

EXPLOITATION VERSUS EXPLORATION: GETTING THE MIX RIGHT

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Abstract

My dissertation examines in three essays how firms utilize exploitation and exploration strategies, independently and in combination, for competitive advantage. The first essay examines whether firms can gain competitive advantage by the simultaneous pursuit of exploitation and exploration (i.e., an ambidextrous strategy). Utilizing a cross-industry survey of marketing executives, I demonstrate that ambidextrous firms outpace non-ambidextrous ones across several performance dimensions. Importantly, implementation of an ambidextrous strategy at the marketing function level mediates the relationship between a firm's ambidextrous strategy and its performance. Finally, differences in the mediating relationship between manufacturing and services firms are found.

Essay two conceptualizes exploitation and exploration as capabilities. Drawing on longitudinal objective data from publicly-traded pharmaceutical companies, this study examines how firms maintain exploitation and exploration capabilities over time. Stochastic frontier estimation is used to create capability measures for exploitation and exploration for each firm in each period. The capabilities are then linked to historical and forward-looking performance, as measured by Return on Assets and Tobin's q respectively. The results show that firms with stronger exploration capabilities have higher Tobin's q values. Stronger exploitation capabilities,

however, negatively affect Tobin's q . In contrast, exploitation has a positive effect on historical performance while exploration has no effect. Surprisingly, firms that have stronger capabilities in both exploitation and exploration gain no significant performance advantage.

Finally, given the difficulty of managing exploitation and exploration, the third essay investigates how firms can improve their focus on these strategies. Specifically, it examines customer divestment, or strategically terminating relationships. Research notes that most customers offer little or no value to a firm. This means that a firm's investments in exploitation and exploration are potentially greatly misapplied. I use archival data to explore the prevalence of customer divestment across industries. I then investigate the customer divestment concept with managers and customers, yielding a broad framework of key relationships. Finally, an experiment is used to begin to empirically test key relationships. The results demonstrate that it is better for managers not to provide a warning prior to divestment as it creates more negative attitudes toward the firm.

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and faith made this possible. My son is just plain great. The perspectives of a three-year old help me to understand what is really important. He has no idea how much fun he is to be around. Now, we all look forward to what comes next.

A global survey of four hundred twenty-five executives highlighted a continuing battle for firms – that of creating competitive advantage by simultaneously excelling in both exploiting existing markets and creating new ones (Accenture 2005). An exploitation strategy is focused on satisfying the current customer base (e.g., Benner and Tushman 2003; March 1991; Srivastava, Shervani, and Fahey 1999). Exploration, on the other hand, is focused on increasing the firm’s ability to adapt quickly and appropriately to major market changes through radical change, experimentation and risk (Katila and Ahuja 2002). Firms that effectively manage the inherent tension between exploration and exploitation by focusing on both simultaneously follow an “ambidextrous strategy” (Gibson and Birkinshaw 2004; Tushman and O’Reilly 1997).

The literature on managing exploitation and exploration reveals considerable debate. Proponents suggest that balancing exploitation and exploration makes sense for many firms (e.g., Abell 1993; Williamson 1999), and may even be necessary for survival (e.g., Christensen 1998; Lewin and Volberda 1999). Tushman and O’Reilly (1997) contend that “organizations can sustain their competitive advantage by operating in multiple modes simultaneously – managing for short-term efficiency by emphasizing stability and control, as well as for long-term innovation by taking risks.” (1997: 167) Exploitation and exploration are two complementary or orthogonal dimensions rather than two conflicting ends of a continuum (Gibson and Birkinshaw 2004; Gupta, Smith, and Shalley 2006; Katila and Ahuja 2002; Lewin and Volberda 1999). An

over-emphasis on exploitation can stifle a firm's ability to alter its course in a changing market (Cyert and March 1992). Conversely, a strategy that over-emphasizes exploration can lead firms to innovate without exploiting their advances for profit (Levinthal and March 1993). When used effectively, an ambidextrous approach limits both organizational inertia and management myopia (Levinthal and March 1993).

Detractors posit that attempting to balance exploration and exploitation strategies raises the risk of a firm being good at neither (e.g., Kotler 1997; Miles, Snow, Meyer, and Coleman 1978; Miller and Friesen 1986). The constant pressure from stock analysts and shareholders to "make earnings" may prime managers to exploit rather than explore (Benner and Tushman 2002). Pursuing both strategies may result in punishment in the form of lower stock prices, market value or credit ratings. Intense competitive actions can also preclude firms from making the necessary actions to support both strategies. Furthermore, firm-wide shocks or organization culture issues can disrupt the flow of resources in support of both strategies, redirecting them to one or other or neither. These differing emphases can create an untenable pressure on managers that may force many firms down a more focused exploitation or exploration path as opposed to balancing both strategies.

The considerable debate and the many unexplored areas of study make these concepts fertile ground for continued research. In my dissertation, I take the perspective of exploitation and exploration as orthogonal variables that can co-exist and seek to make four contributions that examine how (and if) firms can achieve a balance between the two approaches. First, most prior research places a strong emphasis on factors that influence exploitation and/or exploration, often taking learning, team dynamics or organizational effectiveness perspectives in an examination of key relationships (e.g., Beckman 2006; Gibson and Birkinshaw 2004; March 1991; Miller, Zhao,

and Calantone 2006). Furthermore, the unit of analysis is often the individual or the team (e.g., project or leadership team) within the firm. By doing so, it has resulted in a general lack of understanding about functional-level issues (e.g., marketing) such as how exploitation and exploration are implemented in practice. In the first essay, I specifically examine the role of marketing function implementation in translating exploitation and exploration strategies into successful performance.

Second, empirical evidence demonstrating the impact of exploitation and exploration on firm performance, particularly financial, is still very limited (for exceptions, see Gibson and Birkinshaw 2004; He and Wong 2004; Kyriakopoulos and Moorman 2004). Prior research suggests that a finer-grained view of firm performance is needed to provide a clearer picture of exactly how the firm's success is affected by its strategy (Chakravarthy 1986; Clark 1999; Walker and Ruekert 1987). I expand on the financial impact of exploitation and exploration on the firm in the first two essays by examining historical and forward-looking measures of performance.

Third, little is known about the time dependent effects of managing both exploitation and exploration (Gupta, Smith, and Shalley 2006). This key question is addressed in the second essay through a firm-wide lens by an examination of both how capabilities change over time and their subsequent impact on performance. Capabilities are those complex bundles of resources that manifest themselves through firm-wide processes and help create competitive advantage (Amit and Schoemaker 1993; Day 1994; Dutta, Narasimhan, and Rajiv 1999). Capabilities are accrued slowly (Barney 1991) and reconfigured over time to meet market needs (Eisenhardt and Martin 2000; Teece, Pisano, and Shuen 1997). Viewing exploitation and exploration as capabilities enables the analysis of the key inputs and outputs that result in competitive advantage over time.

Finally, given the difficulty of managing exploitation and exploration, the importance of keeping the firm on track becomes paramount. The third essay investigates how firms can improve their focus on exploitation and exploration. Specifically, it examines the little-researched phenomenon of customer divestment, or strategically terminating relationships with customers. Research notes that most customers offer little or no value to a firm (Rust, Lemon, and Zeithaml 2004). This means that a firm's investments in exploitation and exploration are potentially greatly misapplied due to management myopia of customer value (Levitt and March 1988) and inertia (Levinthal and March 1993). Divesting customers can free resources that are currently being applied toward investments that do not benefit the firm's exploitation and exploration capabilities.

1.1 SYNOPSIS OF ESSAY 1

The first essay investigates whether firms can gain competitive advantage by balancing exploitation and exploration strategies (i.e., an ambidextrous strategy). This essay seeks to enrich the limited understanding of when ambidextrous strategies will be most effective by answering three questions: 1) What role does functional implementation play in translating a firm's ambidextrous strategy into superior performance? 2) How does organizational ambidexterity affect different facets of a firm's performance, such as profitability, customer satisfaction, and new product success? 3) Does the type of the firm (e.g., manufacturing, services) affect the impact of organizational ambidexterity on performance?

Each of these three questions is focused on an issue that can potentially play a profound role in affecting the success of organizational ambidexterity. For example, functional implementation is the translation of a firm's strategy into action by functional units within the firm (e.g., marketing). Bonoma (1984) suggests that successful implementation at the functional level is critical to ensuring the success of a firm's strategy. Given the difficulty of balancing a high level of exploration with a high level of exploitation, I expect that functional implementation will play a particularly important role for firms attempting to implement an ambidextrous strategy. To test this impact, I examine the mediating effect of functional implementation of marketing on the firm's ambidextrous strategy – performance relationship.

Second, most research of ambidextrous organizations to date has emphasized revenue as the primary performance outcome (e.g., Gibson and Birkinshaw 2004; He and Wong 2004). Although there is no question that revenue is an important measure of firm performance, a focus on this single outcome alone provides an incomplete picture of the firm's overall success. For example, revenues achieved at a very high cost (e.g., due to excessive expenditures on R&D) may be unprofitable. Thus, a finer-grained view of firm performance is needed (Chakravarthy 1986; Clark 1999; Walker and Ruekert 1987) to provide a clearer picture of exactly how the firm's success is affected by its strategy. In this paper, the effects of organizational ambidexterity on revenue are examined, as has been done in previous work, and expanded to include the examination of marketing-related outcomes such as profitability, customer satisfaction and new product introductions.

Third, past work has focused on the effects of organizational ambidexterity in the manufacturing context. However, research in other domains has demonstrated inherent and important differences between manufacturing and service firms (Brouthers and Brouthers 2003;

Erramilli and Rao 1993). No theory currently exists to suggest how these two types of businesses systematically differ from one another in terms of how they implement and/or benefit from organizational ambidexterity. Thus, a third goal of this paper is to investigate this issue empirically. I do so by examining the moderating effects of firm type on the mediating effect of functional implementation on the ambidexterity – performance relationship.

Utilizing a cross-industry survey of senior marketing managers in publicly traded U.S. firms, it is shown that ambidextrous firms outpace non-ambidextrous across all performance dimensions. Subjective performance measures are augmented by objective financial data drawn from COMPUSTAT and the latter confirm the positive effects found in the survey results. Importantly, functional implementation mediates the relationship between a firm's ambidextrous strategy and its performance. Finally, differences in the mediating relationship between manufacturing and services firms are found.

1.2 SYNOPSIS OF ESSAY 2

Whereas the first essay is a cross-sectional multiple industry examination of exploitation and exploration, the second essay takes a longitudinal single industry view of these relationships and how they impact performance. Two important issues in this research stream still suffer from a lack of empirical evidence. First, one of the most pressing needs is a better understanding of how exploitation and exploration change over time (Beckman 2006; Lavie and Rosenkopf 2006; Gupta, Smith, and Shalley 2006; Tushman and O'Reilly 1996). March (1991) argues that though exploitation and exploration often compete for firm resources, balancing these demands over

time, although difficult, is necessary for competitive advantage. This perspective suggests that investments in both exploitation and exploration must be made to create performance advantage. Firms who pursue a particular approach may, when evaluated at a single point in time or over just a few years, appear to be poor performers when compared to competitors (Hutt, Reingen, and Ronchetto 1988). Therefore, a dynamic examination provides a longer-term understanding of the contribution of exploitation and exploration to firm performance. Second, as mentioned in previous paragraphs, there is considerable debate as to whether or not performance advantages accrue to firms that effectively balance exploitation and exploration rather than focus on either strategy (see Christensen 1998; Gupta, Smith, and Shalley 2006; Levinthal and March 1993; Miller and Friesen 1986) A longitudinal evaluation of these relationships helps to clarify the potential “systematic” benefits of a balanced strategy versus a focused one.

I draw on the resource-based view of the firm (Barney 1991; Peteraf 1993; Wernerfelt 1984) as the theoretical foundation and examine exploitation and exploration as capabilities - the outputs generated from resource investments made by the firm (Grant 1996; Venkatraman, Lee, and Iyer 2006; Winter 2003). Using longitudinal objective data from publicly-traded pharmaceutical firms, I separately examine the development of exploitation and exploration capabilities as well as the spillover effects of prior year investments. Stochastic frontier estimation, an input-output econometric technique, is used to create capability measures for exploitation and exploration for each firm in each period. Next, the effects of current year investments on exploitation and exploration capabilities are investigated. I then link the development or lack thereof of these capabilities to both historical and forward-looking performance measures that reflect both historical (ROA) and forward-looking (Tobin's q) perspectives. Finally, I provide insight into the debate over whether or not firms should

simultaneously pursue both exploitation and exploration (e.g., Gibson and Birkinshaw 2004) or concentrate on one over the other (e.g., Miller and Friesen 1986).

The results of the study in the second essay show that firms that maintain stronger exploration capabilities than competitors have higher Tobin's q values. Firms that maintain stronger exploitation capabilities, however, negatively affect forward-looking performance. In contrast, exploitation has a positive effect on historical performance while exploration has no effect. Surprisingly, firms that have stronger capabilities in both exploitation and exploration gain no significant advantage in either historical or forward-looking performance.

1.3 SYNOPSIS OF ESSAY 3

Given the difficulty of managing exploitation and exploration, the third essay investigates how firms can improve their focus in both. Specifically, it examines the little-researched phenomenon of customer divestment. Customer divestment is defined as the firm-initiated termination of service to an existing customer (Mittal, Sarkees, and Murshed 2006). Research notes that most customers offer little or no value to a firm (Rust, Lemon, and Zeithaml 2004). This means that a firm's investments in exploitation and exploration are potentially greatly misapplied due to management myopia of customer value (Levitt and March 1988) and inertia (Levinthal and March 1993). Academic research on customer divestment is virtually non-existent despite calls from marketing scholars (e.g., Haenlein, Kaplan, and Schoder 2006; Lehmann 1999; Morgan and Hunt 1994).

Many companies still lack an integrated, formal divestment processes. A failure to properly understand divestment can engender negative outcomes such as unfavorable publicity (“Sisters Banned by Bargain Chain” 2003), customer retaliation (Gallagher and Kennedy 1997), and negative word of mouth (Gitomer 2003). Managers are also afraid of the negative reactions of divested customers and potential damage to the firm. From the customers’ perspective, many do not have a clear idea of how divestment might affect them. Marketing academics indicate that more work is needed specifically in these areas of customer divestment (Lehmann 1999; Haenlein, Kaplan and Schoder 2006).

Overall, the third essay seeks to answer four questions: 1) Is divestment prevalent? 2) How do managers view divestment? 3) How do customers feel about divestment? and 4) Are there ways for firms to mitigate the potential negative impact of customer divestment? I use archival data to explore the prevalence of customer divestment. Next, I explore the divestment concept among both managers and customers. Drawing on the collective insights, a customer divestment framework is developed. The results are surprising in that the complexity of customer divestment stretches far beyond mere profitability measures, touching many areas of the company and key stakeholders as well as customers and other interest groups. Furthermore, the underlying issue of expectations management in company-customer relationships is clearly evident in the minds of customers who experienced divestment. Finally, I use an experiment to begin to test the key relationships. It explores the central question of how managers can alleviate the potential negative outcomes on the firm from divestment. Interestingly, the results demonstrate that it is better for managers not to provide a warning prior to divestment as it gives customers time to reflect on the action and increases negative attitudes toward the company.

Finally, an agenda for future research is proposed with an understanding that there are still many unanswered questions in this area of research that need to be explored.

The next three chapters present the essays in my dissertation. Essay 1 is entitled “Ambidextrous Organizations and Performance: The Mediating Effect of Functional Implementation”. Essay 2 is entitled “Dynamic Returns to Investments in Exploitation and Exploration: Evidence from the Pharmaceutical Industry”. Essay 3 is entitled “Customer Divestment: Issues, Actions, and Reactions”. Finally, I discuss the overall contributions of my dissertation to the literature as well as to managerial practice.

**2.0 SECTION II: ESSAY I: AMBIDEXTROUS ORGANIZATIONS AND
PERFORMANCE: THE MEDIATING EFFECT OF FUNCTIONAL
IMPLEMENTATION**

Achieving competitive advantage involves maintaining a delicate balancing act between exploiting the benefits from current business operations and exploring new innovative opportunities (Christensen 1998). Exploitation is focused on achieving greater efficiencies in existing operations and extracting greater benefits from existing markets (March 1991). Exploration is focused on increasing the firm's ability to adapt quickly and appropriately to major market changes through radical change, experimentation and risk (Katila and Ahuja 2002). Firms that effectively manage the inherent tension between exploration and exploitation by focusing on both simultaneously follow an "ambidextrous strategy" (Gibson and Birkinshaw 2004; Tushman and O'Reilly 1997).

Attempting to follow both exploration and exploitation strategies raises the risk of a firm being good at neither (e.g., Kotler 1997; Miles, Snow, Meyer, and Coleman 1978; Miller and Friesen 1986). Some suggest that the differing processes and capabilities required of exploration and exploitation overwhelm the firm (Benner and Tushman 2002; Katila and Ahuja 2002). The constant pressure from stock analysts and shareholders to "make earnings" may also prime

managers to exploit rather than explore (Benner and Tushman 2002). As a result, many firms are content to focus on either exploration or exploitation.

However, single-focus strategies also have their drawbacks. An over-emphasis on exploitation can stifle a firm's ability to alter its course in a changing market (Cyert and March 1992). Conversely, a strategy that over-emphasizes exploration can lead firms to innovate without exploiting their advances for profit (Levinthal and March 1993). By overemphasizing exploration, these firms seek to change the existing market (Deshpandé, Farley, and Webster 1993). For example, during the Internet boom of the late 1990s, many start-up firms raced to innovate but neither extracted profits nor created operational efficiencies essential to longer-term competitive advantage. Many of these firms are now out of business.

Increasingly, researchers are suggesting that an ambidextrous approach makes sense for many firms (e.g., Abell 1993; Williamson 1999), and may even be necessary for survival (e.g., Christensen 1998; Lewin and Volberda 1999). Tushman and O'Reilly (1997) contend that "organizations can sustain their competitive advantage by operating in multiple modes simultaneously – managing for short-term efficiency by emphasizing stability and control, as well as for long-term innovation by taking risks." (1997: 167) When used effectively, an ambidextrous approach limits both organizational inertia and management myopia (Levinthal and March 1993). It also promotes a positive self-reinforcing cycle of activities that benefits both exploration and exploitation (Kyriakopoulos and Moorman 2004; Moorman and Slotegraaf 1999). Under this view, exploitation and exploration represent two complementary – rather than conflicting – dimensions (Colbert 2004; Gibson and Birkinshaw 2004; Gupta, Smith, and Shalley 2006; Lewin and Volberda 1999; Moorman and Slotegraaf 1999).

A recent special issue of the *Academy of Management Journal* (August, 2006) highlighted the growing importance, and complexity, of managing exploitation and exploration. Despite the many important insights gained from this research, the studies in this special issue largely focused on how knowledge and learning is used to create or disrupt the balance between the two approaches (e.g., Beckman 2006; Miller, Zhao, and Calantone 2006). Empirical evidence demonstrating the impact of organizational ambidexterity on firm performance, particularly financial, is still very limited (for exceptions, see Gibson and Birkinshaw 2004; He and Wong 2004; Kyriakopoulos and Moorman 2004). Furthermore, little is still known about the challenges facing firms that want to achieve success through an ambidextrous strategy (Gupta, Smith, and Shalley 2006). This paper seeks to enrich our existing but limited understanding of when ambidextrous strategies will be most effective by answering the following three questions:

- What role does functional implementation play in translating a firm's ambidextrous strategy into superior performance?
- How does organizational ambidexterity affect different facets of a firm's performance, such as profitability, customer satisfaction, and new product success?
- Does the nature of the firm's business affect the impact of organizational ambidexterity on performance?

Each of these three questions is focused on an issue that can potentially play a profound role in affecting the success of organizational ambidexterity. For example, functional implementation is the translation of a firm's strategy into action by functional units within the firm (e.g., marketing). Bonoma (1984) suggests that successful implementation at the functional level is critical to ensuring the success of a firm's strategy. Given the difficulty of balancing a high level of exploration with a high level of exploitation, it is expected that functional

implementation will play a particularly important role for firms attempting to implement an ambidextrous strategy. To test this impact, I examine the mediating effect of functional implementation on the firm's ambidextrous strategy – performance relationship.

Second, most research of ambidextrous organizations to date has emphasized revenue as the primary performance outcome (e.g., Gibson and Birkinshaw 2004; He and Wong 2004). Although there is no question that revenue is an important measure of firm performance, a focus on this single outcome alone provides an incomplete picture of the firm's overall success. For example, revenues achieved at a very high cost (e.g., due to excessive expenditures on R&D) may be unprofitable. Thus, a finer-grained view of firm performance is needed (Chakravarthy 1986; Clark 1999; Walker and Ruekert 1987) to provide a clearer picture of exactly how the firm's success is affected by its strategy. In this paper, I examine the effects of organizational ambidexterity on revenue, as has been done in previous work, and expand our knowledge of these relationships by also evaluating profitability, customer satisfaction and new product introductions.

Third, past work has focused on the effects of organizational ambidexterity in the manufacturing context. However, research in other domains has demonstrated inherent and important differences between manufacturing and service firms (Brouthers and Brouthers 2003; Erramilli and Rao 1993). No theory currently exists to suggest how these two types of businesses systematically differ from one another in terms of how they implement and/or benefit from organizational ambidexterity. Thus, a third goal of this paper is to investigate this issue empirically. I do so by examining the moderating effects of firm type on the mediating effect of functional implementation on the ambidexterity – performance relationship. These three distinct sets of effects are summarized in Figure 1.

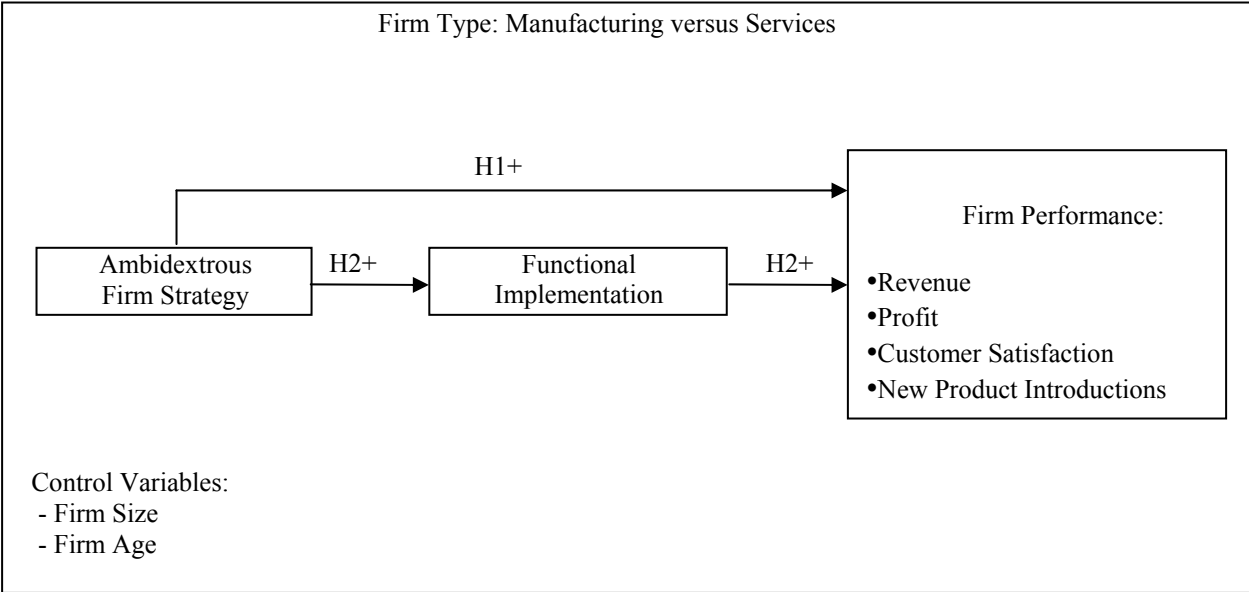


Figure 1: Essay 1, Conceptual Framework

The remainder of the paper is organized as follows. First, I discuss how distinct dimensions of performance are affected by an ambidextrous firm strategy, and argue that the implementation of an ambidextrous strategy at the functional level mediates the effects of organizational ambidexterity on these performance dimensions. I then conduct empirical tests of the proposed relationships using data from a survey of senior marketing managers in publicly traded U.S. firms. These subjective performance measures are augmented by objective financial

data drawn from COMPUSTAT. Next, I discuss the results and their implications. Finally, both the limitations of the study and suggestions for future research are discussed.

