Department of Industrial Engineering and Management

A Behavioral Theory Perspective on Acquisitions, Acquisition Performance, and Strategic Alternatives

Pasi Kuusela

Aalto University

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A Behavioral Theory Perspective on Acquisitions, Acquisition Performance, and Strategic Alternatives

Pasi Kuusela

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Abstract

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Abstract

Attention and performance aspirations are two focal concepts of the behavioral theory of the firm (BTOF), and extensive prior research has examined their role as antecedents of firm behavior. The effects of aspirations and attention on the relationship between firm behavior and performance outcomes are substantially less well understood. To address this gap, I study the performance implications of attention and performance relative to aspirations in the context of serial acquisitions. This dissertation consists of three essays that test central arguments derived from the framework of the BTOF by utilizing data on 2,502 acquisitions that were conducted by 87 large US information and communication technology (ICT) companies from 1990 to 2010.

The first essay concentrates on the behavioral consequences of performance deviations by simultaneously studying firm engagement in two polar types of strategic actions: acquisitions and divestments. The findings of the first essay show that the effects of performance that is below aspired levels on behavioral outcomes are not identical in all contexts but differ based on the type of transaction.

The second essay argues that attentional control exerted by top management and an organization's practice-based experience improve the organization's ability to perform complex information processing intensive tasks. The second essay studies this by examining the role of attentional control and prior activity specific experience in the influence of acquisitions on firm-level innovation performance. The findings of the second essay show that decision makers' specific attentional orientation toward exploration can help firms to overcome difficulties in acquiring large knowledge bases when the firm possess prior experience in large knowledge base acquisitions. Furthermore, the findings suggest that prior experience is necessary but not sufficient for capturing innovation benefits from technology acquisitions.

The third essay examines the performance implications of acquisitions that are conducted under a specific attentional orientation or below aspired level of performance. The findings of the third essay show that when executing multiple acquisitions, decision makers' attention toward entrepreneurship improves firm performance. In addition, findings show that acquisitions that are conducted as a response to a performance shortfall tend to improve performance more than acquisitions that are conducted when the performance is at the aspired level.

Keywords behavioral theory, attention based view, aspiration levels, acquisitions, innovation

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Tekijä
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Väitöskirjan nimi
Behavioristisen yritysteorian näkökulma yritysostoihin, yritysostojen menestykseen ja strategisiin valintoihin

Julkaisija Perustieteiden korkeakoulu

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Tiivistelmä

Organisaation vaatimustasot (aspiration levels) ja huomiointikyky (attention) ovat behavioristisen yritysteorian (behavioral theory of the firm) kaksi keskeisintä yrityksen toiminnan (firm behavior) selittämiseen käytettyä käsitettä. Niiden vaikutusta toiminnasta seuraavaan yrityksen tuloksellisuuteen (firm performance) ei kuitenkaan tunneta hyvin. Tutkin väitöskirjassani organisaation vaatimustasojen ja huomiointikyvyn vaikutusta sarjayritysostojen menestykseen. Väitöskirja koostuu kolmesta esseestä, jotka testaavat behavioristisesta yritysteoriasta johdettuja argumentteja hyödyntäen aineistoa, joka koostuu 87:n yhdysvaltalaisen suuryrityksen informaatio- ja telekommunikaatiosektoreilla vuosina 1990-2010 tekemistä 2502:sta yritysostosta.

Ensimmäinen essee käsittelee organisaation normaalista vaatimustasosta poikkeavan tuloksellisuuden vaikutusta yrityksen toimintaan tarkastelemalla samanaikaisesti vastakkaisen tyyppisiä strategisia valintoja: yritysostoja ja divestointeja. Essee osoittaa, että vaatimustasosta poikkeavan tuloksellisuuden vaikutukset riippuvat transaktion tyypistä.

Toisen esseen keskeinen argumentti on, että päätöksentekijöiden harjoittama organisaation huomiointikyvyn kontrollointi (attentional control) ja organisaation toistuvuuteen pohjautuva kokemus (organizational practice) parantavat organisaation kykyä suorittaa monimutkaisia informaation prosessointia vaativia tehtäviä. Essee tutkii tätä tarkastelemalla organisaation huomiointikyvyn kontrolloinnin ja aiemman aktiviteetti-kohtaisen kokemuksen vaikutusta sarjayritysostojen hyödyntämiseen yrityksen innovaatiotoiminnassa. Tulokset osoittavat päätöksentekijöiden uuden luomiseen (exploration) keskittyvän orientaation auttavan yritystä hyödyntämään laajan teknologisen tietovarannon sisältäviä yritysostoja jos organisaatiolla on merkittävää aiempaa kokemusta vastaavista yritysostoista. Aiempi kokemus itsessään on välttämätön muttei riittävä tekijä teknologiapohjaisten sarjayritysostojen menestyvään hyödyntämiseen yrityksen innovaatiotoiminnassa.

Kolmas essee tutkii sarjayritysostojen vaikutusta yrityksen menestykseen tilanteissa, joissa yritysostot tehdään organisaation normaalia vaatimustasoa alemman tuloksellisuuden tai määrätyn tyyppisen strategisen orientaation aikana. Esseen tulokset osoittavat, että päätöksentekijöiden yrittäjyyteen keskittyvän orientaation aikana toteutetut yritysostot parantavat yrityksen menestystä samoin kuin yritysostot, jotka toteutetaan organisaation tuloksellisuuden palauttamiseksi normaalitasolle.

Avainsanat behavioristinen yritysteoria, organisaation vaatimustasot, organisaation huomiointikyky, yritysostot, innovaatio

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Zürich 2013,
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A BEHAVIORAL THEORY PERSPECTIVE ON ACQUISITIONS, ACQUISITION PERFORMANCE, AND STRATEGIC ALTERNATIVES

LIST OF RESEARCH PAPERS

This dissertation consists of the introduction to the thesis section and the following three papers:

1 Kuusela, P., Keil, T. & Maula, M., 2012. Driven by Aspirations, But in What Direction? Aspirations, Strategic Transactions, and Slack.

2 Kuusela, P., Keil, T. & Maula, M., 2013. Top Management Attention Matters: Attentional Control, Organizational Practice, and the Effects of Serial Acquisitions on Innovative Performance.

3 Kuusela, P., Keil, T. & Maula, M., 2012. A Behavioral Theory of Acquisition Performance: How Aspirations and Entrepreneurial Orientation Influence Value Creation Through Acquisitions.

Contributions of the author:

All three essays included in this dissertation are coauthored works. In all the papers, the author of this dissertation was responsible for linking the secondary data from different databases to form the data sets that were used in the analysis. The author of this dissertation also conducted the statistical analysis. The development of the hypotheses and the writing of the essays were the collective effort of the authors. The author of this dissertation wrote the first drafts.

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INTRODUCTION TO THE THESIS

1 BACKGROUND

1.1 Overview

The behavioral theory of the firm (BTOF) (Cyert and March, 1963; March et al., 1958; Simon, 1955) has long been used to explain firm behavior when decision makers operate under the conditions of bounded rationality and multiple competing goals (Simon, 1964). According to the premises of the theory, rather than perfectly optimizing the profit of a firm under the assumptions of perfect and common knowledge with known utility functions, decision makers choose the first satisfying alternative that arises as a solution to a problem caused by a change in the environment or that is found through a search by experimentation enabled by slack (Bourgeois, 1981; Cyert and March, 1963; March et al., 1958). As firms have several often diverging goals (March, 1962), decision makers are exposed to multiple types of performance feedback, and the chosen set of actions depends on how they attend to each search for alternatives (Cyert and March, 1963). During past decades, this organizational and decision-centric view has gained a position as one of the most influential and established theories in strategy research for explaining firm behavior (Argote and Greve, 2007; Gavetti et al., 2012).

However, despite the salient role that the BTOF has had in strategy research, some important central gaps remain within its domain. Two of the focal constructs of the theory, aspiration levels and attention, have been treated separately in contemporary empirical research. The prior landmark studies have addressed the role of sequential attention and the interplay of competing aspirations on firm growth (Greve, 2008), but we do not yet fully understand how the *type* of attention that decision makers devote to each goal affects the process. Furthermore, the BTOF implicitly assumes performance implications of chosen actions (Bromiley, 1991), but these performance implications have themselves received less attention in prior research. Although the theory attempts to explain firm behavior, it does not mean that the view would be irrelevant for understanding its implications. On the contrary, understanding the role of performance aspirations and

specific patterns of attention devoted to diverging goals in the performance implications of chosen actions is a relevant and logical step to extend the theory further. Recent research has made initial attempts (e.g., Gavetti 2012; Washburn & Bromiley 2012; Barreto 2012) to reintegrate the two fragmented streams toward a more coherent behavioral theory of strategy, but both the empirical and theoretical research on the performance implications of strategic transactions that are conducted under performance shortfalls or specific patterns of attention remain sparse (with some exceptions; e.g., see the work of Moliterno & Wiersema 2007 on aspirations and divestment capability). Extending this stream of research is the essence of this dissertation, in which I investigate theoretical arguments derived from the BTOF framework and test them in the context of strategic transactions to gain insight into their performance implications.

This dissertation consists of three essays that examine firm behavior regarding acquisitions and the subsequent performance implications of this behavior by drawing on two perspectives within the BTOF: organizational attention and performance feedback. The first essay concentrates on the behavioral consequences of performance deviations. The BTOF posits that firms are more likely to engage in risk-containing transactions, such as acquisitions and divestments, when their performance falls below aspirations (Cyert and March, 1963; Greve, 2011; Iyer and Miller, 2008; Moliterno and Wiersema, 2007; Shimizu, 2007). This prediction is stated at the general level and implies an increased propensity to engage in any type of strategic change. However, the transactions that decision makers consider are always within a specific strategic context, and some strategic responses may not be commensurable under the common category of risky action. To study whether the effects of a performance shortfall are identical in all contexts, the first essay simultaneously considers two polar types of risk-containing strategic transactions in which decision makers may engage as a response to a performance shortfall. More specifically, acquisition behavior is studied in a context that considers divestments as an alternative available to decision makers. Acquisitions and divestments are both among the most effective strategic actions in decision makers' repertoire to address the gap that lies between actual and aspired performance. However, acquisition and divestment strategies are based on two different logics: acquisitions are resource-consuming investments intended to improve the competitive position, whereas divestments involve freeing resources and increasing focus. The first paper argues that the commonly studied effects of slack and deviations from aspired performance on implementing strategic transactions are heavily dependent on the type of transaction. In other words, the decision-making situation and type of strategic action

affect how a performance shortfall leads to one choice on one occasion and another alternative on another occasion.

