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**THE INTEGRATION OF FIRM RESOURCES:
THE ROLE OF CAPABILITIES
IN STRATEGY AND FIRM PERFORMANCE**

**THE INTEGRATION OF FIRM RESOURCES:
THE ROLE OF CAPABILITIES
IN STRATEGY AND FIRM PERFORMANCE**

A dissertation proposal submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

By

Daniel F. Lynch, B.S., M.P.A.
Fairleigh Dickinson University, 1975
University of Colorado, 1977

December 1998
University of Arkansas

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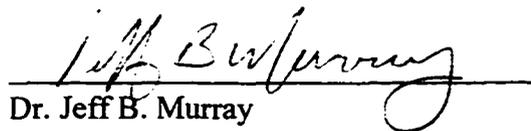
This dissertation is approved
for recommendation to the
Graduate Council

Dissertation Chair



Dr. John Ozment

Dissertation Committee:



Dr. Jeff B. Murray



Dr. Molly I. Rapert



Dr. Parshotam Dass

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*It is to my family, Kathy, Erin, Daniel, and Brigid, that
I dedicate this work.*

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CHAPTER I

INTRODUCTION

The literature on firm performance has a rich history and is theoretically grounded in several disciplines including economics, sociology, and organizational behavior (Anderson 1982). However, there has not been much empirical support for any specific theory. That is, authors have not been successful in explaining why certain firms perform well while others do not. Several authors have attempted to link strategy to performance (Miller 1986; Dess and Davis 1984; Miles and Snow 1978; Porter 1980), but with varying levels of success. More recently, authors have attempted to tie firm performance to resources (Barney 1991; Hall 1993) and/or capabilities (Day 1994; Droge et al. 1994; Hitt and Ireland 1986), but here, too, there has not been convincing empirical support.

Three observations are pertinent at this point. First, there seems to be reasonable theoretical bases for these two streams of research. For example, it is intuitively appealing to assume that a well-planned strategy should lead to success. Similarly, it is easy to believe that a firm cannot be successful without certain resources and/or capabilities. The second observation is that these research streams have emerged independently of one another. That is, it appears that those who support the link between strategy and performance have not developed models that incorporate into them resources and/or capabilities, and the authors who support the link between capabilities and performance have not attempted to incorporate strategy

into their models. The third observation is that the theories in both areas are too sound to reject, irrespective of a lack of empirical support. Rather than viewing these approaches separately such that one group of researchers is right while the other is wrong, it may be beneficial to integrate the two approaches in an attempt to determine if certain strategies are more successful if implemented with an adequate resource base and/or the necessary capabilities. On the other hand, firms that pursue certain strategies without the necessary resources or capabilities would not be expected to perform as well as firms that carefully match resources and capabilities to their strategic approaches.

The objectives of this dissertation are to examine whether superior firm performance is achieved when resources/capabilities are properly matched with market strategy (what one might call—*fit*) and to ascertain which capabilities should be linked to which strategy. Strategy, for the purpose of this study, will be those strategic choices that were defined by Porter (1980). He hypothesized that firms may pursue two (or three) different generic business strategies in order to achieve superior firm performance, that is, cost leadership, differentiation, or focus. Miller (1988) and Davis and Miller (1988), among others, have concluded that there are really only two generic strategies, that is, cost leadership and differentiation. These two strategic alternatives form the basis of our strategy construct for this thesis.

Since capabilities (firm resources) reside mostly at the functional level of the organization, that is where this dissertation will begin. There are many resources and/or capabilities that firms rely on to pursue their objectives. Some of these are

related to specific functions such as finance, operations, logistics, or marketing. However, there has been very little research that has identified and measured the resources/capabilities of specific functional areas. One of the few areas in which studies have been conducted and for which scales have been developed is the logistics function (Global Logistics Research Team at Michigan State University 1995; Eckert and Fawcett 1996; Morash et al. 1996; Clinton and Closs 1997). Moreover, logistics has been mentioned frequently as a functional area of the firm that may provide sustainable competitive advantage and superior firm performance (Bowersox et al. 1995; Eckert and Fawcett 1996; Morash et al. 1996; Global Logistics Research Team at Michigan State University 1995). Unlike other functions, logistics activities have the potential to affect performance in terms of revenue enhancement as well as cost reduction. Logistics expenses may represent as much as 20 percent of the total cost in many industries (Coyle, Bardi, and Langley 1996; Lambert and Stock 1993). Consequently, logistics capabilities that permit cost reduction have the potential to significantly affect performance. Additionally, Logistics activities have been shown to significantly affect revenue, and, therefore, may affect performance from this perspective as well (Ozment and Chard 1986). Accordingly, this study builds upon that prior knowledge in an effort to gain a better understanding of how capabilities, strategy, and performance are related.

