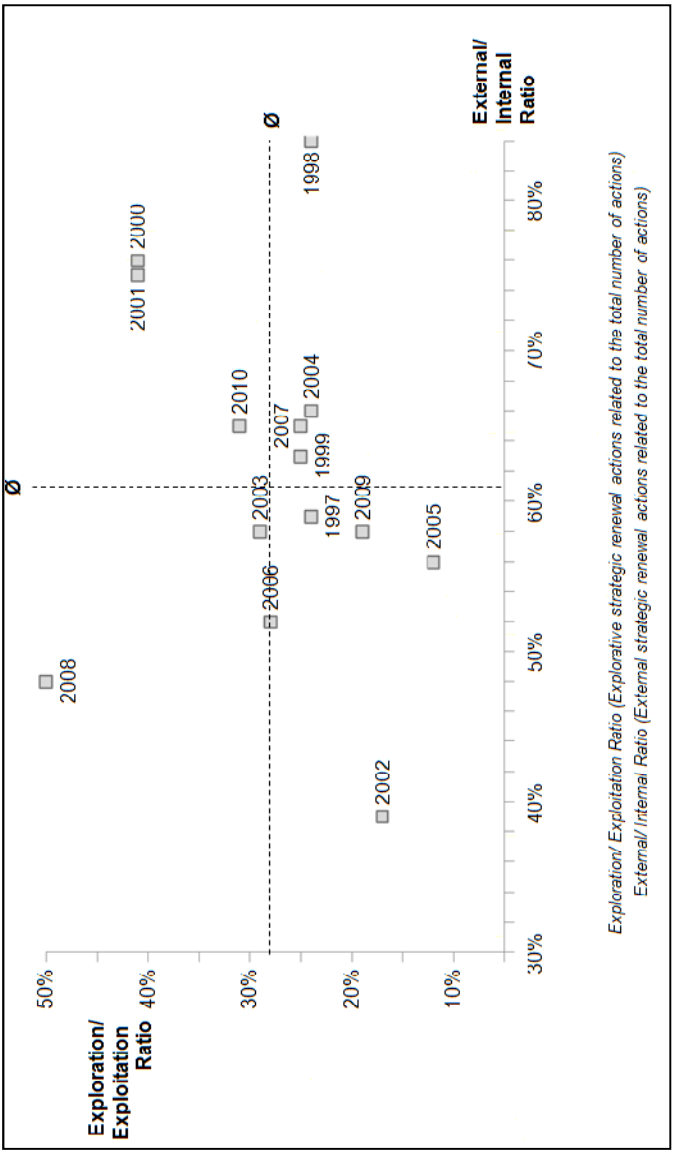

Figure 4-5: Allianz Group Trajectory of Strategic Renewal Actions (2/2)

4.4.2. The concept of the rate of strategic renewal actions

The rate of strategic renewal actions is defined here as hazard rate according to the event-history method applied (the following description is based on Jenkins 2004). A hazard rate can be considered as an expression of a conditional failure rate, which means that it corresponds to a rate for launching a strategic renewal action in a small amount of time, given the condition that no action was launched before within the analytic timeframe or spell considered.

More specifically, with the passage of time, a firm is considered to stay in and move between different strategic renewal dimensions (in event-history terminology: "states"). Transition patterns between those states are characterized by the time spent in each state and by the dates when transitions between these states are made (e.g. because a firm is launching a strategic renewal action of a different type than the prior action). The states and patterns of transitions between the states are related to both the content (explorative vs. exploitative actions) and the context dimension of strategic renewal (external vs. internal actions), reflecting two pairs of independent and dichotomous states (modeled as independent risks). Repeat spells (spell = length of time unit in event-history terminology) are considered, given that a firm may transition over time several times into and out of these different states.

As also illustrated by the conceptual model of this dissertation, different rates of strategic renewal actions are considered. Whereas the baseline case applies in relation to all strategic renewal actions in the sample (552 actions), different rates apply for the subsets. In particular, the rate of explorative strategic renewal actions (total of 153 actions) is considered as a competing risk to the rate of exploitative strategic renewal actions (total of 399 actions). Similarly, the different rates of external (total of 336 actions) vs. internal strategic renewal actions (216 actions) are considered, each based on the above described logic of states and spells. For the analysis of the locus of the search hypothesis, the rate was based on actions which represented a change from external to internal action or vice versa (i.e. 250 actions in total, representing a rate of change in strategic

renewal context). For all these different types of actions, dummy variables were constructed in Stata as a basis for the estimation of the event-history models.

4.5. Independent variables

4.5.1. Performance relative to the aspiration level

Performance measures typically applied in studies of performance feedback learning include accounting measures such as ROA (Bromiley 1991; Greve 2007), ROE, ROS (Audia, Locke et al. 2000), market-oriented measures such as EPS (Bolton 1993), and several industry-specific measures (Miller and Chen 1994; Greve 1998; Greve 2008a). ROA has evolved as the preferred performance measure in related studies (Bromiley 1991; Lant, Milliken et al. 1992; Wiseman and Bromiley 1996; Miller and Chen 2004; Greve 2007). As it can be considered to particularly fit to the analysis of insurance firms with diversified interest also covering asset management, it is also used in this study. ROA is calculated here as net income divided by total assets in line with prior research (Greve 2003a; Greve 2003b). The financial accounting data has been downloaded from the Thomson Financial Worldscope Global database.

Performance relative to the aspiration level is measured here in terms of historical aspiration levels (Cyert and March 1963/1992; 1988). This reflects the assumption that organizational decision makers incorporate available information based on self-relevant, historical firm performance. Prior research has also partly incorporated social aspiration levels, typically as average performance of the other firms in the sample. Given that this study uses strategic renewal actions of a single firm, social aspiration levels are not considered.

Formally expressed, the performance measure (Z) is compared to historical aspiration level (HA). The historical aspiration level as weighted average of the focal firm's historical aspiration level of the previous year and the performance of the previous year. Here, t is a time subscript and i and j are firm subscripts:

$$(4.1) \qquad HA_{ti} = aHA_{t-1,I} + (1-a)Z_{t-1,i}$$

The parameter weights have been estimated over all parameter values in increments of 0.1 taking the combination resulting in the highest model log likelihood. The highest log likelihood was found at weights 0.9 for previous year aspiration level and 0.1 for previous year performance. To initiate the variable, historical performance in terms of ROA was considered for previous periods starting as of 1990, for which ROA data could be reliably obtained. Performance was split into the two variables of performance above the aspiration level and performance below the aspiration level, to consider the kinked-curve prediction of prior work (Greve 1998; Greve 2003c).

4.5.2. Slack

Slack is measured in terms of unabsorbed slack, absorbed slack and potential slack based on financial accounting data from Worldscope. All measures are applied in line with prior research. Unabsorbed slack is defined here as the ratio between quick assets, i.e. cash, and current liabilities (Bourgeois and Singh 1983; Singh 1986). Several approaches were tested to overcome the challenge that Allianz did not report the current portion in their liabilities from 1997-2001 (Worldscope reports "0"). In order to not lose a significant level of observations the final data set uses an average, also given that several models were tested without unabsorbed slack, but this did not yield an improved fit with the data. Absorbed slack is measured as SG&A expenses divided by total sales (Bromiley 1991; Greve 2007). Potential slack is measured as debt-to-equity ratio in terms of long-term debt divided by shareholders equity (Bromiley 1991; Greve 2007). All slack variables were lagged by two years as this provided the best fit with the data; further specifications were tested (i.e. averages over different time periods of several years, different lags in terms of years), but did not provide better fit.

4.5.3. Number of prior strategic renewal actions

The number of prior strategic renewal actions was captured with a cumulative count variable, in line with prior research (Amburgey, Kelly et al. 1993). For each different type of strategic renewal action, such a variable was constructed

adding up the corresponding number of actions when launched (i.e. for explorative, exploitative, external, and internal actions).

4.5.4. Duration since the last strategic renewal action of the same type

The duration since the last strategic renewal action of the same type was captured by a clock variable, in line with prior research (Amburgey, Kelly et al. 1993). The variable was set to zero, when a focal strategic renewal actions was launched, and thereafter counted the cumulated time until an action of the same type was launched again. Different clock variables were constructed for explorative, exploitative, external and internal actions respectively.

4.6. Control variables

A number of control variables were considered in this study for the dimensions of firm-level, country level and industry level - all of them based on a review of prior research related to insurance firms, strategic renewal and performance feedback learning.

As *firm-specific* control variables, firm size, firm age, diversification and the degree of internationalization were entered in the analyses. Firm size, firm age and diversification are established controls in related studies of performance feedback learning (e.g. Greve 1998; Greve 2007; Greve 2008a). Both firm size and diversification can be assumed to have an impact on the total number of strategic renewal actions of a firm as well as its frequency. Firm age is directly related to experience, which has been generally considered in studies of organizational learning and momentum (Amburgey, Kelly et al. 1993).