The second paper concentrates on the performance implications of organizational attention on serial acquisitions and investigates acquisitions as a mechanism for building innovation capability. Previous research has shown that the complex and demanding task of integrating relatively large acquired knowledge bases tends to hinder innovation capability, as it requires excessive resources to be diverted from alternative sources of innovation, such as internal research and development projects (Ahuja and Katila, 2001; Cloodt et al., 2006). The main argument of the second paper is that a firm's ability to innovate by assimilating acquired knowledge bases depends on the attentional orientation and acquisition experience of the decision makers. An attentional orientation toward exploration should support innovative performance directly, as resource allocation will support innovation activities, and issues of innovation will remain high on the managerial agenda during the acquisition integration. In addition, an attentional orientation emphasizing exploitation improves innovation performance when the acquisition pattern consists of relatively smaller knowledge bases. Research results also show that firms that combine acquisition routines that are gained through experience with mindful attention (Rerup, 2009) are the most capable of capturing the potential benefits of complex acquisitions and conducting such transactions without disrupting existing innovation activities. Importantly for the serial acquisition literature, the second paper also shows that acquisition experience appears to be a necessary but insufficient requirement for reaping innovation benefits from technology acquisitions.

The third paper concentrates on determining the performance consequences of serial acquisitions that are conducted under a specific attentional orientation or during performance shortfalls. The specific attentional orientation that is considered in the third paper is captured by a set of categories that indicate firms' attention toward entrepreneurship, frequently referred to as entrepreneurial orientation (Lumpkin and Dess, 1996). The third paper shows that firms with a high level of entrepreneurial orientation are better able to overcome performance shortfalls by executing a pattern of acquisitions. In addition, the results show that acquisition programs undertaken as a response to performance shortfalls yield better performance than acquisitions in which a firm engages when the performance is closer to the aspired level. These findings suggest that attentional orientation and performance aspirations affect not only firm behavior but also the alternative solutions that are evaluated and the

manner in which these solutions are implemented as a response to a performance shortfall.

Taken together, the findings of this dissertation show that the BTOF can increase our understanding of firm performance. The interdependencies between the behavioral and performance consequences are emphasized by considering the two central constructs, attention and aspirations, with the simple idea that the performance implications of the pattern of actions depends not only on the content of those specific actions but also on the *reasons* that a specific pattern of actions was chosen. Managers engage in strategic transactions with specific performance assumptions in mind. Indeed, it is a well-known issue in the strategy literature that chosen actions or their implementation are not independent of the *a priori* expected performance (Bascle, 2008; Hamilton and Nickerson, 2003; Heckman, 1979). A more detailed understanding of management decision-making processes as well as the role of attention and performance aspirations in these processes can provide insight as to why and under which circumstances strategic actions are chosen. Thus, we have two relevant contingencies with which to analyze related performance outcomes. Furthermore, by reintegrating streams that extend the BTOF, the findings of this dissertation also show the importance of gaining fit between the type of strategic actions, environmental pressures, and organizational capabilities.

1.2 Research Questions

This dissertation contributes to two streams of literature: (1) the BTOF and (2) serial acquisitions. In this chapter, I discuss the objectives and research questions of individual essays from these two perspectives. Although prior research on the BTOF has been extensive, some important gaps remain: Contingencies affecting the performance-behavior relationship are not yet fully understood (Shinkle, 2012), and multiple goals and choices between different responses to performance feedback have remained understudied in prior research (Gavetti et al., 2012). Furthermore, empirical research has treated aspirations and attention as relatively isolated concepts, and we do not have a complete understanding of their effect on firm performance (Argote and Greve, 2007; Gavetti et al., 2007). Indeed, the behavior-performance link has received attention in recent theorizing (Gavetti, 2012), but from the perspective of the BTOF, performance implications remain an open question. To address these gaps in the literature, this dissertation empirically examines the main **research question**:

How do organizational attention and performance aspirations influence the performance implications of serial acquisitions?

The behavioral hypotheses are studied in the context of serial acquisitions because they contain multiple repeated and coordinated events that allow for learning opportunities and adjustments to the search process: identifying businesses that are appropriate targets for acquisitions requires the attention of central decision makers to evaluate multiple potential targets against several criteria (e.g., is valuation appropriate, does the transaction change the firm's competences or growth prospects) to determine whether they offer a satisfying solution for addressing a performance deviation. Furthermore, the attention of central decision makers to certain topics can affect which types of potential targets are included in the search. In the serial acquisition literature, specific mechanisms that help to overcome negative transfer effects within acquisition patterns are regarded as one prominent but understudied avenue (Barkema and Schijven, 2008a; Haleblian et al., 2009). By focusing and guiding the search for alternatives, an organization's attentional orientation and performance feedback can offer two potential mechanisms with which to hinder negative transfer effects.

The main research question of this dissertation can be divided into several subquestions. When considering performance implications, one must understand that the performance feedback loop makes the model necessarily dynamic. From the BTOF perspective, performance and behavioral outcomes are inherently intertwined (Gavetti, 2012). A wide body of evidence indicates that performance aspirations affect behavior, and understanding the performance implications of such behavior necessitates an understanding of both directions in the relationship. Therefore, I begin this dissertation by analyzing both the performance-behavior and behavior-performance relations.

1.2.1 Essay 1 on the effects of performance feedback on firm behavior

The first essay studies the influence of performance feedback on firm behavior. The link between performance feedback and engagement in risky actions is central and widely addressed in prior research (Argote and Greve, 2007; Gavetti et al., 2007; Greve, 2003, 1998; Moliterno and Wiersema, 2007; Shinkle, 2012). Much of this work concentrates on the role of slack in this relationship (Audia and Greve, 2006; Iyer and Miller, 2008; March and Shapira, 1992; Singh, 1986), as slack can be considered both as an

enabler of explorative search (Bourgeois, 1981; Cyert and March, 1963) and as a source affording attention to performance over survival aspirations (March and Shapira, 1992). However, the empirical findings on this relationship are mixed (Greve, 1998; Iyer and Miller, 2008; Ketchen and Palmer, 1999; Shimizu, 2007; Shinkle, 2012; Wiseman and Bromiley, 1996). Although strategic decisions are long acknowledged to be context dependent (Sitkin and Pablo, 1992) and different types of actions are unlikely to be evaluated in isolation from other decision alternatives, the prior empirical research addressing this issue has relied on designs that consider a set of decision alternatives belonging to the same category. Below aspiration performance can trigger multiple different responses. One may consider it highly unlikely for decision makers to evaluate only one type of solution among the potentially feasible alternatives. However, the behavioral reasoning is theorizing with respect to the higher acceptance of risk in general, and the prior empirical work has evaluated the increase of one type of action at a time. That is, there is a clear gap in the literature regarding our understanding of how the existence of different alternatives, and therefore the properties of such alternatives, influence the relationship between performance feedback and behavior. To increase our understanding of these issues, the first essay addresses **Subquestion 1:**

> *When do firms choose acquisitions or divestments as a response to a deviation from aspired performance?*

Better understanding the effect of transaction types is relevant, as some types of strategic decision alternatives (e.g., acquisitions, divestments, investments in manufacturing capacity) are not necessarily considered similar only as risk-containing actions. The original BTOF emphasized building a decision-centric and behaviorally plausible view of organizations. Understanding how much of the decision context and competing alternatives must be considered when studying decision making and testing the predictions derived from the BTOF are relevant for becoming better able to evaluate the boundary conditions. This question is also relevant for the literature on serial acquisitions. Acquisitions are one external mechanism for innovation (Hitt et al., 1991) that influences innovation performance, but their optimality as a choice can depend on the other external governance modes from which firms can choose (Keil et al., 2008). Examining the effects of performance deviations on strategic actions when two competing choices are available can assist in identifying what drives acquisition behavior and the conditions under which firms actually choose acquisitions.

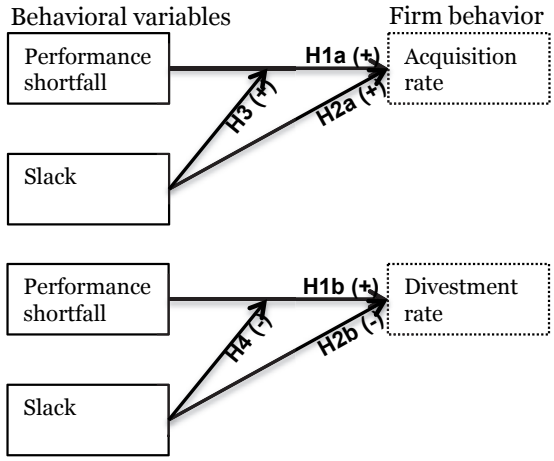

Figure 1. Illustration of hypothesized relationships in the first essay. Moderating relationships have additive scale.