The remainder of this chapter is divided into several sections. Presented first is a brief overview of generic business strategies. Next, the concepts of resource-based theory, distinctive capabilities, and logistics capabilities are examined. This is

followed by a section in which a conceptual model is proposed and relationships briefly discussed. Finally, an outline of the remaining chapters of the dissertation is provided.

GENERIC BUSINESS STRATEGIES

Strategy research has focused largely on factors outside the firm such as market conditions and competition (Porter 1980, 1985). Porter (1980) identified three generic strategies: differentiation, cost leadership, and a third he called focus. All of these strategies, though not mutually exclusive, are based upon issues dealing with competition and barriers to entry. These theories foresee the firm's position in the market and its strategy being based upon five market forces (Porter 1980). These five market forces are threat of new entrants, rivalry within the industry, buyer power, supplier power, and threat of substitution. Porter's generic strategies are based in industrial economics. As such, the above forces are said to determine industry profitability. Porter postulates that a firm may pursue superior performance by employing the five market forces to select an attractive industry, or by selecting a strong competitive position within an industry; that is, become a cost leader, a differentiator, or become focused. As can be seen, the emphasis in this work suggests that a firm's success, or lack thereof, deals with the selection of the industry in which to compete and the strategic choice employed within that industry. As mentioned previously, this view of strategy is based upon traditional industrial organization theory; that is, the structure - conduct - performance paradigm. This

paradigm utilizes a value chain analysis in deciding strategic position which by its very nature is competition and market oriented, incorporating the market forces previously discussed.

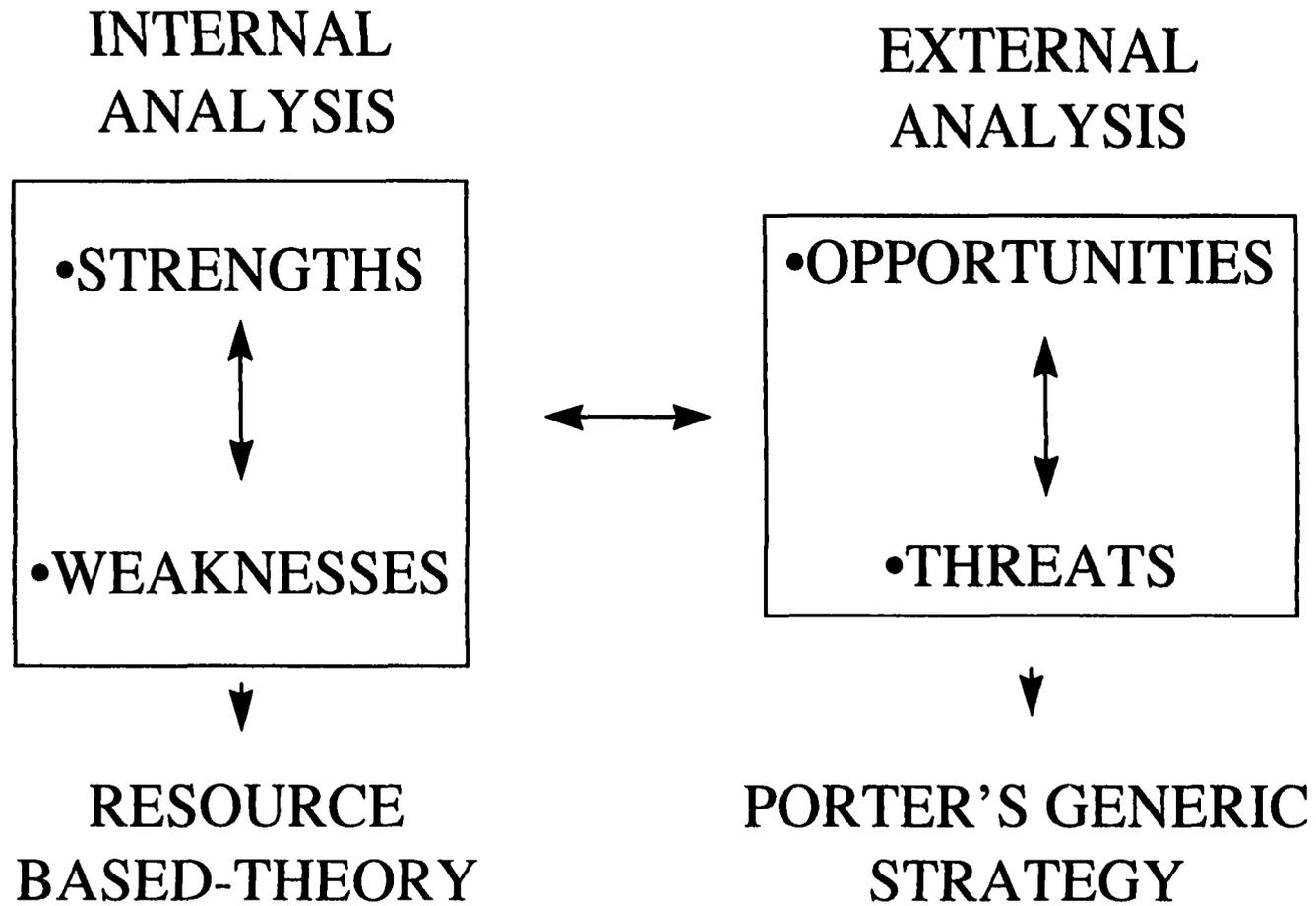
Barney (1991) perceives Porter's view of strategy to be very externally (market) oriented, dealing primarily with the opportunities and threats with which a firm must contend. He contrasts this with an internally (resource) oriented approach to strategy, being somewhat more strength and weaknesses oriented (see Figure 1.1). Figure 1.1 illustrates the difference in the views of Porter and Barney. As is shown, Porter's view is more externally oriented while that of Barney is more internally oriented. Conner (1991) expounds upon these differing views of strategy by pointing out that internal firm resources might be the *real* source of firm success. This discussion of the differing views of strategy becomes even more intriguing when one reflects on two additional issues concerning which strategy approach is best; one that is externally oriented, i.e., (market forces) or one that is internally oriented (i.e., resource-based theory).