Again, all measurements are defined in line with prior research. Firm size is conceptualized here as the logarithm of the number of employees, and firm age as the logarithm of age since founding (Greve 2007). Alternative specifications, such as the logarithm of total assets for firm size, were tested but did not provide better fit with the data. For diversification, a Herfindahl index across distributions of total income across business segments was used. This logic is

similar to Greve (2008a), which used the Herfindahl index for distributions of own premiums in a study of general insurance firms. Given the focus here on a diversified global insurance, total income seems a more appropriate measurement than own premiums.

The degree of internationalization was entered given the increase of international activities over the course of the study period, thereby supposing that the increasing level of globalization has consequences for firm renewal. Internationalization is measured here as ratio of foreign sales to total sales, in line with prior related research (Sullivan 1994; Ramaswamy, Kroeck et al. 1996).

Two control variables at the *country level* were included in the analyses: long-term government yield and a stock market growth index. Both measures had already been proposed by prior performance feedback research in insurance settings (Greve 2008a), and are generally considered to affect the insurance business, since positive developments in the financial markets make it easier for insurance firms to generate profits and to grow. Long-term interest rates were downloaded for Germany from OECD statistics. The stock market index growth rate was computed by comparing year-end index values of the German DAX30 index, which comprises the biggest publicly listed firms. Both of these controls were conceptualized for German economic data, in line with Allianz's most important market. The increasing degree of internationalization, which also applies to the financial markets, is indirectly captured through the control variable of internationalization. In preliminary analysis, GDP growth was entered as a variable but was not kept given that it did not improve the results.
Two *industry-specific controls*, global premium growth and insurance penetration, were considered based on available OECD statistics and SwissRe sigma publications. *Global premium growth* relates to both life and non-life insurance business and represents an overall indicator of the global insurance industry development. Insurance penetration is defined as total premiums in

percent of GDP (here: for Germany) and is a commonly accepted indicator of insurance activity relative to a country's economy.

4.7. Descriptive statistics and correlation coefficients

Figure 4-6 displays the descriptive statistics in terms of mean and standard deviations, and the correlation coefficients of the independent and control variables. Some values show medium to high levels of correlation, but model building and inclusion of covariates was based on theoretical considerations and stepwise regressions, including Wald and likelihood tests, to facilitate stable estimates.

In addition, three correlation coefficients are of special interest, provided the earlier discussion about the relation between firm performance and slack. These are the correlation coefficients of firm performance, measured as return on assets and not adjusted for aspiration levels, with unabsorbed, absorbed and potential slack. These values were separately calculated as 0.3811 (unabsorbed slack), -0.0089 (absorbed slack), and -0.0029 (potential slack) showing that for this study, performance and slack may be considered as conceptually and empirically distinct concepts.

	Mean	SD	(1)	(2)	(3)	(4)	(5)
1. Global premium growth	0.0306	0.0242	1				
2. Insurance penetration	0.0682	0.0029	-0.176***	1			
3. LT government bond yield	0.4090	0.0752	0.665***	-0.628***	1		
4. Stock market index growth	0.1055	0.2736	0.184***	0.173***	0.246***	1	
5. Log employees	11.9044	0.2665	-0.429***	0.547***	-0.531***	-0.477***	1
6. Log age	4.7312	0.0355	-0.590***	0.625***	-0.808***	-0.151***	0.684***
7. Diversification	0.2087	0.0448	-0.425***	-0.188***	-0.301***	0.163***	-0.449***
8. Internationalization	0.7235	0.0511	-0.502***	0.523***	-0.544***	-0.489***	0.962***
9. Absorbed slack	0.2116	0.0457	-0.546***	0.503***	-0.685***	0.0608***	0.551***
10. Unabsorbed slack	0.1960	0.3410	-0.439***	0.496***	-0.589***	0.154***	0.136***
11. Potential slack	1.8233	1.4317	-0.359***	0.577***	-0.332***	0.201***	0.455***
12. Performance - Asp. Level (when over Asp. Level)	0.0007	0.0011	-0.142***	0.328***	-0.379***	0.185***	0.144***
13. Performance - Asp. Level (when under Asp. Level)	-0.0029	0.0030	0.253***	0.263***	0.0250*	0.675***	-0.234***

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 4-6: Descriptive statistics and correlations coefficients

	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1. Global premium growth								
2. Insurance penetration								
3. LT government bond yield								
4. Stock market index growth								
5. Log employees								
6. Log age	1							
7. Diversification	0.228***	1						
8. Internationalization	0.727***	-0.334***	1					
9. Absorbed slack	0.817***	0.112***	0.561***	1				
10. Unabsorbed slack	0.677***	0.615***	0.223***	0.309***	1			
11. Potential slack	0.430***	-0.143***	0.553***	0.425***	0.311***	1		
12. Performance - Asp. Level (when over Asp. Level)	0.689***	0.438***	0.200***	0.414***	0.804***	0.168***	1	
13. Performance - Asp. Level (when under Asp. Level)	0.199***	0.189***	-0.254***	0.195***	0.400***	0.174***	0.642***	1

Figure 4-6 (Continued): Descriptive statistics and correlations coefficients

4.8. Method

All statistical analyses were performed using *event-history analysis* in Stata/IC 12. This method is alternatively known as duration modeling (Greene 2008; Kennedy 2008), survival analysis (Cox and Oakes 1984; Singer and Willett 2003; Jenkins 2004), failure time analysis (Kalbfleisch and Prentice 1980), or hazard modeling (Yamaguchi 1991) (for an overview, see e.g. Allison 1984; Yamaguchi 1991; Blossfeld and Rohwer 2002; Singer and Willett 2003; Box-Steffensmeier and Jones 2004). Event-history models have also been applied in key studies of prior research related to this dissertation (Amburgey, Kelly et al. 1993; Greve 2007).

The key concept of event-history models is the *hazard rate*, which can be considered as an expression of an event or failure rate in relation to an analytical timeframe and conditional to survival until the point in time where the event occurred. Mathematically, the hazard rate function can be generally defined as (Jenkins 2004):

(4.2) $\theta(t) = f(t) / 1 - F(t) = f(t) / S(t)$,

whereby

- f(t) is the probability density function (PDF), related to the length of a spell, reflecting the realization of a continuous random variable T: $f(t) = lim_{\Delta t \to 0} Pr(t \leq T \leq t+\Delta t) / \Delta t = \delta F(t) / \delta f$

- F(t) is the cumulative density function (CDF), also known as probability distribution function or failure function:

$F(t) = Pr(T \leq t) = area\ under\ f(t)$; f(t) is the slope of the CDF

- S(t) is the survivor function, which is the probability of survival (i.e. remaining in one state) at least t units of time since entry at t = 0: $S(t) = P(t>t) = 1-F(t)$

The hazard rate looks like a conditional probability. However, it is not a probability given that it can be larger than 1.

Different types of event-history models are generally available. Here, a continuous-time *Weibull model* is applied based on a number of considerations. In particular, parametric models are defined on assumptions regarding the distribution of the hazard rate. A model which can be fit to an increasing or decreasing hazard rate over time is theoretically preferable here, given the predictions of momentum theory, which suggest a declining hazard rate with increasing time (Hypothesis 6). Out of the different types of models that can be fit to such a distribution, the Weibull model was considered to provide the best fit based on likelihood ratios, graphical checks of pseudoresiduals the Akaike Information Criterion (AIC) in Stata. The exponential model is a specific case of a Weibull model where the hazard rate is assumed constant over time.

The Weibull model is defined as:

(4.3) $$\theta(t, X) = \alpha t^{\alpha-1} exp(\beta' X),$$

whereby the shape parameter α indicates the distribution of the hazard rate over time:

- $\alpha = 1$: Exponential model (hazard rate constant over time)
- $\alpha > 1$: Hazard rate monotonically increases with survival time
- $\alpha < 1$: Hazard rate monotonically declines with survival time.

Given the frequency and number of strategic renewal actions, spells were split daily and the covariates were updated on a yearly basis. Censoring was indirectly taken care of by identifying, coding and considering the last respectively first actions in December 1996 and January 2011, i.e. the years prior to and after the study period. In this way, a complete data set could be ensured. For a small number of tied event times (lower 5% of the total number of actions), a content-analytical approach was applied to eliminate the ties (allocation precise on a

daily basis; no hourly splits were used to prevent the analytic time variable from becoming unwieldy). For a subset of event-history data, additional analyses were performed with firm performance and slack variables updated on a quarterly basis, but this approach was rejected due to collinearity considerations relating to important covariates for the reduced sample of actions. The models were calculated as competing risks models across content and context dimensions of strategic renewal, whereby exploration actions are separated from exploitation actions, and external actions are separated from internal actions. This approach is similar to Greve (2007).