2.1 THEORY AND HYPOTHESES

2.1.1 Organizational Ambidexterity

A firm's strategy represents how it chooses to compete in its markets (Varadarajan and Clark 1994). A firm that employs an ambidextrous strategy maintains a high degree of balance between exploitation – characterized by a focus on efficiency and refinement – and exploration – characterized by innovation, change and risk (Tushman and O'Reilly 1996).¹ The firm draws on the complementary aspects of exploitation and exploration rather than viewing them as conflicting ends of a continuum (Gibson and Birkinshaw 2004; Katila and Ahuja 2002; Moorman and Slotegraaf 1999). Through the use of an ambidextrous strategy, managers hope to avoid an overemphasis on either exploitation or exploration to the exclusion of the other. For example, an over-emphasis on exploitation can stifle a firm's ability to alter its course in a changing market (Cyert and March 1992). Core capabilities that contribute to success in exploitation can quickly turn into core rigidities (Leonard-Barton 1992), and initially favorable strategic choices can become inferior processes in the longer run (Heriott, Levinthal, and March 1985). At the same time, a heavy emphasis on exploration can lead firms to take too many risks

¹ Consistent with Gupta, Smith, and Shalley (2006) and March (1991), all organizational activities embed some degree of learning, and that it is more useful to focus on the extent and type of learning that takes place rather than the presence or absence of learning.

and innovate without extracting profits (Levinthal and March 1993). Some of this over-emphasis in strategic direction results from the firm's past successes in using a particular approach. As firms successfully improve their capabilities and efficiencies in – for example – exploitation, the desire to change focus diminishes (Levitt and March 1988).

Simultaneously developing both strategic emphases can add to overall firm value, as the returns (e.g., economic, information, knowledge) from one emphasis can provide resources for use in the other at any specific point in time. Thus, exploitation and exploration become complementary activities, each reinforcing the other (Colbert 2004; Gibson and Birkinshaw 2004; Gupta, Smith, and Shalley 2006). For example, revenue generated by exploiting current products and services can be allocated to exploring new product development opportunities. New products and services then generate the revenue that sustains investments in day-to-day operations. Therefore, firms that pursue a high degree of both exploration and exploitation should ultimately realize greater benefits than competitors who overemphasize a single strategy.²

2.1.2 Ambidextrous Business Strategy and Firm Performance

The empirical work to date examining the link between an ambidextrous firm strategy and business performance has consistently found a strong positive relationship (e.g., Gibson and Birkinshaw 2004; He and Wong 2004; Venkatraman, Lee, and Iyer 2006). For example, Gibson and Birkinshaw (2004) studied a small number of firms in detail at the business unit level, using

² My view in this paper is consistent with that of Katila and Ahuja (2002), which argues that the interaction between exploration and exploitation can positively affect performance. The two emphases are seen as complements to one another, and though of as orthogonal variables rather than two ends of a continuum. (For similar arguments, see Baum, Li, and Usher 2000; Koza and Lewin 1998; Nerkar 2003.)

subjective measures of organizational effectiveness as a proxy for performance, and found that an ambidextrous strategy enhances performance. Similarly, in a study of innovative processes in Asian manufacturing firms, He and Wong (2004) found that firms that successfully pursue both incremental and radical innovations enjoy greater revenue growth rates than other firms. Interestingly, their study also showed that an overemphasis on either exploration or exploitation alone negatively affects revenue growth. Finally, Venkatraman et al. (2006) noted a direct and positive effect of ambidexterity on year-over-year revenue growth in software firms.

2.1.2.1 Ambidexterity and Revenue

An ambidextrous strategy positions the firm to enhance its revenue. The focus on refinement and efficiency gained from exploitation helps the firm to deliver its products and services in a manner that satisfies its current customer base. This increases the potential for repeat purchases as well as positive word-of-mouth, which can generate additional revenue for the firm (Oliver 1997; Reichheld 1996). Simultaneously, if resources are allocated to innovative activities that help the firm to capture the next wave of customers, future revenue opportunities also exist. This dual focus on current and future customers helps the firm to continuously find new ways to meet those customers' needs (Kyriakopoulos and Moorman 2004). Firms that overemphasize exploitation may increase revenue from the existing customer base, but miss new revenue opportunities in emerging segments. The opposite can be said for exploration-focused firms that capture some revenues as early market movers, but that cannot exploit the benefits of their discoveries as well as fast follower competitors that enter the market with better scale capabilities.

Although increased revenue generation provides some comfort that an ambidextrous strategy is working, it is a potential success trap for managers. A sole focus on revenues may be misleading in that it neither reflects the overall profitability of the firm nor the firm's on-going business health (e.g., as reflected by customer satisfaction or new product introductions). For example, an over-emphasis on sales revenue goals might work to the detriment of scale efficiencies, negatively affecting profits needed for investments to maintain the firm's ambidexterity. Thus, revenues alone do not necessarily reflect a firm's emphasis on ambidexterity, and it is important to examine additional performance measures that capture this longer-term orientation of the firm.

2.1.2.2 Ambidexterity and Profits

An ambidextrous strategy can also positively impact profits. Exploitation improves the firm's current routines (March 1991) and capabilities (Leonard-Barton 1992), enabling the delivery of products and services at lower costs (making them more profitable even in the short term), and the release of resources for the firm's use elsewhere. These resources can then be used for investments in innovation, in experimentation with new methodologies, or in risky endeavors such as alliances or acquisitions (i.e., exploration), helping to renew the firm's knowledge and ward off inertia. Different from exploitation-focused firms, ambidextrous firms proactively use extra resources to explore opportunities that not only generate additional revenues but also allow for scale efficiencies. Although some negative impact on the firm may arise in the short term from using resources gained from exploitation for exploration (Hutt, Reingen, and Ronchetto 1988), as the ambidextrous firm moves consistently down the learning curve, profitability will increase as exploitation and exploration become a self-reinforcing cycle. Firms that are highly

focused on exploitation may be more profitable in the short-term, but their failure to explore hurts them in the long-run.

2.1.2.3 Ambidexterity and Customer Satisfaction

Customer satisfaction is a measure of a customer's relationship with the firm (Gruca and Rego 2005). At the heart of many firm strategies is the desire to develop and to maintain close relationships with customers (e.g., Prahalad and Ramaswamy 2000). Typically, firms hope for long-term relationships that are beneficial for both parties (Garbarino and Johnson 1999). An effective ambidextrous strategy, with a high degree of both exploitation and exploration, should meet the wants and needs of customers in the short- and long-term, thus increasing overall customer satisfaction. For example, extensive customer service capabilities allow firms to be close to the customer and to sense potential shifts in preferences. Different from exploitation- or exploration-focused firms, the ambidextrous firm has the resources and the knowledge to effectively translate what they learn from customers into value for both parties in the relationship. An imbalanced firm misses potential opportunities to increase customer satisfaction because it either lacks the resources (exploration-focused) or the knowledge (exploitation-focused) to take advantage of shifting customer preferences and competitor challenges.

2.1.2.4 Ambidexterity and New Product Introductions

Although new product introductions are commonly perceived as an outcome of exploration, many new products involve extensions and upgrades of current products (Griffin 1997). Therefore, the effects of both exploration and exploitation are seen in new product introductions (Kiriakopoulos and Moorman 2004). New products borne from innovation and

renewal are important to firm performance and long-term survival (Damanpour 1991). New products allow firms to change, adapt and renew themselves in the face of changing environmental conditions (Schoonhoven, Eisenhardt, and Lyman 1990). Firms that innovate well can win market share from competitors that are content to focus on attaining greater efficiencies from existing operations (Shankar, Carpenter, and Krishnamurthi 1998). Conversely, dominant firms can maintain their market positions through ongoing investments in innovation (Sorescu, Chandy, and Prabhu 2003). Firms must manage their ideas through the research and development phase into commercial production, channel distribution, and ultimate sale to reap benefits. The ambidextrous approach encourages managers and employees to challenge outdated practices, and rewards those who take calculated risks (Gibson and Birkinshaw 2004). This environment is conducive to knowledge creation and innovation that drives not only new products but also value-added improvements on existing products. Furthermore, the ambidextrous firm has the resources to invest in new product development as well as efficient mindset to these move innovations to market. Thus, firms that use an ambidextrous strategy will introduce more new products on a regular basis than those firms that over-emphasize exploitation or exploration (Katila and Ahuja 2002).

It is my position, then, that an examination of various performance outcomes such as profit, customer satisfaction, and the number of new product introductions – as well as sales revenues – can help firms attain a more complete picture of how organizational ambidexterity affects their overall success. Summarizing:

Hypothesis 1a. There is a significant, positive relationship between the extent to which the firm utilizes an ambidextrous firm strategy and its revenue.

Hypothesis 1b. There is a significant, positive relationship between the extent to which the firm utilizes an ambidextrous firm strategy and its profitability.

Hypothesis 1c. There is a significant, positive relationship between the extent to which the firm utilizes an ambidextrous firm strategy and its customer satisfaction levels.

Hypothesis 1d. There is a significant, positive relationship between the extent to which the firm utilizes an ambidextrous firm strategy and its volume of new product introductions.

2.1.3 Mediating Effect of Functional Implementation

It is one thing to formulate a strategy and it is quite another to successfully implement it (Bonoma 1984; Noble and Mokwa 1999). Firms that implement successfully take advantage of their organizational structure, systems, skills and capabilities in such a way that the firm achieves its strategy (Bonoma 1984; Bourgeois and Brodwin 1984; Varadarajan 1999). Functional units are central to achieving the balance between exploitation and exploration. These groups typically carry out activities that, among other things, create efficiency advantages, promote cross-functional coordination and knowledge sharing, expand customer relationships and sense market insights that lead to new products. Functional units also interact with suppliers, distributors, alliance partners and other external constituencies. Without a strong execution orientation at the functional level, the firm's translation of its strategy into effective action can be lost, severely hindering the firm's chances of market success (Hambrick 1983; Nutt 1987; Walker and Ruekert

1987). Miscalculations in execution, the presence of information “silos”, and poor mid-level management can all derail the successful implementation of a sound strategy.

The marketing function is uniquely positioned as the primary link between a firm and its customers (Day 1994; Moorman and Rust 1999; Wind and Robertson 1983). It ensures that the flow of revenue into the firm from customers is uninterrupted (Srivastava, Shervani, and Fahey 1999). Marketing activities are critically important to many of the functions and processes within most firms (Webster 1992), playing a prominent role in driving decision-making in areas such as customer satisfaction initiatives, pricing and new product development (Homburg, Workman, and Krohner 1999). Thus, the marketing function is positioned to potentially engage in a high degree of both exploitation and exploration activities.³ Balancing the tension between pursuing new directions in marketing without taking away from actions that secure current benefits is difficult (Cespedes 1990). However, if the marketing function can configure its activities to support the strategy, firm performance will be enhanced (Vorhies and Morgan 2003).

The firm must be able to readily shift its focus back and forth between exploration and exploration in response to changes in its environment in order to successfully implement an ambidextrous strategy (Gibson and Birkinshaw 2004). To facilitate these shifts, the functional units must become “jugglers,” able to successfully keep multiple initiatives moving forward without losing sight of either competitors or customers (Kyriakopoulos and Moorman 2004; Tushman and O’Reilly 1996). Furthermore, the activities that the functional units such as marketing engage in generate feedback from key stakeholders (e.g., customers, suppliers). This information must be considered and integrated into the functional units’ existing actions,

³ Examples of exploitation include product positioning, refining current products and services, and distribution. Exploration involves market research designed to spot trends, taking risks with new products and services, or entering new channels such as the Internet.

allowing them to adapt to changing market conditions and thereby stay competitive. Without well-developed skills, processes and capabilities at the functional level, an ambidextrous firm risks functional inertia or myopia that can create an imbalance between exploration and exploitation. Thus:

Hypothesis 2a. Functional implementation of the firm's strategy will mediate the relationship between its ambidextrous strategy and its revenue.

Hypothesis 2b. Functional implementation of the firm's strategy will mediate the relationship between its ambidextrous strategy and its profitability.

Hypothesis 2c. Functional implementation of the firm's strategy will mediate the relationship between its ambidextrous strategy and its customer satisfaction levels.

Hypothesis 2d. Functional implementation of the firm's strategy will mediate the relationship between its ambidextrous strategy and its volume of new product introductions.

2.2 EMPIRICAL STUDY

2.2.1 Data Collection

Data was collected via a mail survey of senior marketing managers in publicly-traded U.S. firms. A mail survey was appropriate as I had a specific sample of professional managers that I wanted to reach along with reliable contact information.⁴ A mail survey allowed a respondent to complete it on their own time and return it without pressure from the researcher.

To ensure response consistency across a wide variety of companies, attention was focused in the survey on how the marketing function implements firms' organizational strategies. I conducted both in-depth interviews and pre-tests with a dozen marketing managers to develop the survey instrument. Wherever possible, I used existing and established measures. The survey included questions relating to the key constructs, as well as firm-specific and key respondent information.

I drew the sample of firms from a proprietary database maintained by a market research firm. The database aggregates its content from thousands of information sources and is regularly updated. The database includes over fourteen million publicly-traded and privately-held U.S. companies. Full corporate details, however, are provided for approximately 600,000 companies with annual revenues of at least \$2.5 million. For this study, I concentrated only on publicly-traded U.S. firms, allowing us to collect and to analyze publicly-available secondary data (e.g.,

⁴ An Internet survey was another potential method. However, with corporate e-mail security filters in place at most companies, there was no way to judge non-response rates or failed transmissions from Internet surveys. Phone surveys were inappropriate due to the extensive interaction time required with each manager to obtain information as well as scheduling calls and gatekeeper issues.

revenue, profit) for comparison purposes with the survey responses. Further, U.S. publicly-traded companies utilize a consistent method of accounting, permitting analysis across firms. From the list of U.S. publicly-traded firms, I randomly chose 1,250 firms that were used in the mail survey.

The target respondent was a senior marketing manager in each firm who had extensive knowledge about the marketing function as well as an understanding of the firm-wide approach to the market. Past studies have demonstrated that senior managers – if selected with care – can provide information as reliable and as valid as that obtained from multiple firm respondents (Tan and Litschert 1994; Zahra and Covin 1993). The senior marketing manager in each firm was identified by referring to the top member of the marketing team as listed in the database. The continued employment of each senior marketing manager was then randomly confirmed through web site inspections or phone calls.

A six-page survey was mailed to the key respondent at each of the 1,250 firms in the sampling frame, along with a postage-paid return envelope. Approximately four weeks after the initial mailing, non-respondents received a postcard reminder. Eight weeks after the first mailing, a second letter was again mailed to non-respondents to encourage response.

Approximately 22% of the surveys originally mailed were undeliverable due to incorrect addresses, targeted respondents that were no longer with the firm, gatekeepers who prevented the questionnaire from reaching potential respondents, or corporate policies that prevented them from completing the survey. One hundred and thirty-five usable surveys were returned yielding

an overall response of 15%.⁵ Responses were obtained from both manufacturing (38%) and service (62%) firms. With respect to revenues, 27% of the firms had sales greater than \$1 billion, 45% had between \$100 million and \$1 billion in sales, and 28% reported less than \$100 million in sales. 23% employed more than 5,000 people, 24% employed between 1,000 and 4,999 people, 16% employed between 500 and 999 people, 27% employed between 100 and 499 people, and 10% employed fewer than 100 employees. There were no significant differences in the responses obtained on key measures from early versus later respondents to the survey (Armstrong and Overton 1977).

The key respondents held titles in the marketing function such as chief marketing officer, vice president, director or similar. To check the validity of the respondents, they were asked to provide information about the nature of their position, how long they have been in that position and how long they have worked at their firm. On average, survey respondents had held their positions for approximately five years. They indicated extensive knowledge of strategy (4.55/5.0 scale) and implementation (4.54/5.0 scale) in their organizations, indicating that I was able to reach the appropriate respondents with the survey.

2.2.2 Independent Construct Measures

Ambidextrous Firm Strategy. I used the approach proposed by Gibson and Birkinshaw (2004) to develop a measure of ambidextrous firm-level strategy. First, separate scales were constructed

⁵ Menon, Bharadwaj, & Howell (1996) found that the average top management survey response rates are in the range of 15-20%. Slater and Olson (2001) reported a 22% response rate. Therefore, the response rate in this study is in-line with that of prior surveys of top managers.

for exploration and exploitation using measures adapted from Gibson and Birkinshaw (see Appendix B for specific measurement items). Six items were measured using a seven-point Likert scale format (1 = “strongly disagree,” 7 = “strongly agree”). The three items for exploitation ($\alpha = .83$) loaded strongly on a single factor. The three items for exploration ($\alpha = .84$) also loaded strongly on a single factor.⁶ I then calculated the average scores for each factor. Finally, I multiplied the average score for firm exploration by the average score for firm exploitation to create an overall measure of ambidextrous firm strategy. Use of this method allows a comparison of the results to those found in previous empirical studies, and it is consistent with the conceptualization of organizational ambidexterity as a two-dimensional construct where the two dimensions are complementary in nature.⁷

Marketing Function Implementation. I used items adapted from Menon, Bharadwaj, Adidam, and Edison (1999) to assess the marketing function’s implementation of the firm’s ambidextrous strategy. Because the Menon et al. measures were originally proposed for marketing strategy implementation in general, I augmented the original set with additional items that were conceptually similar, and that survived both the managerial feedback and pre-test stages of the survey design (the final set of items are reported in Appendix A). After refinement,

⁶ I also performed confirmatory factor analysis using LISREL 8 (Jöreskog & Sörbom, 1996) to compare a two-factor model (exploration and exploitation) to a one-factor model. Fit indices for the two-factor model ($\chi^2 = 27.07$, $df = 8$, $p < .001$, GFI = .94, CFI = .95, IFI = .96) were superior to those observed for the one-factor model ($\chi^2 = 76.61$, $df = 9$, $p < .001$, GFI = .84, CFI = .87, IFI = .87). A chi-squared difference test for the two-factor versus the one-factor model was significant, indicating that the two-factor model provides a superior fit to the data.

⁷ Prior research has also conceptualized exploitation and exploration as complementary in nature with increasing returns (Colbert 2004; Gibson and Birkinshaw 2004; Levinthal and March 1993; Moorman and Slotegraaf 1999; March 1991). Therefore, a multiplicative model is appropriate as it accounts for the relative combinations of exploitation and exploration resources (Gibson and Birkinshaw 2004; Gupta, Smith, and Shalley 2006; He and Wong 2004). I also performed all analyses using an additive model, and obtained substantively equivalent results. The additive approach, however, assumes equal contributions from both exploration and exploitation. In practice, equal contribution is unrealistic and the precise contributions are difficult to quantify (March 1991). Only the multiplicative results are discussed further here, but the additive results are available from the author upon request.

this left four items measuring implementation of an exploitation strategy ($\alpha = .68$) and four items measuring exploration implementation ($\alpha = .80$). As before, a confirmatory factor analysis using LISREL 8 (Jöreskog and Sörbom 1997) comparing a two-factor model of marketing implementation ($\chi^2 = 39.36$, $df = 19$, $p < .01$, $GFI = .93$, $CFI = .93$, $IFI = .93$) to a one-factor model ($\chi^2 = 67.49$, $df = 20$, $p < .0001$, $GFI = .89$, $CFI = .82$, $IFI = .83$) showed that the former was statistically superior to the latter. I followed the same method used at the firm strategy level to calculate the implementation of an ambidextrous strategy at the marketing function level. First, I calculated the average scores for the exploitation and exploration dimensions separately, and then multiplied them together to arrive at an overall functional implementation score.

2.2.3 Dependent Construct Measures

Firm Performance. Respondents provided subjective measures of four dimensions of performance using a seven-point Likert scale format (1 = “strongly disagree”, 7 = “strongly agree”). Respondents were asked to indicate the extent to which they agreed that their firm’s performance exceeds that of their key competitors (Conant, Mokwa, and Varadarajan 1990) in terms of sales revenue, profitability, customer satisfaction, and number of new product introductions (see Appendix A).

Although subjective measures of business performance have been shown to be generally consistent with objective performance measures (e.g., Hart and Banbury 1994), collecting objective data is important in survey research for validating the responses provided by the respondents (Han, Kim, and Srivastava 1998). Therefore, drawing on the COMPUSTAT database objective measures of both revenue and net profit were collected for each firm in the

sample (latest fiscal year).⁸ The COMPUSTAT database provides standardized financial data for more than nine thousand publicly-traded firms, allowing for comparability across data items.

2.2.4 Control Variables

Firm size is used as a control variable because numerous studies have demonstrated that larger firms are more advanced in terms of organizational processes and knowledge than smaller firms (Hage 1980). The economies of scale often found in larger firms place them in a position to reap the benefits of greater efficiencies, providing resources for exploration (Klepper 1996). However, larger scale and advanced organizational development may create rigidities (Leonard-Barton 1992) and competency traps (Levitt and March 1988) that can inhibit exploration. Conversely, smaller firms have a harder time exploiting economies of scale. This can hinder small firms from extracting benefits in the short-term and reduce resources for future growth. In this study, firm size is measured by the natural logarithm of the number of firm employees. The number of firm employees at the end of the latest fiscal year was obtained from the COMPUSTAT database and supplemented where necessary with annual report information filed with the Securities and Exchange Commission. I also controlled for the age of the firm given that younger firms might have less time to develop the processes, personnel and knowledge necessary

⁸ Comparable, cross-industry objective measures for customer satisfaction and new product introductions are not available. For example, while the American Customer Satisfaction Index is available for a limited number of large firms, ratings are not available for most of the firms in the sample.

to become ambidextrous. However, I acknowledge that organizational inertia may prevent older firms from achieving this same goal (Klepper 1996; Tushman and Anderson 1986).⁹

2.2.5 Discriminant Validity

To assess the discriminant validity between the two latent variables, firm strategy and marketing implementation, I employed several methods. First, an analysis revealed that the correlation between the two latent variables (.69) was lower than .70, which is lower than the .85 rule of thumb. Providing further evidence, the average variance extracted for strategy (.78) and implementation (.57) are both higher than the squared correlation between the two (.69*.69=.4761) (Fornell and Larcker 1981). Collectively, there is reasonable discriminant validity between the two variables. As the marketing implementation latent variable is self-developed, it should be subject to further testing in future research.

2.3 ANALYSIS AND RESULTS

Means, standard deviations and correlations among the variables are reported in Table 1. Hypotheses are tested using regression analysis. The control variables, firm size and age, were included in each regression. I examined the variance inflation factors from the regression models using the “vif” function in SAS for evidence of multicollinearity. Multicollinearity was not a problem for any of the models as all variance inflation factors were less than two. Furthermore,

⁹ Four categories for firm age were created, calculated as time in business since inception: (1) less than five years, (2) five to ten years, (3) ten to twenty-five years and (4) greater than twenty-five years.

Brown-Forsythe tests for the threat of unequal variances for any of the variables in each equation were all not significant ($p > .10$) indicating the presence of homoscedasticity.

Table 1: Essay 1, Descriptive Statistics and Correlations

Measure	Mean	s.d.	1	2	3	4	5	6	7	8	9
1. Ambidextrous firm strategy	21.89	10.37									
2. Marketing implementation	25.75	8.91	.69								
3. Revenue	4.79	1.81	.41	.40							
4. Profit	4.78	1.88	.41	.48	.65						
5. Customer satisfaction	4.91	1.35	.40	.45	.38	.50					
6. New product introductions	4.31	1.49	.29	.35	.26	.25	.15				
7. ln objective fiscal year revenue	19.51	1.84	.19	.24	.28	.30	.23	.13			
8. ln objective fiscal year net income*	17.14	2.06	.24	.28	.24	.25	.24	.15	.85		
9. ln number of employees	6.99	1.95	.13	.18	.20	.14	.14	.08	.85	.65	
10. Age of firm	4.32	1.01	-.04	.09	.12	.17	.12	.00	.43	.26	.45

* Some firms had negative net income in the latest fiscal year and natural logarithms of those numbers can not be calculated. As a result, I use 113 of 135 observations for this variable. "Objective" indicates data drawn from COMPUSTAT.

2.3.1 Effect of Ambidextrous Strategy on Performance

I hypothesized that an ambidextrous firm strategy should have a positive effect on business performance. A separate regression was run for each of the four dependent performance variables. The results are reported in Table 2. In support of Hypotheses 1a through 1d, all of the main effects of organizational ambidexterity on the various facets of performance were significant. More specifically, an ambidextrous firm strategy has a significant positive effect on both revenue ($\beta = .07, p < .001$) and profit ($\beta = .08, p < .001$), supporting Hypothesis 1a and Hypothesis 1b, respectively. Similarly, customer satisfaction ($\beta = .05, p < .001$) and new product introductions ($\beta = .04, p < .001$) are also significantly and positively related to the extent to which the firm employs an ambidextrous strategy, supporting Hypothesis 1c and Hypothesis 1d.

To forestall concerns that common method bias may be driving the significance of these relationships (i.e., both the organizational ambidexterity and performance measures are provided by the same respondent, and both represent subjective assessments), two additional regression equations were estimated using the reported revenue and profit data from COMPUSTAT. (Both measures of performance were transformed using the natural logarithm to normalize their distributions.) The results from these models are shown in the last two columns of Table 2. Both revenue ($\beta = .02, p < .05$) and profit ($\beta = .04, p < .01$) are still significantly and positively related to the firm's use of an ambidextrous firm strategy. Although these latter effects are weaker than the subjective assessments, both sets of results are directionally and statistically consistent.