One of the shortcomings of the market forces approach (Porter's Generic Strategy) is its lack of ability to explain how firms continue to achieve different levels of performance even though they are competing within the same industry. This lack of explanatory power may be due to the need to include resources and/or capabilities into the strategy - performance relationship. However, Porter, himself, has shed new light on this issue. Porter (1996) in discussing *What is Strategy?* states:

“Competitive strategy is about being different. It means deliberately choosing a different set of *activities* to deliver a unique mix of value...the essence of strategy is in the *activities* - choosing to perform activities differently or to perform different activities than rivals (Porter 1996, p. 64, italics added).”

Of particular interest to this study is that the ‘activities’ mentioned by Porter seem to be tied closely to capabilities and resources associated with the Resource-Based Theory of the firm with its internal versus external firm orientation which are discussed next.

FIGURE 1.1
THE RELATIONSHIP BETWEEN RESOURCE-BASED
THEORY & PORTER'S GENERIC STRATEGY



RESOURCE-BASED THEORY

Resource-Based-Theory of the firm (Barney 1991; Rumelt, Schendel, and Teece 1991; Mahoney and Pandian 1992) differs from the traditional generic strategy approach, previously discussed, by proposing that firm resources or capabilities are developed over long periods of time and, in turn, serve as a competitive advantage to be utilized by the firm to pursue superior firm performance (Rumelt, Schendel, and Teece 1991).

In 1937, Coase commented on the importance of "...the allocation of resources in a firm..." (Coase 1937, p. 389). Penrose (1959) was one of the earliest writers to propose a resource-based explanation of the firm. Her work examined the firm much more from a strategy based on resources viewpoint than an economic and industrial organization standpoint, as Coase had previously done.

Perhaps the seminal article on Resource-Based Theory was presented by Wernerfelt (1984). He proposed that firms were made up of bundles of resources that could be employed to affect firm performance. Barney (1991) continued to expand upon the Resource-Based Theory. He examined the link between sustainable competitive advantage and firm resources and proposed a framework by which to identify firm resources. He postulated that there were four indicators of firm resources. They are *value, rareness, imitability, and sustainability* (Barney 1991).

Rumelt, Schendel, and Teece (1991) believe that a firm develops certain resources over a long period and that these capabilities eventually become the firm's competitive advantage. Barney (1991) states that it is not the time period that defines

a sustainable competitive advantage, but the inability of competitors to duplicate these firm's resources. Mahoney and Pandian (1992) expounded further upon the Resource-Based Theory by offering some propositions by which to test the theory and by proposing that it was management's job to utilize firm resources for competitive advantage.

In an extension of his earlier work, Barney (1995) looked at various firms and their internal strengths and weaknesses. He proposed that firms can have a competitive advantage and/or superior performance based upon firm resources. Miller and Shamsie (1996) examined the resource-based view of the firm in order to ascertain whether there was any empirical support for it. They examined historical information from the motion picture industry between 1936 and 1965. Their findings were that certain firm resources did lead to superior firm performance. Much of the work previously mentioned uses the term "resources;" however, the aforementioned theory seems to be implemented through the capabilities that reside within the firm that will be discussed next.