5. Results

The figures on the following pages present the results of the analyses. Eight different models were calculated. Models 1 and 2 analyze the content dimension of strategic renewal, and thus compare explorative vs. exploitative strategic renewal actions, shown separately as competing risks. Similarly, models 3 and 4 analyze the context dimension and present the results for external vs. internal strategic renewal actions. Models 5-8 analyze the locus of search prediction and contain different sets of analyses for mode changes from external to internal renewal and vice versa, as well as models summarizing the changes for both directions. The hypotheses tests are performed based on effect direction and significance, considering that models 1-6 represent competing risk models and thus relate to different numbers of events.

Model 1 contains aspiration performance, slack and covariates and omits the momentum variables for occurrence and duration dependence, whereas model 2 introduces these variables for exploration and exploitation respectively. Hypothesis 1 is tested for explorative vs. exploitative strategic renewal actions by the coefficient estimates for performance relative to the aspiration level for both models.

In model 1, for aspiration performance above the aspiration level, the effect is negative and significant for exploitation actions, which is consistent with Hypothesis 1, but positive and not significant for exploration actions. For aspiration performance below the aspiration level, both effects are negative as predicted but not significant. The estimated coefficients for model 2 confirm similar effects with minor changes in the numbers but no changes regarding significance level or effect direction. Hypothesis 1 therefore finds partial support from a strategic renewal content view, suggesting that in years with relatively better performance there exists an increased likelihood of the predicted negative effect of aspiration performance on the rate of exploitative strategic renewal.

	(Model 1 - Part 1)		(Model 2 - Part 1)	
	Explore	Exploit	Explore	Exploit
Model outcome				
Global premium growth	11.705	22.333*	12.832	20.935
	(23.0214)	(13.1428)	(23.4031)	(13.2022)
Insurance penetration	70.567	-331.202***	84.765	-317.634**
	(206.9680)	(124.7810)	(215.9528)	(125.4120)
LT government bond yield	5.994	-0.521	6.126	-0.109
	(6.3437)	(3.7836)	(6.4614)	(3.8015)
Stock market index growth	-0.907	0.297	-0.888	0.225
	(1.6002)	(0.9648)	(1.6522)	(0.9678)
Log employees	6.741**	-0.781	7.557**	-0.670
	(2.9590)	(1.4846)	(3.1418)	(1.4904)
Log age	-1.003	31.973	-7.915	27.389
	(39.5661)	(20.0886)	(46.6161)	(27.1232)
Diversification	23.316	-24.546**	27.204	-23.698**
	(19.5224)	(9.8596)	(20.1684)	(9.8901)
Internationalization	-28.315	-12.761	-29.001	-13.125
	(20.2520)	(11.8386)	(20.4158)	(11.8435)
Absorbed slack	-1.366	6.831	-0.945	6.225
	(9.0958)	(5.0009)	(9.1235)	(5.0460)
Unabsorbed slack	-2.448	3.993***	-2.729	3.858***
	(2.2730)	(1.3350)	(2.3207)	(1.3442)
Potential slack	0.358**	0.131	0.359**	0.131
	(0.1572)	(0.1014)	(0.1646)	(0.1021)

Figure 5-1: Event-history models of strategic renewal actions

	(Model 1 - Part 2)		(Model 2 - Part 2)	
	Explore	Exploit	Explore	Exploit
Performance - Asp. Level (when over Asp. Level)	472.156	-958.655**	532.483	-927.896**
	(642.6070)	(373.4985)	(658.4864)	(374.6185)
Performance - Asp. Level (when under Asp. Level)	-126.512	-75.260	-121.141	-73.111
	(81.4483)	(46.4713)	(84.0912)	(46.7551)
Count of previous exploration actions			0.002	
			(0.0188)	
Duration since last exploration action			0.002	
			(0.0029)	
Count of previous exploitation actions				0.001
				(0.0053)
Duration since last exploitation action				-0.005
				(0.0054)
Constant	-72.105	-110.363	-50.729	-91.092
	(148.2387)	(77.0877)	(186.5523)	(114.0892)
ln_p constant	0.174***	0.081**	0.162**	0.107**
	(0.0620)	(0.0388)	(0.0641)	(0.0467)
Events	153	399	153	399
Log likelihood	-393.254	-721.234	-392.933	-720.693
Likelihood ratio chi-square	30.934***	37.087***	31.576***	38.170***
Degrees of freedom	13	13	15	15
Standard errors in parentheses; 5113 observations				
* p<0.10, ** p<0.05, *** p<0.01				

Figure 5-1 (Continued): Event-history models of strategic renewal actions

	(Model 3 - Part 1)		(Model 4 - Part 1)	
	Extern	Intern	Extern	Intern
Model outcome				
Global premium growth	4.779	30.918	2.499	29.005
	(14.2860)	(18.9461)	(14.4055)	(18.9914)
Insurance penetration	-92.624	-337.569*	-69.148	-335.010*
	(132.0980)	(189.2631)	(133.7104)	(189.3293)
LT government bond yield	4.126	2.068	5.095	3.275
	(4.0844)	(6.0017)	(4.1498)	(6.0639)
Stock market index growth	-1.086	0.724	-1.405	0.520
	(1.0536)	(1.3852)	(1.0797)	(1.3929)
Log employees	3.399**	-3.174	3.421**	-2.715
	(1.7073)	(2.1260)	(1.7145)	(2.1464)
Log age	8.534	68.863**	31.906	32.736
	(22.5741)	(29.2488)	(29.5994)	(36.0526)
Diversification	-6.286	-23.613*	-6.958	-23.892*
	(11.4992)	(13.4763)	(11.5138)	(13.5068)
Internationalization	-28.960**	-6.138	-30.531**	-6.812
	(13.4816)	(15.7174)	(13.5185)	(15.7348)
Absorbed slack	5.332	0.913	5.348	-0.436
	(5.4416)	(7.2826)	(5.4411)	(7.3436)
Unabsorbed slack	1.243	3.359*	1.080	3.514*
	(1.4798)	(1.8763)	(1.4842)	(1.8774)
Potential slack	0.254**	0.147	0.282**	0.108
	(0.1091)	(0.1403)	(0.1108)	(0.1418)

Figure 5-1 (Continued): Event-history models of strategic renewal actions

	(Model 3 - Part 2)		(Model 4 - Part 2)	
	Extern	Intern		Extern
Performance - Asp. Level (when over Asp. Level)	-173.215	-1325.257**	-150.765	-1339.020**
	(404.6337)	(527.6835)	(404.8514)	(528.1377)
Performance - Asp. Level (when under Asp. Level)	-43.921	-150.202**	-39.578	-129.072**
	(52.5396)	(63.1631)	(52.6554)	(64.6252)
Count of previous external actions			-0.008	
			(0.0066)	
Duration since last external action			0.005	
			(0.0052)	
Count of previous internal actions				0.019
				(0.0116)
Duration since last internal action				-0.001
				(0.0030)
Constant	-58.884	-261.669**	-168.885	-97.888
	(85.8074)	(113.0395)	(123.8829)	(148.3437)
ln_p constant	0.109**	0.101*	0.084*	0.113**
	(0.0422)	(0.0525)	(0.0490)	(0.0547)
Events	336	216	336	216
Log likelihood	-647.023	-508.177	-645.866	-506.489
Likelihood ratio chi-square	29.348***	45.637***	31.662***	49.013***
Degrees of freedom	13	13	15	15
Standard errors in parentheses; 5113 observations				
* p<0.10, ** p<0.05, *** p<0.01				

Figure 5-1 (Continued): Event-history models of strategic renewal actions

	(Model 5 - Part 1)		(Model 6 - Part 1)	
	Change from Intern to Extern	Change from Extern to Intern	Change from Intern to Extern	Change from Extern to Intern
Model outcome				
Global premium growth	20.327	7.545	22.957	3.074
	(25.0998)	(24.5796)	(25.1602)	(24.7459)
Insurance penetration	-143.432	-167.800	-221.368	-125.411
	(239.8763)	(234.4479)	(241.6234)	(235.6089)
LT government bond yield	8.335	11.242	9.209	13.004
	(7.8405)	(7.9879)	(7.9083)	(8.1059)
Stock market index growth	-0.964	-1.715	-1.398	-2.277
	(1.8330)	(1.8854)	(1.8586)	(1.9098)
Log employees	-0.018	-1.507	1.856	-2.814
	(2.8352)	(2.7882)	(2.8576)	(2.8569)
Log age	50.738	71.104*	64.515	64.164
	(39.2340)	(39.5831)	(49.8374)	(48.9450)
Diversification	-14.476	-26.630	-17.761	-32.427*
	(18.8038)	(18.9929)	(18.8451)	(19.1392)
Internationalization	-26.021	-33.750	-39.243*	-37.900
	(21.9136)	(22.9636)	(22.0768)	(23.0544)
Absorbed slack	7.110	4.788	6.561	2.122
	(9.2331)	(9.4072)	(9.2486)	(9.5129)
Unabsorbed slack	2.247	2.894	2.377	2.415
	(2.5077)	(2.4666)	(2.5086)	(2.4902)
Potential slack	0.262	0.317*	0.386**	0.394**
	(0.1818)	(0.1872)	(0.1849)	(0.1934)