Table 2: Essay 1, Effect of Ambidextrous Firm Strategy on Performance

----- Survey ----- ----- Compustat -----

Dependent Variable	Survey				Compustat	
	Revenue	Profit	Customer Satisfaction	New Product Introductions	Log 2005 Revenue	Log 2005 Profit
Hypotheses	H1a: Supported	H1b: Supported	H1c: Supported	H1d: Supported	H1a: Supported	H1b: Supported
Ambidextrous Firm Strategy	.07***	.08***	.05***	.04**	.02*	.04**
Log firm size	.10	.01	.03	.04	.76***	.66***
Organizational age	.16	.35*	.16	-.01	.11	.13
R ²	.20	.20	.18	.08	.74	.46

* $p < .05$; ** $p < .01$; *** $p < .001$

2.3.2 Mediating Effect of Marketing Implementation

I hypothesized that functional implementation mediates the relationship between ambidextrous firm strategy and business performance. To test for mediation, the analysis approach recommended by Baron and Kenny (1986) was followed. Already shown above (and in Table 2) is that when the mediator is not considered, ambidextrous firm strategy has a positive and significant relationship with all four dimensions of performance. Next, in step 2, I need to show

that there is a significant relationship between ambidextrous firm strategy and the mediator, marketing function implementation. This relationship is significant and positive ($\beta = .59, p < .0001$). Finally, to show that a mediation effect exists, I need to show that the significant relationship found in step 1 becomes insignificant when the mediator is added to the analysis. The results from this last step are shown in Table 3. Contrary to Hypothesis 2a, the link between ambidextrous firm strategy and revenue is not mediated by marketing implementation. However, marketing implementation does mediate the relationship between an ambidextrous firm strategy and profit ($\beta = .07, p < .01$), customer satisfaction ($\beta = .05, p < .05$), and new product introductions ($\beta = .05, p < .01$), supporting Hypothesis 2b, Hypothesis 2c and Hypothesis 2d. Additional analysis was then performed using Sobel tests to see if each of these mediator effects was significant. The Sobel test examines the combined effects of the path between a dependent variable and a mediator and the path between the mediator and the independent variable and is a more direct test of mediation (Sobel 1982). As expected, the mediator facilitates the relationship between an ambidextrous firm strategy and profit (3.16, $p < .01$), customer satisfaction (2.78, $p < .01$) and new product introductions (2.43, $p < .05$), but not for revenue (1.64, $p > .10$).

Table 3: Essay 1, Mediating Effects of Marketing Implementation

Dependent Variable	Revenue	Profit	Customer Satisfaction	New Product Introductions	Log 2005 Revenue	Log 2005 Profit
Hypotheses	H2a: Not Supported	H2b: Supported	H2c: Supported	H2d: Supported	H2c: Supported	H2d: Supported
Ambidextrous Firm Strategy	.05*	.03	.02	.01	.01	.02
Marketing Implementation	.04	.07**	.05**	.05*	.01	.03
Log firm size	.09	.00	.02	.03	.76***	.66***
Organizational age	.13	.29	.12	-.05	.10	.12
R ²	.22	.27	.23	.13	.74	.46
ΔR ²	.02	.07*	.05*	.05*	.00	.00

Note: The change in r-squared (ΔR^2) for the four dependent variables is the difference between the r-squared found in Table 2 and that found in Table 3. The asterisks denote a statistically significant change in the r-squared based on an F-test for each dependent variable.

* $p < .05$; ** $p < .01$; *** $p < .001$

2.3.3 Post-Hoc Analysis: Manufacturing versus Services Firms

Gupta, Smith, and Shalley (2006) question whether all firms should be ambidextrous, or whether important, industry-specific differences exist. I seek to provide an initial answer to this question by exploring potential differences between manufacturing and services firms in terms of how ambidexterity is related to performance. Both manufacturing and service firms seek markets for their offerings that will generate revenues. As revenues do not account for the underlying costs incurred to provide the good or service, the results of successfully implementing firm strategy on

revenues should, all else equal, be similar for both manufacturing and services firms. However, inherent differences between manufacturing and services firms may affect the mediating impact of functional implementation on the relationship between ambidextrous firm strategy and some of the other performance variables discussed earlier. For example, manufacturing firms tend to place a heavier emphasis on capital investments and scale efficiencies in the production of tangible goods, potentially shifting manufacturing firms' emphases to maximizing existing operations (i.e., an exploitation focus). This could potentially lead to improved profitability (in the short term), along with under-investment in innovation. The return on investment of new product development and risky endeavors is typically inefficient and is achieved over a longer term. If manufacturing firms are finding success in efficiency, they have little incentive to invest in less certain outcomes. Furthermore, services are generally more perishable than manufactured goods (Parasuraman, Zeithaml, and Berry 1985), and also tend to be more customized. Customization in turn means reductions in scale efficiencies (Anderson, Fornell, and Rust 1997) and lower immediate profits (Kirca, Jayachandran, and Bearden 2005).

In a post-hoc analysis, I segregated respondents into manufacturing-oriented (n = 51) and service-oriented (n = 84) firms using the North American Industry Classification System coding structure as a guide. I then tested for mediation effects for each type of firm.¹⁰ The results of this moderated mediation are presented in Table 4, as are the separate main effects when the mediator is not included. For both manufacturing and service firms, when the mediator is not present an ambidextrous strategy has a significant positive impact on all four dependent performance measures, consistent with the full sample results. Furthermore, there is a significant positive link

¹⁰ Due to the small size of the sub-samples, objective measures of performance are not included in these analyses.

between ambidextrous firm strategy and marketing implementation for both the manufacturing ($\beta = .55, p < .0001$) and service ($\beta = .65, p < .0001$) sub-samples.

For the manufacturing firm sub-sample, the mediation results are consistent with the overall sample. The mediating effect of marketing implementation on the relationship between ambidextrous firm strategy and revenue is not significant, but all of the other strategy – performance links are fully mediated by functional implementation. In contrast, functional implementation does not mediate any of the ambidextrous strategy – performance relationships for the service firm sub-sample.

Table 4: Essay 1, Tests of Mediation: Manufacturing versus Services

Dependent Variable	Revenue	Profit	Customer Satisfaction	New Product Introductions
<i>Manufacturing (n= 51):</i>				
<i>Main Effects</i>				
Ambidextrous Firm Strategy	.08***	.07**	.05**	.04*
R ²	.37	.22	.20	.11
<i>Mediation</i>				
Ambidextrous Firm Strategy	.08**	.01	.01	.00
Marketing Implementation	.01	.10**	.07**	.07*
R ²	.37	.35	.32	.21
Δ R ²	.00	.13*	.12*	.10*
<i>Services (n = 84):</i>				
<i>Main Effects</i>				
Ambidextrous Firm Strategy	.06**	.08***	.05***	.04*
R ²	.17	.19	.20	.10
<i>Mediation</i>				
Ambidextrous Firm Strategy	.02	.04	.03	.02
Marketing Implementation	.06	.06	.03	.04
R ²	.21	.23	.22	.12
ΔR ²	.04	.04	.02	.02

Note: Control variables were included in the tests for mediation. In virtually all cases, the results were non-significant.

* $p < .05$; ** $p < .01$; *** $p < .001$

2.4 DISCUSSION

Three key issues were examined in this study: (1) the mediating effect of functional implementation on the relationship between an ambidextrous firm strategy and performance; (2) performance variables that have not been explored in prior research but theoretically are expected to be positively affected by an ambidextrous firm strategy; and (3) differences between manufacturing and service firms in the tests of mediation. Each of these issues is discussed in turn below.

2.4.1 Functional Implementation

Using marketing as an example of functional implementation, many of the dimensions of performance in an ambidextrous strategy are increased through successful implementation. This reconfirms the critical role that functional units play as translators and implementers of firm strategy (Bonoma 1984; Bourgeois and Brodwin 1984; Hambrick 1983; Nutt 1987), but does so for the first time in the context of organizational ambidexterity. For example, customer satisfaction was positively affected in this study through strong implementation by the marketing function. This outcome speaks not only to the marketing function's close relationship with the customer but also to its ability to balance competing demands on its resources. Close working relationships with customers are essential to enhancing firm value (Prahalad and Ramaswamy 2000; Vargo and Lusch 2004). In an ambidextrous firm, these close interactions allow firms to sense and respond to customers' future requirements while also improving the quality of its current products.

Interestingly, no mediating effect was found for functional implementation in the relationship between ambidextrous firm strategy and revenue. It is possible that a different mediator may play a more important role in taking the strategy and translating it into actions that result in revenue enhancements. However, the results related to revenue underscore that it is important for managers to take a broad view of strategy – performance relationships. Different intermediaries (and moderators) can influence the success of an ambidextrous strategy and thus alternate pathways to desired performance must be examined. In this regard, my study demonstrates the marketing function’s contribution to the success of an ambidextrous strategy would be overlooked, to the firm’s detriment, if revenue were the sole focus of managers.

These results do not speak to the potential importance of other functional areas in mediating the relationships between strategy and performance. To be truly successful, an ambidextrous strategy requires firm-wide implementation. As a next step, then, research should focus on evaluating other functional areas for possible mediating effects. This will help researchers to develop a more comprehensive picture of how an ambidextrous strategy can be most effectively implemented within organizations. Furthermore, this more robust understanding may facilitate inter-functional coordination and help avoid the emergence of “functional silos” within the firm. Prior research also suggests that team composition and dynamics affect the balance between exploration and exploitation (Beckman 2006; Perretti and Negro 2006). However, these studies do not account for within-function effects on firm ambidexterity. Combining these findings of the importance of functional units with research on team dynamics would be a fruitful extension. Finally, this study does not examine the size of the marketing function within each firm. Marketing departments in smaller firms, although publicly-traded may operate much differently than larger firms, thus impacting the firm’s ambidextrous approach.

2.4.2 The Multi-Dimensionality of Performance

Previous empirical studies of ambidextrous organizations have found that organizational ambidexterity is significant and positively related with superior revenue performance (e.g., Gibson and Birkinshaw 2004; He and Wong 2004), and these results are consistent with this past work. However, I go one step further by using objective measures – drawn from COMPUSTAT – as well as subjective measures like those used in previous research, and find that both sets of revenue measures are positively linked to organizational ambidexterity.

While revenue is certainly one important aspect of a firm's overall performance, other performance dimensions such as profitability, customer satisfaction, and new product introductions also matter. Revenues allow firms to reinvest in order to develop the necessary knowledge, assets and intangible factors (Amit and Schoemaker 1993) that enable the firm to maintain its ambidextrous approach. At the same time, revenues are only one indicator of a successful ambidextrous strategy, and focusing too much on a single metric (such as revenue) may inadvertently lead the firm to shift its balance of emphasis from an ambidextrous strategy to exploration or exploitation.

The empirical results show that profitability, customer satisfaction, and new product introductions are all significantly affected by an ambidextrous firm strategy. Profits can be used in innovative projects, enabling the firm to foresee and to adapt to changing market conditions. Profits can also be returned to stockholders, used for mergers and acquisitions, or distributed to key employees for talent retention. These actions reinforce the firm's ability to balance exploitation and exploration. Second, effective ambidextrous firm strategies hinge on serving the current needs of the customer base and at the same time peering into the future for potential

opportunities. Similarly, firms must continue to introduce new products into the marketplace to respond to changing market conditions. If a firm can achieve both of these goals successfully, longer-term customer satisfaction should result, leading to increased customer commitment, greater loyalty, lower servicing costs, and higher customer switching costs (Garbarino and Johnson 1999). These outcomes provide the firm with the stability to allocate investments to both exploitation and exploration.

While the results were robust across performance dimensions, future research should examine the same linkages using different measures of the outcomes. For example, how other measures of customer satisfaction such as the brand partner quality scale (Aaker, Fournier and Brasel 2004) are affected by exploitation and exploration may provide interesting insights.

2.4.3 The Moderating Effect of Mediation in Manufacturing versus Services Firms

Strong support for the mediating effect of functional implementation was observed for manufacturing firms in this study. The marketing function's effective implementation of the firm's ambidextrous strategy positively affected profitability, customer satisfaction, and new product introductions. These findings have important implications for manufacturing firms, which often operate in capital-intensive, highly competitive environments, and may therefore emphasize operational efficiencies at the expense of innovation. The results suggest that firms that not only achieve efficiencies but that also continue to explore new opportunities will outperform their counterparts focused solely on exploitation. Furthermore, the findings show that functional implementation (particularly the role played by marketing in linking the firm and its external customers) plays a key role in achieving this balance.

In contrast, the results do not demonstrate a mediating effect of functional implementation for services firms. This is not to say that implementation at the functional level is not important for services firms, however. For example, high customer satisfaction levels are a key goal of virtually all services firms, and this objective is likely to be widely communicated and implemented across these firms. Thus, the incremental effect of functional implementation (in this case by marketing) will be much smaller than is the case for manufacturing firms. Furthermore, the role or structure of marketing within services firms may be different than in manufacturing organizations. Again, in services firms, marketing may already be “front and center” in the firm to attract customers. This study also provides a glimpse of service-oriented firms in the aggregate, and was not designed to investigate industry differences in detail. Services industries are complex and customer preferences that impact performance can vary widely. Understanding the nuances, if any, among various firm sub-types (e.g., retailers vs. professional services) is of key importance to managers and should be analyzed in greater depth in future research.

2.4.4 Implications for Future Research

This study provides a snapshot of how use of an ambidextrous strategy affects performance for the firms in this sample at a single point in time. However, some researchers (e.g., Tushman and O’Reilly 1996) have suggested that an ambidextrous firm strategy must be implemented over time. Even if the firm is able to strike an appropriate balance between exploitation and exploration at one point in time, it may not be able to sustain it over longer periods. For example, Tushman and O’Reilly (1996) note that Hewlett-Packard was once able to both effectively

exploit its existing markets while also exploring new opportunities. More recently, Hewlett-Packard has failed to sustain this balance. Furthermore, there is considerable debate as to whether such a balance can be achieved and sustained through ambidexterity, punctuated equilibria, or some other means (see Benner and Tushman 2003; Burgelman 2002; Christensen 1998; Gupta, Smith, and Shalley 2006; Levinthal and March 1993). Determining which of these mechanisms is most likely cannot be accomplished using cross-sectional data.

Thus, as a next step, it will be important to conduct a longitudinal analysis of the relationships studied here. Firms may be at different stages in the development of an ambidextrous strategy, and may thus be more focused on either exploitation or exploration at any particular point in time. Furthermore, development of an ambidextrous strategy may be driven in part by firm age, environmental conditions, or other factors. A longitudinal analysis may also shed light on obstacles that firms must overcome to reach a high degree of ambidexterity. These insights will allow managers to develop and to sustain an ambidextrous organization.

To illustrate the importance of taking a broader view, the extent to which an ambidextrous strategy is likely to both be employed and be successful for an organization may depend heavily on the uncertainty in its operating environment. Dess and Beard (1984) suggest that three dimensions of the environment contribute most to environmental uncertainty and are thus most likely to consistently influence firm performance over time: environmental turbulence, munificence and complexity. For example, in a relatively stable business environment, any advantage achieved by a firm is likely to be sustained over an extended period of time (Miller and Shamsie 1996). Firms facing such a stable environment are likely to emphasize “static efficiency” at the expense of “dynamic efficiency” (Ghemawat and Costa 1993), and to exploit existing knowledge and capabilities rather than exploring new possibilities (Leonard-Barton

1992; Levinthal and March 1993; Levitt and March 1988). In contrast, in more turbulent environments many firm-specific advantages are short-lived as competitive and environmental pressures quickly undermine any resource value or heterogeneity (Foss 1998). The ability to stay on top of business trends and to quickly respond to changing market needs is critical for superior firm performance in such environments, placing a premium on ambidextrous – and/or exploration-focused – strategies. Further work should therefore examine the extent to which the success of an ambidextrous strategy is affected by the broader operating environment.

2.5 CONCLUSION

Drawing on a broad, cross-industry sample of firms, I found in this study that the ambidextrous firm approach significantly affects performance only when successful implementation is evident at the functional level. Furthermore, I decomposed performance into four sub-facets and showed strong, positive links between an ambidextrous firm strategy and revenue, profit, customer satisfaction and new product introductions. Finally, I noted some important differences between manufacturing and services firms, suggesting that a deeper investigation of the causes of these differences is needed. This work demonstrates that organizational ambidexterity can be beneficial to firms, and that functional implementation is a key determinant of success. What is now needed is further investigation of the boundary conditions under which this success can be achieved, and sustained over time.

**3.0 SECTION III: ESSAY II: DYNAMIC RETURNS TO INVESTMENTS IN
EXPLOITATION AND EXPLORATION: EVIDENCE FROM THE
PHARMACEUTICAL INDUSTRY**

A global survey of four hundred twenty-five executives highlighted a continuing battle for firms – that of creating competitive advantage by simultaneously exploiting existing markets and exploring new ones (Accenture 2005). An exploitation strategy primarily emphasizes satisfying the current customer base (e.g., Benner and Tushman 2003; Srivastava, Shervani, and Fahey 1999), whereas exploration is primarily focused on investments in innovation and experimentation (Katila and Ahuja 2002). Theoretically, exploitation and exploration compete for scarce resources that inevitably require trade-offs within the firm (Cyert and March 1992). March (1991: 85) states: “The essence of exploitation is the refinement and extension of existing competencies and paradigms...The essence of exploration is experimentation with new alternatives.” These differing emphases create pressure on managers that can force many firms down a more focused exploitation or exploration path as opposed to simultaneously pursuing both.

This paper seeks to address three limitations in this research stream. First, one of the most pressing needs is a better understanding of how firm exploitation and exploration capabilities change over time (Beckman 2006; Lavie and Rosenkopf 2006; Gupta, Smith, and Shalley 2006;

Tushman and O'Reilly 1996). March (1991) argues that though exploitation and exploration often compete for firm resources, balancing these demands over time is necessary for competitive advantage. This perspective suggests that investments in both exploitation and exploration must be made to create performance advantage. Firms that pursue a particular approach may, when evaluated at a single point in time or over just a few years, appear to be poor performers when compared to competitors (Hutt, Reingen, and Ronchetto 1988). Therefore, a dynamic examination provides a longer-term understanding of the contribution of exploitation and exploration to firm performance.

Second, how exploitation and exploration capabilities impact forward-looking performance is surprisingly absent from this research stream. The potential carryover effects of capabilities imply that the future value of the firm is impacted by actions in a particular period. An understanding of how exploitation and exploration capabilities impact the future value of the firm, and in particular those investments with a sales, marketing or new product nature, provides meaningful input from marketing to top management for short- and long-term strategic decision making (Day 1994; Srivastava and Reibstein 2005; Srivastava, Shervani, and Fahey 1999). Moreover, the potential differences in the impact of these capabilities on forward-looking performance should then be linked to historical measures for a more detailed picture of the impact of firm actions.

Finally, there is continuing debate as to whether or not performance advantages accrue to firms that effectively balance exploitation and exploration rather than focus on only one capability. Proponents suggest that the two emphases are complementary and can co-exist (see Benner and Tushman 2003; Christensen 1998; Gupta, Smith, and Shalley 2006; Levinthal and March 1993). Yet, detractors say that attempting to balance exploration and exploitation

strategies raises the risk of a firm being good at neither (e.g., Kotler 1997; Miles, Snow, Meyer, and Coleman 1978; Miller and Friesen 1986). A longitudinal evaluation of these relationships helps to clarify the potential benefits of a balanced strategy versus a focused one.

Exploitation and exploration are conceptualized as capabilities in this study - the outputs generated from resource investments made by the firm (Grant 1996; Venkatraman, Lee, and Iyer 2006; Winter 2003). Using longitudinal objective data from publicly-traded pharmaceutical firms, I first examine how firms maintain and modify exploitation and exploration capabilities, noting the positive spillover effects of cumulative prior year investments. I use stochastic frontier estimation, an input-output econometric technique that creates measures of efficiency for exploitation and exploration for each firm that are then compared to all firms for a given period. I then link capabilities to both historical and forward-looking performance, measured by Return on Assets and Tobin's q respectively. Finally, I provide insight into the debate over whether or not a balanced (e.g., Gibson and Birkinshaw 2004) or a singular (e.g., Miller and Friesen 1986) focus is more appropriate with respect to exploitation and exploration capabilities. Figure 2 summarizes the conceptual model.

The remainder of this paper is organized as follows. Drawing on the resource-based view of the firm (RBV) as a theoretical foundation, the potential impact of exploitation and exploration capabilities - separately and combined - on performance is discussed. I argue that a dynamic perspective is critical to understanding how firm investments impact exploitation and exploration capabilities. Third, these relationships are tested using objective data (i.e., COMPUSTAT, SDC Platinum) from publicly-traded U.S. pharmaceutical firms. Fourth, I review the results and their implications, drawing comparisons between historical and forward-looking performance measures. Finally, limitations and suggestions for future research are discussed.

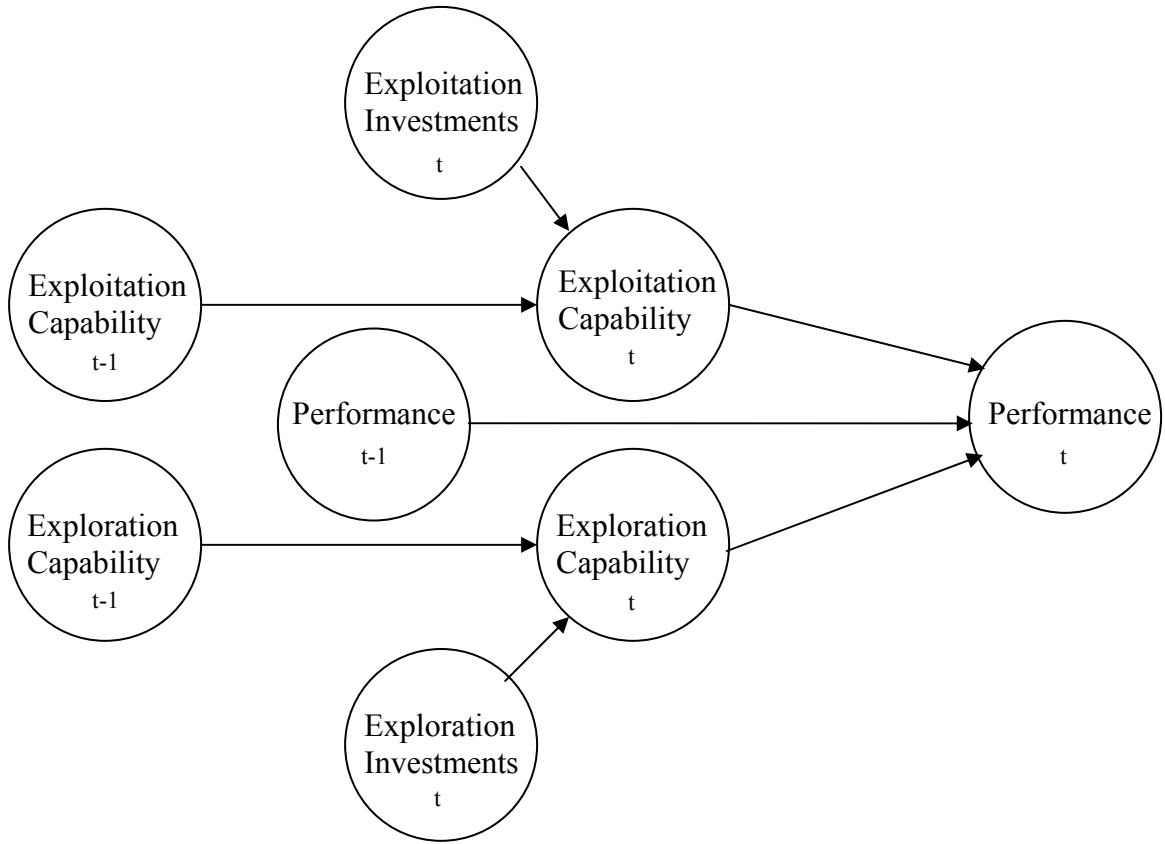


Figure 2: Essay 2, Conceptual Framework

3.1 THEORY AND HYPOTHESES

3.1.1 The Resource-Based View of the Firm

The resource-based view (RBV) provides a theoretical lens through which exploitation and exploration capabilities can be examined. RBV focuses on how firms can develop and sustain competitive advantage (Barney 1991; Peteraf 1993; Teece, Pisano, and Shuen 1997; Wernerfelt 1984). In this paper, “resources” are defined as those stocks of knowledge, physical and intangible assets, human capital and other factors that a firm owns or controls (Capron and Hulland 1999; Amit and Schoemaker 1993). Capabilities are those complex bundles of resources that manifest themselves through firm-wide processes and help create competitive advantage (Amit and Schoemaker 1993; Day 1994; Dutta, Narasimhan, and Rajiv 1999). Capabilities are accrued slowly, are firm-specific (Barney 1991), and are reconfigured over time to meet market needs (Eisenhardt and Martin 2000; Teece, Pisano, and Shuen 1997). Differences in performance among firms are the result of the unique idiosyncratic, inimitable capabilities owned or otherwise controlled by the firm (Atuahene-Gima 2005; Amit and Schoemaker 1993; Barney 1991; Rindova and Kotha 2001). The differences in capabilities prevent other firms from understanding or duplicating the complexity and therefore the competitive advantages of market leaders (Reed and DeFillippi 1990). The complexity and path-dependent nature of exploitation and exploration, particularly in the process, skills and systems needed to master these capabilities, lends itself well to the resource-based view of the firm.