1.2.2 Essay 2 on the influence of attention, experience, and acquisitions on innovation performance

The second essay explains the firm-level performance implications of attentional orientation by examining the role of acquisitions in improving the innovation performance of an acquiring firm. More specifically, I study how general attentional orientation and previous experience with chosen actions affect a firm's ability to build innovation capability using acquisitions. The majority of the research on behavioral theory and the attention-based view explains firm behavior and the antecedents of specific attention patterns, whereas less is known about their direct performance consequences. There exists a gap in the understanding of the boundary conditions under which organizational attention is most likely to affect performance and of the importance of various underlying mechanisms that enable the attention-performance link. Furthermore, despite the prominent results of important groundbreaking studies (e.g., Bouquet et al. 2009), the empirical research in this field remains scarce. From the BTOF perspective, understanding the combination of experience and attention appears to be especially relevant. Attention structures in organizations have both firm-level (i.e., hierarchy and formal communication channels) and individual-level (i.e., the cognitive frames of decision makers) components. Both types of components are modified by the previous experiences of firms: organizational routines or performance programs as repeated patterns of actions depend on the prior experiences of firms (Cyert and March, 1963; March et al., 1958; Nelson and Winter, 1982). Furthermore, the manner in which decision makers search and interpret the competitive environment

depends on an organization's prior experience (Cyert and March, 1963; Daft and Weick, 1984; Porac and Thomas, 1994; Porac et al., 1995). In the second essay, the research question that is derived from the BTOF framework can be formed as **Subquestion 2:**

> *How do the attentional orientation and previous experience of decision makers affect the innovative performance of chosen strategic actions?*

From the perspective of the joint effect of attention and experience, this subquestion has relevance for the serial acquisition literature, which contains mixed findings regarding the role the acquisition experience has on performance. The performance effects of experience are among the most widely studied but remain partially open questions in the acquisition literature (Barkema and Schijven, 2008a). Acquisition experience can have both positive and negative transfer effects (Finkelstein and Haleblian, 2002; Haleblian and Finkelstein, 1999), and their balance depends on the type of experience (Ellis et al., 2011) and the manner in which such experience has been handled inside of an organization (Heimeriks et al., 2012; Vuori, 2012; Zollo and Singh, 2004). There is still a gap in the literature regarding interactions between attention and experience and particularly how deliberate learning mechanisms (e.g., attention toward specific categories) can prevent negative transfer effects (Barkema and Schijven, 2008a). Thus, better understanding the attention-experience-performance link in the execution of complex transactions has a direct effect on determining the conditions under which serial acquisitions tend to succeed.

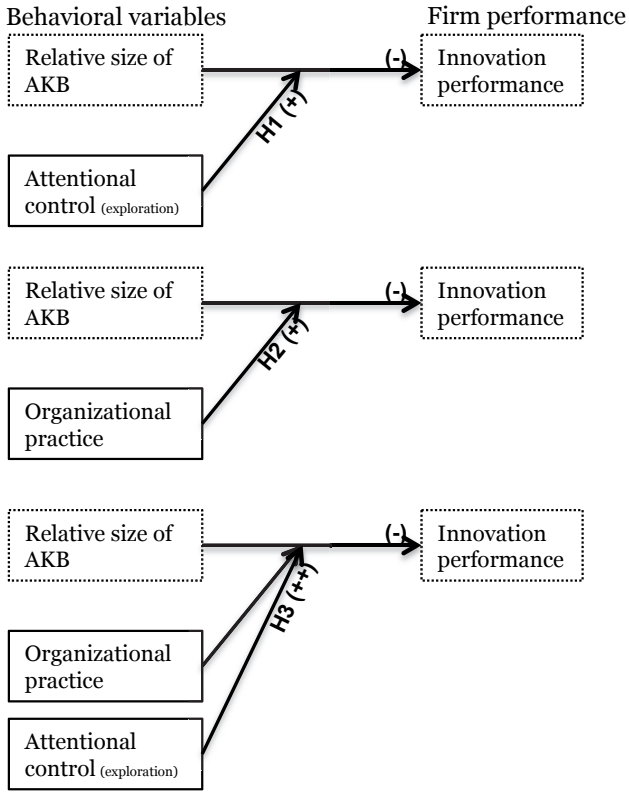

Figure 2. Illustration of hypothesized relationships in the second essay. Moderating relationships have additive scale.

1.2.3 Essay 3 on the effects of attention and aspirations on the performance implications of acquisitions

In the third essay, I study the performance implications of strategic transactions. The third essay examines how the decision-making situation in which acquisitions are conducted affects performance outcomes. Specifically, I study the role of firm-level performance and specific patterns of attentional orientation during the acquisition process and their relationship to the actual performance of the firm. Essay 3 investigates the performance-behavior-performance relation by considering **Subquestion 3**:

> *What are the performance implications of acquisitions that are pursued under a specific attentional orientation or under performance shortfalls?*

Both Essays 2 and 3 consider a similar behavioral hypothesis, as they address the role of the attentional orientation of TMTs with respect to certain topics and the performance implications. Essay 3 extends the analysis by adding an important category of attentional orientation, namely, firms' emphasis on entrepreneurial actions. Another difference is that Essay 3 explains financial performance rather than innovation performance, which further contributes to the scarce empirical research on the performance implications of attention. Furthermore, Essay 3 also studies how performance feedback affects the performance implications of specific behavior. Thus, this essay contributes to our understanding of the performance implications of the BTOF and fulfills the call of Gavetti (2012) for further empirical research on behavioral strategy.

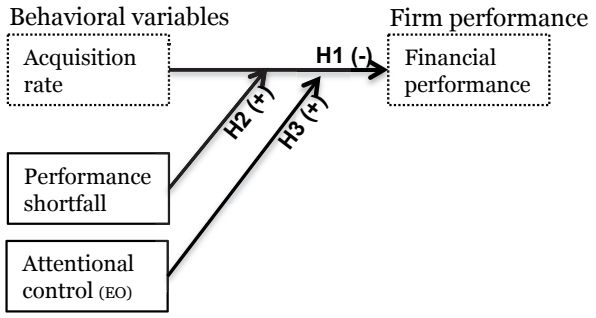

Figure 3. Illustration of hypothesized relationships in the third essay. Moderating relationships have additive scale.

1.3 Scope and Delimitations

In the essays of this dissertation, organizational attention is conceptualized following the attention-based view and is considered to consist of both *issues*, which refer to the available set of categories that decision makers retain for to notice, interpret, and make sense of the environment, and *answers*, which indicate the repertoire of actions that are available to respond to the emerging issues (Cho and Hambrick, 2006; Ocasio, 1997). It is important to note that this conceptualization of attention allows both the set of issues and set of answers to have an organizational-level component. Thus, this view links individual-level problem solving and organizational structure "through the concepts of procedural and communication channels and attention structure" (Ocasio, 1997). These underlying structures partly define what is on the agenda of decision makers. In this dissertation, theorization about the mechanisms of organizational attention follows this view, and the related empirical analyses are also performed the

organizational level. Although Essays 2 and 3 share methods with the management cognition literature in utilizing letters to shareholders (LTSs) as a measure of attention (see, e.g., the work of Kaplan 2008; Eggers & Kaplan 2009), the focus of this dissertation is on the organizational level. Therefore, the wider literature on management cognition (see, e.g., Walsh 1995 for a review) is not elaborated further.

Second, diverging from the classic view of the BTOF (Cyert and March, 1963) and recent work that has been conducted in the area of performance feedback research (Greve, 2008), I do not assume that attention is only sequential. Rather, I adopt the view that organizations and decision makers are capable of (and actually do in practice) search and process issues and answers in parallel.

2 THEORETICAL BACKGROUND

2.1 Behavioral Theory of the Firm

The BTOF argues that boundedly rational decision makers continue to evaluate alternative solutions to attempt to rectify an organization's deviance from multiple goals until a satisfying solution is found (Cyert and March, 1963; March, 1962; March et al., 1958; Simon, 1964, 1955). This problemistic search is triggered by decision makers' perception that a firm's current performance is not meeting the aspired level (March et al., 1958). Such performance feedback based on the difference between the current and aspired states of an organization directs when the search for alternatives begins and the duration of the experimentation between options. Indeed, the central and widely accepted results in the performance feedback research are that performance deviations influence a firm's propensity to engage in specific transactions (see Shinkle, 2012 for a recent review) and their timing (Iyer and Miller, 2008), which are commonly attributed to changes in decision makers' tolerance for risk (Audia and Brion, 2007; Bromiley, 1991; Greve, 1998; Lant, 1992; March and Shapira, 1992; Singh, 1986). However, empirical findings regarding the effects on risk preferences are mixed, providing evidence for both risk-seeking (Greve, 1998; Shimizu, 2007) and risk-averse (Audia and Greve, 2006; Wiseman and Bromiley, 1996) behavior; thus, the actual relationship is not fully understood.

Explanations of these mixed findings are limited to different functional forms of the aspiration-behavior relationship (Greve, 1998; Shimizu, 2007) and to the existence of multiple aspirations, as decision makers select the appropriate reference points based on their own historical performance (Lant, 1992; Levinthal and March, 1981) or the performance of similar peers through social comparison (Baum et al., 2005; Festinger, 1954; Porac et al., 1995). Thus, aspiration levels directly affect what is searched by (1) adjusting the decision makers' willingness to accept the level of risk that is perceived to be inherent to an action and (2) by modifying the expectations of an action's outcomes that are deemed appropriate. Another important

element in the original BTOF that affects the content of the search is attention (Cyert and March, 1963), which has been studied from multiple perspectives (Ocasio, 2011). In general, a firm is depicted as having multiple and often competing goals (March, 1962) to which decision makers direct their attention sequentially (Cyert and March, 1963; Greve, 2008). The sequential nature of attention can have an influence on the content of a search, as decision makers may shift the focus of their attention between reference points by prioritizing solutions that advance either performance or survival (Audia and Greve, 2006; March and Shapira, 1992, 1987). Furthermore, the sequential pattern of attention has relevance for the solutions that are chosen because aspiration levels can interact with one another. For instance, prior research has shown that the influence of growth aspirations is contingent on whether a firm has met its aspirations regarding size (Greve, 2008).

Although prior research contains ample evidence that aspirations directly affect the content of the search and the types of alternatives that are considered and selected, the mechanisms through which performance aspirations work remain unsettled with respect to three important aspects. First, prior research has addressed the effects of aspirations on the propensity to engage in transactions and related external contingencies, but the choices between different actions *within* a category of solutions (e.g., different types of acquisitions) are less understood. In the context of divestments, Moliterno and Wiersema (2007) found evidence that performance aspirations influence both a firm's propensity to engage in divestments and the degree of sophistication of the divested resources. This finding further strengthens the intuition in behavioral theory that evaluated and selected solutions are far from homogeneous. However, despite the promising findings, the empirical research on how aspiration levels and various characteristics of the solution space are related to the chosen action has remained surprisingly sparse. Second, we know even less about the role of performance aspirations in choices of strategic actions *between* categories. Third, prior research has provided evidence that simplifying heuristics are also relevant in the evaluation of the expected outcomes of solutions, and such work has shown that both slack and problemistic search affect the process in the context of market expansion (Barreto, 2012). However, we do not yet know the influence of heuristics when different options are considered simultaneously.