Figure 5-1 (Continued): Event-history models of strategic renewal actions

	(Model 5 - Part 2)		(Model 6 - Part 2)	
	Change from Intern to Extern	Change from Extern to Intern	Change from Intern to Extern	Change from Extern to Intern
Performance - Asp. Level (when over Asp. Level)	-700.842	-901.676	-701.690	-802.191
	(693.7960)	(675.5107)	(693.2740)	(681.1935)
Performance - Asp. Level (when under Asp. Level)	-186.137**	-173.152**	-177.590**	-227.683**
	(84.0984)	(84.8861)	(84.8215)	(88.7997)
Count of previous external actions			-0.003	
			(0.0110)	
Duration since last external action			0.054***	
			(0.0061)	
Count of previous internal actions				0.012
				(0.0164)
Duration since last internal action				0.010***
				(0.0029)
Constant	-218.636	-287.666*	-290.967	-239.680
	(150.4537)	(152.3885)	(207.7393)	(201.4919)
ln_p constant	0.087	0.058	-0.135*	-0.002
	(0.0694)	(0.0698)	(0.0788)	(0.0732)
Events	125	125	125	125
Log likelihood	-368.477	-374.710	-335.289	-368.931
Likelihood ratio chi-square	20.097*	18.588	86.473***	30.146**
Degrees of freedom	13	13	15	15
Standard errors in parentheses; 5113 observations				
* p<0.10, ** p<0.05, *** p<0.01				

Figure 5-1 (Continued): Event-history models of strategic renewal actions

	(Model 7 - Part 1)	(Model 8 - Part 1)
	Summary model: Change in context dimension (both direction)	Summary model: Change in context dimension (both direction)
Model outcome		
Global premium growth	13.860	12.417
	(17.5274)	(18.2798)
Insurance penetration	-154.427	-153.535
	(167.3945)	(172.8189)
LT government bond yield	9.776*	9.141
	(5.5862)	(6.3267)
Stock market index growth	-1.336	-1.307
	(1.3120)	(1.4890)
Log employees	-0.767	-0.175
	(1.9850)	(1.9990)
Log age	60.731**	71.010*
	(27.8033)	(36.2378)
Diversification	-20.467	-18.606
	(13.3263)	(13.5427)
Internationalization	-29.726*	-30.359*
	(15.8250)	(16.0075)
Absorbed slack	5.917	6.998
	(6.5779)	(6.7592)
Unabsorbed slack	2.559	2.488
	(1.7543)	(1.7582)
Potential slack	0.288**	0.284**
	(0.1303)	(0.1321)

Figure 5-1 (Continued): Event-history models of strategic renewal actions

	(Model 7 - Part 2)	(Model 8 - Part 2)
	Summary model: Change in context dimension (both direction)	Summary model: Change in context dimension (both direction)
Performance - Asp. Level (when over Asp. Level)	-798.307*	-735.940
	(483.0546)	(484.7171)
Performance - Asp. Level (when under Asp. Level)	-178.893***	-156.927**
	(59.6507)	(63.0315)
Count of previous external actions		-0.001
		(0.0146)
Count of previous internal actions		-0.008
		(0.0206)
Duration since last external action		0.009
		(0.0057)
Duration since last internal action		-0.008**
		(0.0031)
Constant	-251.700**	-306.148**
	(106.8472)	(152.4189)
ln_p constant	0.073	0.076
	(0.0492)	(0.0585)
Events	250	250
Log likelihood	-570.187	-564.411
Likelihood ratio chi-square	38.183***	49.736***
Degrees of freedom	13	17
Standard errors in parentheses; 5113 observations		
* p<0.10, ** p<0.05, *** p<0.01		

Figure 5-1 (Continued): Event-history models of strategic renewal actions

From the perspective of the context dimension of strategic renewal, hypothesis 1 is tested with models 3 and 4, which are similar to models 1 and 2 but contain the parameter estimates for external and internal strategic renewal actions. In both models, the effect for internal actions is negative and significant for both aspiration performance above and below the aspiration level. For external actions, the effect is negative above and below the aspiration level, as predicted, but not significant. Hypothesis 1 thus finds partial support from a context perspective. For internal strategic renewal actions, decreases in performance relative to the aspiration level lead to a higher rate. We cannot conclude a similar effect for external renewal actions, given that the estimates are not significant. A possible explanation is that actions which extend beyond firm boundaries and which are pursued with external stakeholders are not as dependent on historical aspiration performance as opposed to internal actions which are under full firm discretion.

Hypothesis 2 is tested by seemingly unrelated chi-square tests of the equality of coefficients for exploration and exploitation across models 1 and 2. These tests were performed, as shown below, but were not significant despite the indicated difference in effect magnitude between the coefficients for exploration and exploitation:

- Model 1:
    - For performance - aspiration level > 0:
      chi2(1)= 2.40 with p-value 0.1267;
    - For performance - aspiration level < 0:
      chi2(1)= 0.21 with p-value 0.6442.

- Model 2:
    - For performance - aspiration level > 0:
      chi2(1)= 2.40 with p-value 0.1210;
    - For performance - aspiration level < 0:
      chi2(1)= 0.17 with p-value 0.6787.

Therefore, the predicted stronger effect of aspiration performance on exploration actions is not supported.

Changes in renewal context, as predicted by hypothesis 3, are tested based on models 5-8. Models 5 and 6 present the parameters for strategic renewal actions that represent a change in direction from either internal to external renewal or vice versa. Model 5 omits the momentum variables, which are introduced in model 6. To analyze the consolidated effects without taking into account the different direction of the change, Models 7 and 8 are estimated based on the total number of strategic renewal actions representing changes in the context dimension.

Hypothesis 3 is tested by the coefficients of aspiration performance. In line with predictions, the effect is negative and significant across models 5-8 for performance below the aspiration level. For performance above the aspiration level, it is also negative as predicted but only significant in one case (summary model 7). Therefore, hypothesis 3 is partly supported and the results suggest that performance relative to the aspiration level has an impact on the locus of search behavior of firms in situations where performance is below aspirations. Based on the different models, there is no difference identified in terms of direction. This suggests that when firms find themselves in situations of performance shortfalls with respect to their objectives, they engage in more complex and distant-search behavior, resulting in changes of renewal context no matter whether these changes are from external to internal renewal or vice versa.

The slack coefficients are used to test hypothesis 4. For unabsorbed slack, the coefficients are positive and significant for exploitation actions, as predicted, and negative and not significant for exploration actions (models 1 and 2). For both external and internal actions, the coefficients are positive but significant for internal actions only (models 3 and 4). These results suggest that unabsorbed slack affects specific types of renewal actions in a different manner and that easy-to-recover financial resources have a positive impact on both exploitative

and internal strategic renewal actions, whereas such an impact could not be confirmed for explorative strategic renewal actions and external actions.
For absorbed slack, coefficients show mixed directions of effects, but are not significant across renewal content and context and thus show a lack of support of hypothesis 3 for absorbed slack. In particular, coefficients are positive for exploitation, as predicted, but negative for exploration (models 1 and 2), and they are positive for external actions, but only partly positive for internal actions (models 3 and 4).

For potential slack, coefficients are positive for both exploration and exploitation, but significant for exploration actions only (models 1 and 2), and they are positive for both external and internal actions, but significant for external actions only (models 3 and 4). Hypothesis 3 is thus partly supported for potential slack, with significant positive effects on both explorative and external strategic renewal actions. The firm capacity to generate resources from the environment, such as through borrowing, seems to have a positive impact in terms of increasing the likelihood of both the more risky explorative actions and the external actions which stretch firm boundaries, and take place in collaboration with the firm's environment.

Overall, hypothesis 4 receives partial support suggesting that slack has a positive impact on specific strategic renewal actions. All significant parameter estimates were positive, supporting the overall prediction that increases in slack resources of a firm lead to increases of its number of strategic renewal actions. The more specific results suggests that the easiness-of-recovery dimension underlying different types of slack makes a difference in these effects.

Hypotheses 5 and 6 are tested by coefficient estimates of the momentum variables. The occurrence dependence effect of the number of prior strategic renewal actions on the rate is predicted to be positive and significant (hypothesis 5), but it fails to receive support for both content and context dimension as coefficients are not significant. Similarly, the duration dependence effect

(hypothesis 6) is not supported, as these coefficients are also insignificant. Therefore, both momentum predictions could not be confirmed for the different types of strategic renewal actions analyzed across models 1-4.

Further analysis of the overall shape of the hazard functions *(Figure 5-2)* shows that that hazard rates increase monotonically at an decreasing rate. This means that the likelihood of taking a strategic renewal action in a given spell is increasing with time, but at a decreasing rate. In line with prior research, such a shape of the hazard function is suggested to contradict the momentum prediction (Greve 2007), which is a plausible finding given that momentum could not be confirmed based on the estimates for specific types of renewal actions. Moreover, the hazard rate increases at a decreasing rate, which is mirroring the arguments of the deceleration (or refinement) prediction (Beck, Brüderl et al. 2008). While hypotheses 5 and 6 cannot be rejected based on significant estimates of individual coefficients, the overall model parameters, including the Weibull shape parameter, are significant across all models and suggest a deceleration pattern across strategic renewal actions in general.