3.1.2 Exploitation and Performance

A strategy that emphasizes exploitation focuses on satisfying the current customer base of a firm (e.g., Benner and Tushman 2003; Srivastava, Shervani, and Fahey 1999). The satisfaction of the current customer base increases the potential for repeat purchases as well as positive word-of-mouth, which can generate additional revenue for the firm (Oliver 1997; Reichheld 1996). Repeat purchasing also helps firms to become more efficient in serving existing customers, making them more profitable. Revenues and profits provide opportunities for reinvestment in the firm (e.g., capital expenditures, debt reduction, or employee retention), which further strengthen a firm's hold on its customer base. Furthermore, the length of time between investments in exploitation capabilities such as sales force productivity improvements or expanded customer service and the recognition of benefits by the firm is shorter.

These successful outcomes and shorter reward times then encourage managers to do more of the same, reinvesting profits into refinement and efficiency. March (1996, p. 280) noted that "exploiting often thrives on commitment more than thoughtfulness, narrowness more than breadth, cohesiveness more than openness". This continuing cycle creates a performance advantage over those firms that are less focused on exploitation capabilities and thus less able to serve current customer needs. A firm that does not exploit also suffers from reduced profits and therefore has fewer resources to reinvest over time. Intangible outcomes, such as customer satisfaction and loyalty, are also negatively impacted as non-exploiters miss opportunities to serve the current customer base. Therefore, the following hypothesis is proposed:

Hypothesis 1: Firms that maintain stronger exploitation capabilities will have superior performance to other firms.

3.1.3 Exploration and Performance

Exploration is focused on innovation, risk and experimentation to reach new markets and customers. These outcomes, however, are visible only over the longer-term, presenting difficult challenges for the firm (March 1991). Furthermore, the risk increases the potential for zero or negative return on investment exists. Yet, patenting new ideas or generating new products, central outputs of exploration, are critical to firm adaptation and survival (Mitchell and Singh 1993; Schoonhoven, Eisenhardt, and Lyman 1990). Innovative firms that focus on these outputs can win market share from competitors and increase their own market value (Chaney and Devinney 1992; Shankar, Carpenter, and Krishnamurthi 1998). Therefore, exploration-focused firms are constantly seeking to improve performance through these activities.

Research and development (R&D), for example, can increase risk but it can also promote flexibility to adapt to market changes (Miller and Bromiley 1990) and to generate improved performance (e.g., Jaffe 1986; Roberts 2001). Firms that maintain strong R&D can benefit from economics of scale and scope (Scherer 1980; Teece 1980), which can better position them for future innovations over the longer-term (Cohen and Klepper 1996). Joint ventures, alliances and mergers or acquisitions can also provide opportunities for exploration (e.g., Lavie and Rosenkopf 2006; Prabhu, Chandy, and Ellis 2005; Wadwa and Kotha 2006). Acquisitions, for example, allow for the exchange of resources to help maintain strong capabilities (e.g., Capron and Hulland 1999). Pharmaceutical firms, for example, thrive on these types of arrangements, often relying on them to augment their own drug development pipelines. Alliances in the pharmaceutical industry also help to share the large-scale costs (estimated at \$800 million to \$1 billion) of drug development and can speed time to market (Kumar and Nti 1998). Given the

characteristics of the pharmaceutical industry, these ventures can contribute to a firm's competitive advantage (e.g., McEvily and Zaheer 1999; Singh and Mitchell 1996).

Realizing the risks and natural inefficiencies, exploration-focused firms are less concerned with short-term growth, revenue and profitability and more focused on developing the skills and products that will meet the future needs of customers. Success encourages firms to continue developing new products to improve future markets (Cohen and Klepper 1996). Collectively then, exploration allows firms to adapt and reach new knowledge (Rosenkopf and Nerkar 2001) and reorient themselves to make “long jumps” (Levinthal 1997) that create performance advantage. Therefore, the following hypothesis is proposed:

Hypothesis 2: Firms that maintain stronger exploration capabilities will have superior performance to other firms.

3.1.4 Balanced versus Focused Capability Development and Performance

The literature on exploitation and exploration reveals considerable debate over the use of a balanced approach. Detractors posit that taking a focused approach is better for performance, as attempting to balance both exploration and exploitation strategies raises the risk of a firm being good at neither (e.g., Kotler 1997; Miles, Snow, Meyer, and Coleman 1978; Miller and Friesen 1986). Even proponents of the balanced approach suggest that the effort required of the firm to support it can overwhelm the firm (Benner and Tushman 2002; Katila and Ahuja 2002). One of the reasons for this is that resources are spread thinly across the two capabilities, resulting in under-development of both. Another line of thinking is that, particularly for publicly-traded firms, the constant pressure from stock analysts and shareholders may prime managers to “make

earnings”, driving them to emphasize exploitation rather than exploration (Benner and Tushman 2002). Pursuing both strategies could result in punishment in the form of lower stock prices, market value or credit ratings. Third, intense competitive actions can preclude firms from making the necessary actions to support both strategies. A loss in a key patent lawsuit, a competitor acquisition, or the surprise release of a competing product can force firms to make trade-offs that create an imbalance between the two strategies. Fourth, firm-wide shocks can disrupt the flow of resources to both capabilities, redirecting them to one or other or neither. Consider the experience of Merck after the widely-publicized legal troubles over its blockbuster drug, Vioxx. Its stock price plummeted. Merck embarked on a \$5 billion cost-cutting effort to help growth efforts and re-focused on key areas of research, such as heart disease and cancer (Barrett 2006). Finally, the inherent challenges of mastering differing tasks may prohibit employees from mastering the necessary knowledge, skills and abilities required to develop dual capabilities.

Focused strategies, however, have their own shortcomings. First, an over-emphasis on exploitation can stifle a firm’s ability to alter its course in a changing market (Cyert and March 1992). Managers become less interested in building capabilities in exploration as the uncertainty and risk may mitigate their current success (Leonard-Barton 1992; Levitt and March 1988). Perhaps managers fail to see the potential longer-term benefits of exploration given the more distant outcomes (Levinthal and March 1993). As a result, exploitation-focused firms may find that they have ceded their competitive advantage to firms that are more willing to maintain stronger exploration capabilities. These initially favorable strategic choices become inferior capabilities in the longer run (Heriott, Levinthal, and March 1985). Second, exploration-focused firms that are unsuccessful can get trapped into a continuing cycle whereby “failure begets

failure” (March 1993). Managers tend to take too many risks or innovate without extracting profits (Levinthal and March 1993). By not investing in exploitation capabilities that refine process and make the firm more efficient, exploration-focused firms become particularly vulnerable to competitors, which can threaten survival.

Proponents suggest that balancing exploitation and exploration strategies makes sense for many firms (e.g., Abell 1993; Williamson 1999), and may even be necessary for survival (e.g., Christensen 1998; Lewin and Volberda 1999). When used effectively, a dual approach limits both organizational inertia and management myopia (Levinthal and March 1993). Moreover, these capabilities are complementary and can generate many benefits for the firm (Atuahene-Gima 2005; Gibson and Birkinshaw 2004; Katila and Ahuja 2002; Lewin and Volberda 1999).¹¹ The new knowledge gained from exploration is incorporated into exploitation. The insight gained from maximizing relationships with the current customer base is applied to generating new ideas, products and markets. The balanced approach helps the firm to continuously find new ways to maximize the current customer market while meeting the needs of future customers (Kyriakopoulos and Moorman 2004). For example, the effects of both exploration and exploitation are seen in new product introductions (Katila and Ahuja 2002; Kiriakopoulos and Moorman 2004). Profits generated by exploiting current products and services can result in valuable new product extensions (Griffin 1997); or be allocated to exploring new product development opportunities. Pharmaceutical firms often develop slightly different drugs (i.e. higher dose tablets or “extra strength” versions of a commercially-available drug) that protect

¹¹ The two emphases are seen as complements to one another, and thought of as orthogonal variables rather than two ends of a continuum. (For similar arguments, see Baum, Li, and Usher 2000; Koza and Lewin 1998; Nerkar 2003.)

and enhance its current market share while providing additional revenue for research and development.

The repetition of exploitation and exploration processes embed these capabilities in the firm (Day 1994), creating barriers to entry for competitors (Bain 1956; Leonard-Barton 1992) and allowing it to better anticipate and respond to its market (Day 1994; Prahalad and Hamel 1990). This leads to a performance advantage over firms that cannot duplicate these capabilities (Dierickx and Cool 1989; Day 1990; Amit and Schoemaker 1993; Reed and DeFillippi 1990). Summarizing the discussion, the following competing hypotheses are proposed:

Hypothesis 3a: Firms that possess stronger capabilities in both exploitation and exploration (i.e., a balanced approach) will have superior performance to firms that emphasize either exploitation or exploration;

or,

Hypothesis 3b: Firms that possess stronger capabilities in either exploitation or exploration (i.e., a focused approach) will have superior performance to firms that emphasize both exploitation and exploration.

3.1.5 Exploitation and Exploration Capabilities: A Dynamic Perspective

March (1991) argues that exploitation and exploration often compete for firm resources, and that balancing these demands over the longer-term, although difficult, is necessary for competitive advantage. Gibson and Birkinshaw (2004) echo the longer-term nature of this effort: “It is not

enough to create a supportive context (for exploitation and exploration). It is when this supportive context creates the capacity for (exploitation and exploration) that performance gains are realized.” (p. 222). Tushman and O’Reilly (1996) posit that firms that simultaneously manage both exploitation and exploration “are systematically more ‘lucky’ than the competition” in terms of success (p. 5). The time dependent nature of maintaining capabilities supports these perspectives (Amit and Schoemaker 1993; Barney 1991). It follows then that a lack of investment as compared to competitors can negatively affect capabilities as well as firm performance.

A proper evaluation of these capabilities appears to then be more appropriate from a longitudinal perspective. Firms that pursue the balanced approach, when evaluated at a single point in time or over just a few years, may appear to be poor performers when compared to single-focused exploitation or exploration firms (Hutt, Reingen, and Ronchetto 1988). When compared to exploitation-focused firms, for example, revenues or profitability may be substantially lower at a single point in time for exploration-focused or balanced firms.

Given the potential dynamic effects of capabilities, it becomes important to understand the investments that a firm must make to bolster exploitation and exploration. One can think of a firm’s capabilities at the end of a period as influenced by two factors: 1) the cumulative effect of exploitation and exploration capabilities from prior periods on the current period (Dutta, Narasimhan, and Rajiv 1999; Shi et al. 2006); and, 2) the resource investments that a firm makes *during* the current period. A firm can increase its exploitation capability, for example, by spending on selling, general and administrative (SGA) to successfully reach its customer base, increase brand awareness or sales productivity. These actions help to cement the relationships (e.g., physicians, hospitals) that can then become a source of competitive advantage. A

significant cut in selling, general and administrative expenses for a pharmaceutical firm can leave fewer sales representatives to meet with physicians and less money for direct-to-consumer advertising. A firm's exploitation capability could then stagnate or decline, negatively impacting performance. Increases in capital expenditures, which are investments in property, facilities and equipment that have longer-term benefits, are also important to properly service the current customer base. Examples include such things as building centrally located buildings that enhance customer support, making major renovations to improve brand image or purchasing equipment that increases employee productivity. Finally, an increase in receivables from the beginning to the end of the period reflects positive customer reactions to firm products (Dutta, Narasimhan, and Rajiv 1999). These are actual sales of a firm's products that are not yet paid for but are usually scheduled to be collected within a few weeks or months of the transaction.

Exploration capabilities, on the other hand, are enhanced by investments in research and development as well as in external affiliations such as joint ventures, alliances, or acquisitions. Current year research and development expenditures supply the resources for scientists and engineers to continue their work on patents and new products. Firms that are leaders in R&D tend to invest resources to maintain that position (Ofek and Sarvary 2003). External affiliations, such as entering into new alliances or mergers/acquisitions provide an infusion of knowledge and assets that can positively contribute to exploration capability. Consider that the drug discovery timeline for pharmaceutical companies averages seven to ten years or longer before benefits from investments are realized (Chandy, Hopstaken, Narasimhan, and Prabhu 2006). This requires up-to-date resources in the form of such things as facilities, knowledge, and personnel. Accounting for these investments in the model provides a more accurate estimation of management practice in capability development.

Summarizing this discussion, investments in exploitation and exploration maintain those capabilities over time. Moreover, the cumulative effect of capabilities carries over from period to period, providing a foundation for investments in the current period. Collectively then, the following set of hypotheses is proposed:

Hypothesis 4a: Investments in selling, general and administrative will improve exploitation capabilities from one period to the next.

Hypothesis 4b: Investments in capital expenditures will improve exploitation capabilities from one period to the next.

Hypothesis 4c: Increases in receivables will improve exploitation capabilities from one period to the next.

Hypothesis 5a: Investments in research and development will improve exploration capabilities from one period to the next.

Hypothesis 5b: Investments in external arrangements will improve exploration capabilities from one period to the next.

3.2 EMPIRICAL STUDY

3.2.1 Overview

The empirical study section is organized as follows. The research setting is presented first, followed by a discussion of the chosen dependent and control variables. Next, the two-step

method for hypothesis testing is described. In the first step, stochastic frontier estimation is used to develop separate exploitation and exploration capabilities for each firm in each period. The second-step then incorporates the capabilities estimates into a seemingly unrelated regression (SUR) model to formally test the relationships between firm investments and capabilities as well as between capabilities and performance.

3.2.2 Research Setting: The Pharmaceutical Industry 1996 - 2005

The context of this study is focused on one industry to limit cross-industry heterogeneity. Objective data from 276 publicly-traded pharmaceutical companies (SIC Code Number 2834) over a ten-year period from 1996 to 2005 provided a large database for study. U.S. publicly-traded firms provide consistent measures of financial reporting and other publicly available documents cannot be obtained from many privately-owned firms.

The pharmaceutical industry is a good setting for this study as firms must seemingly maintain strong capabilities in exploitation and exploration for longer-term competitive advantage. Global drug revenue has slowed to single-digit growth in the past several years and approximately seventy leading drugs with an aggregate worth of \$62.6 billion scheduled to go off patent between 2006 and 2010. (Standard & Poor's, "Industry Surveys, Healthcare: Pharmaceuticals," November 2, 2006, p.12). Drug development pipelines are getting longer, sometimes a decade, and more expensive. The costs of drug development are skyrocketing to near \$1 billion. Regulatory obstacles prevent 95% of drugs from ever reaching the consumer (November 10, 2006 Standard & Poor pharmaceutical industry report). Patents are challenged by generic drug makers, increasing competition, lowering prices and margins. Some estimates are

that even after drugs are commercialized, only three in ten recoup or exceed the costs of development (Grabowski, Vernon, and DiMasi 2002).

Those firms that have strong capabilities in exploitation and exploration can be market leaders. A Tufts Center for the Study of Drug Development report in September 2006 estimated that firms who can successfully move drugs quickly through the development and regulatory hurdles can gain about \$1 billion in incremental drug revenue while saving \$30 million in costs over competitors. The rise of biotechnology firms has created a number of alliance or acquisition opportunities. Surprisingly, many of the pharmaceutical firms go through periods of imbalance, creating an interesting context for studying how (or if) firms can be successful in an environment where both exploitation and exploration capabilities appear to be necessary for competitive advantage.

3.2.3 Dependent Variables

Tobin's q. Prior literature relies almost exclusively on historical financial measures of performance such as revenue and profit. In this study, a more forward-looking measure of a firm's market value, Tobin's q , is used as the dependent variable as the resource investments in a firm's capabilities impacts firm performance over several future time periods. Tobin's q is the ratio of the firm's market value to the current replacement cost of the firm's assets. Replacement cost is an indicator of alternative uses of a firm's assets such that a ratio of $q > 1$ shows that firms are creating value by their resource investments. It is a forward-looking measure that incorporates firm risk and avoids issues related to methods of accounting (Montgomery and

Wernerfelt 1988). Drawing on the Compustat database, the Tobin's q calculation for this study follows the Chung and Pruitt (1994) model:

$$q = \text{MVE} + \text{PS} + \text{DEBT}/\text{TA}$$

Where:

MVE = closing price of shares at the end of the financial year (Compustat Data 24) x # of common shares outstanding (Compustat Data 25)

PS = liquidation value of the firm's outstanding preferred stock (Data 10)

DEBT = (current liabilities – current assets) + book value of inventories + long-term debt ((Data5 – Data4) + Data3 + Data9)

TA = book value of total assets (Data 6)

Return on Assets. Return on assets (ROA) is a historical measure of performance and is measured as the ratio of net income before extraordinary items over total assets. Using data from Compustat, an ROA measure was calculated for each firm in each period of the study. Incorporating ROA into the analysis allows a historical versus forward-looking comparison of the effects of exploitation and exploration capabilities on performance.

3.2.4 Control Variables

Two control variables are used to account for variation across firms. Age of firm (AGE) is marked from the date of incorporation. Prior research suggests that, with regard to exploration, firm age affects the rate at which firms patent (Sorensen & Stuart, 2000). Younger firms might

have less time to develop the processes, personnel and knowledge necessary for strong capabilities. However, organizational inertia may prevent older firms from achieving this same goal (Klepper 1996; Tushman and Anderson 1986). Firm size (SIZE) is measured as the natural log of the number of employees per firm per year. Larger firms are more advanced in terms of organizational processes and knowledge than smaller firms (Hage 1980). The economies of scale often found in larger firms place them in a position to reap the benefits of greater efficiencies, providing resources for exploration (Klepper 1996). However, larger scale and advanced organizational development may create core rigidities (Leonard-Barton 1992) and competency traps (Levitt and March 1988) that can inhibit exploration. Conversely, smaller firms have a harder time exploiting economies of scale. This can hinder small firms from extracting benefits in the short-term and reduce necessary resources for future growth.

3.2.5 Capabilities Estimation

Stochastic Frontier Estimation Method. Firm capabilities are conceptualized as the outputs obtained from resource inputs. Stochastic frontier estimation (SFE) is an econometric method that captures this input-output effect by estimating the capability of each firm and then comparing it against competitors (Aigner, Lovell, and Schmidt 1977). SFE specifically allows for a two-part error term that captures both inefficiency in firm capabilities and inherent randomness, which is better suited for this data set than other econometric methods. An alternative method, data envelopment analysis (DEA) was considered. DEA is a nonparametric technique that calculates a similar measure of efficiency (Charnes, Cooper and Rhodes 1978). However, DEA does not allow for randomness derived from events outside of the firm's control

(For a review see Aigner, Lovell, and Schmidt 1977; Bauer 1990). Following Dutta, Narasimhan, and Rajiv (1999), the SFE model is the maximization of an objective function that takes the following form:

$$(1) \quad Y_{it} = \int (X_{it}, \alpha) + \varepsilon_{it} - \eta_{it},$$

where Y_{it} is the output for the i th firm in the t th time period, X_{it} is the vector of resource investments, or inputs, and α is the vector of coefficients for the associated input variables. The two-part error term, $\varepsilon_{it} - \eta_{it}$, represents vectors of stochastic error (random shocks outside of management control that influence the variables) and inefficiency error (omitted variables) respectively. The random error component, ε_{it} , is assumed to be independent and identically distributed with a mean 0 and variance $\sigma^2_{\varepsilon} \sim N(0, \sigma^2_{\varepsilon})$. The inefficiency error component, η_{it} , is assumed to be non-negative, independent and identically distributed with a mean μ and variance $\sigma^2_{\eta} \sim N(\mu, \sigma^2_{\eta})$ with a half-normal distribution. The error terms are also assumed to be independent of each other as well as of the independent variables.

A maximum likelihood estimate for the exploitation and exploration capabilities for each firm in each period can then be obtained by following the Cobb-Douglas formula set forth by Dutta, Narasimhan, and Rajiv (1999) and Battese and Coelli (1988):

$$(2) \quad y = e^{\alpha_0} \left[\prod_{i=1}^k \prod_{t=1}^k x_{it} \alpha_{it} \right] e^{\varepsilon} e^{-\eta}$$

Rearranging Equation (2) results in the following input-output capability model:

$$(3) \quad \text{Capability} = \frac{y}{e^{\alpha_0} \left[\prod_{i=1}^k \prod_{t=1}^k x_{it} \alpha_{it} \right] e^{\varepsilon}} = e^{-\eta}$$

Equation (3) is a ratio of inputs to outputs such that the resulting individual firm capabilities have values between zero and one. Higher estimates represent stronger capabilities. SFE then compares the entire set of capability estimates for a given time period, creating a “frontier” of efficiency of all firms. This method provides a more accurate evaluation of competition across firms, given a suitable dataset. In this study, I ran twenty SFE models, one for exploitation and one for exploration in each period for ten periods. So, for example, Bristol-Myers Squibb had twenty SFE estimates for 1996 to 2005, one in each period for exploitation and one for exploration. A summary of inputs and outputs used in the capabilities estimations is presented in Table 5.

Table 5: Essay 2, Summary of Variables for Capabilities Estimates

<u>Variable</u>	<u>Measure</u>	<u>Source</u>
<i>Exploitation</i>		
SALES	Yearly revenues	Compustat
SGA	Yearly selling, general and administrative expenses	Compustat
REC	End of period accounts receivable balance	Compustat
CAPEX	Yearly capital expenditures on tangible assets that support the firm	Compustat
<i>Exploration</i>		
PATENTCUM	Cumulative patents	USPTO/Delphion
R&D	Exponentially smoothed cumulative measure	Compustat
JVMA	Combined count of joint ventures, alliances and M&A activity for each period as a measure of externally-oriented exploration	SDC Platinum

Exploitation Capability. A firm's capability in exploitation is how efficiently it utilizes its resources to successfully serve the current customer base. A firm's sales are a key indicator of its success with its customer base (e.g., Dutta, Narasimhan, and Rajiv 1999). Sales (SALES), is the output variable and is defined in this study in U.S. dollars for a firm for each year. Drawing on prior research (e.g., Dutta, Narasimhan, and Rajiv 1999; Shi et al. 2006), the measures for the key inputs that influence the output, firm sales, are: (1) Receivables, (2) Selling, General and Administrative, and (3) Capital expenditures. Receivables (REC), or claims in lieu of cash against customers for sales, provide an indication of the interest of the customer base in a firm's products and services. This amount is drawn from a firm's balance sheet. Increases in a firm's receivables suggest a stable or growing interest in a firm's products over the longer-term. Selling, general, and administrative expenses (SGA) includes a firm's costs to maintain its sales force that serves its current customer base. This expense is found on a firm's income statement. In the pharmaceutical industry, sales representatives are a particularly large cost as they are tasked with directly interacting with physicians and hospital representatives who then prescribe the drugs for end user customers, the patients. As a result, the sales force is a significant driver of sales. Also included in SGA are advertising expenses. Research indicates that strong advertising investments promote sales (e.g., Leone 1995), thus benefiting the firm's exploitation capability, as well as recognition and broad stock ownership, which thru the exploitation capability can potentially improve the overall market value of the firm (Frieder and Subrahmanyam 2005; Grullon, Kanatas, and Weston 2004). The pharmaceutical industry often relies heavily on direct-to-consumer marketing of their products to raise interest such that consumers ask healthcare

providers about them.¹² Finally, capital expenditures (CAPEX) are a firm's yearly expenditures on new assets or on upgrading existing ones. CAPEX expenses are such things as new equipment, buildings, or land that enhance a firm's efficiency in serving its customer base.

Following Dutta, Narasimhan, and Rajiv (1999), the Cobb-Douglas formulation is used to specify the exploitation frontier model for i firms in t years, taking the logarithm of both sides:

$$(4) \ln(\text{SALES}_{it}) = \alpha + \sum \alpha \times \ln(\text{REC}_{it}) + \alpha \times \ln(\text{SGA}_{it}) + \alpha \times \ln(\text{CAPEX}_{it}) + \varepsilon_{it} - \eta_{it}.$$

Rearranging the model results in the following input-output capability model:

$$(5) \text{Exploit}_{it} = \frac{\ln(\text{SALES}_{it})}{\alpha + \sum \alpha \times \ln(\text{REC}_{it}) + \alpha \times \ln(\text{SGA}_{it}) + \alpha \times \ln(\text{CAPEX}_{it}) + \varepsilon_{it} - \eta_{it}}$$

Exploration Capability. A firm's capability in exploration is how efficiently it utilizes its resources to capture new markets and customers. I use cumulative patents (PATENTCUM) as the output variable.¹³ Patents are an important source of advantage in exploration in general but are particularly critical in the pharmaceutical industry (Levin et al. 1987). By its nature, the pharmaceutical industry places a strong emphasis on obtaining patents in support of drug development (Arundel and Kabla 1998). Furthermore, patents demonstrate a strong competitive

¹² Compustat does not provide a full data set for advertising. However, advertising is captured in SGA line item. A review of firm annual reports suggests that a large number of pharmaceutical companies in this data set do not separately present these expenditures.

¹³ In an optimal scenario, the number of new product launches per year per firm would be a strong indicator of a firm's exploration capabilities. A product launch represents a firm's total effort of exploration, encompassing the results of resource investments in research, joint ventures, etc. To this end, data on Food & Drug Administration drug approvals for each firm was collected. However, data on commercialized product launches was not available due to the cost of third-party research services. Due to the SFE technique and the volume of observations across time periods, the FDA data does not produce enough observations to statistically examine capabilities. The correlation between patents and FDA approvals was positive and significant ($\beta = .17, p < .01$). As FDA drug approvals almost guarantee the commercial launch of a new product in the pharmaceutical industry, the correlation suggests that patents are an acceptable proxy for new products in the pharmaceutical industry.

market position, which can increase cash flows (Bunch and Smiley 1992) and market value (Aaker and Jacobsen 1994).