DISTINCTIVE CAPABILITIES

How is Resource-Based Theory manifested within the firm? Day (1994) points out that resource-based theory presents two sources of competitive advantage and performance: firm assets and firm capabilities. Our focus here is on the firm's capabilities, or more specifically, distinctive capabilities. Distinctive capabilities are not simply the resources of the firm but strictly those resources that are so deeply

embedded in the organizational routines and practices of the firm that they cannot be traded or imitated (Dierickx and Cool 1989). Day proposes a capabilities approach or resource-based approach to competitive advantage. He believes this approach may provide a firm with “[a] focus on customer value creation” (Day 1994, p. 50).

Day states that distinctive capabilities are “complex bundles of skills and accumulated knowledge, exercised through organizational processes, that enable firms to make use of their assets... and... functions like a key success factor” (Day 1994, p. 38). They enable the firm “...to deliver value to customers in an appreciably more cost effective way” (Day 1994, p. 39). Capabilities are “...the glue that brings ... assets together and enables them to be deployed advantageously” (Day 1994, p. 38). Examples of distinctive capabilities are: Wal-Mart’s logistics capabilities embodied in their cross-docking capabilities; the consistency of the McDonald’s Corporation; and L.L. Bean’s superior order fulfillment processes (Day 1994). It is interesting to take note that a number of these capabilities mentioned by Day are logistics capabilities and are part of what Day refers to as a continuum of capabilities. This continuum includes outside-in processes, spanning processes, and inside-out processes which are discussed in more detail in the next chapter. According to Day (1994), more research is needed on how firms attain competitive advantage through distinctive capabilities.

Some authors believe that capabilities are based on knowledge and are distributed on separate dimensions of knowledge and skills, technical systems, management systems, and values and norms (Leonard-Barton 1992). She

characterizes capabilities as being comprised of distinctive skills and managerial and technical systems. Additionally, Hall (1993) offers that capabilities are intangible resources that assist firms in achieving competitive advantage. This discussion of competitive advantage through capabilities was carried further by Black and Boal (1994). They employ the word 'traits' in their work, as opposed to capabilities, but continue to propose a link between these 'traits' and competitive advantage and, hence, firm performance. Stalk, Evans and Shulman (1992) maintain that competition in the future will be based on capabilities. They also argue that capabilities are what will enable companies to compete for the long term.

Capabilities (competencies) form the key sources of competitive advantage in the furniture industry according to Droge et al. (1994). Competencies were discussed in great detail by Prahalad and Hamel (1990) as well. They propose that firms possess core competencies. Core competencies enable firms to outperform competitors through the use of 'intangible resources.' Hunt and Morgan (1995) continue this discussion and suggest that firm resources and competencies may account for competitive advantage.

A great deal of theory exists relating to both firm resources and the implementation of firm resources through distinctive capabilities. Unfortunately, little empirical evidence exists detailing exactly what distinctive capabilities are and linking distinctive capabilities to firm performance and/or strategy. One area of study where distinctive capabilities have been quantified with some success and somewhat

linked to performance is logistics. Consequently, the next section provides a brief overview of logistics capabilities and the related research.

LOGISTICS CAPABILITIES

The Resource-Based Theory of the firm, and/or the concept of Distinctive Capabilities have had few, if any, empirical tests of their soundness. They are, as was mentioned earlier, both intuitively and theoretically appealing but empirical evidence is needed. One area of promise seems to be logistics in that some measurement of logistics capabilities has taken place, and successful linkages have been made between logistics capabilities and firm performance (Global Logistics Research Team at Michigan State University 1995; Eckert and Fawcett, 1996). It, therefore, seems appropriate to extend this work to test the proposed relationships with strategy and performance in the logistics area since scales of logistics capabilities exist and some have been successfully linked to performance (Global Logistics Research Team at Michigan State University 1995; Eckert and Fawcett 1996; Morash et al. 1996).

Some additional considerations involve the service characteristics of logistics and the strategy implications thereof. Most studies of capabilities have been in the manufacturing arena, but of equal importance is the notion that logistics may be the new frontier of strategy as proposed by some authors (Bowersox et al. 1995; Day 1994; Stalk et al. 1992). For example, a firm such as Wal-Mart that possesses a distinctive capability in terms of its cross-docking logistics system that has an impact on the firm performance (Day, 1994). Such a resource cannot be easily copied

(Barney 1991), and it significantly reduces costs via high levels of efficiency. A lower cost base can be an obvious benefit in terms of financial performance measures, and the fact that it is not easily copied leads to a sustainable competitive advantage in the marketplace. In addition, since Wal-Mart strives to be the low-cost competitor as part of its strategy (Walton and Huey, 1992) its competitive advantage is enhanced through this distinctive logistics capability. Wal-Mart, therefore, is an excellent exemplar of the basic thesis of this study. That is, Wal-Mart is a firm that has combined its distinctive low cost logistics capabilities with a low cost strategy in order to produce superior firm performance.