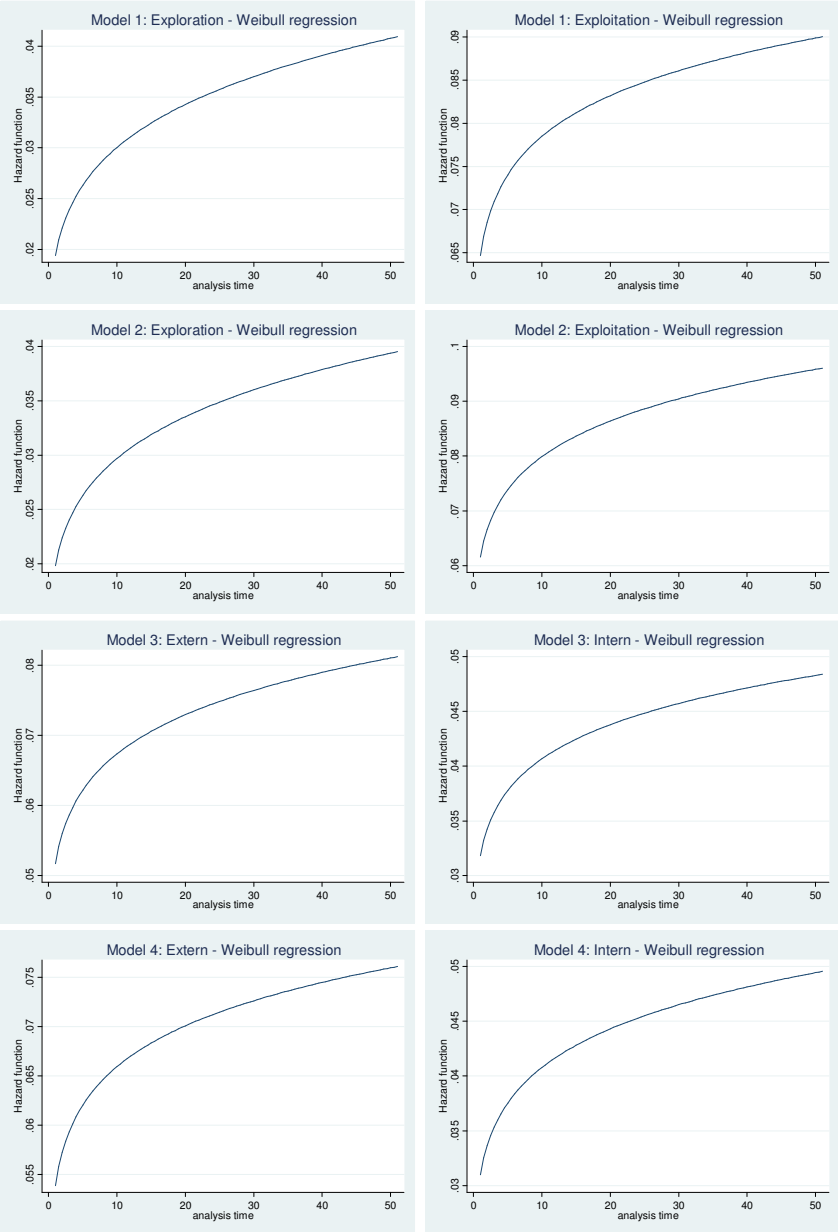

Figure 5-2: Hazard functions

In addition to these models, a number of sensitivity checks were performed. Various models including different specifications of selected variables were estimated to test the robustness of the findings, but did not provide better fit with the data. For testing the momentum hypotheses, also models entering either the cumulative count (occurrence dependence) or clock (duration dependence) variables were calculated, but did not yield different results, which is why consolidated momentum models are shown here. For a subset of actions (2001-2010), models with quarterly available performance data were also estimated. However, these models faced collinearity issues of some variables, likely due to the smaller sample size, and did not result in significant performance effects, which is why the results of the full set of actions based on yearly performance data are presented here. Finally, frailty models with a gamma mixture were estimated to test for unobserved heterogeneity and robustness of estimates. Given the Weibull specification of the above models, a gamma mixture is particularly relevant as it allows for fitting bell-shaped transition rate curves (e.g. Blossfeld, Golsch et al. 2007). The likelihood-ratio test statistics for these models were not significant, with the exception of the models estimated for internal actions, which were significant at the p-value < 0.01. For those models, however, there were no relevant changes in estimates, which means that neither significance considerations nor effect directions were changed. Therefore, frailty models were not further considered.

6. Discussion and implications

6.1. Discussion of the results

The results of the empirical study show partial support for the impact of performance feedback on strategic renewal. This is based on performance relative to the aspiration level, considered here as self-relevant, historical performance. The findings suggest some specific differences in how the different dimensions of strategic renewal, and thus the respective types of strategic renewal actions, are affected. This suggestion is based on the observation that the predicted relationships were partly but not completely confirmed. While the failure to confirm more of the predicted effects may also be due to the limitations of this study, the study's results seem to support the idea that differences between the various strategic renewal actions are more conspicuous than their similarities. As predicted, negative performance feedback increases the likelihood of exploitative strategic renewal, but this effect seems to be constrained to situations where a firm manages to outperform its aspirations. Contrary to predictions, a similar effect cannot be confirmed for explorative strategic renewal actions, which were also scarcer in the data. Although the coefficients for exploration suggest the rate to increase in case of negative aspiration performance, they are not significant and thus do not support this part of the theory. In line with this finding, a generally stronger effect of aspiration performance on exploration is also not supported.

It needs to be considered that the results of this study are based on historical aspiration levels and do not integrate social comparison; however, the conclusion is still different from the one of a prior study in product innovation that considered the similarities of exploration and exploitation to be more salient than their differences (Greve 2007). In contrast, the findings of this study suggest different responses from reductions in firm performance, namely that those increase the rate of exploitative strategic renewal actions in situations when aspirations levels are met, and that the launch rate of explorative strategic renewal actions is not affected from decreases in performance. A possible interpretation of this result is that explorative strategic renewal is relatively more

driven by an external stimulus in terms of social comparison than by self-relevant performance, provided that the models estimated here include only historical aspiration levels. Moreover, exploration may be generally more dependent on opportunity recognition processes than feedback. The failure to find a related effect may therefore correspond to a limitation of the feedback-react adaptation perspective of performance feedback theory. These two possible explanations support the idea that performance feedback affects explorative and exploitative strategic renewal actions differently. This suggestion is consistent with findings from recent research on strategic initiatives emphasizing the benefits of different social contexts to explorative and exploitative initiatives respectively (Lechner, Frankenberger et al. 2010), and providing evidence that group influence activities are relatively more important for initiative performance in exploratory initiatives (Lechner and Floyd 2012). Overall, more research is required to corroborate these suggestions, but the potential differences between exploration and exploitation seem to be more noticeable than their similarities.

Also in line with predictions, internal strategic renewal actions originating from within a firm and taken to further the internal development of knowledge are found to be affected by performance feedback. This effect applies independently of whether firms exceed their aspiration levels or not, suggesting that performance feedback is a generally important determinant for such actions. Different from external actions, internal actions may be characterized by higher levels of managerial discretion which may either halt or further their development and launch (Greve 2007). External actions may be assumed to be more susceptible to social aspiration levels not considered here, as reflected by the prior finding of "herd behavior" at the country level (Volberda, van den Bosch et al. 2001). Moreover, external actions may be more generally considered more opportunity- or partner-dependent, given that focal firm's absorptive capacity may impact aspiration level updating with respect to the sensitivity of opportunities in the firm's environment (Cohen and Levinthal 1990). Since a higher sample of external actions than internal actions is given in this study, we

can assume a relatively high level of absorptive capacity. Therefore, this finding suggests that firms with higher levels of absorptive capacity tend to be more proactive in seizing environmental opportunities, whereas firms with modest levels will be more responsive to performance feedback (Cohen and Levinthal 1990). More comparative research on firms with different levels of absorptive capacity is needed to shed further light on these matters.

Elaborating on the context dimension of strategic renewal, the findings of this study also support that a widening-sequence-of-search (Cyert and March 1963/1992) is triggered by negative aspiration performance. When aspiration levels are not met, firms are more likely to launch a contextual strategic renewal action type which is different from the action before, thereby supporting the idea that the locus of search has been broadened in such situations. For such behavior, no difference was identified here in terms of direction, which means that neither changes from external to internal nor from internal to external were found to be systematically more or less preferred. This finding is plausible given that a world-leading insurance incumbent was studied. In this study, the widening-sequence-of-search is conceived in terms of locus of search, thereby relating to external vs. internal strategic renewal actions. Taking a slightly different view, distant search has also been (more or less) directly associated with exploration (Rosenkopf and Nerkar 2001). While these concepts are associated with each other, the perspective taken here is consistent with the original perspective by March (1991), which presents the concepts of exploration and exploitation different from and broader than the locus of search. This is also reflected in research that has found higher levels of complexity involved in such processes than reflected in one-dimensional spectrums (Grinyer and McKiernan 1990; Katila and Ahuja 2002).