The Delphion database, which is a subscription service that aggregates patent data from the United States Patent & Trademark Office (USPTO) in a format that is easier to use for data analysis purposes, provides the data for a measure of firm patents. The three-digit class (#514 – drugs/bio-affecting compositions) is used by the USPTO for pharmaceutical products and was the focus for patent data collection in this study. First, I counted the number of patents granted to each firm in my sample from the period 1986 to 2005, resulting in approximately 17,800 patents. The USPTO designates an assignee company as the holder of the patent. Companies that shared assignee status were each given credit for a patent in the count of the data. The count was started in 1986 instead of 1996 is that patents are often the result of resource investments over a number of years. Furthermore, multiple patents are often reflected in a single new drug product. Beginning a count of cumulative patents in 1996 would not reflect the reality of capability development. This method provides a more refined and accurate picture of management practice in exploration. After completing the per-year per-firm count analysis, cumulative measures of patents for each firm for each year were calculated.

The inputs that impact a firm's cumulative patents are: (1) Research and development (R&D), and (2) External arrangements (e.g., joint ventures, acquisitions). R&D expenses are a main driver of patents and new products (Chaney and Devinney 1992; Shankar, Carpenter, and Krishnamurthi 1998). Following Dutta, Narasimhan, and Rajiv (1999), a cumulative measure of R&D was estimated using an exponential smoothing method that accounts for prior and current

year expenditures.¹⁴ Research and development expenses, however, are typically sourced from inside the firm and fail to account for a firm's external investments in exploration capabilities. External investments such as joint ventures, alliances and acquisitions (JVMA) are also incorporated as an input as they are important sources of exploration (e.g., Lavie and Rosenkopf 2006; Prabhu, Chandy, and Ellis 2005; Wadwa and Kotha 2006). For exploration-oriented companies, these "voluntary arrangements" allow firms to learn from other firms typically by sharing information for the purpose of developing new products or services (Gulati 1998; Levinthal and March 1988). To that end, a global measure of a firm's external exploration activities JVMA helps to provide a more refined measure of its capability. The SDC Platinum database provided the data necessary to develop a count of mergers and acquisitions as well as joint ventures/alliances for each firm for each year in the sample. A search in the 2834 SIC code (Pharmaceutical Preparations) resulted in more than 1,100 external ventures for the firms in the sample. The separate per-firm per-year counts of joint ventures/alliances and mergers/acquisitions are combined into a global measure for each firm for each year. The count method provides a more refined measure of external exploration rather a more simplistic, binary "yes/no" approach (Prabhu, Chandy, and Ellis 2005). Furthermore, few firms segregate financial data to reflect joint ventures and alliances, thus forcing the use count data.

Collectively then, these inputs are firm-specific assets and knowledge that can positively influence the firm's exploration capabilities. Using SFE, this frames the combination of inputs and the ensuing output as the "efficiency of exploration" and the Cobb-Douglas specification for the frontier model for i firms in t years, taking the logarithm of both sides is:

¹⁴ The following model was used to calculate the R&D measure: $R\&D_t = (1-\lambda)R\&D_t + \lambda(R\&D_{t-1})$ with $\lambda = 3$.

$$(6) \ln(\text{PATENTS}) = \alpha + \sum \alpha \times \ln(\text{R\&D}_{it}) + \alpha \times \ln(\text{JVMA}_{it}) + \varepsilon_{it} - \eta_{it}.$$

Rearranging the model results in the following input-output capability model:

$$(7) \text{Explore}_{it} = \frac{\ln(\text{PATENTS})}{\alpha + \sum \alpha \times \ln(\text{R\&D}_{it}) + \alpha \times \ln(\text{JVMA}_{it}) + \varepsilon_{it} - \eta_{it}}$$

Two hundred and seventy-six firms were evaluated over the period 1996-2005, potentially providing 2,760 capability estimates each for exploitation and exploration. However, some of these firms were not publicly-traded during the entire ten-year period and so all observations were not available. As a result, there are 3,814 capability estimates, 1,907 each for exploitation and for exploration. To obtain the estimates, the data was segregated into ten periods for 1996-2005. Then, the *frontier* command in STATA 9 was used, which uses maximum likelihood estimation to develop average coefficients for all the observations in a given year as well as individual firm estimates for exploitation and exploration capabilities. In total, twenty separate frontier models were run to develop the 3,814 capability estimates. As specified by the input-output ratio in Equations (5) and (7), all individual capability estimates range between 0 and 1, with higher estimates corresponding to firms with stronger capabilities as compared to other publicly-traded companies in a given year.

The weighted average results of the stochastic frontier models for the ten-year period in this study are summarized in Table 6. For exploitation, REC ($\beta = .34, p < .01$), SGA ($\beta = .30, p < .01$), and CAPEX ($\beta = .36, p < .01$) all have a significant and positive influence on the output variable, firm sales. For exploration, R&D ($\beta = .58, p < .01$) shows a strong significant, positive influence on exploration capabilities as represented by cumulative patents. The global measure

of joint ventures and mergers and acquisitions ($\beta = .11$ $p < .10$), while significant and positive in many years, has a marginally significant impact in the aggregate.

Table 6: Essay 2, Exploitation and Exploration Capability Estimates

Exploitation Capability			Exploration Capability		
Output variable: ln sales			Output variable: ln cumulative patents		
Input Variables	Weighted Average Effect	Standard Error	Input Variables	Weighted Average Effect	Standard Error
ln(RECEIVABLES)	.34**	.04	ln(R&D)	.58**	.06
ln(SGA)	.30**	.06	ln(JVMA)	.11 ⁰	.05
ln(CAPEX)	.36**	.05			

** $p < .01$; * $p < .05$; ⁰ $p < .10$

3.2.6 SUR Model

This section discusses the components of the SUR model. The seemingly unrelated regression (SUR) estimation technique is appropriate for this situation because the error terms ($\varepsilon_1, \varepsilon_2, \varepsilon_3$) and the dependent variables can be correlated. SUR produces more robust coefficients than ordinary least squares regression (Zellner 1962).

First, the influence of how prior period capabilities coupled with current period resource investments (or lack thereof) impact the end of period exploitation and exploration levels is discussed. Once these relationships are understood, the impact of the exploitation and exploration capabilities on firm performance can then be separately tested. Finally, each firm's exploitation and exploration capabilities for each period can be combined to test the interactive effect. I examined the variance inflation factors for evidence of multicollinearity, but this was not a problem. Means, standard deviations and correlations among the variables are reported in Table 7.

The dynamic nature of exploitation and exploration capabilities is captured in Equations (8) and (9). The current year exploitation and exploration capabilities each include the cumulative effect of their respective capabilities from prior periods and the resource investments that a firm makes *during* the current period. For exploitation, current year expenditures in selling, general and administrative (SGA) and capital expenditures (CAPEX) as well as the change in receivables from the beginning of the period to the end (CHGREC) impact the end of period capability level. For exploration, current year expenditures in research and development (R&D) as well as external assistance in the form of joint ventures, alliances or mergers/acquisitions (JVMA) impact the end of period capability. Firm size and age are incorporated as control variables.

Table 7: Essay 2, Descriptive Statistics and Correlations

Measure	Mean (s.d.)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Change in receivables	14.46 (287.26)														
2. SGA	560.78 (1940.51)	.27**													
3. Capital expenditures	111.59 (367.49)	.27**	.91**												
4. Research and development	250.53 (916.66)	.45**	.86**	.84**											
5. JVs/Alliances/M&A	.60 (1.49)	.09**	.31**	.27**	.27**										
6. Exploitation capability	.28 (.20)	.06**	.11**	.12**	.10**	.09**									
7. Exploitation capability _{t-1}	.18 (.21)	.02	.14**	.16**	.13**	.12**	.53**								
8. Exploration capability	.16 (.19)	.05*	.30**	.32**	.27**	.06**	.10**	.17**							
9. Exploration capability _{t-1}	.10 (.17)	.01	.30**	.32**	.26**	.11**	.11**	.35**	.90**						
10. Performance (Tobin's q)	4.58 (7.95)	-.01	-.05*	-.05*	-.05*	-.06*	-.16	-.15	.03	.03					
11. Performance (Tobin's q) _{t-1}	4.95 (68.49)	-.001	-.01	-.01	-.01	-.02	-.06*	.005	-.02	.01	.10**				
12. ROA	-.54 (1.61)	.04 ⁰	.12**	.12**	.10**	.10**	.21**	.21**	.06**	.06**	-.42**	-.07**			
13. ROA _{t-1}	-.35 (1.47)	.02	.10**	.11**	.09**	.09**	.19**	.04*	.03	-.03	-.30**	-.28**	.45**		
14. Firm age	25.38 (33.64)	.07**	.60**	.61**	.51**	.21**	.20**	.23**	.31**	.29**	-.02	-.02	.09**	.05*	
15. Firm size ('000s employees)	-1.64 (2.55)	.21**	.62**	.65**	.57**	.34**	.30**	.34**	.29**	.29**	-.28**	-.07**	.37**	.31**	.60**

** $p < .01$; * $p < .05$; ⁰ $p < .10$

Equation (10) captures the relationships among a firm's exploitation capability, its exploration capability, and forward looking performance.¹⁵ To calculate the interaction, exploitation and exploration estimates for each firm in each period are mean-centered and then multiplied together. The series of three regressions in the SUR model are now as follows:

$$(8) \text{ ExploitCap}_{t,i} = \gamma_0 + \gamma_1 \text{SGA}_{t,i} + \gamma_2 \text{CAPEX}_{t,i} + \gamma_3 \text{CHGREC}_{t,i} + \gamma_4 \text{ExploitCap}_{t-1,i} + \gamma_5 \text{Age}_{t,i} + \gamma_6 \text{lnEmployees}_{t,i} + \varepsilon_{1i}$$

$$(9) \text{ ExploreCap}_{t,i} = \delta_0 + \delta_1 \text{R\&D}_{t,i} + \delta_2 \text{JVMA}_{t,i} + \delta_3 \text{ExploreCap}_{t-1,i} + \delta_4 \text{Age}_{t,i} + \delta_5 \text{lnEmployees}_{t,i} + \varepsilon_{2i}$$

$$(10) \text{ Tobin's } q_{t,i} = \zeta_0 + \zeta_1 \text{ExploitCap}_{t,i} + \zeta_2 \text{ExploreCap}_{t,i} + \zeta_3 \text{ExploitCap}_{t,i} * \text{ExploreCap}_{t,i} + \zeta_4 \text{Age}_{t,i} + \zeta_5 \text{lnEmployees}_{t,i} + \zeta_6 \text{Tobin's } q_{t-1,i} + \varepsilon_{3i}$$

3.2.7 SUR Results

The results from the SUR model are presented in Table 8. The bottom of Table 8 shows that the Breusch-Pagan tests of independence for the both models are significant. These results indicate that because of correlations among the error terms, the SUR model cannot be collapsed into a single ordinary least squares regression. For the Tobin's q model, the r-squares for the three regressions are: exploitation ($R^2 = .30$), exploration ($R^2 = .81$), and performance ($R^2 = .12$). For the ROA model, the r-squares for the three regressions are: exploitation ($R^2 = .30$), exploration ($R^2 = .81$), and performance ($R^2 = .27$). Each of the chi-squared tests is significant indicating significant model fit.

¹⁵ For historical performance, Equation (10) is the same but substitutes ROA for Tobin's q as the dependent and lag performance variables.

Table 8: Essay 2, Seemingly Unrelated Regression Results

	Dependent Variable: Tobin's q		Dependent Variable: ROA	
	Coefficient	Std. Error	Coefficient	Std. Error
Exploitation				
SGA ('000s)	.007	(.048)	.007	(.048)
Capex ('000s)	-.029	(.026)	-.029	(.026)
Change in REC ('000s)	.030*	(.013)	.030*	(.013)
Exploitation _{t-1}	.462*	(.020)	.462*	(.020)
Firm Age	.000215	(.000164)	.000210	(.000164)
Log of Firm Size	.014**	(.002)	.014**	(.002)
Constant	.181**	(.010)	.181**	(.001)
R ²	.30		.30	
Chi-squared	816.25**		820.21**	
Exploration				
R&D ('000s)	.007*	(.003)	.007*	(.003)
JVMA	-.007**	(.001)	-.007**	(.001)
Exploration _{t-1}	.915**	(.011)	.915**	(.011)
Firm Age	-.000060	(.000081)	-.000060	(.000081)
Log of Firm Size	.003*	(.001)	.003*	(.001)
Constant	.034*	(.004)	.034*	(.004)
R ²	.81		.81	
Chi-squared	7789.93**		7789.92**	
Performance				
Exploitation _t	-7.467**	(.888)	1.535**	(.163)
Exploration _t	4.011**	(.941)	-.078	(.172)
Exploit _t x Explore _t	4.293	(4.565)	-.152	(.832)
Performance _{t-1}	.007**	(.002)	.323**	(.019)
Firm Age	.050**	(.007)	-.008**	(.001)
Log of Firm Size	-1.141**	(.088)	.185**	(.017)
Constant	1.265**	(.334)	.131*	(.061)
R ²	.12		.27	
Chi-squared	332.68**		817.66**	
Breusch-Pagan Independence Test	28.871**		44.459**	

** $p < .01$; * $p < .05$; ⁰ $p < .10$

H1 predicts that firms that maintain stronger exploitation capabilities will have superior performance to other firms. However, the bottom portion of Table 8 shows that a firm's exploitation capability on average at time t has a significant negative effect on firm performance as expressed by Tobin's q ($\beta = -7.467, p < .01$). Therefore, H1 is not supported. For comparison purposes, a firm's exploitation capability on average at time t has a significant, positive effect on ROA ($\beta = 1.535, p < .01$).¹⁶

H2 predicts that firms that maintain stronger exploration capabilities will have superior performance to other firms. Table 8 shows that a firm's exploration capability on average at time t has a significant positive effect on performance as expressed by Tobin's q ($\beta = 4.011, p < .01$). Therefore, H2 is supported. For comparison purposes, the effect of a firm's exploration capability on average at time t on ROA is not significant.

H3a posits that firms that maintain stronger capabilities in both exploitation and exploration will have superior performance than those firms that do not. A rival hypothesis, H3b, predicts that firms that develop superior capabilities in either exploitation or exploration will have greater performance than those firms that attempt to manage both. The bottom model of the Tobin's q column in Table 8 shows the results. The effect of the interaction, Exploit t x Explore t , is not significant for Tobin's q . Overall, H3a is not supported. H3b is partially supported by the positive effect of exploration on Tobin's q . Again, comparing forward-looking to historical performance, the interaction did not have a significant effect on ROA. There is partial support for the competing hypotheses by the positive effect of exploitation on ROA.

¹⁶ I also ran SUR models using net income and earnings per share as measures of performance. The results were substantially similar to those found in the ROA model.

The lag effect of Tobin's q has a small positive effect on firm performance ($\beta = .007, p < .01$). The two control variables, firm age ($\beta = .05, p < .01$) and firm size ($\beta = -1.141, p < .01$) both have a significant effect on firm performance, although different directions. The lag effect of ROA has a positive effect on firm performance ($\beta = .323, p < .01$). The two control variables for ROA show the opposite results from Tobin's q . Firm age ($\beta = -.008, p < .01$) and size ($\beta = .185, p < .01$), have a significant effect on performance, although again in different directions.

The top portion of Table 8 under the Tobin's q column shows the effects of firm investments on its exploitation capability. H4a predicts that firms that make investments in SGA expenses will have stronger exploitation capabilities than other firms. The effect of SGA on exploitation, however, is not significant and H4a is not supported. H4b predicts that firms that make investments in capital expenditures will have stronger exploitation capabilities than other firms. The effect of capital expenditures on exploitation, however, is not significant and H4b is not supported. H4c predicts that firms that have increases in receivables will have stronger exploitation capabilities than other firms. In support of H4c, the current year impact of CHGREC ($\beta = .03, p < .05$) has a significant positive effect on exploitation capability. The cumulative impact of prior period exploitation capability demonstrates a strong positive impact on current year exploitation ($\beta = .46, p < .01$). Of the two control variables, firm size has a significant positive impact on a firm's exploitation capabilities ($\beta = .014, p < .01$). The results for the exploitation capability model in the ROA column are substantially the same as for Tobin's q .

H5a predicts that firms that make investments in research and development will have superior exploration capabilities than other firms. The middle portion of Table 8 shows the effects of firm investments on exploration capability. Under the Tobin's q column, the current year impact of R&D ($\beta = .007, p < .05$) has a significant positive effect on exploitation

capability. H5a is therefore supported. H5b predicts that firms that make investments in external arrangements will have superior exploration capabilities than other firms. The current year impact of JVMA ($\beta = -.007, p < .01$) has a significant negative effect on exploitation capability and H5b is not supported. The cumulative impact of prior period exploration capability has a positive impact on current year exploration ($\beta = .915, p < .01$). Of the two control variables, firm size has a significant positive impact on a firm's exploration capabilities ($\beta = .003, p < .05$). Similar to the exploitation models, the results for the exploration capability model in the ROA column are substantially the same as for Tobin's q .

3.3 DISCUSSION AND IMPLICATIONS

The goals of this paper are three-fold: (1) to better understand how firms maintain exploitation and exploration capabilities over time; (2) to dynamically link exploitation and exploration capabilities to performance; and (3) to examine the potential complementary effects of exploitation and exploration capabilities on performance. I discuss each of these issues in turn below.

I proposed that firms that make the appropriate investments can enhance their exploitation and exploration capabilities. Partial support was found for these hypotheses. For exploitation, the current year spending in terms of investments such as selling, general and administrative or capital expenditures seemingly had no effect. However, the cumulative effect of exploitation capabilities in prior periods was significant. It is plausible that certain longer-term customer loyalty effects are in place (Morgan and Hunt 1994), driven by firm actions in prior

periods. Pharmaceutical firms may not have to spend as much to maintain existing physician relationships. Furthermore, patients may be on a longer-term medication program and are not affected by changes in these expenditures. An alternative explanation for the SGA results is that the customers of the pharmaceutical industry are saturated with sales representatives, marketing promotions and advertising, in effect tuning out these efforts by the firm. SGA, under the resource-based view of the firm, is potentially a valuable but not a rare resource and therefore not a source of competitive advantage.

Regarding exploration, current year investments in research and development have a positive effect on a firm's capability. This highlights the value of ongoing investments in a research-intensive industry. Note that exploration had a positive impact on future firm value but a non-significant effect on ROA in this study. Managers should not cut R&D efforts in the face of short-term efforts to make earnings goals. Interestingly, a firm's external efforts in terms of alliances, joint ventures, etc. had a negative effect on end of period exploration capabilities. At first glance, this may seem counterintuitive. Investments made during the year in these types of agreements, however, can cause distraction for all parties, thus resulting in a negative impact on capability levels. The internal focus during the mergers and acquisitions process, for example, can cause negative interactions for customers (Hitt, Hoskisson, and Ireland 1991), thus hindering capability growth.

The second goal of this paper was to see if firms can gain performance advantages by maintaining stronger capabilities in either exploitation or exploration as compared to their competitors. The use of forward-looking as well as historical performance measures permitted a comparison of the results. First, a firm's exploitation capability negatively affected Tobin's q . However, it positively affected ROA. This is an interesting finding. Management focus appears

to be on improving historical measures while investors reward future value. Some degree of exploitation by firms is necessary to allow for reinvestment in the firm. Yet, this study shows that in research-focused industries such as pharmaceuticals, managers need to understand the tipping point at which the market will no longer value a firm's capability in exploitation. These effects may apply to similarly research-intensive industries such as medical products, software, defense and technology. The strong positive impact of exploration on Tobin's q but the insignificant effect on ROA reinforces this perspective.

It may also be the case that incentive packages for executive management reward more proximate outcomes from exploitation resulting in a focus on historical over more distant forward-looking measures. This finding has key implications for boards of directors who are tasked with setting executive team compensation packages that are in line with firm strategy. Furthermore, analysts and investors often defined success in the pharmaceutical industry by strong drug pipelines. Many pharmaceutical firm web sites trumpet their firms' progress in drug development. Yet, on average, the exploration capability of firms in this sample was lower than that of exploitation, signaling a wider industry focus on maximizing current markets. Longer drug development pipelines may force many pharmaceutical firms to get the most out of products that are currently on the market. The stakes are potentially very high. Increased market value allows firms more financial flexibility in terms of borrowing and investing, which can translate into potential resource-advantages.

The last goal of the paper was to provide additional insight into a growing debate over whether or not firms achieve performance advantages by pursuing a balanced versus a focus strategy. In this study, the interaction of exploitation and exploration capabilities did not have a significant effect on either Tobin's q or on ROA. This appears to be contradictory to prior

research of a cross-sectional (e.g., Gibson and Birkinshaw 2004; He and Wong 2004; Sarkees and Hulland 2006) as well as a longitudinal (e.g., Kyriakopoulos and Moorman 2004) nature. However, the differences with the former set of studies can be attributed to methodological issues (survey versus objective data) as well as type of performance (historical versus forward-looking). The latter study used subjective measures to indicate balanced exploitation and exploration in project performance not overall firm results. Having reconciled these differences, the results of this study not only fuel the debate regarding balanced versus focused strategies but also move the performance discussion to how exploitation and exploration affect the future market value of the firm.

3.4 FUTURE RESEARCH

This research heeds the call of scholars for a better understanding of how firms manage exploitation and exploration (Beckman 2006; Lavie and Rosenkopf 2006; Gupta, Smith, and Shalley 2006; Tushman and O'Reilly 1996). Furthermore, it addresses marketing scholars growing desire for a finer-grained view of historical (Chakravarthy 1986; Clark 1999) as well as prospective firm performance (Srivastava, Shervani, and Fahey 1999). The results set up potentially interesting top management discussions on capabilities and the necessary resource investments to support firm strategy. From this vantage point, several important areas for future research are now evident.

The nature of capability growth and deterioration suggests that the overall strength of firm exploitation and exploration capabilities can not only change with varying degrees over

time but also impact the firm over differing time periods. For example, consider that in the pharmaceutical industry, the benefits of research and development efforts are often six to ten years removed from initial firm investments. These investment curves tend to be slow and limited at first with increasingly large expenditures near the end as human clinical trial studies are conducted and analyzed. Alternatively, the benefits of investments in sales force automation and training are more readily seen with large gains in productivity or revenues hitting the bottom line of firm financial statements in shorter time frame. Similarly, the rate of deterioration can vary across capabilities. Future research should consider the non-linear and time-lagged nature of accrual and deterioration of capabilities in the context of exploitation and exploration.

The context of this study was limited to the pharmaceutical industry. It is important to expand future research to detailed study of other industries to understand the nuances in capabilities, if any, among firm types so that managerial decision making is improved. The medical equipment, electronics, software and some service (e.g., casinos, hotels) industries appear to be strong candidates for an investigation of these relationships. Potentially, the results from this study can be generalized to industries with similar exploitation-exploration characteristics. In this same context, more and more companies are branching out, if only into related industries or sub-industries. How do capabilities in one industry translate to another? Future research should examine how balancing exploitation and exploration capabilities in one industry translates to others.

Other conceptualizations of the key variables in this study may provide added insight to the results. For example, this study did not distinguish among the types of patents granted to each firm. It may be worthwhile to distinguish between process and product patents in future research. Process patents, one may argue, is more influenced by exploration while product patents are

more influence by capabilities in exploitation. The global measure of external arrangements may also be parsed into more specific types of joint ventures, alliances, mergers and acquisitions as some of these agreements may be more exploitative in nature. Finally, other measures of changes in the customer base besides change in receivables should be examined. Perhaps another view, such as the change in the ratio of sales from new versus existing products or other objective measures would be useful extensions.

Two control variables, firm age and firm size, were used in this study. Future research should examine other control variables for added insight into these relationships. For example, firm focus is the number of sub-markets in which a firm participates. On a broad level, pharmaceutical firms, if they choose, tend to participate in three main markets: pharmaceutical (prescription or over-the-counter drugs), consumer products (e.g., band-aids), and medical products/services (e.g., medical equipment). Perhaps firms focused in multiple sub-markets explore better than singularly focused firms. Alternatively, the multiple-market firms may not be strong in knowledge transfer across the units and cannot take full advantage of their capabilities. These relationships may play an important role in how firm capabilities are refined and deployed over time. Along the same lines, the therapeutic classes (e.g., antihistamines, cancer, vitamins) in which a pharmaceutical firm operates as well as competitive intensity with sub-markets may also shed light on how firms manage exploitation and exploration.

It is also important to understand key inflection points in the growth and maintenance of firm exploitation and exploration capabilities. There is debate as to whether or not performance advantages accrue to firms that simultaneously balance exploitation and exploration capabilities or shift between the two (see Benner and Tushman 2003; Burgelman 2002; Christensen 1998; Gupta, Smith, and Shalley 2006; Levinthal and March 1993). Future research should examine if,

when and how these shifts in strategy from exploitation to exploration and vice versa might benefit the firm over the longer-term. It may be the case that simultaneously balancing exploitation and exploration capabilities is not the best path to enhanced longer-term performance but rather the shifting between the strategies is more successful.