Another excellent example of logistics capabilities becoming more important in terms of logistics capabilities, firm strategy, and firm performance may be seen in a new logistics strategy being employed by Levi Strauss & Company. Levi Strauss & Company now offers their customers a 'Personal Pair of Jeans' through their own retail stores (Fox 1996). This program, pioneered by Levi's, allows the company to take exact measurements of the customer at the store. These measurements are sent by computer to the main factory. At the factory, custom jeans are made for this customer, all for only a ten dollar up-charge! Customers may have the jeans sent to the store or by Federal Express to their home, for a small additional charge. This program is reported to be one of a kind in the clothing industry (Fox 1996). Olavarrieta and Ellinger (1997) mention that this program allows Levi's to employ logistical expertise to differentiate their products. Levi's, through the use of the logistics capabilities of quick response and superior customer service, is able to offer

their customers custom made jeans in a short time period. These logistics capabilities allow Levi's to pursue a differentiation strategy and to enhance firm performance, especially from the customer service aspect. According to Christopher (1993), a logistics system designed with the customers' needs in mind can provide a firm with a 'competitive edge.' Reportedly, Levi's is able to offer their customers 4000 pairs of jeans versus 40, as most of their competitors do (Fox 1996). This program employed by Levi Strauss & Company is an excellent example of logistics differentiation capabilities linked to a differentiation strategy that provides superior firm performance, as proposed in this study. The following two examples offer an interesting juxtaposition of the logistics capabilities, strategy and performance relationships theorized in this study.

Daugherty and Pittman (1995) examined competitive advantage in the logistics field utilizing interviews undertaken in *Fortune 500* firms. They believe that time-based capabilities are of critical importance in logistics as well as information technology and flexibility. Following this same line of inquiry, Eckert and Fawcett (1996) examined the critical capabilities for logistical excellence and defined them as people, quality, and time. Morash et al. (1996) examined logistics capabilities needed for competitive advantage and defined them as delivery reliability, post-sale customer service, responsiveness to target market, delivery speed, pre-sale customer service, widespread distribution coverage, selective distribution coverage, and low total cost distribution. Clinton and Closs (1997) examined various factors associated with logistics strategy that consisted of five

factors: alliances, information systems, EDI practices, inventory management, and re-engineering. These factors appear to be closely aligned with capabilities.

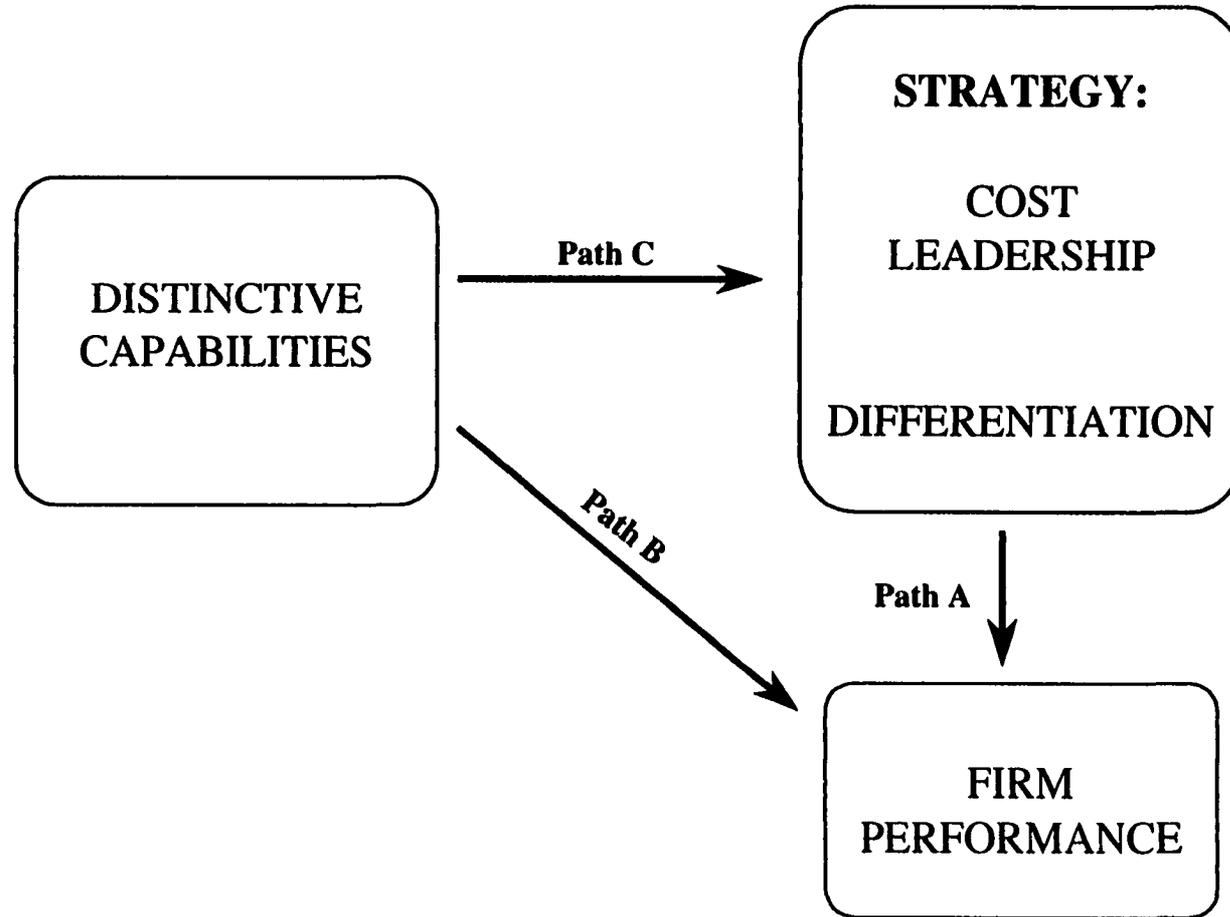
The largest undertaking to examine logistics capabilities was done by Global Logistics Research Team at Michigan State University and published in 1995 by the Council of Logistics Management in *World Class Logistics: The Challenge of Managing Continuous Change*. The research design involved in-depth interviews and survey research. The in-depth interviews consisted of 111 firms representing 17 different nations. Their survey had a response rate of 17.1%, for a total of 3,693 usable responses. These surveys represent numerous firms and industries on three continents. Their research identified four logistics competencies: positioning, integration, agility, and measurement. The authors developed 17 capabilities grouped into the aforementioned competencies. They initially identified 32 measures of logistics capabilities, of which ten were significantly related to performance. In the next section of this study we will discuss and present the conceptual model of the relationships we have previously discussed.