The findings of this study also show that slack resources partly influence strategic renewal. Unabsorbed slack in terms of financial resources is found to increase the rate of exploitative and internal strategic renewal actions. This is in line with the results of a prior study on product innovation (Greve 2007).

Absorbed slack is not found to have a significant impact on strategic renewal, also is in line with prior studies on production asset investments and acquisitions (Greve 2003b; Iyer and Miller 2008). A positive effect of potential slack, such as reflected in a firm's ability to generate additional resources through processes such as external borrowing, is found for explorative and external renewal actions. This finding may appear surprising. However, prior research has suggested that slack increases risk taking (Singh 1986; Greve 2007), as reflected in the more risky explorative strategic renewal actions. In addition, potential slack has been found to be associated with increases in political behavior (Bourgeois and Singh 1983), which is mirrored in a firm's ability to secure additional resources with external stakeholders. Therefore, it may be suggested that the positive effect of potential slack on explorative and external actions is supported by risk and political arguments.

The failure to find an effect due to insignificant estimates for both momentum predictions is unfortunate. While the results do not permit to either support or reject momentum for any specific type of strategic renewal actions, however, the overall shape of the hazard functions supports the deceleration prediction at the overall level of strategic renewal actions. This result suggests a further need to revisit the momentum vs. deceleration discussion both from a theoretical and empirical perspective, also taking into account the methodological concerns around unobserved heterogeneity discussed earlier.

Overall and to the best knowledge of the author, this study is the first:

(1) to complement research on strategic renewal with a behavioral, performance-feedback perspective and thus integrate teleological theory into strategic renewal research; this also furthers our understanding of the multifaceted nature of strategic renewal by quantitatively testing predictions on the content and context dimensions of strategic renewal actions;

(2) to extend performance feedback theory to the domain of strategic renewal actions, which is a broader concept than distinct strategic changes studied before, and to partly confirm its predictions;

(3) to respond to the momentum vs. deceleration debate (Beck, Brüderl et al. 2008) with additional findings and further methodological suggestions.
Relevant contributions are made to all these areas and are discussed in the following section in more detail.

6.2. Implications relating to theory

From the phenomenological perspective of strategic renewal research, performance feedback theory is introduced here as a complementary framework to analyze strategic renewal based on the established body of literature of the behavioral theory of the firm. Thereby, this dissertation contributes to strategic renewal research in general in at least four areas:

- First, the results provide evidence for a relationship between past performance relative to the aspiration level and strategic renewal actions. This study thereby contributes to the research area of *antecedents* of strategic renewal. Historical aspiration performance at the firm or corporate portfolio level finds partial empirical support as an antecedent. The findings thereby also suggest that performance feedback affects the different dimensions of strategic renewal in a different manner, as detailed in section 6.1.

- Second, the relationship between strategic renewal and performance also informs research on the *outcomes* of strategic renewal. Prior related research is limited (Wooldridge and Floyd 1990; Floyd and Wooldridge 1997) and generally considers performance as a dependent variable. The analysis of the inverse relationship, i.e. the effect of past performance on strategic renewal actions, shows that past performance may have an impact on strategic

renewal and renewal outcome research thus needs to carefully consider causality with respect to performance variables.

- Third, this study contributes to the research area of *instruments of strategic renewal*, which is amongst others reflected in the increasing number of studies on strategic initiatives based on questionnaire data (e.g. Lechner and Floyd 2007; Lechner, Frankenberger et al. 2010; Lechner and Floyd 2012). The construct of strategic renewal actions analyzed here is broader and based on content analysis of publicly available firm and press reports. It is based on established coding schemes (Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). The focus on the *rate* of strategic renewal actions permits to use event-history analysis as a powerful analytical method for longitudinal data.

- Fourth, this study also adds to the analysis of *trajectories of strategic renewal*. Prior related research has generally identified the relevance of industry-level, country-level, and firm-level effects (Volberda, van den Bosch et al. 2001) and provided typologies of different renewal journeys (Volberda, Baden-Fuller et al. 2001). This dissertation extends this literature conceptually and methodologically by linking the renewal patterns with the established research domain of momentum (Amburgey, Kelly et al. 1993; Beck, Brüderl et al. 2008). The empirical approach of this study can also be used as a blueprint to inform future studies that may seek to compare renewal trajectories across firms.

This dissertation also contributes to two related discussions that have drawn the interest of prior strategic renewal research, as also reflected in related special issues of research journals (e.g. Volberda, van den Bosch et al. 2001; Volberda and Lewin 2003; Agarwal and Helfat 2009): (i) the discussion on co-evolutionary perspectives on strategic renewal, and (ii) the discussion on the multidimensional, multifaceted nature of strategic renewal where strategy process and strategy content are closely connected.

- The discussion on co-evolutionary perspectives on strategic renewal has been advanced by researchers associated with the Erasmus Strategic Renewal Centre (Hensmans, van den Bosch et al. 2001; Smits and Groeneveld 2001; van der Zande 2001; Volberda, Baden-Fuller et al. 2001; Volberda, van den Bosch et al. 2001; Flier, Van Den Bosch et al. 2003). It has also been linked with research on new organizational firms (Dijksterhuis, Van Den Bosch et al. 1999; Van Den Bosch, Volberda et al. 1999) and on organizational adaptation and change (Volberda and Lewin 2003). The common thread in this literature is the intent to overcome the limitations of purely evolutionary model through combined selection and adaptation theories, as reflected in models of "guided evolution". One important claim is that evolutionary processes underlying strategy-making can be partly guided based on managerial intentionality. This is reflected in strategic intent or formal administrative structures and routines as important factors to strategy processes (Lovas and Ghoshal 2000; Volberda and Lewin 2003). The findings of this dissertation also support "guided evolution", given that aspiration levels conceptually align with firm objectives and strategic intent, and given that performance feedback is also applied through formalized performance feedback systems. However, the teleological perspective applied here also emphasizes the potential shortcomings and limitations of such guiding, as reflected for example in behavioral pitfalls such as local search (Cyert and March 1963/1992), myopic learning (Levinthal and March 1993), and the possible downsides of managerial interpretation and attribution between actions taken and their outcomes (March and Olsen 1976; Lant, Milliken et al. 1992). Accordingly, "guided evolution" is suggested here to be guided in a limited manner or even misguided.

- The discussion on the multidimensional nature of strategic renewal has extended avenues for strategic renewal research considering it as a phenomenon where strategy process and strategy content are closely

connected (see Agarwal and Helfat 2009 for an overview). It has thereby reconsidered strategic renewal from various research lenses including a dynamic capabilities view (Augier and Teece 2009; Capron and Mitchell 2009; Puranam, Singh et al. 2009), and also reemphasized that strategic renewal is a multifaceted phenomenon, which comprises major transformations and incremental renewal actions of key importance not only to individual firms but also to entire industries and economies (Agarwal and Helfat 2009). The results of this study are relevant to such a broader perspective, given that the analysis of strategic renewal actions focuses on a construct that encompasses both transformational and incremental actions, as well as content and process aspects. Future related studies may permit to further contribute to cross the boundaries between content and process research (also see Lechner 2006).

Second, from the perspective of performance feedback theory as a direct descendent of the behavioral theory of the firm, this dissertation adds further empirical support for established predictions around behavioral adjustment based on aspiration performance. It also broadens the domain of theory application to strategic renewal, which yields theoretical implications relevant to future research.

- The findings provide additional empirical support for performance feedback theory's predictions. Here, performance feedback effects on internal and exploitative strategic renewal actions are supported, for the latter type in case of positive aspiration performance. The failure to find similar effects for explorative and external actions may be explained by the limitations of this study or point to additional theoretical considerations, as discussed in section 6.1;
- The study also contributes to research regarding the widening-sequence-of-search prediction (Cyert and March 1963/1992), where so far only scarce empirical evidence has been provided (e.g. Grinyer and McKiernan 1990; Katila and Ahuja 2002);

- Strategic renewal actions are a broader focal construct than the distinct organizational changes mainly studied by prior research, but are still in line with the propositions made by performance feedback theory (Greve 2003c). The empirical evidence that performance feedback theory also holds true for a broader array of strategically relevant actions subject to managerial decisions is new but also consistent with prior research across several types of different actions in terms of content and context dimension. The level of analysis at the firm or corporate-portfolio level, which includes key subsidiaries, is also following prior research (Donaldson 1999; Iyer and Miller 2008), and provides additional evidence for the relevance of such a view when analyzing large diversified multi-unit firms;

- Prior work implicitly adopted a rational-analytic, sequential process pattern (Greve 1998; Greve 2003c). By shifting towards the iterative process of strategic renewal, it is reemphasized that performance feedback is not restricted to unidirectional process patterns where actions follow decision-making which follows search, but that the underlying realities are more complex, such as originally presented by the behavioral theory of the firm (Cyert and March 1963/1992).