The attention-based view (ABV) (Ocasio, 1997) is one of the most prominent contemporary streams building on behavioral theory, which considers the role of multiple goals and attention allocation in firm behavior. The ABV emphasizes the role of situated attention and

organizational structure as mechanisms that guide this type of attention (Gavetti et al., 2007; Ocasio, 2011, 1997). The central argument of the ABV is that because of bounded rationality, decision makers are able to pay attention to only a small fraction of issues, which affects what solutions are viewed, chosen, and implemented by an organization. This selectivity "is the resulting outcome of sequential attention to alternative aspiration levels, as well as attentional engagement that results guided search" (Ocasio, 2011), and because attention itself is a limited resource, selectivity leads to competition for attentional resources within firms. Attention drives the resource allocation within an organization, and from this perspective, the central dimensions of attentional orientation can be equated with the strategy of a firm (Ocasio, 2011).

Although attention clearly affects the agendas of decision makers, prior research has treated the concepts of sequential (Greve, 2008) and situated attention as surprisingly isolated from one another. Much of the empirical work on the implications of attention has addressed the latter and has demonstrated its effects on strategic behavior. One of the mechanisms through which attention affects behavior is agenda setting. First, when investigating the search process, prior research has shown that attention to specific categories has effects on the agenda of decision makers (Yu et al., 2005). For instance, regarding the timing of actions, Eggers and Kaplan (2009) found that attention to emergent technologies and specific industries is associated with the choice of quicker entry into the industry, whereas attention to existing technologies leads to the choice of less rapid entry. A CEO's attention to new technologies has also been shown to have direct effect on investment decisions related to those technologies (Kaplan, 2008). Moreover, the attentional orientation influences the search process, even when one is searching within a category that is only partly related to the outcome. For instance, at the individual level, a CEO's attention can be a critical driver of innovation when attention is directed toward future events or external events in general (Yadav et al., 2007). The link between an organization's innovation and attention to future events holds, especially when the related consequences occur in the distant future and are temporally and conceptually distinctive (Yadav et al., 2007). This finding indicates that attention that is directed toward specific categories can conceptually and temporally support distant search. Thus, decision alternatives that arise on the agenda of decision makers can be far reaching, unlike in normal problemistic search, which is typically local (Cyert and March, 1963). One should not overlook the organizational level because the items on the agenda of top decision makers tend to be relevant within the entire organization. However, prior research on the effects of the

organizational component of attention remains sparse. Nevertheless, organizational structure and hierarchy have been shown to affect search behavior and the manner in which problems are framed (Jacobides, 2007). Furthermore, the stability, vividness, and coherence of attention patterns that are directed toward a specific category have been shown to be relevant in identifying focal issues from the environment and in affecting the ability of organizations to learn from rare events (Rerup, 2009).

The performance implications of attention have also been addressed in previous literature. In their simplest form, such studies consider the role of attentional orientation in adaptive change. The attentional orientation of top decision makers is one factor that influences adaptive change in organizations, and the effect on adaptive change is greatest when it is properly aligned with organizational-level capabilities and incentive structures (Kaplan, 2008). The relationship between attention toward category and organizational performance is not necessarily linear. Indeed, in a prior study, the international attention that a foreign business unit received from the central organization had a curvilinear relationship with its performance, which reveals the existence of an optimal level of attention (Bouquet et al., 2009). There is also evidence that the association between individual-level attention and firm-level performance depends on the environment. In dynamic environments, high performance has been associated with the attention of CEOs toward innovation-related functions, whereas in stable environments, attention to efficiency-related functions has been found to be associated with higher performance (Garg et al., 2003). Furthermore, surviving firms have been shown to devote attention to the relevant characteristics of their external environments, whereas failed firms tended to be more concentrated on internal factors during periods of declining demand (D'Aveni and MacMillan, 1990). These findings indicate that attention to specific categories can help to balance short-term efficiency and long-term adaptation requirements set by the environment.

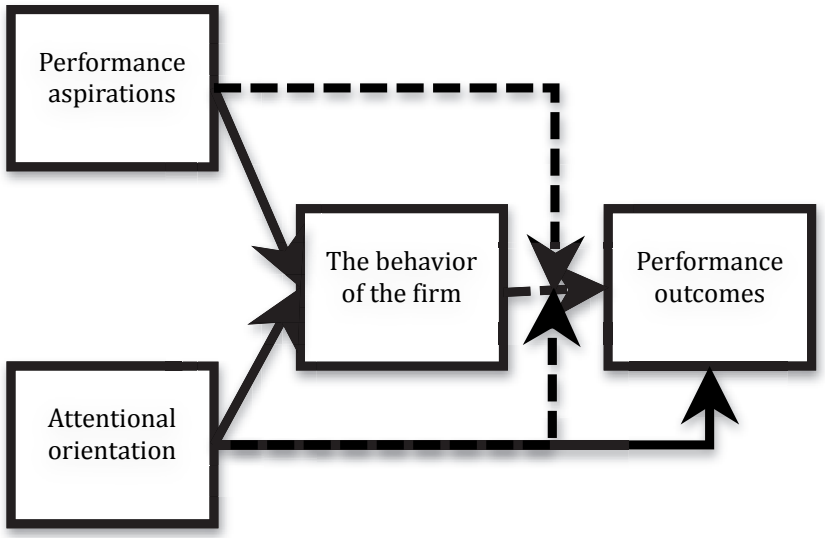

Figure 4. Positioning of the dissertation in relation to the BTOF literature. Dashed lines indicate the identified gaps in the literature.

Given the research that has been conducted on performance aspirations and attention, it is notable that most of the empirical work advancing "behaviorally plausible decision-centered perspective of organizations" (Gavetti et al., 2007) has concentrated on explaining the behavior of organizations rather than the performance consequences of specific behavior. It has remained less clear *how* different aspiration levels affect the performance of the selected alternatives. Recent theoretical work has begun to address the attention-performance link in greater detail, offering some explanations. For instance, Gavetti (2012) argued that superior alternatives tend to be cognitively distant. As problemistic search is local, paying attention to specific categories can help decision makers to better identify distant solutions that are novel and less competed and can thus provide superior performance. In addition, the allocation of attention also defines which aspiration levels are addressed and thus influence the acceptance of risk-seeking behavior. Accepting alternatives that are inherently more risky can widen the scope of the search and thus increase the likelihood of selecting a distant alternative. Nevertheless, the question remains as to the role of attention in the ability of firms to actually succeed in the goals that they attempt and aspire to achieve (Winter, 2012).

In this dissertation, I address the gaps in behavioral theory by testing central hypotheses derived from the framework in the context of serial acquisitions. Acquisitions represent a specific type of action that firms can take as a response to performance shortfalls, and the tasks of screening acquisition targets and executing their integration involve a long decision-making process in which several decision alternatives are often considered

partly based on the issues to which organizations pays attention. The next section briefly reviews the literature on serial acquisitions and discusses mechanisms that affect the search process and acquisition performance.

2.2 Behavioral Theory as a Perspective on the Performance of Multiple Acquisitions

On average, acquisitions tend to lead to negative performance implications for acquirers (Haleblian et al., 2009; King et al., 2004), but these performance outcomes can vary greatly (Agrawal and Jaffe, 2001; Agrawal et al., 1992; Billett et al., 2004; Cartwright and Schoenberg, 2006) and can be explained by various factors. For instance, a firm's prior performance and praise in the media can lead to managerial hubris and overbidding on acquisition targets (Hayward and Hambrick, 1997), or expected synergies can fail to be realized because of integration difficulties arising from a relatively large size (Ahuja and Katila, 2001; Cloodt et al., 2006), the underlying tacitness and social complexity (Ranft and Lord, 2002) of the acquired knowledge base, an improper balance between integration and autonomy (Graebner, 2004), or the overconsumption of resources (Hitt et al., 1991).

A narrower stream of research that is specifically focused on serial acquisitions has painted a similar picture of acquisition performance. In serial acquisitions, multiple individual acquisitions are interdependent, and in principle, they provide decision makers with a greater number of opportunities for learning from prior experience. Perhaps counter-intuitively, prior research has found consistent evidence of the general trend of declining cumulative abnormal returns (CARs) for subsequent acquisitions (Aktas et al., 2011, 2009; Finkelstein and Haleblian, 2002; Fuller et al., 2002); that is, the performance of the following deals declines. From the learning perspective, negative transfer effects provide one explanation for this observation. Inexperienced acquirers can falsely generalize from their previous experience with acquisitions to a context in which such experience is not applicable, and it is time consuming to build the necessary routines and understanding to apply previous knowledge properly (Haleblian and Finkelstein, 1999). This observation is further supported by findings that acquisitions that are similar to previous acquisitions tend to yield better performance (Finkelstein and Haleblian, 2002). When the environment and transaction characteristics remain the same, practices that are drawn from prior experience can be useful, and negative transfer effects can be less significant. Although the problemistic

search for alternatives can be myopic, the evaluation criteria that decision makers base on their previous experience are more likely to be valid.

The highest performance has also been linked with moderate similarity between an acquirer and target (Hayward, 2002). This idea is based on the logic that moderate similarity between targets enables the formation of complementarities while providing the required absorptive capacity to assimilate and apply prior knowledge (Barkema and Schijven, 2008a; Cohen and Levinthal, 1990; Hayward, 2002). An acquired knowledge base can be difficult to assimilate, as it requires the acquiring firm to possess sufficient absorptive capacity to digest this knowledge, depending on the size and content of the acquired knowledge base (Ahuja and Katila, 2001; Cloodt et al., 2006). Consistent with the logic underlying absorptive capacity, moderately related knowledge bases that substantially overlap with a firm's existing knowledge base but are sufficiently different to generate new combination potential via complementary skills (Kapoor and Lim, 2007) and technology elements (Cassiman et al., 2005; Makri et al., 2010) have been shown to improve the innovativeness of acquiring firms (Ahuja and Katila, 2001; Cloodt et al., 2006). This combination potential has been linked to the radical renewal of innovation capability, whereas similarities in knowledge bases can assist with incremental changes (Makri et al., 2010). This link suggests that acquisitions can affect the type of innovations that firms undertake. Indeed, individual acquisitions have also been shown to improve the innovation quantity of merged firms while reducing the novelty and generality of the produced innovations (Valentini, 2012).