CONCEPTUAL MODEL

Figure 1.2 is presented to graphically illustrate the constructs and proposed relationships of the conceptual model to be tested in this study. Some of the linkages that are hypothesized have been empirically tested. Among these is the link from Porter's Generic Strategy to performance, path A (Dess and Davis 1984), and the link from resources/capabilities to performance, path B, Droge et al. (1994); Eckert and

Fawcett (1996); Morash et al. (1996); Global Logistics Research Team at Michigan State University (1995). There are, however, very few empirical links established between resources/capabilities, strategy, (path C) and performance as proposed in the conceptual model. Although, numerous linkages and relationships have been hypothesized, very few, if any, of these relationships have been tested, as in path C. It is, therefore, the goal of this research to test these linkages and to shed more light on two differing views of strategy; that is, Porter's Generic Strategy and the Resource-Based Theory of the firm. Specifically, the results of this research should show that superior performance will be achieved when resources/capabilities are carefully matched with strategy. Thus, managers should be concerned with both strategy and Resource-Based Theory of the firm. That is, it is quite important for managers to understand that there are not right or wrong resources or right or wrong strategies, but an understanding of both is needed.

FIGURE 1.2
A CONCEPTUAL MODEL OF THE CONSTRUCTS
AND RELATIONSHIPS



PLAN OF THE DISSERTATION

The primary focus of this dissertation is to empirically examine the links between distinctive capabilities, generic business strategies (specifically Porter's strategies of cost leadership and differentiation) and their relationships to firm performance. This research attempts to ascertain which capabilities match best with which strategy in order to produce superior firm performance. Lastly, as previously mentioned, logistics and logistics capabilities have been put forth as an area of the firm that can provide superior firm performance, competitive advantage and therefore, a unique strategy for firms to pursue. Thus, this study examines these relationships from within the logistics function.

Chapter I has been presented as an introduction and overview of the study. Chapter II consists of the literature review. It is composed of an introduction, which is followed by a section detailing Porter's Generic Strategy. Next is a section discussing the Resource-Based Theory of the firm and the numerous theoretical works comprising this view. Distinctive Capabilities and Logistics Capabilities make up the next two sections. In these sections both the theoretical support for these concepts and related empirical studies are presented.

Chapter III presents the methodology to be utilized in this study. Following an introduction, the proposed model and specific hypotheses are presented. The next section, data collection, details the research setting, the research approach to be utilized, and the analytical technique to be employed. The next section discusses measurement of the constructs. In this section the constructs of Strategy, Logistics

Capabilities, and Performance are conceptualized, and measures of validity and reliability are discussed.