Third, this dissertation contributes to momentum theory and the more recently proposed competing perspective in terms of deceleration (Beck, Brüderl et al. 2008).

- The approach applied here combines momentum-related predictions with performance feedback theory. This is compatible with the theoretical arguments of Beck et al. (2008) and extends their approach beyond prior limitations, as aspiration performance and slack were not considered in their empirical study;

- While there was no evidence found for any specific action patterns supporting or rejecting momentum, the shapes of the hazard functions of the

different models in this study support the arguments of refinement (Beck, Brüderl et al. 2008);

- The methodological implications discussed here are important. This dissertation has identified potential issues with the fixed-effects error component model, proposed by Beck et al. (2008) to overcome unobserved heterogeneity concerns associated with differences in firms' change propensities. As argued here, the potential issue identified by Beck and colleagues has been replaced in their approach by a potential issue in terms of distribution assumption of the error component. In particular, it seems questionable why a firm's change propensity is assumed to be constant. The single-firm setting studied here was designed to overcome this issue, but given that the empirical results were insignificant, further research is needed to conclude on this matter. A possible consideration of further studies could be to add a firms' change propensity measurement as a variable instead of making assumptions for error terms.

6.3. Implications relating to management practice

The theory and findings of this dissertation have several implications for managerial practice that have also been partly acknowledged by prior research (e.g. Volberda, van den Bosch et al. 2001; Greve 2003c; Greve 2010).

This dissertation emphasizes how performance feedback affects strategic renewal. The identified impact is explained based on behavioral consequences related to search and decision making. Managers will generally benefit from an increased awareness and understanding of the underlying processes. More specifically, the applicability of these processes has been shown in areas such as employee performance (Locke and Latham 1990) and several types of strategically relevant changes (Greve 2003c), as also further supported by this study.

In addition to the associated benefits of performance feedback learning, there is also evidence about the challenges associated with it. In particular, performance

feedback may lead to organizational misconduct (Harris and Bromiley 2007), excessive risk taking (Greve 2010), strategic persistence and inertia (Milliken and Lant 1991; Lant, Milliken et al. 1992; Miller and Chen 1994; Audia, Locke et al. 2000), as well as to limitations regarding opportunity recognition and innovation (Christensen 1997; Greve 2003c). Managers should be alert that performance feedback may also trigger dysfunctional behavioral responses.

Given the benefits and challenges associated with performance feedback, performance feedback theory represents a well-established source to derive design recommendations for effective performance feedback systems and to give examples of pitfalls to be avoided (see also Greve 2010 for more details on the following examples):

- Goal variables chosen should reflect the strategy. They should be specific enough to not only indicate the existence of a performance problem, but also its location in the firm, in order to direct remedial efforts to performance problems. The level of detail of performance feedback systems and its indicators should thereby not neglect the interdependency of organizational activities and encourage collaboration and coordination;

- "Stretch targets" in terms of aspirations levels should be set at realistic levels, integrating both external market demands as well as internal capabilities. Setting aspiration levels too high may lead to their rejection, which may have the same effect as not assigning aspiration levels at all. Overall, managers should be aware of a mean tendency in setting aspiration levels and of potential incentives in terms of negotiating down aspiration levels;

- The frequency of performance feedback should be set at intervals where there are high signal-to-noise levels. Too frequent performance feedback may lead to a reduced quality of decisions, as more frequent feedback generally contains more variation than less frequent feedback and may

therefore falsely indicate a problem. Managers may realize such noise and therefore pay less attention to performance feedback, when its frequency does not match with the real needs of detecting performance problems as a basis for affecting firm behavior in the desired direction;

- Performance feedback systems need to be complemented with procedures that avoid irresponsible risk taking in bad times and ensure innovation in good times. Corresponding checks and balances are needed, as well as slack search or business development activities securing opportunity discovery.

In addition to those more general recommendations, specific comments can be made from the perspective of this study.

- Prior strategic renewal research with a focus on financial services has suggested that there is no single best way to pursue strategic renewal in terms of its trajectory (Flier, van den Bosch et al. 2001; Volberda, van den Bosch et al. 2001). While such observations may be due to many contingency factors applicable, a more recent study on the European insurance industry has emphasized that a regular change rhythm supports enhanced performance and avoids managerial overload (Klarner 2010). Accordingly, managers should seek to find ways for gaining transparency about their firm's strategic renewal efforts. Based on this information, they should target to intervene in a manner which avoids any irregularities of renewal actions in terms of frequency. The coding methodology applied in this study may also be informative for practitioners.

- Managers should be aware that achieving and maintaining a certain level of balance between both explorative and exploitative strategic renewal actions, as well as external and internal strategic renewal actions is generally considered necessary to secure firm success (Agarwal and Helfat 2009; Raisch, Birkinshaw et al. 2009). However, given their specific firm situation, they may face specific challenges in achieving such a balance. The

challenges may be different from those of a world-leading insurance incumbent, as studied here. In particular, managers need to be aware that they may be required to advance their firm's absorptive capacity (Cohen and Levinthal 1990). In this context, they should be alert that different types of strategic renewal actions are likely to be affected differently by performance feedback. Based on the findings of this study, internal actions and exploitative actions (given positive aspiration performance) were found to be susceptible to performance feedback. These differences in effects also emphasize that it is beneficial to complement reactive performance feedback systems with more proactive mechanism of opportunity recognition and development.

– The findings related to slack search indicate that financial resources have a positive impact on exploitation and internal strategic renewal actions, but no significant impact on explorative and external actions. The latter benefit from potential slack. This result is informative to managers in several respects. First, absorbed slack seems to have no impact on strategic renewal. Therefore, it seems that managers may seek to minimize these resources without impacting the likelihood of strategic renewal. Second, slack in terms of financial resources positively affects specific strategic renewal actions, but not all of them equally. Exploitative and internal actions seem to benefit from financial resources already present, whereas explorative and external actions benefit from the ability of the firm to secure additional financial resources from its environment. Therefore, managers should seek to make deliberate choices in investing in such capabilities to ensure some level of balance. Third, the impact of slack resources in general emphasizes the importance of implementing opportunity discovery procedures as a complementary ability to performance feedback, in order to ensure a balance between both exploration and exploitation as well as external and internal actions.

– Practitioners should also be alert to possible dynamic considerations associated with organizational learning. In particular, both adaptive as well as dysfunctional effects associated with performance feedback will further accelerate if patterns of repetitive momentum hold true. They will decelerate if refinement governs the processes of such patterns. The findings of this study with respect to the momentum vs. refinement discussion have been inconclusive, but this only stresses that an adaptive tendency would be further self-reinforcing or decelerating, and does not alter the underlying effect.

7. Conclusions

7.1. Limitations of this dissertation

There are some limitations of this dissertation to be considered concerning both theoretical and methodological components.

To start with, the processes of search and decision-making underlying performance feedback learning are induced here based on reported strategic renewal actions, which means that this study, similar to most studies in this research domain (Bromiley, Miller et al. 2001), does not study decision-making behavior itself. In more micro-level studies, the underlying processes could be studied in more detail, but here such dynamics are inferred from patterns of actions. The nature of aspiration levels contains a subjective dimension, making behavioral consequences of performance feedback susceptible to framing aspects (Schneider 1992). Therefore, not only the "what" of performance feedback matters, but also the "how". This dimension is not considered here, and related studies are needed to extend the present body of limited knowledge in this respect.

Moreover, this study builds on established literature with respect to the key construct of aspiration levels (Greve 2003c). In this body of research, aspiration levels have mostly been considered in terms of economic performance. More recent contributions have just started to present empirical evidence on the relevance of multiple goal dimensions such as profitability and size goals (Greve 2008a), in line with the sequential-attention-to-goals prediction of the behavioral theory of the firm (Cyert and March 1963/1992). In this dissertation, only economic performance is considered in line with most prior empirical studies.
Prior research has also established two dimensions of aspiration levels: (1) historical aspiration levels based on self-relevant, historical performance, and (2) social aspiration levels based on social comparison with other comparable firms (Greve 2003c). Given that a single-firm setting is studied here, only historical aspiration levels are considered, which may affect the findings. This study could be further extended by integrating data from relevant other firms, but such an

approach was dropped here given the different focus, seeking also to address methodological considerations relating to momentum theory.