Acquiring complementary knowledge and capabilities is not without disadvantages. Although acquisitions can expose the acquiring firm to a diverse set of new knowledge (Hitt et al., 1996), acquisitions can also divert resources away from alternative uses, such as internal R&D projects, and can thus hamper innovation activities (Ahuja and Katila, 2001; Cloodt et al., 2006; Hitt et al., 1991). Acquisitions are also accompanied by a risk of disturbing the existing innovation routines of the acquiring firm (Puranam et al., 2003), which is especially problematic when the acquired knowledge base is large relative to the existing knowledge base (Ahuja and Katila, 2001; Cloodt et al., 2006). Furthermore, acquisitions can have the same disrupting effect on the innovation routines of the acquired firm by, for instance, modifying incentive systems (Kapoor and Lim, 2007) or increasing employee turnover (Siegel and Simons, 2010), which are less likely to occur in the context of larger acquisition targets (Kapoor and Lim, 2007). This observation suggests that greater overlap in routines between

an acquirer and acquired target improves innovation productivity (Kapoor and Lim, 2007).

The serial acquisition process is also relevant to performance. Specifically, timing and coordination within the acquisition pattern have been shown to be relevant. Serial acquisitions perform better when the amount of time between acquisitions is moderate to allow sufficient time to learn from prior experience (Hayward, 2002). A high frequency and unpredictable rate of acquisitions within the pattern has been shown to negatively affect the outcomes of acquisitions (Laamanen and Keil, 2008). An excessively high rate of acquisition can also be harmful for performance by causing a form of "indigestion" in which an organization's capacity to integrate targets is limited (Kengelbach et al., 2012) and because firms also need sufficient time to deliberately articulate and codify the related experiences in developing their acquisition capabilities (Zollo and Singh, 2004; Zollo and Winter, 2002). Furthermore, unpredictability and highly discontinuous patterns can hinder acquisition capabilities when an experience becomes too old, as its value and relevance decays over time (Meschi and Métais, 2011). Indeed, prior research has shown that the pattern type and rhythm of acquisitions are linked with performance (Shi and Prescott, 2011). The positive effects of consistency and coordination in acquisition patterns are further supported by the evidence that negative performance implications are less severe when acquisitions are part of a coordinated program (Laamanen and Keil, 2008) or synchronized with alliance initiatives (Shi and Prescott, 2012). However, the underlying mechanisms that help to achieve synchronization and coordination are less understood.

A decision maker's expectations regarding their abilities to select and correctly valuate potential acquisition targets constitute an additional challenge (Jemison and Sitkin, 1986). Prior research has identified managerial hubris as an important contingency explaining the performance of serial acquisitions. Managerial overconfidence can cause a propensity to overbid on acquisition targets, especially when firms depend on acquisitions as a growth strategy (Kim et al., 2011), or decision makers can become overconfident regarding their ability to integrate acquisition targets (Kengelbach et al., 2012). Research findings suggest that such hubris is not reduced by learning from one's own experience but the experience of outside advisors (Kim et al., 2011). Prior experience with extreme outcomes is most likely to lead to overconfident judgments (Griffin and Tversky, 1992). This effect has also been observed in the context of serial acquisitions. Prior research has provided evidence that managerial overconfidence caused by previously experienced positive performance is

one factor potentially explaining the declining performance in serial acquisitions (Aktas et al., 2011).

In view of the empirical findings regarding declining financial performance in serial acquisitions, it is worth noting that most of the prior evidence is based on market-based measures, whose validity has been questioned in contemporary research (Zollo and Meier, 2008). It is also possible that the market has already priced in the expected acquisition performance before a deal is accomplished; indeed, some research has proposed that most differences in serial acquisition performance can be treated as measurement artifacts (Jindra and Walkling, 2004).

Taken together, prior research has provided comprehensive evidence that acquisitions and acquired knowledge bases have significant effects on the performance of acquiring firms, but we do not yet fully understand the mechanisms that explain a firm's ability to innovate via acquisitions or to learn to conduct serial acquisitions successfully. Surprisingly, studies concentrating on the performance implications of organizational attention and performance feedback have been scarcely applied in this context. Although prior research has shown that resource allocation and disruption, as well as the incompatibility of routines, can hamper acquisition performance, less is known about how to manage them properly. Because focused attentional orientation can drive resource allocation and affect which practices are deemed legitimate at the lower levels of organization, this orientation may offer one perspective from which to address this gap. Furthermore, an attentional orientation can be useful in the coordination of actions and thus offers a potential mechanism with which to influence timing and synchronization of acquisitions within an acquisition pattern.

3 DATA AND METHODS

From an empirical perspective, this dissertation addresses both the performance implications of acquisition programs and the underlying acquisition behavior. In this chapter, I discuss the chosen research design and address the choices that have been made with regard to empirical context, data sources, and modeling approaches.

3.1 Data

The empirical part of the study is based on a sample of US information and communication technology (ICT) firms over the 1997-2011 period. The ICT industry[1] encompasses computer and office equipment, communications equipment, electronic components, telephone communications, telegraph and other message communications, and computer programming, and I obtained information for all the companies whose 1997 revenue was greater than 1 billion USD. In general, all three essays address change, either by explaining the change in performance that is caused by the behavior of a firm or by describing how changes in performance explain subsequent behavior. This study warrants an empirical approach utilizing panel data because such a design enables one to better address the direction of causation. All three essays also consider acquisitions to be strategic actions and the focal element of firm behavior. Thus, the ICT industry and large established companies constitute a suitable empirical context because acquisitions are a commonly used tool for build technological capabilities in such companies and industries. Furthermore, the setting is especially appropriate for studying the building of technological capabilities via acquisitions because the sample consists of large companies that are

[1] The industries were defined based on their three-digit standard industrial classification (SIC) codes: 357 (computer and office equipment), 366 (communications equipment), 367 (electronic components), 481 (telephone communications), 482 (telegraph and other message communications), or 737 (computer programming)

primarily serial acquirers: 95.9% of the acquiring companies had engaged in multiple acquisitions after 1997.

The two goals of the essays are to understand the performance implications of serial acquisitions and to contribute to the stream of research building on the BTOF (Gavetti et al., 2007). Regarding the latter, the emphasis is on the role of attention (Ocasio, 1997) and aspiration levels (Cyert and March, 1963; Greve, 1998) and on testing how these aspects affect the acquisition behavior and the performance of acquisition programs. Essay 2 tests the idea that attention toward exploration and previous acquisition experience help acquirers to overcome the difficulties of using large acquired knowledge bases for improving innovation activities. This investigation requires data on (1) innovation performance, (2) acquired knowledge bases, (3) previous experience of technology acquisitions, and (4) management attention. Essay 3 tests how the performance implications of serial acquisitions depend on the surrounding conditions under which they are chosen as the preferred action. More specifically, the paper argues that acquisitions that are conducted in the context of performance shortfalls tend to perform better – as do acquisitions that are conducted when entrepreneurial orientation is the prevailing type of attention. This argument also requires the use of data on (5) acquisition performance and (6) performance shortfalls. Operationalizations and related data sources are discussed next.

Patents are used to measure innovation performance, which is a commonly applied approach in prior research (Cloodt et al., 2006; Lahiri, 2010; Stuart and Podolny, 1996; Valentini, 2012; Whittington et al., 2009; Yayavaram and Ahuja, 2008). Patent data were extracted from Harvard Patent Network Dataverse (Lai et al., 2009) and complemented with National Bureau of Economic Research (NBER) patent files (Hall et al., 2001) to link the data to Compustat, which forms comprehensive source of patent data[2]. Innovation performance was operationalized as the number of forward citations that companies' granted patents received (Dushnitsky and Lenox, 2005). Because the number of citations depends on the age of the patent, a four-year time window was used to ensure comparability among patents. Citations received during the first four years are a reasonable proxy for the quality of patenting output because the value of a patent is typically known in that time period and because 90% of all patents are granted within four years of application (Griliches, 1990). This context resulted in limiting the

[2] The data include all US patents that were granted from 1975 to the beginning of 2010. The majority of these patents are matched with unique assignee numbers that can be linked with Compustat files. The coverage is better for larger firms, and it is unlikely that there are significant missing values regarding the patenting output of ICT firms, especially for the years from 1997 to 2006.

sample to the 1997-2006 period to avoid right-hand censoring because the available patent citation data did not cover the years from 2010 to the present.

Acquired firms are, in general, relatively small compared to the acquirers. When measuring innovation performance, I am interested in how acquisitions change acquiring firms' patenting activities. Here I followed Ahuja and Katila (2001) and concentrated on the patenting output of the acquired firm after the acquisitions, and included a control variable that takes into account the prior patenting propensity when the firm enters in the sample to isolate the external impact of acquisitions.

To measure the acquired knowledge base, I followed the approach of Ahuja and Katila (2001) and operationalized the acquired knowledge base as the number of acquired knowledge elements. A knowledge element refers to any patent granted to the acquired company or cited by such a patent. I identified all majority acquisitions conducted by the focal ICT firms using the SDC Platinum data. First, acquired firms were matched with the patent data using the existing NBER link tables[3]; then, the remainder of the entries were checked manually by comparing the name of the acquired company to the list of names of all patent assignees. The resulting pool of patents and their citations was considered a proxy for the size and complexity of acquired knowledge bases. The patent data were not checked separately against USPTO's patent reassignment data, and it is possible that some of the patents could have been reassigned to another legal entity before the acquisitions. However, this limitation is unlikely to be a biasing factor because of two reasons. First, the data in this dissertation consider majority acquisitions, and many reassignments in the USPTO data result from such events. Second, patents are only a proxy for the acquired knowledge base that partly resides in the memories of individuals, organizational structures, and practices (Cohen et al., 1996). All identified patents have been at least part of the knowledge base of the acquired firm at some point, and even if the patent itself was not transferred, the related knowledge can still be present in the acquired organization.