3.5 CONCLUSION

This study draws on longitudinal objective data to examine how firms maintain and change exploitation and exploration capabilities over time. It also links these capabilities to performance. Furthermore, it draws a comparison between the effects of capabilities on historical and forward-looking performance measures, noting the positive effects of exploration on Tobin's q . The results fan the flames of the ongoing debate between balanced versus focused strategies. From a marketing perspective, these insights provide much-needed direction on the future performance impact of strategic decisions with respect to these two capabilities. What is needed now is a more detailed examination of the differential time impact of investments in exploitation and exploration so that managers can better understand when to make resource contributions.

4.0 SECTION IV: ESSAY III: CUSTOMER DIVESTMENT: ISSUES, ACTIONS, AND REACTIONS

A mid-western grocery store chain stopped advertising in local newspapers and embarked on a campaign to actively eliminate all but its most loyal customers after noting that occasional customers actually cost the company money (Kirsner 1999). A major financial services firm eliminated 33% of its customer loan portfolio due to a lack of profitability, saving an estimated \$1 billion (Tully 2002). Why are these firms divesting customers? Given the almost fanatical focus of practice (Peppers and Rogers 1993) and research (e.g., Johnson and Selnes 2004; Srivastava, Shervani, and Fahey 1999) on building and maintaining customer relationships, is divesting prudent? On the surface, it may seem like an ill-advised strategy. Yet, recent research notes that most customers of a company contribute little or nothing to bottom line profits (Rust, Lemon, and Zeithaml 2004). Furthermore, the value of a business is closely linked to the *quality* of its customer base (Kim, Mahajan and Srivastava 1995).

Customer divestment is defined as the firm-initiated termination of an existing customer relationship (Mittal, Sarkees, and Murshed 2007). It is fundamentally different from customer switching (e.g., Keaveney 1995) or customer defection (e.g., Jones, Mothersbaugh, and Beatty 2000) that are customer-initiated relationship terminations. Ideally, customer divestment should not be indiscriminant but rather the result of a comprehensive process that enhances firm value.

The concept of company-customer relationships is central to the discussion of divestment (e.g. Stern et al. 1998; Peppers and Rogers 1993). Individuals have a natural desire to be a part of relationships (Baumeister and Leary 1995). Company-customer relationships are, in many ways, extensions of interpersonal ones. Interpersonal relationships are built on interdependence and mutual benefit (Hinde 1979; Van Lange et al. 1997). Customers place similar value on their relationship with the company (e.g., Garbarino and Johnson 1999; Morgan and Hunt 1994; Price and Arnould 1999). As in interpersonal relationships, the dissolution of a valued relationship can be traumatic and perceived as a betrayal (Finkel et al. 2002), which may encourage customers to place blame (e.g., Fishbein and Ajzen 1975) or to “get even” (Blodgett, Hill, and Tax 1997; Richins 1983). It is the potential for negative customer reactions to divestment that can cause concern for managers and have economic ramifications for the company.

Given the dynamics of company-customer interactions and the strong focus on customer relationship management, customer divestment should be at the forefront of management practice and research. However, many managers appear to cling, at least publicly, to an unusually strong dedication to retaining customer relationships. Furthermore, academic research to support managerial practice on divestment is virtually non-existent (see Haenlein, Kaplan and Schoder 2006 for a notable exception). A failure to properly understand divestment can engender negative outcomes such as unfavorable publicity (“Sisters Banned by Bargain Chain” 2003), customer retaliation (Gallagher and Kennedy 1997), and negative word of mouth (Gitomer 2003). For large firms, the failure to divest customers has the potential for a negative impact that could run into the tens, if not hundreds of millions of dollars each year in lost productivity, lost revenue opportunities, and employee turnover. For small firms, maintaining relationships with customers that should be divested can be devastating for the sustainability of the business.

Although several researchers have called for additional study (Lehmann 1999; Morgan and Hunt 1994), there is still virtually no guidance for managers on the issues, processes and costs associated with customer divestment.

Overall, this research seeks to answer four questions: 1) Is divestment prevalent? 2) How do managers view divestment? 3) How do customers view divestment? and, 4) Are there ways for firms to mitigate the potential negative impact of customer divestment? Given the lack of theoretical and empirical research on customer divestment and its complexity, an inductive approach was used in this paper to build a knowledge base for subsequent study (Bonoma 1985; Flint, Woodruff, and Gardial 2002; Zaltman, LeMasters, and Heffring 1992). Marketing phenomena such as market orientation (Kohli and Jaworski 1990), marketing influence (Workman, Homburg, and Gruner 1998), and customer satisfaction information usage (Morgan, Anderson, and Mittal 2005) have all been enhanced through the use of the inductive approach.

I employ several methods to understand the customer divestment phenomenon. First, I use archival data to understand the prevalence of customer divestment. Next, I explore the divestment concept from the perspectives of both managers and customers. Drawing on the collective insights of these studies and the archival data, a framework for customer divestment is presented. The results show that the complexity of customer divestment stretches far beyond mere profitability measures, touching many areas of the company and key stakeholders as well as customers and other interest groups. Furthermore, the underlying issue of expectations management in company-customer relationships is clearly evident in the minds of customers who experienced divestment. Finally, I begin to empirically test the key relationships using an experiment that begins to explore the central question: how can managers alleviate the potential negative outcomes on the firm from divestment? Results demonstrate that it is better for

managers not to provide a divestment warning as it gives customers time to reflect and take action against the firm, further damaging its value. Finally, an agenda for future research is discussed with an understanding that there are still many unanswered questions that need to be explored.

4.1 UNDERSTANDING THE PREVALENCE OF DIVESTMENT

The broad goal of this exploratory effort is to understand the prevalence of customer divestment across industries. To this point, there is no real sense of in what industries and how often customer divestment occurs. A review of divestment events from the popular press began to shape firm reasoning, the level of sophistication of the process and the resulting ramifications to both the firm and customers. Examples of the findings from the popular press are summarized in Appendix B.

4.1.1 Method

I drew on secondary data using examples from the popular press (e.g., *Business Week*, *Wall Street Journal*, *USA Today*). The period of study was 1998 through 2006. The research approach was purposefully broad in nature to accommodate a wide range of possibly sources of information. First, I performed a keyword search - using terms such as “customer divestment” or “firing customers” - of available academic databases that include articles, reports and other information from trade journals and newspapers. *Business Source Premier*, for example, contains

2,710 full text scholarly journals and business periodicals covering many different business-related areas. The database search provided a number of examples of customer divestment. Next, I performed a keyword search of typical internet search pages (e.g., Yahoo, Google) using similar terms. This step also provided articles on customer divestment. Overlapping mentions of customer divestment from multiple sources served to corroborate the events (Golder and Tellis 1993). For example, a divestment article in the *Wall Street Journal* was also typically printed in regional newspapers and business journals as well as online news sources. Overall, I collected approximately forty industry examples of customer divestment from the popular press.

Customer divestment events had to meet four criteria to be included: competence, objectivity, reliability and corroboration (Golder and Tellis 1993; Gottschalk 1969):

- Competence is the information source's ability to report correct information.
- Objectivity is the general unbiased nature of the source of the information when communicating the event.
- Reliability is the trustworthiness of the source as a provider of information to the general public.
- Corroboration is the ability to confirm information from other sources.

I excluded information from unregulated sources such as internet discussion forums, letters to the editor found in newspapers or trade magazines and other outlets that surfaced during keyword searches.

4.1.2 Fieldwork Findings

As expected, customer (un)profitability proved to be a primary factor in divestment for both large and small firms. Marsh and McLennan, after its settlement with New York Attorney General Elliot Spitzer, for instance, did a strategic audit under the leadership of its new CEO

Michael G. Cherkasky. The review placed a greater emphasis on the profit from each customer, rather than a focus on sales volume alone. The audit revealed that thousands of clients were paying Marsh and McLennan less than \$10,000 a year, and the firm was losing money on roughly 40,000 clients worldwide. Said the CEO: “the short term solution was obvious: Jettison clients that aren’t profitable and exit the people who support them” (*Wall Street Journal*, August 29, 2005).

Some of the most interesting examples of customer divestment came from firms that had miscalculated the risks associated with serving certain customer segments and had to make drastic changes to strategy to recover. Never was it more glaring than in the insurance industry given the unusual weather events in the southeastern United States over the past several years. For example, Allstate and Nationwide divested 95,000 and 35,000 homeowner’s insurance customers in Florida for fear of massive future losses (Adams 2006). Federal Express, in an analysis of its largest customers, identified those who were not bringing in as much revenue as promised during the initial contract negotiation. Some customers were asked to choose a new shipping carrier after refusing to negotiate a more mutually beneficial exchange despite a better understanding of the underlying structure (Brooks 1999).

The popular press examples, however, went beyond profitability issues and encompassed a range of divestment reasons University of Texas Medical Branch at Galveston (UTMB), for example, identified tens of thousands of patients with unpaid medical bills that should be divested. However, considering the social impact of divesting them, Joan Richardson, chief medical director, developed a detailed playbook to ration care among these patients to those who had severe needs (Wysocki 2003). Fidelity Investments, rather than outright divest certain segments, moved to educate 25,000 high-cost serial callers who had a tendency to seek out

customer representatives for live conversation regarding simple needs, such as a stock price quote (Brady 2000). These customers had to use more automated information sources or else Fidelity service representatives would not answer their calls.

Customer divestment also had some unforeseen consequences for firms. First, if managed incorrectly, some of the firms' actions may leave an undesirable impression on the employees. In settings where employees worked hard to acquire the customers, or when employees and customers develop commercial friendships, a sudden departure of client-friends can be traumatic for employees (Price and Arnould 1999). The previously mentioned Marsh and McLennan divestment actions caused widespread concern and subsequent defection of brokers. These employees felt that management made them drop customers that they had worked hard to acquire and keep, especially in the days after Mr. Spitzer filed his suit against the company. Frustrated and angry, many employees defected to competitors (*Wall Street Journal*, August 29, 2005). Second, firms must be cognizant of regulatory, voluntary, and non-profit organizations that may take on advocacy and oversight roles in response to customer divestment decisions. The divestment of hundreds of thousands of homeowners in high-risk areas has landed the insurance industry in the crosshairs of government agencies, legislatures and activist groups (Adams 2006).

The analysis of secondary data demonstrates that divestment is widespread across industries. Furthermore, companies take different approaches and use varying reasons for divestment. This appears to generate varying responses from divested customers. These popular press examples laid the foundation for the customer framework that is developed in the next section.

4.2 CUSTOMER DIVESTMENT FRAMEWORK

First, I attempt to corroborate and expand on the insights from the review of popular press examples through first-hand accounts of divestment from managers. Then, I examine the perspectives of customers regarding divestment. From these two ends, a customer divestment framework emerged. Figure 3 summarizes the framework.

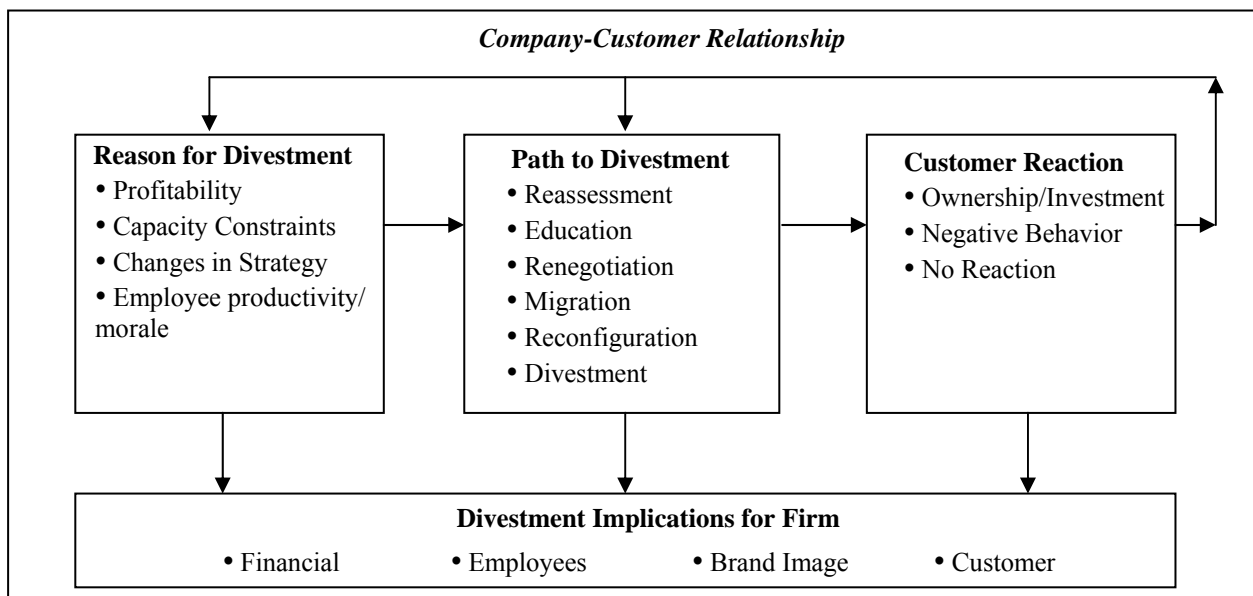


Figure 3: Essay 3, Customer Divestment Framework

4.2.1 Managers' Perspectives

Drawing on the insights from the popular press, I wanted to explore customer divestment in greater detail with the initiators of these events - the managers. The goal is to better understanding of how practicing managers view customer divestment and how it occurs in practice in their firms.

4.2.1.1 Method

I used one-on-one interviews to understand how managers view divestment. To begin, I developed a sample of practicing managers who are in a position to speak knowledgeably about the customer divestment concept both in general and in their firms. The sample was purposeful in nature so that a variety of industries and perspectives were included (Workman, Homburg, and Gruner 1998). Industry contacts were used to obtain access to those individuals. A semi-structured interview format was used to allow for updates to the framework as more information was collected from the field (Morgan, Anderson, and Mittal 2005). Open-ended questions permitted managers to speak more freely on the topic, providing opportunities to examine issues previously unforeseen. On a final note, customer divestment is still very much a taboo topic. Some managers with whom I requested interviews did not want to speak about divestment despite promises of confidentiality.

Overall, I interviewed thirty-two senior-level managers in twenty-seven companies in a variety of industries (Appendix C). Most managers held positions of leadership and/or ownership in their organizations. Furthermore, every manager interviewed had strategic decision-making responsibility and can authorize or make divestment decisions. In-depth interviews with

managers lasted an average of sixty minutes. Handwritten notes taken during the interviews were transcribed shortly after finishing as I promised not to tape the interviews given the nature of the subject matter (Workman, Homburg, and Gruner 1998).

4.2.1.2 Reasons for Divestment

Four categories of customer divestment reasons emerged based on common characteristics: 1) profitability, 2) capacity constraints, 3) change in strategy, and 4) employee productivity/morale.

Profitability. Approximately two-thirds of the managers who divested customers stated that the profitability of the relationship was a major driver in identifying divestment targets. For example, car rental agencies reject customers who have damaged vehicles in the past. One manager with national responsibilities from a worldwide car rental agency stated, “*Given the cost of our assets, it is an absolutely necessary function of our business...if someone is going to take advantage of the asset, we need to protect ourselves.*” Irrational behavior, such as attempts to quickly gain market share can push customer lifetime value models aside as put managers in a position where they must divest customers. A communications executive spoke about his company’s market share grab in a highly competitive environment that subsequently became a wrenching exercise in customer divestment and internal re-organization. The potential long-term consequences of these actions are discovered after the fact when “land grabs” result in many unprofitable customers that should have never been acquired.

Capacity constraints. Capacity constraints stem from reasons such as a lack of proper expertise, financial constraints, underestimating customer demand, regulatory issues, or even disruptive environmental forces that change the market. Partners in two accounting firms spoke

of their firms' divesting "thousands" of U.S. customers due to the Sarbanes-Oxley act. Stringent reporting requirements necessitate that accounting firms spend extensive employee-hours each year to assure compliance for their larger publicly-traded clients. *"We simply don't have enough manpower to serve smaller privately owned clients. Not that we want to, but we have had to walk away from, raise fees, or just not pay enough attention to (and thereby drive them away) the smaller companies."*

Changes in strategy. Changes in strategy of a firm or its rivals can sometimes lead to customer divestment. When a firm realizes that it is not high on customer's priority list, it may similarly decide to divest. Some customers do not place their loyalty with one firm. Instead, they have several relationships to meet their needs (Rust et al. 2004). The firm may also find more lucrative options and divest the customer despite the latter's full attention to the relationship. Alternatively, divestment may simply be a case of company evolution. One executive from a fast-growing consulting firm told us: *"In the early years, I would bend over backwards to keep all business. If we do good work, we expect a good reference from a client. I'll walk away (from a project) if I don't see a good reference opportunity, even if the fee structure is OK. Now that we are a larger firm, we don't need to bend as much as when we were smaller. We staff our people on the projects with the greatest (overall) rewards for our firm."* Past strategies that are no longer mutually beneficial are either renegotiated or divested.

Employee productivity/morale. One third of interviewed managers identified employee productivity and morale as major reasons for customer divestment. Managers believe that is difficult for companies to be profitable when employees are spending time with customers that provide little value or, even worse, actually destroy value through their actions. Eliminating troublesome customers can have a strong positive effect on employee morale in addition to

unburdening firm resources. By not divesting troublesome customers, executives risk an increase in employee turnover rates. This can disrupt organizational learning and add sizable costs to replacing lost employees. A partner from a leading national physician practice made it clear that rude or troublesome patients are asked to find another service provider. A senior vice president from a leading investment advisory services firm divested one of his largest clients for unruly behavior toward his staff. The staff was relieved. Eventually, the client apologized and renewed his relationship with the firm with a better understanding of how he should conduct himself. Service industries such as restaurants, airlines, retailers, and car rental agencies have similar policies. These troublesome customers may be profitable on an individual basis but the negative impact they have on employees and other customers is bad for the company in the long run.

4.2.1.3 Path to Divestment

The conversations with managers also allowed me to gain insight into the various paths that companies use leading up to divestment. From these discussions and the insights from Study 1, I developed a path to customer divestment, which synthesizes the actions of companies into a process that managers can utilize in their interactions with customers.

Most customer divestment actions stem from a series of actions: reassess, educate, renegotiate, migrate, reconfigure, and finally ending the customer relationship (For a full review see Mittal, Sarkees, and Murshed, 2007). These steps can help to reduce incompatibility in the relationship and to better match the value that the customer receives with that which the company offers. The extent of time spent in each phase can vary. In some situations, phases are skipped. However, many companies that engage in divestment utilize the entire approach as it allows for a systematic exploration of the relationship with the customer.

The first step in the process is to thoroughly review the relationship for opportunities that can be more mutually beneficial to both the customer and the firm. Current and future spending patterns are supplemented by a broader, non-financial assessment of the company-customer relationship. Second, once the customer relationship is fully understood, managers should educate their customers about the perceived incompatibility as well as the benefits of other products and services. Educational efforts are designed to: (1) manage customer expectations about the costs of the service; (2) increase customer understanding of how the service is provided; (3) increase customer participation; and (4) increase customer self-selection. Once both parties have a clear understanding of the relationship parameters, the firm can attempt to renegotiate the terms to create more mutually beneficial value. If renegotiation fails, then the customer can be migrated within the firm to products or services that provide a better fit for the customer's needs as well as increased value to the firm. Migration can also involve third parties who can better serve the needs of these customers. Many companies have alliance partners who already perform these tasks in some capacity for the firm. The fifth phase, reconfigure, attempts to salvage the relationship by bundling or unbundling different combinations of products or services. Perhaps the customer will accept an offering that is more compatible with the resources required by the firm to provide that value. If systematically working through these five phases does not improve the relationship, the firm may have no other choice but to end the relationship.

4.2.2 Customers' Perspectives

Next, I move the discussion of divestment from the managers to the customers, both divested and non-divested so that insights from the managers can be corroborated and refined. I have two key

research questions with respect to customer perspectives. What are the experiences of divested customers? How do customers react to divestment? Answering these two questions will allow a comparison of what managers believe should happen and what the customer is actually experiencing in practice. The popular press examples shed some light on how customers might react to divestment, noting generally negative feelings toward companies. However, it is important that the possibility of positive (or at least no) reaction is also explored. I had no preconceived notion as to how many divested customers I would find, how willing they would be to share their experiences, and what their experiences would be.

4.2.2.1 Method

A survey was used to collect data from customers. To develop the survey instrument, I conducted in-depth interviews with a small set of customers and pre-tested the survey with a convenience sample of twenty customers. I also spoke with marketing research experts and practicing managers. The survey contained scaled, free response and demographic questions. The first section listed thirty categories of businesses (e.g., banks, car rental agencies, hospitals, etc.). The definition of “customer divestment” was provided at the top of the survey. Participants were asked to visualize companies in these categories “firing” customers and rate each category on a ten-point scale with “1” as never and “10” as absolutely. Section Two asked participants to think back over the past two years to whether or not they had ever been “fired” by a company.¹⁷ If

¹⁷ It is important to note that participants were asked to recall a divestment event over the past two years. Although some indicated through their descriptions of the event that divestment was recent, others did not explicitly provide a date. Selective memory and recall biases may have influenced participants’ ability to effectively remember divestment events. I could not control for all biases. However, I did provide a structured survey instrument and allowed participants ample time to complete it. These steps should have helped to minimize biases. Furthermore, the

participants answered “yes” to divestment, they were then asked to recall that experience. Questions included, among others, “What reason did the company give you for ending the relationship?”, “Did you receive advanced warning of a possible divestment?” and “How did you feel after learning of the divestment?” The goal of these questions was to understand the divestment process from the customer perspective, which would then allow a comparison with the insights from the previous studies. Section Three contained demographic questions.

The data was collected via a survey of a convenience sample of adult consumers from a large northeastern U.S. city. Two hundred thirty-six people (52% female; 48% male) participated in the survey. The average age of the participants was twenty-seven and they ranged in age from eighteen to eighty. Follow-up interviews of a small set of respondents helped to clarify responses where needed. Approximately twenty-three percent of surveyed participants experienced a firm-initiated relationship divestment in the past year.

4.2.2.2 Customer Reaction to Divestment

The participants in the survey consisted of both divested and non-divested customers. Therefore, the results are presented in two steps. First, I discuss Section One of the survey, which asked participants to visualize divestment actions in various categories of businesses. Then, I discuss Sections Two and Three of the survey that pertain only to divested customers.

The results of the general survey of divested and non-divested customers are summarized in Figure 4. Overall, they demonstrate that both divested and non-divested customers understand that the possibility of a firm-initiated divestment exists across a range of industries. Furthermore,

participants gave the name of the company that divested them. In doing so, they were theoretically recalling a specific event from memory. Future divestment studies should consider the effects of retrospective biases.

as expected, the scores are generally higher for divested than non-divested customers. Large percentages of participants believed that it was high likely that firms would divest customers in industries such as credit cards, insurance, and car rental agencies. Non-divested customers were less inclined to believe that companies would divest.

For both divested and non-divested customers, the scores were much lower in the utility industries such as electric, gas and phone as well as hospitals. Perhaps these scores reflect customers' beliefs that these services are "rights" rather than relationships. Examples from the popular press, however, indicate that utility providers are moving forward with customer divestment initiatives. Deregulation has, in part, cleared a path for utility firms to engage in customer divestment initiatives and they are taking advantage of the opportunity to improve bottom line profits, customer service and shareholder value (Smith 2005).