In addition, this study is based on patterns of strategic renewal actions, but does not capture characteristics such as their extent, size, or any subsequent performance implications. This limitation has already been acknowledged in prior studies of strategic renewal trajectories, in particular as it leads to a situation where large and more transformational strategic renewal actions are considered and weighed equally to more incremental, minor actions (Volberda, van den Bosch et al. 2001). Furthermore, the coding of strategic renewal actions is based on firm and press reports, and a bias may exist in terms of larger actions being more likely to be reported than smaller ones (Baden-Fuller and Volberda 1997; Volberda, van den Bosch et al. 2001). The inclusive data collection approach applied, based on a broad range of press publications, counteracts such tendencies. Nevertheless, they still represent a limitation of the empirical study.
Moreover, a potential bias relating to possible changes in terms of coverage in the underlying press publications cannot be excluded, in particular given the analyzed 14-year timeframe stretching from 1997-2010. The identified number of strategic renewal actions over time does not indicate such a bias, but it cannot be excluded as a possibility. Future extensions of the presented methodology could seek to find ways of how to integrate the magnitude of strategic renewal actions to overcome such limitations.

In terms of the methodological approach, it needs to be emphasized that this study builds on a dichotomous or orthogonal conceptualization of the different types of strategic renewal actions for both content and context dimensions, i.e. explorative vs. exploitative strategic renewal actions and external vs. internal renewal actions (also see the discussion of Gupta, Smith et al. 2006). While this fits methodologically with the competing risk models from event-history analysis applied here, it is different from continuous measures, for example those that consider the degree of exploration as key contingency along a scale (McGrath 2001). Therefore, coding an action dichotomously (either explorative vs.

exploitative, or external vs. internal) may lead to an overly simplified characterization of a strategic renewal action, in particular in those cases where these actions consist of a more complex character.

By analyzing the broader concept of strategic renewal actions, this study also investigates similarities (or differences) between the different dimensions of strategic renewal across market-relevant and technology-relevant behaviors. As discussed by a prior study (Greve 2007), it is not evident that studies can empirically generalize across such behaviors, even despite similar theory. More research across both domains seems required to support the more encompassing approach applied here.

The potential oversimplification related to the dichotomous coding of both content and context dimension of strategic renewal also relates to the momentum predictions tested here. The more general character of these constructs means that external strategic renewal actions, such as M&A and joint ventures, are equally considered as external actions. The underlying assumption is that the behavioral implications are similar, even though differences may be applicable but not modeled here. In cases where the different types of strategic renewal contain action types that are differently affected by momentum considerations, these differences will not be detected based on the applied approach.

Moreover, the momentum or deceleration pattern may be different based on the different magnitude of strategic renewal actions, as also acknowledged by Beck et al. (2008). Given that the magnitude of strategic renewal actions is not captured, such patterns cannot be identified by the applied methodology.

More generally, this study comprises a time frame of 14 years and tests the momentum predictions across the entire timeframe. Therefore, it cannot be excluded that momentum is in fact applicable for certain actions and for certain periods, which is not shown in the quantitative study. More qualitative information would be required to analyze such circumstances.

Finally, the empirical study is based on a single-firm setting, which leads to challenges regarding generalization of its findings. Given the sample size of strategic renewal actions, the data collected may be too small to detect some significant effects even though they are present. Also, potential limitations to generalize the findings were weighed against the benefits of the single-firm setting, which has been purposefully chosen due to two main reason: (1) to ensure some degree of homogeneity regarding the underlying behavioral processes of the broader concept of strategic renewal actions, and (2) to eliminate potential differences in firms' change propensities that could lead to unobserved heterogeneity issues. Therefore, the findings may be most relevant and informative to large diversified financial services incumbents, but may not apply equally to smaller firms and to different industries.

7.2. Directions for future research

By taking a behavioral perspective on strategic renewal and by integrating organizational learning theory related to momentum, the theory and findings of this dissertation relate to several research areas, for which new directions apply.
Overall, linking behavioral theory with the phenomenon of strategic renewal is considered a fruitful perspective for future research. This study has mainly addressed the performance feedback theory descendent of behavioral theory, and it has done so at the firm or corporate portfolio level of analysis. Such an approach is useful when focusing on trajectories of strategic renewal. However, related changes in terms of theoretical focus and level of analysis can also be considered and will open new avenues from a behavioral theory of strategic renewal perspective.

Future research with a focus on *trajectories of strategic renewal* should consider to keep rate of strategic renewal actions as focal construct. Event-history analysis represents a powerful analytical method that can be used for longitudinal data and future studies could extend the findings of this study by comparing results across a larger number of firms and different trajectories.

Such comparative research will also lend itself to the integration and further tests of *momentum vs. deceleration* predictions. This study has responded to the recent debate raised by Beck et al (2008), and while the shape of the hazard functions seems to support deceleration, several related questions remain open. In particular, future research might revisit the potential unobserved heterogeneity issue and add additional sensitivity checks considering the methodological challenges involved. Empirical studies should keep the focus to integrate both aspiration performance and slack to control for important behavioral factors. In this context, the theoretical justification underlying the fixed-effects error component model proposed by Beck and colleagues, namely differences in constant firm change propensities, should also be reviewed.

A key limitation to prior research on strategic renewal actions has been the *lack of differentiation* of the distinct actions *in terms of magnitude*. Future research should therefore seek to find ways to expand prior conceptualizations by developing corresponding approaches. Possible dichotomies could differentiate between major, transformational actions on the one hand, and minor, incremental actions on the other, but also continuous measurements could be envisioned. Alternatively, future research could consider to differentiate strategic renewal actions based on their empirical performance consequences, and a possible option to identify such differences could be based on abnormal stock market returns following event study methodology (McWilliams and Siegel 1997).

There is a clear opportunity for future research to advance our knowledge by further analysis of *antecedents and contingencies related to the differences and similarities between both explorative vs. exploitative and external vs. internal strategic renewal actions*. Given that the management of a certain balance of both of these dimensions has been considered important for firm performance and survival (Agarwal and Helfat 2009; Raisch, Birkinshaw et al. 2009), more research is needed to increase our understanding of the underlying cause-effect relationships.

Given the importance of strategic renewal processes at *lower levels of analysis*, future research could also seek to analyze performance feedback processes more closely related to *organizational subunits*. Such a perspective could also benefit from integrating the dialectical and/ or political elements underlying behavioral theory. In particular, internal resource allocations, related allocation rules and the disaggregation of firm performance and responsibility are important factors (Cyert and March 1963/1992) clearly applicable to strategic renewal. Moreover, the behavioral theory of the firm assumes a quasi-resolution of conflict, explicitly allowing for conflicting goals (Cyert and March 1963/1992). Group influence activities have been found important to strategic initiatives performance (Lechner and Floyd 2012). Performance feedback theory could be further broadened by studying situations which permit to analyze such factors.

Shifting the level of analysis to lower levels of the organization may also help to increase our knowledge with respect to which aspiration levels managers pay attention to, and how these affect *performance feedback in real life*. As already mentioned, prior research has been mainly focused on economic performance objectives, with a recent contribution opening up future research avenues regarding the sequential attention to different goals (Greve 2008a). In addition to different goals, it has also been established that the "how" of performance feedback matters, in terms of its frequency and framing (Lounamaa and March 1987; Schneider 1992). We generally need more research relating to these aspects and it seems that more explorative and qualitative approaches may be particularly helpful to advance our knowledge. Such research may also be important to increase relevance in providing a more robust basis for theory-driven recommendations of how to efficiently design formal performance feedback systems.

7.3. Final conclusion

This dissertation argues in favor of a behavioral theory of strategic renewal. The results of this dissertation show the general applicability of the behavioral theory of the firm to strategic renewal. Based on the study findings, it can be concluded

that the behavioral processes underlying performance feedback, such as problemistic search, decision making, and slack search, have an impact on strategic renewal actions. Behavioral theory also provides a basis for theorizing about momentum vs. deceleration, and while the empirical contribution of this study is only limited in this respect, the methodological implications discussed here provide input to future research. Overall, the findings show that the behavioral theory of the firm, and in particular the performance feedback theory domain of this theory, contribute to the explanation of the phenomenon of strategic renewal. The findings of this dissertation are thereby relevant to a number of distinct research areas, as presented above.

The integration of behavioral theory into strategic renewal research is a fruitful perspective further research can build on. Such research can be considered as a more specific domain relating to an overarching discussion, that has become known as adaptation-selection debate in research on strategic management and organizational ecology (Lewin and Volberda 1999; Volberda, Baden-Fuller et al. 2001; Volberda and Lewin 2003). One of the central questions in related models of strategy-making is the relevance of intentionality and the role of leadership (Lewin and Volberda 1999; Lovas and Ghoshal 2000). In this respect, both benefits and challenges of managerial action due to inherent constraints of bounded rationality have been acknowledged. No matter which "side of coin" may be considered relatively more important and from which theoretical and practical viewpoint. What should have become clear is that performance feedback matters, and so does the design of formal performance feedback systems. And since the processes underlying performance feedback learning are characterized by behavioral limitations, the managerial challenge is to design them appropriately to support effective guidance and successful strategic renewal.

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