Another one of the key variables in Essay 2, previous acquisition experience, was measured as the cumulative number of majority acquisitions that each firm had completed during the previous years. All acquisitions were identified using the SDC Platinum database, which is a comprehensive source of acquisition data containing deals listed in SEC filings, trade journals, or news publications after 1992, regardless of the size

[3] Files match.csv [http://data.nber.org/patents/match.zip], dynass.dta [http://www.nber.org/~jbessen/dynass.dta.zip], and pdpcohdr.dta [http://www.nber.org/~jbessen/pdpcohdr.dta.zip]

of the deal. Because the sample firms are large, primarily public companies, SDC is likely to contain nearly all relevant acquisitions for the years of interest. As the relevance and value of the related experience are likely to deteriorate over time (Ingram and Baum, 1997; Kim et al., 2011), the age of experience was applied as a discounting factor to give more weight to recent experience. For every firm-year, a minimum of eight previous years of acquisitions were considered when forming the measure of acquisition experience. This approach renders the minor difference resulting from the left-hand censoring of acquisition deals negligible in practice.

To capture attentional orientation, I utilized computer-assisted textual analysis (CATA) of documents, namely, LTSs. Automated content analysis of LTSs has been widely used in strategy research to measure management cognition (Abrahamson and Hambrick, 1997; Eggers and Kaplan, 2009) and top-management attention (Cho and Hambrick, 2006). The underlying idea is that LTSs reflect issues and actions that management deems relevant to a firm's strategy, thereby offering a proxy for organizational attention. A shareholder letter is not published unless top management accepts its content because an LTS can be a part of an annual report, and management can be held legally responsible for the statements that are presented within a firm's official documents.

The word lists that were used to identify the focal concepts are based on previously validated dictionaries. Attention to exploration and exploitation was based on the classic original definitions of March (1991), who considered exploration and exploitation on a continuum ranging from explorative actions related to "search, variability, risk taking, experimentation, play, flexibility, discovery, [and] innovation" to exploitation that emphasizes "refinement, choice, production, efficiency, selection, implementation, [and] execution." This dictionary and the related algorithm that was used have been previously implemented as a generic measure of exploration/exploitation behavior and were empirically validated by Uotila et al. (2009) using a comparable sample (S&P 500 manufacturing firms). The entrepreneurial orientation concept is based on the definition of Lumpkin and Dess (1996), who defined it as the "methods, practices and decision making styles" of managers related to various actions, such as the "propensity to act autonomously, a willingness to innovate and take risks, and a tendency to be aggressive toward competitors and proactive relative to marketplace opportunities". I used the dictionary created by Short et al. (2010), who demonstrated its validity in a similar empirical context. The availability of LTSs establishes some limits on the sampling frame. LTSs are available primarily for large publicly traded firms that use them to communicate with shareholders, potential

investors, and analysts. The coverage of LTSs in available databases (Lexis-Nexis, Mergent Annual Reports, and Morningstar Document Research Global Reports databases) and direct company sources (archived company websites) was found to be insufficient before 1996, which caused the limiting of the samples in Essays 2 and 3 to avoid creating systematic bias resulting from missing data.

Essay 3 explains acquisition performance and is specifically concerned with the performance of acquisition programs. Return on sales (ROS) was chosen to measure the performance of acquisitions for the following two reasons. First, this study examines the performance of acquisition patterns rather than individual acquisitions, which favors the choice of a longer-term organization-level measure (Laamanen and Keil, 2008). Second, accounting-based measures have been shown to correlate with other financial and survey-based measures of overall acquisition performance, whereas event study metrics based on short-term time windows have been found to be independent from other measures (Zollo and Meier, 2008). The performance data were obtained from the Compustat database.

3.2 Analytical Models

Essays 1 and 2 predict acquisition and divestment rates and patenting quality, as measured by the number of accumulated citations. Negative binomial panel regression models were chosen because the dependent variables are count variables. The negative binomial method was favored over Poisson regression because the former does not require the assumption that the variance of the dependent variable is equal to its expected value. Overdispersion commonly occurs in both patent data (e.g., Whittington et al. 2009) and acquisition data (e.g., Hagedoorn & Sadowski 1999) and was also found to be present in the data sets of this dissertation.

Essay 3 explains the firm-level performance outcomes of acquisitions. To better isolate the firm-level effect, a lagged dependent variable was included in the models to control for unobserved heterogeneity. Although a traditional fixed-effect ordinary least-squares (OLS) estimator would correct for unobserved group-level heterogeneity (Gormley and Matsa, 2012), it would not address the potential omitted variables that could be correlated with explanatory variables over years. This consideration lead to the choice of dynamic panel models implementing Arellano-Blundell-Bond estimators (Arellano and Bond, 1991; Blundell and Bond, 1998) to handle the non-exogenous lagged performance variable, which is allowed to be independent from current disturbances but not previous disturbances (Roodman, 2009).

Essay 3 contains one potential source of systematic sampling error resulting from the measure of the specific attentional orientation, which is based on LTSs. Specifically, LTSs were available for 81% of firm-years during the 1997-2011 period. The firm-years with missing LTSs were, on average, more profitable and had larger revenues. Therefore, to address the potential systematic error resulting from missing observations, I implemented Heckman correction (Heckman, 2000, 1979) as an additional robustness check. The first-stage model predicted the propensity to have LTSs available, and the inverse Mill's ratio was included in the second-stage model.

In Essays 1 and 3, aspiration variables create an additional challenge for the use of regression models, as both behavioral theory (Cyert and March, 1963) and prospect theory (Tversky and Kahneman, 1992, 1974) predict that decision makers' reaction to performance feedback differs depending on whether the expected performance is above or below the desired level. This prediction is problematic because simple regression models generally treat the parameter estimate as fixed (i.e., the estimated regression coefficient is the same for all values of the independent variable). To account for this issue, prior research (Audia and Greve, 2006; Baum et al., 2005; Gaba and Bhattacharya, 2012; Greve, 2011, 2003, 1998; Miller and Chen, 2004) has used spline functions to rescale aspiration variables because this approach allows the slope of the regression line to differ above and below the chosen thresholds. A spline function splits the focal variable into two or more separate variables, which each contain values of the original variable that are between the specified knots (see, e.g., Greene & Zhang 2003). I conducted the transformation based on one knot because the performance equal to aspiration is the only theoretically relevant threshold. Thus, the first variable consisted of values that were below the chosen threshold and were rescaled to the range unit length, whereas the values above the threshold were set to zero. The second variable contained all of the below-threshold values set to zero, and the above-threshold value was scaled to the unit length.

4 FINDINGS AND CONTRIBUTIONS

4.1 Behavioral Implications of Performance Feedback

The first subquestion addresses the role of transaction type in responses to performance deviations, and this issue is analyzed in Essay 1. In general, the findings of Essay 1 provide support for the idea that, contrary to suggestions from prior research (Iyer and Miller, 2008; Shimizu, 2007), acquisitions and divestments follow a different causal logic as strategic responses even though both are triggered by performance shortfalls. The first hypotheses, which were derived from the BTOF, stated that performance shortfalls would increase a firm's willingness to engage into risky actions; therefore, both the acquisition and divestment rates should increase as performance continues to fall further below the aspired level. However, only the prediction regarding divestment rates received support, whereas acquisition rates actually decreased. This finding shows that when several decision alternatives are considered simultaneously, both the risk inherently associated with the strategic action and the action type have important roles in the behavioral outcome. Here, it is relevant to consider the empirical context of the study. All of the firms in the sample are large ICT companies for which both actions were likely to be feasible alternatives: one would typically expect large firms to possess the resources that are needed to address performance shortfalls by acquiring technology or divesting for efficiency. This finding suggests that theorizing on the behavioral implications of performance feedback on the level of risk-containing transactions can result in oversimplification and that the decision context should be considered.

Furthermore, the relevance of the type of action is further reinforced by the findings considering the role of slack. The results of Essay 1 provide support for the hypothesis that the slack resources of firms have the expected direct effect on behavior: slack increases acquisition rates and decreases divestment rates. Interestingly, when one examines the effect of the interaction between slack and performance deviations, the results again differ between acquisitions and divestments. Performance shortfalls

increase divestments rates with low levels of slack, but acquisition rates are unaffected. Nevertheless, high levels of slack do increase acquisition frequency when performance is above the aspired level.

Taken together, these findings suggest that performance deviations both decrease and increase risk-seeking behavior and that the effect depends on the type of transaction. Decision makers appear to prefer acquisitions as a response when they do not confront pressure to acquire, whereas divestments are more likely to be undertaken when firms have less flexibility. This finding is consistent with the buffering effect found by Audia and Greve (2006), but it is not contingent on the size of a firm. Because all of the sample firms are large ICT companies, the risk of bankruptcy is unlikely to be relevant, as reported by Iyer and Miller (2008); thus, in this context, there may be other reference points apart from survival that are competing with performance aspirations.

Interestingly, the results suggest that behavioral outcomes depend on how the reference point for aspirations is defined. Prior research has cited evidence that the effect is typically consistent over a wide band of recursively defined historical aspirations (see, e.g., Greve 1998, pp.73, 80) but can sometimes differ in significance between historical and social comparisons (e.g., Audia & Greve 2006, p.90). However, the results of Essay 1 regarding the social comparison group suggest that the aspiration-behavior link also depends on the narrowness of the peer groups that are subjected to such social comparisons.

Essay 1 provides a theoretical contribution to the performance aspiration literature by showing that the common category of risky action can be too abstract to allow for theorizing on the behavioral implications of a problemistic search. The findings suggest that the boundary conditions for applying behavioral reasoning may be more fine grained than previously assumed, and research should pay more attention to the available choice sets and strategic positions of firms when considering a response to performance deviations. Furthermore, Essay 1 also makes an important empirical contribution by testing the central hypothesis derived from the BTOF framework with large-scale panel data and by showing that the support for predictions differs based on the transaction type and the manner in which aspiration levels are formed through social and historical comparisons. The results also indicate that an appropriate sensitivity analysis is warranted when the operationalization of performance aspirations is based on the best fit with the data (Greve, 2008, 2003). By implementing propensity score matching to form reference groups, Essay 1 also introduces an important methodological contribution to the literature on the behavioral implications of performance aspirations.

4.2 Performance Implications of Attention

The second subquestion addresses the role of attention allocation in the performance of chosen strategic actions. This role is investigated in the empirical context of acquisitions of large US ICT companies. In general, the empirical findings of Essays 2 and 3 show that attentional orientation influences organizational performance through both the direct effect and its moderating role on the strategic actions of firms.