Chapter IV, Research Findings is a detailed presentation of the results of this study. Measurement of the constructs and results of the hypotheses testing are presented. The sections are Introduction, Reliability, Validity, Discriminant Validity, Hypotheses Testing and Hypotheses Supported. The first sections contain the results of the analysis of each construct along with its validity, reliability and unidimensionality. The Hypotheses Testing and Hypotheses Supported sections of the study detail further the aforementioned psychometric properties of the constructs and to what extent the hypothesized relationships transpired. Lastly, the Discussion section details both the theoretical and practical implications of this study.

Chapter V, Conclusions, is separated into Introduction, Conclusions and Implications, Limitations of the Study, Future Research, and Concluding Comments. First, the contributions of this particular study are presented, both from a theoretical and practical perspective. Next, the limitations of the study and, therefore, suggestions for future research are presented. Lastly, in the concluding remarks section, a discussion of the importance of this study and the lessons learned are presented.

CHAPTER II

LITERATURE REVIEW

INTRODUCTION

This chapter presents a somewhat detailed review of the relevant literature. Discussed first is an overview of corporate level strategy and its relationship to firm performance. This is followed by an explanation of Resource-Based Theory and Distinctive Capabilities and the attempts to link these concepts to firm performance. Finally, the research that identifies and analyzes Distinctive Capabilities in Logistics is presented.

BUSINESS STRATEGY

One of the earliest writers concerned with strategy and the corporation was Chandler (1962). Chandler viewed strategy as concerning itself with the long term goals and objectives of the organization. He also proposed that strategy dealt with the course(s) of action to follow and the allocation of resources to pursue the chosen goals and objectives of the organization. Numerous authors have presented differing paradigms by which to study strategy (Miles and Snow 1978; Porter 1980).

Miles and Snow (1978) proposed four differing typologies in their research. These were defenders, prospectors, analyzers, and reactors. Defenders are typified by firms that seek to protect their position, be it product or market driven. They do not usually seek new markets and they mainly focus on efficiency in operations.

Prospectors, on the other hand, constantly seek new products and markets in which to compete. They tend to seek differentiation and embrace change easily. Analyzers tend to straddle the fence and utilize components of the aforementioned two strategies. That is, they attempt to be efficient at what they do, but are ready and willing to enter new markets. Lastly, reactors seem to be risk averse and do not react well to either change or environmental pressures. Porter (1980, 1985) presents a view of strategy based on both market forces, and how firms might adapt to those market forces. Of these two paradigms of strategy, we will utilize Porter's Generic Strategy in this study.

Porter's Generic Strategy

Porter (1980, 1985) identified three different generic strategies that a firm could pursue based on the underlying theories of industrial economics. The generic competitive strategies he identified are cost leadership, differentiation and focus. Cost leadership is when firms choose to pursue a low cost strategy. Cost leaders are said to maintain a competitive advantage by keeping their per unit cost low compared to the competition. Cost leaders tend to focus on efficiency to appeal to their cost-sensitive customers. Firms that pursue differentiation appeal to a less price sensitive customer by offering unique products or services. They achieve competitive advantage by offering different products and/or services compared to the competition. The last strategic choice identified by Porter was focus. Focus was said to involve a strategy in which firms would try to concentrate on one particular market or segment

of the market. Focus has since been considered less of a generic strategy and more of a choice of arena (Day 1990). Additionally, Miller (1986) has suggested that focus could not be pursued without one of the other two generic strategies. We are, therefore, left with two ways a firm can gain competitive advantage; through cost leadership or through differentiation.

Dess and Davis (1984) attempted to empirically test Porter's theory. They examined both the three generic strategies hypothesized by Porter, that is, cost-leadership, differentiation, and focus. Additionally, they attempted to link these three strategic choices to performance. Although their results were mixed, they did support some links from having a chosen strategy to firm performance as well as supporting Porter's hypothesized generic strategies, to one degree or another. Dess and Davis employed a three stage study. First, in phase one of their study they examined the relationship between a firm's 'intended' (Mintzberg 1978) strategy and Porter's three generic strategies. In phase two of their study they employed a panel of experts to ascertain the importance of the 'intended' strategy along with the 'competitive methods' employed by the firms, and the match to each generic strategy typology. In phase three of the study they then clustered firms based upon the chief executive officer's (CEO) perceptions into groups with similar strategic orientation. Lastly, these clustered groups were examined, by industry, to ascertain if there were any significant differences between firms in like industries, but in different strategic clusters. Their results were firms that did pursue a strategy, did perform better than firms that did not. Additionally, they found a stronger link between cost leadership

and return on total assets, then compared to a differentiation strategy. Also, a link between firms that are focused and sales growth did materialize. As can be seen by these studies, the strategy one decides to pursue may be quite important to firm performance. Next, we examine some additional streams of research that seem to support some of the relationships proposed in this thesis.