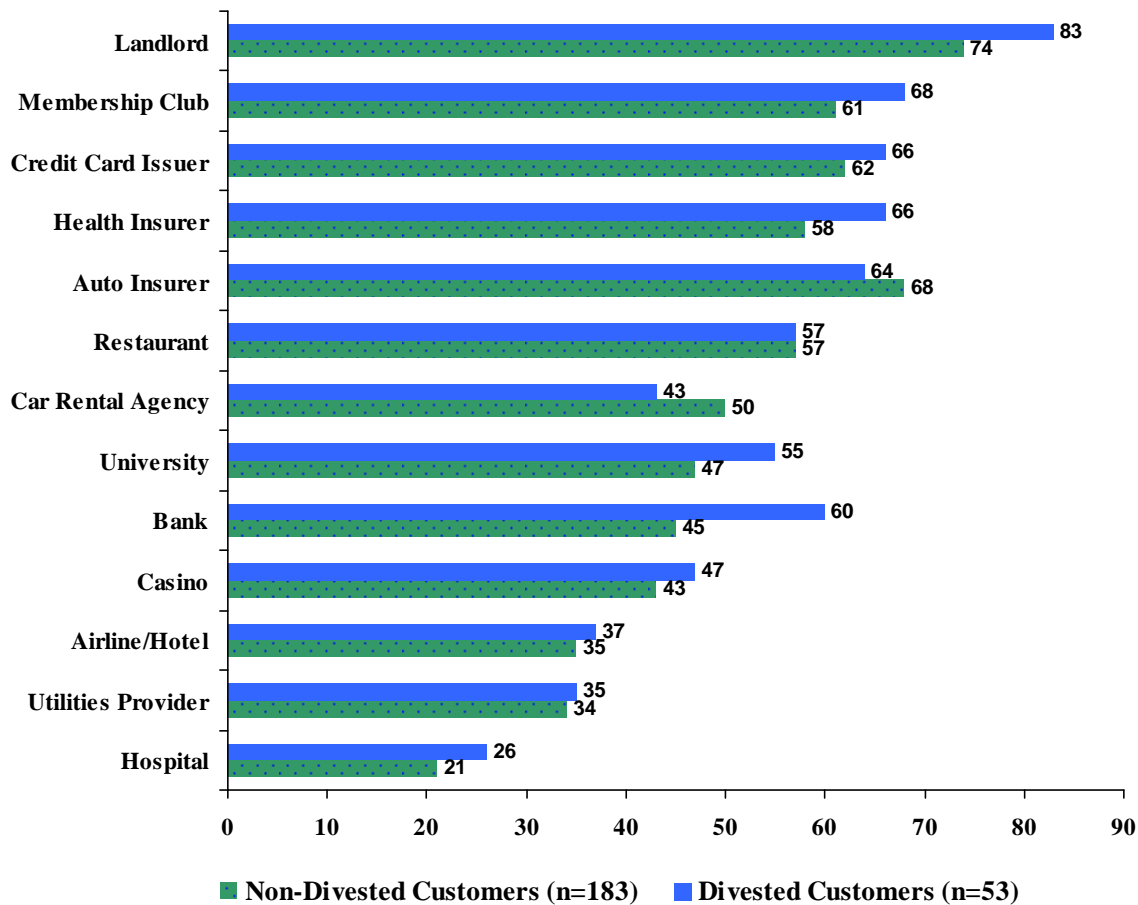


Figure 4: Essay 3, Percentage of Respondents Who Believe that Companies in these Industries Are “Highly Likely” to Divest Customers

Next, I discuss the experiences of the divested customers. Approximately 22% of the respondents had experienced a divestment. Of those, half were male and half were female. They ranged in age from young adults to senior citizens. Divestment occurred across a range of firms such as insurance, credit cards, retailers, and rental agencies. Three general categories of

customer reactions to divestment emerged from the analysis: (1) taking ownership/investing more in the relationship; (2) negative reactions; or (3) no reaction.

Relationship ownership/investment. Some divested customers showed a tendency, if given the opportunity, to explore how the relationship could be saved. The desire to take ownership of the perceived problem appears to stem largely from the process the company used in the divestment process. For example, most managers and consumers that we interviewed supported advanced notification of pending divestment. A warning is one way of educating customers about the relationship expectations. It can allow customers to engage with the firm in a constructive manner to resolve differences and strengthen the relationship (Rusbult and Zembrodt 1983). A warning can also help to shift the responsibility to the customer to strengthen the relationship. In the event the relationship fails, then the customer should recognize that they are partially to blame. Unfortunately, of the divested customers surveyed in Study 3 two-thirds received no warning. Of those who were warned, forty percent took some action to rectify the relationship.

Negative reactions. The overwhelming concern of managers is for negative customer reactions after divestment. Research also indicates that merely ending relationships can create uncomfortable feelings (e.g., Bloom et al. 1978). Customers are naturally looking to attribute blame (Fishbein and Ajzen 1975) or to “get even” (Blodgett, Hill, and Tax 1997; Richins 1983). It is important then to understand what factors may enhance or mitigate negative reactions to divestment. Three factors seemed to influence the degree of negative reaction from divested customers: the customers’ perceived strength of the relationship, the reason for the action, and the process by which the divestment was carried out.

Negative reactions may depend upon the customer's perceived strength of the relationship with the firm. Several divested customers that were surveyed recalled a sense of relief, perhaps indicating that they knew it was a weak relationship with the company. However, it appears that negative feelings from divestment can be substantially greater for customers who perceived a strong relationship with the company. These divested customers felt that they had invested the time, money and effort to develop a relationship with the company. Feelings of anger, frustration and embarrassment were more common in these cases. Negative feelings can lead to negative behaviors to gain some revenge (e.g., Morrill and Thomas 1992; Rusbult et al. 1991) as well as negative word of mouth to family, friends or third parties such as consumer interest groups (Laczniak, DeCarlo, and Ramaswami 2001; Richins 1983).

The reasons the company provided for divestment to the customers also factored into negative reactions toward the firm. When recalling their experiences, divested customers gave reasons similar to those found in the conversations with managers: profitability, capacity constraints, changes in company strategy and even some instances of employee productivity/morale. The difference with divested customers is that they are on the receiving end of the reason. Customers felt differently depending upon the reason the company provided. Some customers felt that the reasons were not legitimate enough to warrant divestment.

It also appears that many companies compound the complexity of a divestment through the haphazard divestment processes. This corroborates the findings from the managers that many companies lack a formal divestment process. First, the method of divestment notification can be an issue. Many customers received impersonal letters or even e-mails notifying them of divestment. Fewer divested customers received personal communications from a company representative. Some divested customers found out about the firm's action only upon service

failure. Second, inappropriate conduct of customer service employees during the divestment process only exacerbates the situation. Divested customers expressed frustration with what they felt was their own lack of understanding of what was expected from the relationship. They reported rude and unsympathetic customer service personnel or no way to reach the company at all to talk about the divestment. This, they believed, reflected a “guilty until proven innocent” mindset of the company that divested them. As noted earlier, with some warning of the company’s dissatisfaction, perhaps these negative reactions could have been avoided. Overall, it appears that a more rigorous, formal process can help to mitigate negative reactions of firms.

No action. The results indicate that in divestment actions, the customer takes no action against the company approximately 80% of the time. The divested party just exits quietly without complaining to either the firm or to a third party. This is perplexing as more than 60% of the divested customers reported feelings of anger toward the firm. It would be premature, however, to assume that because only a minority of divested customers complains that the damage to firm value would be less.

That most of the divested customers took no action against the firm despite overwhelming negative feelings is surprising. However, customer reactions are dependent on the situation, cost/benefit or pursuing negative behavior and probability of success (Day et al. 1981). First, other relationship options may be available to the divested customer. When customers are divested from service providers such as insurance, banks, credit card or utility companies they can apply for service from another provider. Unfortunately, the cost of changing relationships increases for the customer. For example, when a customer is divested from an insurance provider, it is very likely that another service provider will charge a higher premium to hedge risk. Perhaps the perceived finality of the firm’s actions deters customers from taking action.

Customers may feel that the firm's decision is final and that taking action is a waste of time. Second, some customers have no concept of what actions they can take to help themselves. This is particularly evident for two demographic groups: young adult and older "baby boomers". These groups can feel particularly disenfranchised in the divestment process because of a lack of perceived power. Although this is not discussed at length in this paper, the social ramifications of customer divestment for disenfranchised groups can be a pressing issue for firms.

4.2.3 General Summary

Customer divestment is a growing strategic option for firms across many industries. Yet, managers and customers are struggling with the concept of divestment, how it is carried out and how it affects key stakeholders. Although many interviewed managers drew on profitability as the main reason for divestment, other non-financial issues also factored into the decision. Unfortunately, more than two-thirds of the managers I interviewed stated that their companies did not have an established divestment process. Couple this with the fact that many of these same managers had divested customers and opportunities for negative impact on the company can increase. As negative impact on the firm is the paramount concern of managers, it was interesting that there was such a discrepancy in divestment processes. The path to divestment discussed in this section distills the various managerial practices into a more structured approach. The key in divestment is to help the customer to recognize that the decision (1) was reached with careful thought and discussion; (2) was made after taking several steps to reinforce, rebuild or create a more mutually beneficial exchange; and (3) is mutually beneficial as the firm is no longer able to meet the customer's needs without harming itself.

Three overriding challenges emerged from the research with managers and customers: (1) managers need to build on measures of customer profitability by incorporating non-financial criteria into the divestment decision; (2) managers must develop the right processes to support divestment actions; and (3) given the sensitive nature of divestment managers must work hard to mitigate the potential negative effect of customer reaction on the financial health of the company, its employees and its brand image. Discrepancies appear to exist between how managers perceive the divestment process and how it is actually carried out in practice. The result is that customers experience the negative feelings and reactions toward the terminating company that managers are trying to avoid. In doing so, managers invite further problems such as handling customer complaints, negative word-of-mouth, public relations issues and interest from regulatory bodies.

As an initial step in adding to the body of knowledge on customer divestment, I next use an experiment to examine how managers can mitigate negative customer reactions to divestment by improving the process in which it is handled. Specifically, two interesting aspects of divestment are investigated: (1) customer perceptions of the company's reason behind the divestment and (2) customer perceptions of the manner in which the divestment is communicated to them. The goal is to find an appropriate divestment method so that the firm can re-direct its resources to more valuable relationships with limited negative impact.

4.3 MITIGATING NEGATIVE REACTIONS TO DIVESTMENT: AN EXPERIMENT

4.3.1 Theory and Hypotheses

Attribution theory posits that people use information to make causal explanations for things, situations or events they encounter in daily life (e.g., Folkes 1988; Mizerski et al. 1979). Attributions form the basis for customer attitudes, intentions and behaviors toward products, services, companies and their employees (Fishbein and Ajzen 1975). Attitudes, intentions and behaviors can be different depending upon how the explanation is assessed (Weiner 1992). Marketing researchers have used attribution theory to explain a variety of consumer behaviors such as purchasing, product failure, and source credibility (see Folkes 1988, for a full review) as well as customer satisfaction (Tsiros, Mittal, and Ross 2004). Its universal concern for explanation makes attribution theory provides a good foundation for understanding how customers react to divestment. As was noted in the first three studies in this paper, the dissolution of a company-customer relationship is similar to an interpersonal one, creating potentially strong emotional reactions and a desire to seek explanations.

Divested customers are motivated to protect their self esteem as they often feel embarrassed or angry (Folkes 1988). In fact, customers may go to great extent avoid negative self feelings (Weiner et al. 1987). Given this tendency, attribution theory predicts that divested customers are looking for information that mitigates their culpability and shifts the locus of blame to the company or some other party (Weiner 1986). For example, Folkes (1984) finds that if customers associated a product failure with the company, then they expect refunds and apologies from the company. However, that same study found that customers do not expect these

outcomes when they are the ones who cause the product to failure (e.g., breakage). Customers may then feel that their failure is deserved (Feather 1992). In a similar manner, this suggests that negative reactions to divestment may be contingent on the perceived reason for the divestment (Bettman 1979; Folkes 1988). The reason is a way to reduce the customer's feeling of failure, guilt or embarrassment about the dissolution relationship.

The insights of from the archival data and the customer surveys in this paper provide the initial support that customer reactions to divestment are driven in part by the reason given by the company. Attribution theory suggests that the reasons take two forms: internal (controllable) and external (uncontrollable). Prior research in consumer behavior also suggests that customers draw inferences about the company's motives for its actions (e.g., Friestad and Wright 1994). If firms are perceived to be acting in a self-serving manner, then customers will have more unfavorable evaluations of the company (e.g., Campbell and Kirmani 2000). This logic lends support to the importance of how customers view internal versus external reasons as a driver of attitudes toward a divesting company. If the firm has an internally-oriented reason for divestment, such as profitability or a change in business strategy, it may be perceived as self-serving by the customers. These reasons are sourced from within the company and thus are the controllable (Bitner 1990; Weiner 2000). Perhaps, then, a divested customer can get the decision reversed and re-establish a more beneficial relationship with the company. Alternatively, external divestment reasons such as natural disasters and changes in government regulations are not under the control of the company. In these cases, divested customers are more likely to accept these reasons from the company, attributing the event rather to some other factor than themselves (e.g., Bloom et al. 1978; Weiner 2000). For example, Weiner (1986; 2000) suggests that difference between angry and sympathy toward the company is driven by whether or not customers perceive a service

failure as controllable (e.g., poor service) versus uncontrollable (e.g., weather delay). Accordingly, the following hypothesis is proposed:

H1. Attitudes of divested customers will be more positive when they make attribute the firm's reason for divestment to an external factor rather than an internal factor.

Managers also know that divested customers may react in a negative manner to the notice of divestment. However, the absence of a warning can hurt the company in several ways. First, there is no real opportunity for the customer to address the issues surrounding the divestment with company. The result may be angry customers who subsequently take up more time from employees through calls to customer service or store visits, thus hinder productivity and possibly putting the company's actions on public display. Second, the absence of a divestment warning means that there is no transition time available for the customer to migrate to a new relationship. Third, blindsiding a customer with a divestment action increases the chances of retaliatory actions by the customer (e.g., Laczniak, DeCarlo, and Ramaswami 2001; Richins 1983; Rusbult et al. 1991). The customer may feel a sense of embarrassment or a loss of self-esteem from the divestment. The firm may incur negative short or long-term brand image impairment, depending upon the facts and circumstances surrounding the divestment.

What can managers do to mitigate, or perhaps eliminate negative reactions by customers who are terminated? Prior studies (e.g., Weiner 1974) show that people reward extra effort despite a negative event. Furthermore, customers demonstrate a willingness to reward companies who display extra effort, particularly when they feel it is personal in nature (Morales 2005). Companies can issue a warning notification that the relationship might be terminated in the near

future. This is a clear indicator to the customer that there is a problem with the relationship. A warning allows a customer either to address the issues or exit the relationship. It also shifts some control over the outcome to the customer. By doing so, the customer becomes partially to blame for the relationship divestment. If the relationship does not improve, the company has at least provided the opportunity for the customer to create a stronger relationship.

The warning has given the customer an opportunity to improve the relationship. When the divestment occurs, an external reason shifts the blame for the event to some outside force. The customer feels that an opportunity was given to them and in the end it was not their fault for the divestment. For example, divested homeowners insurance customers were told that the risk of natural disaster created the problem in the relationship. Therefore, the customer should have a much lower propensity to direct negative attitudes toward the company. However, customers who receive an internal reason with the divestment warning may be put off. Reasons such as profitability or a change in business strategy may be simply perceived as an excuse rather than a tangible, believable event that the customer can understand. Used in combination then, the benefits of a warning and an external reason for divestment may help to mitigate divested customers reactions. Accordingly, the following hypothesis is proposed:

H2. Attitudes of divested customers toward the firm will be more positive when a prior warning is received with an external reason for the action than in other conditions.

4.3.2 Method

Subjects and Design. One hundred twenty-one undergraduate students from business courses at a large university participated. Participants were randomly assigned to conditions in a 2 (reasons provided by the company for divestment – internal or external) X 2 (divestment warning – yes or no) between-subjects experimental design.

Procedure and Stimuli. Participants were provided with a scenario and were asked to imagine themselves as five-year customers of a fictitious bank, named Diversified bank. They were given some background on their relationship with Diversified bank. Participants were informed that, as customers, they visited a Diversified bank branch about once every three months and routinely used the ATM machines to withdraw money or make deposits. They had a checking account with an average monthly balance of \$2,500 and had availed themselves of other bank services, such as certificates of deposit and savings bonds.

Next, participants were presented with an interim event, which was a notification of their respective status with the bank. In the “divestment warning” scenario, participants were informed by the bank that they needed to improve the relationship. The “no warning” scenario did not provide any indication from the bank that the relationship might be in jeopardy. Customers were then notified of the company-initiated divestment and the reason as either internal, a “change in business strategy,” or external, a “persistent economic downturn” affecting the bank (See Appendix D for a full description of each scenario).

After reading the scenario, participants responded to a set of questions that measured the dependent variable, their attitude toward the divesting company. Manipulation checks and

demographic questions were also included (e.g. gender, age). Prior to debriefing and dismissal, participants were asked to guess the purpose of the study to assess any demand artifacts.

4.3.3 Measures

Attitudes. The dependent variable, attitude toward the company, was measured by three questions adapted from Allen and Janiszewski (1989) that are widely used to measure customer attitudes. The average of the three items forms an index of customer attitudes ($\alpha = .92$). Each item is measured on a 10-point Likert scale. Only the anchor scales are shown below:

- My view of this company is...extremely unfavorable/extremely favorable
- My feelings toward this company are...extremely negative/extremely positive.
- The company is...not at all good/extremely good.

4.3.4 Manipulation Checks

Divestment Reason. The manipulation check for divestment reason was measured by one item, using a 10-point Likert scale with 1 = “no control” and 10 = “extreme control” as the anchor points. Participants indicated how much “control they felt the bank had over the divestment decision.” A t-test showed that the manipulation was successful as the mean for the internal reason condition was higher than the mean for the external reason condition ($M = 4.85$ vs. $M = 4.25, p < .05$).

Divestment Warning. The manipulation check for divestment warning was measured by one item, using a 10-point Likert scale with 1 = “not at all aware” and 10 = “extremely aware” as the anchor points. Participants indicated how “aware they were prior to actual notification that

Diversified bank might end its relationship.” A t-test showed that the manipulation was successful as the mean for the warning was higher than the mean for the no warning condition ($M = 4.15$ vs. $M = 3.24$, $p < .01$).

The correlation between the manipulation checks was statistically non-significant ($r = .03$, $p = .73$), indicating that the manipulations are orthogonal.

4.3.5 Results

Attitudes. A 2 X 2 ANOVA of the dependent variable, attitude toward the divesting company, was used to test the overall model for the between-subjects design. The independent variables, external versus internal divestment reasons and warning versus no warning, are coded with contrasting dummy variables (1, -1). Results are presented in Table 9. The main effect of divestment reason was significant ($\beta = .33$, $p < .05$), indicating that external reasons for divestment have a positive effect on attitude toward the company. Therefore, H1 is supported. The main effect of providing a divestment warning was marginally significant but negative ($\beta = -.23$, $p < .10$). More importantly, the two-way interaction of divestment reason X divestment warning was significant but negative ($\beta = -.28$, $p < .05$). Therefore, H2 is not supported.

Table 9: Essay 3, Experiment Results

Dependent Variable: Attitudes		
	Hypotheses (Outcome)	Coefficients (t-values)
<i>Main Effects</i>		
Reason	H1 Supported	.33* (2.58)
Warning		-.23 ⁰ (-1.84)
<i>Two-Way Interaction Effect</i>		
Reasons X Warning	H2 Not supported	-.28* (-2.16)

** $p < .01$; * $p < .05$; ⁰ $p < .10$

The pattern of means within each cell of the divestment warning condition confirms the moderating effect. For who did not receive a divestment warning, the mean attitude toward the company was higher for *external* than *internal* reasons ($M_{\text{external}} = 3.38$, $M_{\text{internal}} = 2.17$; $t = 3.31$, $p < .01$). For subjects who received a divestment warning, there was no significant difference in the attitudes toward the company due to reasons provided ($M_{\text{external}} = 2.36$, $M_{\text{internal}} = 2.25$; n.s.). The cell means are depicted in Figure 5.

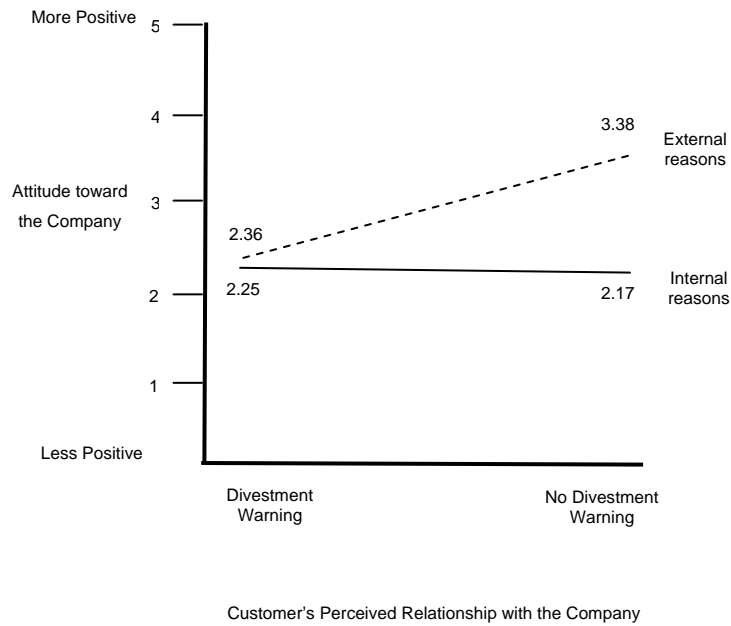


Figure 5: Essay 3, Customer Attitudes toward the Company

4.3.6 Discussion

It was proposed that firms that cite an externally-oriented reason for divestment can mitigate negative attitudes toward the company. Drawing on self-protection mechanisms, customers may more readily accept that the divestment is not due to something they did but rather to an issue that is outside of the firm's control. A large-scale public event, such as a hurricane along the

Florida coast or a widespread economic downturn, is readily apparent to customers and thus divestment reasons linked to these events may be more believable. Managers may take advantage of certain environmental events as a reason to rationalize the customer base if appropriate. External reasons should, however, be linked to the company-customer relationship. For example, a company whose business has little to do with the gulf coast of Florida but uses a hurricane as a reason to divest customers may find little sympathy with the public. For example, several insurers are using hurricanes in the southeastern U.S. as a reason to divest customers in the northeastern U.S. where there is very limited potential for such an event. Here, the public seems to “see through” the external reason and judge it as more of an internal profitability-oriented one. Finally, regardless of the perceived link, managers should be cautious of using external reasons too often as the company may gain a public reputation for divesting customers.

The main effect of providing a warning prior to divestment provided partial support for a more negative attitude toward the company. It is possible that providing customers with time to fight the company’s decision or get involved in other negative behaviors. Yet, divested customers also want to know why they were divested. The significant interaction between a warning and an external reason for divestment provides insight into this relationship. The results show a surprising increase in negative attitudes toward the company. The time delay between the warning and divestment, coupled with the reason, may engender negative attitudes toward the company. This speaks to how customers perceive the similarity of interpersonal and company-customer relationships. Prior research demonstrates that the dissolution of a valued relationship can be traumatic and perceived as a betrayal (Finkel et al. 2002), which may encourage individuals to place blame (e.g., Fishbein and Ajzen 1975) or to “get even” (Blodgett, Hill, and Tax 1997; Richins 1983). Managers need to take the perspective of the customer in the path to

divestment and understand that certain emotional responses may occur. A structured process that educates employees on how to deal with negative responses may go a long way to mitigating the effects of divestment on companies. Furthermore, employees may be less likely to “feel badly” about divesting customers if a structured process is in place to protect them and allow them to productively function in their positions at the company. Moreover, proper education of the customer as to the expectations of the company can also help to limit negative outcomes.

Finally, while the manipulation checks are statistically significant, the absolute difference between the manipulated versus the control group is small. Thus, the strength of the manipulations may be weaker than anticipated. This may be another reason why H2 was not significant. The work of Aaker, Fournier and Brasel (2004) is a potential relevant solution here for longitudinal experimentation to strengthen the manipulations.

4.4 FUTURE RESEARCH

Prior to this research, a conceptual and empirical understanding of the complex nature of customer divestment was virtually non-existent in the marketing literature. This research is a first step in exploring the customer divestment phenomenon. Secondary data was collected and analyzed that provided a clearer picture of the prevalence of customer divestment. Insights from managers whose companies engage in divestment provided a foundation for the study of important issues. Customers gave first hand accounts of their divestment experiences. The result is a framework from which future customer divestment research can be built. To the best of my

knowledge, this paper also represents the first steps in empirically testing key relationships in the customer divestment phenomenon.

The results from the experiment provide a glimpse of the complexity of customer divestment. Perhaps most surprising is that it appears from the experiment that firms should not provide advanced warning prior to customer divestment actions. However, more work is needed on the part of managers to standardize customer divestment processes and procedures. Continuing work on what role do expectations, attributions, commitment and trust play in determining consumer reactions (e.g., perceptions of fairness) to divestment is needed. What mediating variables come into play during the divestment process? Finally, what are the economic ramifications for the company of negative behaviors from divestment? Those who receive negative word of mouth communications regarding a product or service from friends are more influenced in their evaluations than by commercially provided data such as that found in *Consumer Reports* (Herr et al. 1991). These negative attitudes and intentions take a long period of time to attenuate (Dholakia and Morwitz 2002), increasing the possibility of continued retaliatory actions against the company.

The exploratory nature of this research has also provided fodder for several lines of research within this stream. Several key questions stand out as critical to framing the future discussion of customer divestment. First, how do managers change the traditional thinking that every customer should be retained? There appears to be little broad thinking on the topic. At its best, customer divestment can be a key strategic initiative that allows firms to better utilize its resources, positively impacting the firm, its profits and its employees. Although we found a number of instances where managers engaged in divestment, there was no systematic process across or within industries or across relationship situations (e.g., business-to-consumer or

business-to-business). Furthermore, the methods used to carry out divestment actions are haphazard at best. Similarly, research to date is largely unequivocal in its disregard for the idea that large segments of customers in a given firm should be divested. As noted previously, customer lifetime value models virtually ignore the benefits and costs of customer divestment. Finally, it was surprising to find that consumers have considered the possibility that firms may divest them as customers. However, there were discrepancies in what consumers might call “critical need” categories such as utility providers and hospitals. Here I noted instances where firms in these industries are moving to divest certain customers. It suggests the potential for heterogeneity of customer reaction to divestment depending on the industry in which it occurs. It also underscores a broader social and public policy issue of customer divestment decisions. What are the short- and long-term impacts of divestment on certain customer segments such as the elderly or the working poor? Similarly, there is the potential for regulatory involvement based on a perceived habit of divestment within certain industries. Should government get involved in these actions? Is divestment a matter of mutual benefit between two parties and therefore no business of government? This research stream is rife with social, legal and ethical issues that need attention from researchers.