The findings of Essay 2 provide support for the hypothesis that attentional orientation toward a specific category, *exploration*, has a direct positive effect on the innovativeness of firms. Furthermore, Essay 2 shows that an exploration orientation can help to overcome difficulties related to the use of acquisitions to build innovation capability in those situations in which the acquired firm has a relatively large technological knowledge base. However, the positive effect of exploration orientation on innovation via acquisitions that contain large knowledge bases is strongest when a firm has prior experience on acquisitions. Similarly, the findings of Essay 2 show that attention toward another category, *exploitation,* has positive performance implications for the innovativeness of a firm when the acquired knowledge base is not large and the firm already has prior experience with acquisitions. Essay 3 concentrates on attentional orientation toward another category: the entrepreneurial orientation. The findings of Essay 3 show that acquisition programs that are conducted when the attentional orientation of a firm emphasizes entrepreneurship tend to perform better.

Taken together, these findings suggest that specific categories of attentional orientation have performance implications for firms, as they shape the focus of the attention at lower levels of the organization and therefore affect how actions are executed and what resources are provided. That is, the performance of the actions and their execution appears to be contingent on attentional orientations. It is important to note that the effect is not necessarily caused by the choice of specific actions (i.e., which acquisition targets are selected) but may result from longer-term effects regarding the manner in which such actions are implemented. Attentional orientation can affect the later treatment of acquired firms, including the resources that they receive and the degree of autonomy that they are given by the parent firm. In addition, the effects of imprinting can be present. An acquiring firm's strategic intent and motives for the acquisition during a transaction can affect expectations that are formed in the acquired target.

These findings are relevant for the BTOF for several reasons. First, the findings of Essays 2 and 3 indicate that through their attention to specific topics, decision makers can influence how effectively their organization implements certain actions, which can affect the performance outcomes of complex activities. Prior research building on behavioral theory has emphasized the role of sequential attention (Greve, 2008). However, the findings of this dissertation indicate that not only the sequence but also the content of attention can be relevant for understanding its performance implications. Second, the findings regarding the interaction of experience and attention constitute an important contribution because they indicate that understanding the performance implications of attention may also require consideration of the underlying routines and structures that are formed by prior experience. The findings show that performance is contingent on matching the complexity of a strategic action with a specific attentional orientation – which can be considered a prevalent and dominant strategy (Mintzberg, 1978; Ocasio, 2011) – and capability that is formed via prior experience.

In addition, Essays 2 and 3 offer empirical contributions to the acquisition literature by showing that firm-level exploration, exploitation, and entrepreneurial orientations can be important contingencies for understanding the performance of individual and serial acquisitions. Furthermore, these results are relevant from the methodological perspective because they show that automated textual analysis can be successfully applied to the study of attentional orientations using LTSs (Short et al., 2010) in the context of acquisitions.

4.3 Performance Implications of Performance Feedback

The third subquestion pertains to the performance implications of performance feedback on the chosen strategic transactions, and this question is addressed in Essay 3. More specifically, Essay 3 concentrates on examining how acquisitions perform when they are conducted during a time period in which performance differs from the aspired level. The results of Essay 3 provide support for the hypothesis that performance shortfalls moderate the role of acquisition frequency in the performance of acquisition programs such that the effect of a high acquisition rate is positive when the performance falls significantly below the aspired level.

This finding indicates that the performance of acquisition programs is highly context specific and depends on the environmental pressures that a firm confronts. As reasoned in the BTOF, performance shortfalls trigger problemistic search through which decision makers attempt to correct

organizational performance to return to the aspired level, and greater attainment discrepancies lead to more intense search and higher accepted risks of the decision alternatives. This statement suggests that decision makers are more willing to spend additional resources on finding suitable acquisition targets, may feel more urgency in acting with the use of these resources, and may provide more resources for the chosen strategy. This increased willingness can enable faster integration or, alternatively, better resources while continuing to be structurally separated. The findings of Essay 3 offer an important contribution, as this essay documents the *performance* consequences of performance feedback, which have been studied far less than the respective behavioral outcomes.

Essay 3 also contributes to the serial acquisition literature by introducing a new contingency and mechanism that can explain the performance of serial acquisitions. This contribution is relevant because prior research has shown that second acquisitions underperform initial acquisitions (Hayward, 2002) and that high rates have negative performance implications (Aktas et al., 2011; Finkelstein and Haleblian, 2002) that can impede learning because of the insufficient time to learn between actions or indigestion (Laamanen and Keil, 2008). One explanation for these differences between the findings of Essay 3 and prior research is that performance shortfalls could improve learning from prior acquisitions by forcing firms to learn. That is, as the problemistic search is in effect during the acquisition program, decision makers can be more active in deriving lessons from previous actions. Thus, complex strategic actions may not need to be similar to enable learning; they may only need to be attended actively.

5 DISCUSSION

5.1 Implications for Behavioral Theory

This dissertation has concentrated on understanding the performance consequences of performance aspirations and attention. Most of the prior research that directly builds on the work of the Carnegie school (Cyert and March, 1963; March et al., 1958; Simon, 1947) has concentrated on understanding the behavior of firms. However, recent theoretical and empirical work in this stream of literature (Barreto, 2012; Gavetti, 2012) has also begin to address the performance aspect and the prospects that it offers for advancing the BTOF. The general contribution that this dissertation offers to the literature is to show that the performance of a pattern of actions depends not only on the content of those specific actions but also on the underlying reasons of why and under which conditions the specific pattern was chosen. Essays 2 and 3 directly show that specific patterns of attention and performance aspirations that are present during the selection and execution of transactions affect their performance implications. Furthermore, analyzing the dynamics between firm performance and behavior is highly relevant for understanding the performance of specific strategic actions. In practice, managers always choose strategic actions that they expect to generate positive performance implications. Concluding performance based on the realized outcomes involves the inherent risk that any realized outcome is contingent on the a priori expectation of high performance. Indeed, this endogeneity problem has long been recognized as a significant challenge for empirical research on strategy or any field of social science (Bascle, 2008; Hamilton and Nickerson, 2003; Morgan and Winship, 2007), with the practical implication that observing only the pattern of realized actions can lead to biased assessment of their effects. Although selection equations (Heckman, 1979) are the commonly known and applied solution to correcting this problem in empirical research, they still require one to identify the source of endogeneity, which further emphasizes the importance of understanding the contingencies that affect the selection and treatment outcomes.

From the BTOF perspective, Essays 2 and 3 make an important empirical contribution regarding the performance implications of attention by analyzing specific categories of organizational attention. Empirical research on the performance implications of attention remains scarce, but important findings regarding the relationship between managerial and organizational-level attention to specific categories and performance exist: for instance, a parent organization's international attention has been shown to affect the performance of subsidiaries that are located outside of the home country (Bouquet et al., 2009). Furthermore, prior research has identified the attention of management toward future and conceptually distant events as a relevant driver of innovation (Yadav et al., 2007). This dissertation identifies two important related categories of attention: the exploration-exploitation balance driving innovation performance and the entrepreneurial orientation affecting the financial performance of serial acquisitions. The finding of an *organization's* attention to exploration having a positive effect on innovation supports the work of Yadav et al. (2007) regarding attention on an individual level, as exploration is related to the "pursuit of new knowledge" and "things that might become known" (Levinthal and March, 1993) and is often identified with distant search (Katila and Ahuja, 2002). This finding provides support for the conceptualization of Ocasio (1997) that attention should be considered a multi-level construct and that attentional orientation toward specific categories has an influence at both the individual level (i.e., through the schemas of decision makers) and organizational level (i.e., the structure directing communication). Furthermore, these findings show that concentrating on different attentional categories that are conceptually closely related to the outcome to be explained is relevant for understanding firm performance.

Perhaps the most important implication that this dissertation offers to the BTOF stream of literature is the examination of the interplay between experience and attention. Prior research on attention at the organizational level has revealed the characteristics of attention, such as vividness and stability of patterns (Rerup, 2009), and organizational hierarchy (Jacobides, 2007) as relevant to how problems are framed and how focal issues are identified, which influence an organization's ability to learn from rare events (Rerup, 2009). However, organizational attention pertains to controlled rather than automatic information processing (Levinthal and Rerup, 2006), which makes the routines that are created through prior experience a natural counterpart that should be considered. The relevance of the interplay between attention and experience is reflected in the findings in Essay 2 that an attentional orientation toward exploitation is

most beneficial for innovation when the acquired knowledge bases are not large and when a firm has prior experience on how to leverage acquisitions for innovation. Furthermore, when a firm has the intent of exploitation (i.e., utilizing existing knowledge efficiently) and the acquired knowledge bases offer incremental renewals to the existing knowledge base of the firm, subsequent innovation performance is enhanced, given that the firm has prior experience on acquisitions. These findings suggest that the routines and cognitive frames from prior experience influence how firms interpret the environment and process relevant knowledge and are thus relevant contingencies to consider for the performance outcomes of attention. Moreover, these results emphasize the need to achieve an appropriate fit with attention, reflecting the underlying strategic intent, task characteristics, and existing routines of a firm: when technology-based acquisitions are used as a mechanism for innovation, the strategic intent of exploration and prior experience are needed to successfully handle a complex task – that is, leveraging large acquired knowledge bases.

The findings of this dissertation are important for the BTOF by providing a further understanding of the firm behavior that is triggered as a reaction to performance shortfalls (Bromiley, 1991; Greve, 1998; Lant, 1992). Prior empirical research has provided mixed empirical findings regarding the increase of both risk-taking (Greve, 1998; Ketchen and Palmer, 1999; Shimizu, 2007) and risk-averse (Audia and Greve, 2006; Iyer and Miller, 2008; Wiseman and Bromiley, 1996) behavior. Although the evidence for the existence of the aspiration-behavior relation is strong, the exact form and contingencies of this relationship remain an open question (Shinkle, 2012). Indeed, the conflicting findings have commonly been explained by different functional forms of the relation (Greve, 1998; Shimizu, 2007) or by the role of multiple competing aspirations (Audia and Greve, 2006; Greve, 2008; March and Shapira, 1992). The findings of this dissertation show that performance shortfalls imply either risk-seeking or risk-reducing behavior depending on the set of viable actions that a firm has simultaneously available. That is, the results are contingent on both the inherent risk that a decision alternative contains and the type of action that is chosen. This finding provides an alternative explanation for the previously observed mixed findings by emphasizing the idea that the acceptance of risk is highly dependent on the decision-making context (Sitkin and Pablo, 1992). Prior empirical research has been conducted in multiple settings, such as market entries (Greve, 1998) and investments in R&D (Greve, 2003) and manufacturing (Audia and Greve, 2006). The findings of this dissertation suggest that the role of the decision-making context may have been underemphasized in prior research and that

different decision alternatives may not generally be commensurable as risky actions. This result indicates that abstraction to the level of risky actions can be an oversimplification and that more fine-grained mid-level theorizing that accounts for the characteristics of available actions and the decision-making context is warranted. As performance shortfalls can trigger multiple actions, concentrating only on risk tolerance and the expected performance of certain types of actions can result in excessive generalization that prohibits adequate predictions regarding the actual behavior of a firm. That is, the next step to increase the predictive power of behavioral theory should involve a consideration of the wider set of different decision alternatives from which decision makers can choose. Knowing that a firm is more likely to execute risk-containing transactions as a reaction to a performance deviation is less accurate – and less relevant for managers – than being able to understand which type of risky transactions are more likely to be chosen as a response.

The results of the first essay offer insights on the formation of aspiration levels, which is still one of the open questions in the performance feedback stream of literature. Prior empirical research has considered both the individual and combined role of social and historical comparison as the basis for forming focal references points for decision makers (Baum et al., 2005; Greve, 2003, 1998) as well as the sequence in which aspired levels are achieved (Greve, 2008). However, this formation is often considered an empirical issue, and the parameters of the combined models have been based on the best fit with the data and a reliance on the robustness of the results over a wide range of parameter values (e.g., Greve 2003). The results of Essay 1 provide further evidence that from the BTOF perspective, combining social and historical aspiration levels to a one-dimensional function is not a straightforward choice, as the results differ between aspirations that are based on social and historical comparisons. Furthermore, the results also depend on how a social comparison group is formed. More specifically, the narrowness of the comparison group leads to different outcomes, and results are most consistent with behavioral reasoning when the comparison group is narrow. This finding is consistent with the idea that social comparison occurs between similar entities (Festinger, 1954). These findings of Essay 1 make an important empirical contribution that suggests the need to concentrate on theoretical grounds when specifying the focal reference points in the formation of aspiration levels.

5.2 Implications for the Serial Acquisition Literature

This dissertation contributes to the acquisition literature by analyzing the factors affecting the performance of serial acquisitions. The essays presented in this dissertation show how behavioral arguments can extend our understanding of how deliberate learning from prior acquisitions occurs. Research on acquisition performance has discussed the positive and negative transfer effects of prior acquisition experience on acquisition performance (Finkelstein and Haleblian, 2002; Haleblian and Finkelstein, 1999) as well as contingencies, including the similarity between acquirers and targets (Hayward, 2002), and learning strategies, such as codification (Zollo and Singh, 2004), that affect this relation. Recent research has emphasized the role of higher-order routines that are developed through acquisition experience assisting ad-hoc problem solving in integration by helping to select proper actions among codified integration strategies (Heimeriks et al., 2012). However, our understanding of the process and contingencies that affect deliberate learning outcomes remains incomplete. Essays 2 and 3 of this dissertation show that directing attention toward strategically relevant categories can help firms to overcome issues hampering beneficial learning and positive transfer effects from previous acquisitions. These findings introduce an alternative mechanism for deliberate learning in serial acquisitions. Rather than relying solely on capabilities based on acquisition experience, firms can improve deliberate learning by directing their attention toward relevant categories. Specifically, the results identify two important categories of attentional orientation. An orientation toward exploration is beneficial for learning to innovate via acquisitions, and an attentional orientation toward entrepreneurship appears to improve the performance of pattern of acquisitions.

Individual acquisitions have been shown to have, on average, a negative influence on the financial performance of the acquiring firm (King et al., 2004). In fact, a narrow stream of research has investigated performance from the perspective of multiple acquisitions. Several prior studies have shown a similar simple negative and declining performance effect of high acquisition rates (Fuller et al., 2002; Hayward, 2002; Kusewitt, 1985), and the results of Essay 3 provide further support for these observations. Note that the context differs from individual acquisitions because actions can be more coordinated among multiple acquisitions and because learning from prior experience is possible. However, the learning environment itself is complex. For instance, Barkema and Schijven (2008b) argued that the integration of acquisition targets begins with a local search, which eventually leads to the accumulation of inefficiencies that trigger distant

search and restructuring activities. This finding indicates that performance is inferior unless the pattern of acquisitions is coordinated. Indeed, prior research has shown that serial acquisitions tend to perform better when they are part of a coordinated program (Laamanen and Keil, 2008), but the set of contingencies that affect the performance of multiple acquisitions remains an open question in the literature. On a general level, this dissertation contributes to our understanding of acquisition performance by showing that the strategic context in which transactions are executed is relevant to performance. More precisely, acquisitions that are conducted in the context of performance shortfalls tend to perform better. Following behavioral reasoning, this finding can be explained by the intense problemistic search that is triggered and increased pressure forcing firms to actively draw lessons from their prior experience. In addition, this dissertation identifies attention to entrepreneurship as an important firm-level contingency affecting the performance of serial acquisitions. An attentional orientation that is directed to a specific category can work as a mechanism to coordinate transactions within an acquisition program.

5.3 Implications for Managers

From the perspective of resource allocation, the prioritized attentional orientation of a firm corresponds to its dominant strategy (Ocasio, 2011). The results of this dissertation highlight the need to coordinate the content of such a strategy with experience-based capabilities and the specific characteristics of executed transactions. Firm performance depends on the attainment of a proper fit between these dimensions. When a firm chooses to acquire large knowledge bases and has prior experience-based routines to do so, an exploration-based strategy improves innovation through acquisitions by influencing the selection of appropriate acquisition targets *and* directing integration activities. That is, much of the effect that a firm's strategy has on performance is derived not only from choosing which acquisitions to conduct but also from its guiding role on the middle levels of the organization. Furthermore, it is important to emphasize that there is no one specific fit (i.e., combination of strategic intent, transaction characteristics, and previously developed capabilities) that is the most beneficial for innovation through technology-based acquisitions: exploitative strategy leads to the best innovation outcomes when the acquired knowledge bases are relatively small and when the firm has prior acquisition experience. In other words, when a firm's intent is to innovate by improving existing technologies, the acquisition of relatively small

knowledge bases leads to the optimal performance implications in accordance with incremental renewal.

5.4 Limitations

Although the results of this dissertation are relevant for different organizations, one must consider the empirical context of the studies. All empirical work is based on a sample of large firms that have established their position in the industry, which is likely to be relevant to the results concerning attention and the role of performance deviations. Attention structures have an organizational-level component (Ocasio, 1997), and as the studied firms are established, the structure of existing communication channels and hierarchy within an organization differs from that of younger entrepreneurial firms (Arrow, 1974). Furthermore, the decision-making style and resources that a firm employs for problemistic and slack search depend on the size of the organization (Cyert and March, 1963). Firm size also affects how much an organization can afford to pay attention to performance aspirations over survival aspirations (Audia and Greve, 2006). Although acquisitions and divestments are likely to be considered strategic transactions regardless of the size of the organization, younger firms may not possess sufficient resources to acquire (or anything to divest) even when such actions would be preferable. This aspect also represents a limitation of the generalizability of the results. Furthermore, the set of transactions that a firm has available contains acquisitions and divestments but does not account for alliances (Baum et al., 2005), R&D investments (Greve, 2003), or new market entries as alternative choices. The narrow search space can further establish a limitation for the applicability of the results into contexts in which acquisitions and divestments are the most focal strategic actions available.

Chosen empirical approach sets one potential limitation. Like in most prior studies (e.g., Baum et al. 2005; Gaba & Bhattacharya 2012; Greve 2011), attainment discrepancies have been modeled using spline functions, which treat aspiration-behavior relationship linear separately for below and above aspiration performance. This approach has faced recent criticism (Bromiley, 2010) because prospect theory indicates that risk aversion should decline when performance drops far below the aspired level, and therefore a linear approximation becomes unsuitable approach for modeling extreme performance deviations. However, my sample firms are large corporations, and for almost all included firm-years immediate bankruptcy is not an issue. This suggests that majority of data is in a

domain where using spline functions and linear approximation is unlikely to cause a relevant bias.

One further limitation concerning the explanation of serial acquisition performance in this study is the implicit assumption that the quality of available acquisition targets does not diminish over time. For instance, if a firm is desperate to grow via acquisitions, it may end up accepting less suitable alternatives in case all best matching potential targets have already been previously acquired. Taking into account the quality of available acquisition candidates would be a relevant issue for future research to consider.

Finally, the ICT industry was a dynamic environment with respect to technological changes during the focal time period. As environmental dynamism can influence search behavior and its outcomes (Katila and Ahuja, 2002; Uotila et al., 2009) as well as the required structures to direct attention (Keil et al., 2012), the results may be limited to this specific context.

5.5 Avenues for Future Research

The results of this dissertation show that performance shortfalls can trigger multiple responses and illustrate that the effect of performance deviations on the frequency of transactions depends on the type of transaction. These results suggest that future research should consider the entire set of potential decision alternatives when studying the effects of performance deviations. That is, if acquisitions, alliances, joint ventures, outsourcing, and divestments are all feasible strategic alternatives, then it could be beneficial to study them simultaneously in empirical work. Furthermore, this finding suggests that future theoretical research on the effects of performance deviations should incorporate the middle level to account for the characteristics of different transactions, in addition to the risk inherent within each type of transaction.

The findings of Essay 2 show that acquisition experience is necessary for exploration or exploitation orientation to improve innovation performance via acquisitions. One interesting avenue would be to further study the role of different types of experience: is it sufficient that an organization itself has generated routines and procedures to cope with acquisition integration, or do individual decision makers need to possess prior experience in technology acquisitions to drive the process? Furthermore, specific types of attentional orientation are best matched with specific types of prior experience. For instance, does experience acquiring complex technology bases or technology that does not overlap with the prior technology base of

an organization constitute an important requirement for attentional orientation to improve performance?

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