Another issue centers around the impact of divestment on retained customers. Are these groups affected in a negative or positive way by the divestment of other customers who had relationships with the same company? Along the same line, how do divestment decisions affect the ability to conduct customer-based experiments, and get customer feedback? Future research should seek to understand how these transgressions, if perceived as such, affect current customers. Perhaps the retained customers, who are theoretically more valued by companies, will appreciate the renewed focus and resources on their needs going forward.

Customer divestment has monetary and non-monetary effects on companies. Teasing out the short- and long-term effects on the company from customer divestment is important for strategic decision making. Furthermore, an understanding of the impact of competitor reactions to divestment is necessary. How should competitors react, if at all, to a divested customer? The popular press sources noted that some competitors are more than willing to accommodate divested customers. If this is the case, does it make business sense to take on a customer relationship that was cast off by another company? A large scale divestment from a merger or acquisition, for example, may entice competitors into relationships with these customers.

4.5 CONCLUSION

Marketing researchers note that there is still much to learn about how customers judge the fairness of a firm's actions (Boulding et al. 2005). Customer divestment is another action that will be debated and discussed. However, customer divestment is unique in that it signals a final act in the relationship between a company and a customer. Therefore, it is expected that customer divestment has the potential to be more heatedly debated than say, a bad customer service interaction. It becomes imperative that both managers and customers understand the parameters of their relationships. Further, it is evident that much work needs to be done by managers to communicate the expectations of the firm to customers. Academic researchers should take up this topic and build a greater understanding of customer divestment.

5.0 SECTION V: CONCLUSION

My dissertation examines in three essays how firms utilize exploitation and exploration strategies, independently and in combination, for competitive advantage. In this set of research, I made five contributions to the literature. The first contribution is an understanding of how functional implementation helps or hinders a firm that balances exploitation and exploration to enhance performance relationship. The first essay shows that several dimensions of performance in an ambidextrous strategy are increased through successful implementation at the marketing function level. This reconfirms the critical role that functional units play as translators and implementers of firm strategy (Bonoma 1984; Bourgeois and Brodwin 1984; Hambrick 1983; Nutt 1987), but does so for the first time in the context of organizational ambidexterity. Interestingly, there is not a mediating effect for functional implementation in the relationship between ambidextrous firm strategy and revenue. In this regard, the first essay demonstrates the marketing function's contribution to the success of an ambidextrous strategy would be overlooked, to the firm's detriment, if revenue was the sole focus of managers. Strong support for the mediating effect of functional implementation was also observed for manufacturing but not service firms.

The second contribution is to expand the understanding of the financial impact of exploitation and exploration on the firm. In the first essay, the results show that a balanced

exploitation-exploration strategy has a positive effect on various dimensions of performance such as revenue, profitability, customer satisfaction, and new product introductions. Much of the prior research linked a balanced strategy only to revenue improvements. The first essay shows that focusing too much on a single metric (such as revenue) may inadvertently lead the firm to shift its balance of emphasis from an ambidextrous strategy to exploration or – more likely – exploitation. The second essay goes a step further to examine the differential impact of exploitation and exploration on historical (e.g., ROA) versus forward-looking (e.g., Tobin's q) performance. The results of the second essay show that a firm's exploitation capability negatively affected Tobin's q . However, it positively affected ROA. This is an interesting finding. Management focus appears to be on improving historical measures while investors are interested in future value. The strong positive impact of exploration on Tobin's q but the insignificant effect on ROA reinforces this perspective. This outcome has key implications for boards of directors who are tasked with setting executive team compensation packages that are in line with firm strategy. Increasing market value allows firms more financial flexibility in terms of borrowing and investing, which can translate into potential resource-advantages. Finally, I provide additional insight in essay two into a growing debate over whether or not firms achieve performance advantages by pursuing a balanced versus a focus strategy. In this study, the interaction of exploitation and exploration capabilities did not have a significant effect on either Tobin's q or on ROA.

The third contribution is a better understanding of the time dependent nature effects of managing both exploitation and exploration. The second essay takes a longitudinal approach to this issue, finding partial support that firms can enhance their exploitation and exploration capabilities by making the appropriate investments. In particular, the cumulative effect of

exploitation and exploration capabilities in prior periods significantly and positively affects the current year capabilities. Notably, firms must make continuing investments in research and development to maintain strong exploration capabilities. Exploration also has a positive impact on future firm value but a non-significant effect on ROA in this study. This signals that managers should not cut R&D efforts in the face of short-term efforts to make earnings goals.

Finally, given the difficulty of managing exploitation and exploration, the importance of keeping the firm on track becomes paramount. The third essay begins to get at this issue by examining how firms can divest customers so that capabilities can be focused on enhancing other market opportunities. Customer divestment is the firm-initiated termination of relationship with an existing customer. Using archival data, I find many examples across industries of customer divestment. An examination of the divestment concept with managers and customers reveals a broad customer divestment framework that can be applied in future research. Finally, an experiment begins to test empirically how managers can mitigate the potential negative outcomes from divestment. The results of the experiment demonstrate that it is better for managers not to provide a divestment warning as it gives customers time to reflect and take action against the firm. Collectively, these studies create a foundation for future research in an area that has a direct effect on how firms allocate investments and maintain capabilities.

There are still many interesting issues and relationships to be examined in the exploitation-exploration literature. An important next step in this research stream is to tease out the differential impact of capabilities on the firm. The nature of capability growth and deterioration suggests that the overall strength of firm exploitation and exploration capabilities can not only change with varying degrees over time but also impact the firm over differing time periods. For example, consider that in the pharmaceutical industry, the benefits of research and

development efforts are often six to ten years removed from initial firm investments. These investment curves tend to be slow and limited at first with increasingly large expenditures near the end as human clinical trial studies are conducted and analyzed. Alternatively, the benefits of investments in sales force automation and training are more readily seen with large gains in productivity or revenues hitting the bottom line of firm financial statements in shorter time frame. Similarly, the rate of deterioration can vary across capabilities. Future research should consider the non-linear and time-lagged nature of accrual and deterioration of capabilities in the context of exploitation and exploration.

It is also important going forward to understand key inflection points in the growth and maintenance of firm exploitation and exploration capabilities. There is debate as to whether or not performance advantages accrue to firms that simultaneously balance exploitation and exploration capabilities or shift between the two (see Benner and Tushman 2003; Burgelman 2002; Christensen 1998; Gupta, Smith, and Shalley 2006; Levinthal and March 1993). Future research should examine if, when and how these shifts in strategy from exploitation to exploration and vice versa might benefit the firm over the longer-term. It may be the case that simultaneously balancing exploitation and exploration capabilities is not the best path to enhanced longer-term performance but rather the shifting between the strategies.

My dissertation builds on the existing base of exploitation-exploration knowledge in many ways and gives managers practical insights for use in their firms. I believe that continuing to move the discussion into marketing-related topics will have cross-functional benefits for the firm. Finally, the complexities of how resources and capabilities impact exploitation and exploration provide many fruitful areas for future research.

6.0 SECTION VI: APPENDICES AND BIBLIOGRAPHY

APPENDIX A: ESSAY 1, INDEPENDENT AND DEPENDENT MEASURES

Ambidextrous Firm Strategy*

<i>Construct</i>	<i>Items</i>
Firm Exploitation	The functional areas of this organization work coherently to support the overall objectives of this organization. This organization uses its resources effectively. Management provides clear goals and objectives for the functional units.
Firm Exploration	We are encouraged to challenge outdated traditions and practices. This organization is flexible enough to allow us to respond quickly to changes in our markets. This organization evolves rapidly in response to shifts in our business priorities.

*Items are adapted from Gibson and Birkinshaw (2004).

Marketing Implementation**

<i>Construct</i>	<i>Items</i>
Marketing Exploitation	We are very efficient. We work together to support the overall objectives of the marketing function. We work well with other functional units in this organization. We apply knowledge from other functional units to better serve our customers.
Marketing Exploration	We interact regularly with customers in emerging market segments. We focus on developing new product/services for our customers. We have a broad range of products/services. We have extensive customer services capabilities.

**Items are adapted from Menon et al. (1999) and self-developed for this study.

Subjective Business Performance Measures

<i>Construct</i>	<i>Items</i>
Revenue	Our firm's revenue was higher last year than our major competitors.
Profit	Our profit was higher than our major competitors.
Customer Satisfaction	Customer satisfaction levels were higher than our major competitors.
New Product Introductions	We introduced more new products/services into the market than our competitors.

Note: Items are scored on a seven-point Likert scale with 1=strongly disagree and 7=strongly agree as the anchors. Respondents were asked to indicate the extent to which they agree or disagree with the following statements.

APPENDIX B: ESSAY 3, FACTUAL REPORTS OF CUSTOMER DIVESTMENT

Company	Article Title, Author, Journal	Short Description
Marsh and McLennan	"After Spitzer Probe, Marsh and McLennan CEO tries Corporate Triage" August 29, 2005 , <i>Wall St. Journal</i> , by Ian McDonald.	In response to scandals and SEC investigations, CEO Cherkasky "called a meeting of top executives and asked for a breakdown of profits, client by client. He recalls being greeted with awkward silence. Marsh didn't keep track of how much money it made from which customers." He gave subsidiary Kroll 48 hours to crunch the numbers. The firm was losing on about 40,000 clients or 25% of its base. These clients and the employees that supported them were immediately let go, irritating employees.
TXU	"How a Texas Power Company Got Tough with Customers" March 22, 2005 , <i>Wall St. Journal</i> , by Rebecca Smith.	CEO John Wilder has capitalized on electricity deregulation, "disconnecting late-paying customers while offering special perks to those who pay on time." A combination of tactics reduced bad debt by \$26MM in 2004. Also, competitors were raiding TXU's home territory but escalating costs elsewhere made them less competitive. "Soon managers were coming to meetings...showing what the company had previously ignored: which consumers were profitable and which were not. TXU has gotten in trouble for some of its aggressive tactics. Some of its customers must migrate to pre-paid electricity providers. TXU has started a customer loyalty program.
EchoStar DirecTV	"Echostar Launches Prepaid Service for Customers with Weak Credit" February 17, 2006 , <i>Wall St. Journal</i> , by Andy Pasztor.	Launched pre-paid satellite television for consumers who can't meet the company's credit guidelines. Customers pay cash up front for equipment and then purchase a prepaid card to get access to Echostar programming on a monthly basis. The cards seek to eliminate financial liability from unpaid bills. Rival DirecTV has asked similar risky customers to put up \$200 to \$300 deposit – but no prepaid cards.
First Union PageNet FedEx	"Unequal Treatment: Alienating Customers Isn't Always a Bad Idea..." January 7, 1999 , <i>Wall St. Journal</i> , by Rick Brooks.	<p><i>First Union</i> uses a program that ranks each customer using a formula that includes minimum balances, account activity, branch visits and other variables. Customer accounts get either a green, yellow or red flag which helps dictate service levels. "Everyone isn't the same anymore," says Steven Boehm, general manager of First Union's customer-information center. First Union estimates that this system will add \$100 million in annual revenue.</p> <p><i>PageNet</i> sent letters to marginal paging-services customers telling them of higher fees. "There's just no free lunch anymore," said a PageNet spokesman "We've done the research now to feel comfortable walking away with no regrets."</p> <p><i>FedEx</i> did an analysis of 30 large customers that generate 10% of its total volume and found that certain customers weren't bringing in as much revenue as they had promised when deals were</p>

First Chicago		<p>negotiated. A couple of customers who refused rate increases were told to take their business elsewhere.</p> <p>“When <i>First Chicago</i>, now part of Bank One, imposed a \$3 teller fee in 1995 on some of its money-losing customers, 30,000 of them – or 3% of the bank’s total customers – closed their accounts. Some competitors, such as Raymond James Trust Co. and Sound Trust Co. are servicing these divested customers.</p>
U.S. Veterans Administration Medical Center in Portland, OR	<p>“Portland Hospital Gives Acutely Ill A Homecare Option” April 19, 2006, <i>Wall St. Journal</i>, by Gautam Naik.</p>	<p>The VA hospital often operates at full capacity. It started this home hospital option in 2001 and has treated hundreds of patients in the comfort of their own homes. Time to get well seems to be shorter than actual hospital stays. Savings for the hospital for home patients is approximately one-third that of in-hospital patients. The patient is sent home with the necessary portable medical equipment, a physician is on 24-hr standby and nurses visit the home. Doctors will visit if necessary.</p>
Citigroup Nations Bank	<p>“WAMU Commitment Whams Citigroup and Nations Bank” May 22, 1998, <i>CRC Press Release</i>.</p>	<p>A press release from the California Reinvestment Committee slamming Citigroup and NationsBank for their perceived lack of investment in low income areas and minority businesses.</p>
Bank One	<p>“The Jamie Dimon Show” July 22, 2002, <i>Fortune</i>, by Shawn Tully.</p>	<p>Bank One CEO Jamie Dimon divested 33% of its loan portfolio due to a lack of customer profitability, redirected his resources and saved an estimated \$1 billion. “If customers were merely borrowing money and had no other business with the bank, then Bank One was losing money on the relationship.”</p>
GE Capital Fidelity Capital One Charles Schwab	<p>“Why Service Stinks” October 23, 2000, <i>Business Week</i>, by Diane Brady.</p>	<p>“GE Capital decided to charge \$25 a year to GE Rewards MasterCard holders who didn’t rack up at least that much in annual interest charges. The message was clear: Those who pay their bills in full each month don’t boost the bottom line. GE has since sold its credit card unit to FirstUSA.”</p> <p>Another example, “Fidelity contacted 25,000 high cost serial callers and told them that they must use the web or automated calls for simple account and price information. Each customer was routed to a special representative who would teach callers how to use it.</p> <p>Using its expertise in tiering Capital One matches customers with products.</p>
Insurance Companies	<p>“Homeowners Face Rising Insurance Rates” March 23, 2006, <i>Wall St. Journal</i>, by M.P. McQueen.</p>	<p>Insurers are dropping policies not only in hurricane zones but other parts of the country as well. Allstate plans to seek rate increases in 49 states to offset higher reinsurance costs. Other firms, such as Andover and Hingham Mutual are refusing to write policies on Cape Cod and beach areas. The state-run Massachusetts plan now has 30% of homeowners up from 2% only two years ago.</p>
Nationwide Insurance Allstate Insurance	<p>“Nationwide Dropping 35,000 policies” September 1, 2005, <i>The Palm Beach Post</i>, by David Sedore.</p>	<p>“Nationwide Insurance Co. is dropping 35,000 homeowner policies in Florida, limiting the number of homes it insures statewide for fear of massive financial losses from future hurricanes.” Allstate will shed 95,000 policies. Citizens Property Insurance Corp, the state’s insurer of last resort and by law the most expensive, will end up insuring most of these homeowners. This is not based on socio-economic status as policies for many large beach homes will be dropped.</p>

State Farm	“State Farm files for Rate Increase” August 18, 2005 , <i>St. Petersburg Times</i> , by Jeff Harrington.	Filed with state regulators to increase homeowner policies by an average of 8.6% with some as much as 40%. “State Farm homeowners’ customers from other states are routinely dropped when they move to coastal Florida.”
MetLife Insurance	“Insurance Companies Dropping Customers, Raising Premiums” May 4, 2003 , <i>Minnesota Public Radio</i> , by Bill Catlin.	Minnesota law allows insurance companies to refuse to renew a policy under certain circumstances – customers who have two or more paid claims in three years. Storm-related claims don’t count. Neither does when an insurer collects from a third party. The Fair Plan state-run safety net program saw a 40% increase in homeowners’ applications in 2002. State Farm has tightened restrictions and increased premiums.
Citizens Property Poe Financial	“Strapped Insurers Flee Coastal Areas” April 26, 2006 , <i>USA Today</i> , by Marilyn Adams.	Florida’s state-run insurer of last resort has a record 815,000 policies and \$1.7B deficit. The CFO for the state of Florida urged a judge place Florida’s No. 3 home insurer, Poe Financial, into receivership because it lacks adequate reserves.
Insurance Companies	“Who Should Pay?” February 1, 2006 , <i>Wall St. Journal</i> , by Liam Plevin.	Takes a different look at the coastal insurance policy issue, posing two questions: (1) Who should pay for homeowners to live in dangerous places? (2) What role should states play in insuring those people’s property? The Florida state-run insurer of last resort now underwrites most of the state’s most vulnerable homes.
Insurance Companies	“State Prevents Insurers from Dropping Customers” August 20, 2004 , <i>Orlando Sentinel</i> , by John Schmeltzer.	After Hurricane Charley the state of Florida barred insurance companies from canceling policies for non-payment of premiums because residents could not reach damaged homes.
Best Buy	“The Customer is Always Right? Not Anymore” July 5, 2004 , <i>Associated Press</i> , by Joshua Freed.	Retailer Best Buy is tightening its rebate policies to combat customers who abuse policies.
Hewlett-Packard	“Middleware <i>Netaction Products</i> ” July 15, 2002 , <i>HP Press Release</i> .	HP discontinued certain middleware products. It selected BEA Systems as a preferred partner for divested customers. HP offered customers incentives and preferential pricing to switch to BEA.
Oxford Health Plans	“Health Care Provider Dropping 26,000 Medicare Customers” October 4, 1998 , www.recordonline.com/1998/10/04/oxfordhe.htm	Oxford Health dropped 26,000 customers in four northeastern states. Three other insurers have recently tried to drop Medicare coverage for senior citizens in eastern Connecticut – Aetna worked out a deal with the state of Connecticut to let companies switch customers but they keep the Medicare. Oxford is also dropping 19,300 customers in New York. With more and more seniors joining the plan, HMOs can’t continue to offer the perks.
Surgeons	“Surgeon’s Weighty Dilemma” February 28, 2006 , <i>Wall St. Journal</i> , by Gautam Naik.	As demand for knee and hip replacements increase, some surgeons are turning away the overweight and obese. These patients likely need them the most but surgeons say obese people have a higher risk for medical complications, take longer to recover and often need repeat procedures. Some surgeons make patients lose weight first. The American Association of Hip and Knee Surgeons acknowledge that this is a growing trend. In late March 2006, the association will consider whether to issue special physician guidelines for the management of obese patients. At some National Health Services clinics in Britain, denial of obese patients has become policy. The demand seems to have created a capacity constraint where doctors can choose who gets an operation and who doesn’t.
University of Texas Medical Branch	“At One Hospital, A Stark Solution for Allocating Care,” September 23, 2003 , <i>Wall St. Journal</i> , by Bernard Wysocki Jr.	A large hospital in Texas has instituted strict guidelines whereby approximately 64,000 patients with unpaid medical bills are barred from making future appointments unless they require urgent care.

Dorothy Lane Markets	“Dorothy Lane Loves its Customers” June 1999 , <i>Fast Company</i> , by Scott Kirsner.	Dorothy Lane Markets (DLM), a mid-western grocery store chain, moved to eliminate all but its most loyal customers from using its stores after it noted that they lost money on occasional customers. DLM stopped running newspaper ads. CEO Norman Mayne said, “Whenever we ran ads, offering a special on pork-and-beans, all we did was attract ‘cherry pickers’. It was a headache for us – and for our regular customers.” DLM communicates extensively with its most loyal customers and rewards them accordingly.
NationsBank	“Is Your Bank Trying to Dump You?” July 1997 , <i>Kiplinger’s Personal Finance Magazine</i> , by Stephanie Gallagher and Nathaniel Kennedy.	NationsBank rolled out a phone-call routing system that puts profitable customers at the head of the line for service. It also adds fees to credit card holders who avoid paying interest. Inactivity fees are also surfacing.
Aramark Corporation	“Aramark will not Bid to Renew Duke Contract” March 28, 2006 , <i>Duke Chronicle</i> , by Rob Copeland.	Aramark turned down an opportunity to rebid a contract it had with Duke University due to a lack of profits and unreasonable client requests.
Greektown Casino	“Greektown Bans 30 Winners” November 25, 2002 , <i>The Detroit News</i> , by Becky Yerak.	“Greektown banned thirty video poker players because their winnings, along with mounting cash-back incentives and freebies, made them unprofitable customers.” Players were told not to come back. “Our decision benefits 99.99 percent of our guests because it keeps high-paying machines in play and it does not force us to reduce the very generous comp, promotions and double-points programs that we offer,” said Roger Martin, Greektown spokesman.
Filene’s Basement	“Banned in Boston...and Anywhere Else That Has a Filene’s” July 14, 2003 , <i>Associated Press</i> .	Discount retailer Filene’s Basement banned two sisters from all of its stores for excessive returns. They each received a letter telling them that they were no longer welcome in the stores. The sisters acknowledge that “they have returned many items, occasionally complained about the service and had a few incidents with managers.” “Sales associates spent too much time handling the returns and complaints of the two sisters.” “There comes a point in time when you say enough is enough on both sides,” said James McGrady, CFO at Value City.
Dodge & Cox	“When Mutual Funds Don’t Want Your Cash” May 1, 2006 , <i>Wall St. Journal</i> , by Diya Gullapalli.	In response to large in-flows of cash due to strong historical performance, the firm had to stop accepting new institutional clients referred to them by industry consultants.
Hospitals/ Healthcare	Parent-Training Program Keeps the Doctor Away” April 27, 2004 , <i>Wall St. Journal</i> , by Josee Rose.	Medicaid could save billions of dollars annually if low-income parents are trained how to handle minor childhood ailments such as sore throats and runny noses. Four hundred parents in a Los Angeles area Head Start training program were educated on how to handle minor childhood ailments. This cut unnecessary trips to medical facilities by more than 100%, saving almost \$50,000 and freeing up resources to handle more severe conditions. Potential dollar savings for large scale training programs could easily run into the tens of millions. If 12,000 families were trained, estimated savings is more than \$2 million.

APPENDIX C: ESSAY 3, MANAGER INTERVIEWS

Industry	Company description	Interviews
Accounting services	Three of the four largest global accounting firms and two major U.S. regional firms. All serve Fortune 100 public as well as private firms.	(3) Partner; (3) Senior Manager
National human resource services provider	\$2B global business services provider	(1) Regional Managing Director
National cable services provider	Fortune 500 communications products and services	(1) Senior Executive
Consulting services	Global management consulting firm	(1) Partner
International rental car services	Global provider of consumer services	(1) Manager, North American Marketing
Healthcare	Leading U.S. provider of cancer treatment	(1) Partner
Investment advisory services	Two of the leading investment advisory services firms in the U.S.	(2) Senior Vice President, Vice President
Information technology services	Global provider of IT services to financial services firms	(2) Chief Executive Officer, President
Information technology products and services	A Fortune 500 global leader in IT products and services; A growing regional IT provider	(2) Senior client executive
Legal	Two of the leading U.S. law firms	(2) Partner
Manufacturing	One of the world's largest producers of equipment for the music industry	(1) Manager, North American Marketing
Marketing research	Global provider of marketing research products and services	(1) Partner
Medical products and service	Leading global provider of medical products and services	(1) Senior Vice President
Consumer Banking	Major U.S. Bank in the northeast	(1) Senior VP of marketing research
Hospitality	Restaurant and Bar	(2) Owners
Physician Practice/Healthcare	Four large medical practices	(6) Medical doctors
Healthcare	Major hospital chain in Northeast	(1) Hospital administrator

APPENDIX D: ESSAY 3, EXPERIMENT STIMULI

Divestment Warning. Prior to divestment, participants read the following from Diversified bank:

Warning: “We have recently reviewed your account. We have determined that it is currently not beneficial for Diversified bank to continue to serve you as a customer because you do not maintain a high enough average account balance. We strongly encourage you to increase your average account balance to \$2,500 during the next six months. It is easier for Diversified bank to meet your needs and is more beneficial to you when you maintain a \$2,500 average account balance. We will review your account again in six months. Thank you for being a Diversified bank customer.”

No Warning: “We have recently reviewed your account. We have determined that it is currently beneficial for Diversified bank to continue to serve you as a customer because you maintain a high enough average account balance. We strongly encourage you to increase your average account balance to \$2,500 during the next six months. It is easier for Diversified bank to meet your needs and is more beneficial to you when you maintain a \$2,500 average account balance. We will review your account again in six months. Thank you for being a Diversified bank customer.”

Reasons for Divestment. The reason the company purports to have over the decision to terminate the customer relationship is manipulated by external and internal conditions using two scenarios:

External explanation: “Due to the persistent economic slowdown that is affecting Diversified bank, we can no longer serve as many customers as we have in the past without threatening the future existence of the bank. As a result, we are forced to stop serving customers who do not maintain an average yearly minimum balance of \$2,500 per year. Unfortunately, this means that we must sever our relationship with you as our customer. Your account will be closed thirty days from the date of this letter. Any remaining balance in your account after thirty days will be forwarded to you by bank check.”

Internal explanation: “Due to a change in the business strategy of Diversified bank, we can no longer serve as many customers as we have in the past without threatening the future existence of the bank. As a result, we are forced to stop serving customers who do not maintain an average yearly minimum balance of \$2,500 per year. Unfortunately, this means that we must sever our relationship with you as our customer. Your account will be closed thirty days from the date of this letter. Any remaining balance in your account after thirty days will be forwarded to you by bank check.”

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