Additional Theoretical Support

Most authors would agree that one must have some level of resources in order to pursue a given strategy. Recently, however, the emphasis has begun to shift somewhat away from merely a reliance on strategy first and foremost, followed by employing some level of resources to a newer paradigm based on resources being of at least equal stature in the pursuit of one's strategy (Barney 1991; Day 1994). There are numerous streams of research that can both expand on the above thought and add credence to the linkages we hypothesize. Presented here are additional streams of research that add theoretical and empirical support to the hypothesized relationships presented in this study.

Webster (1992) believes that superior value to customers through key strategic resources of the firm will replace marketing management paradigms of the past. If Webster is correct, the implications for marketing strategy and resource-based theories of the firm are enormous and far reaching. The previous paradigms of basing marketing strategy primarily on the marketplace (Porter 1980; 1985) may indeed be replaced by strategies based upon firm distinctive capabilities/resources

(Barney 1991; Day 1994) in order to remain competitive. If the future holds that firms must base their strategies on their distinctive capabilities to remain competitive and to provide customer value and firm performance, as Webster postulates, then utilization of capabilities and resources within the firm, matched with the appropriate strategy, may become of paramount importance. Such might be the case of the aforementioned Wal-Mart and Levi's examples.

Hrebiniak and Snow (1982) examined the role of agreement among top managers and its relation to firm performance. Their findings were that top management agreement on the firms' *strengths* and *weaknesses* (Barney 1991) were positively correlated to firm performance. These functional strengths and weaknesses correlate closely to resources or distinctive capabilities (Barney 1991; Day 1994). This being the case, distinctive capabilities may be connected to firm performance.

A number of other studies examined the areas of service and customer service, two areas which are intrinsically tied to logistics both at the functional and theoretical level, and as previously mentioned, might provide firms with a competitive edge (Christopher 1993). McKenna (1991) points to the need for a new paradigm in marketing strategy in which the customer is integrated into the company. Schlesinger and Heskett (1991) call for a new model of the firm that provides high quality customer service and a logic based on service. Therefore, a strategy based upon distinctive capabilities and superior performance may create superior customer value, especially in the logistics field, which is, by its very nature, service oriented. Along similar lines of thought concerning service, Anderson, Fornell, and Lehmann

(1994) report that quality, customer satisfaction and profitability are linked positively. Bolton and Drew (1991) suggest that there is a strong relationship between a firm's change in service and customers' attitudes about that firm. Kelley et al. (1992) report that the customer must be involved in providing both information and effort in order to receive superior service.

Following this same line of thought, but more closely tied to logistics was a study by Gattrona et al. (1991) in which they examined supply chain management and developed what they term 'logics' to provide superior customer service in the logistics field. They postulate companies that employ the appropriate logics may achieve superior customer service and thereby competitive advantage. They examine these logics from the standpoint of a firm being able to utilize the correct logic for that particular firm's strategy. Although only theoretical in nature, these 'logics' also coincide consummately with the hypothesized capabilities - strategy - performance relationship hypothesized here.

Additionally, research into the area of market orientation seems to offer added theoretical support for this study. Two areas of particular similarity involve the resources of the firm and the long term nature of these resources as theorized by Barney (1991). Narver and Slater (1990) discuss market orientation from the standpoint of the firm being able to use its *resources* to provide superior customer value. Slater and Narver (1994) point to the long term benefits of market orientation. This, according to these authors, should be juxtaposed to a firm being too competition oriented which may be short term and transient in nature. These beliefs

also align themselves closely with the Resource-Based Theory of the firm as well as the underpinnings concerning the long term nature of distinctive capabilities and firm resources (Day 1994; Barney 1991). Of interest to our study is the aforementioned authors' implication that firms may be too competition (market) oriented versus not relying heavily enough on their internal firm resources, essentially the two differing views of strategy, Porter's Generic Strategy versus Resource-Based Theory.

An expanding body of knowledge also exists that seems to point out that a firm's market orientation leads to superior performance (Deshpande, Farley, and Webster 1993; Narver and Slater 1990; Kohli and Jaworski 1990). Since the tenants of market orientation rest upon firm resources and the long term orientation of these resources (distinctive capabilities) may also be tied to superior performance. Accordingly, Day (1990) believes that market oriented companies are superior in being able to satisfy and understand their customers. Deshpande, Farley, and Webster (1993) believe that market oriented companies are able to put their customers first. Jaworski and Kohli (1993) indicate that market orientation is linked to employees and top management's commitment, risk aversion, and esprit de corps. Therefore, one may begin to see evidence of numerous, but as of yet unexplored theoretical links which exist between these various constructs that closely relate to internal firm resources (capabilities), generic (external) firm strategies, and firm performance. One may also begin to understand why resources and capabilities, based within the firm, and linked with an external generic strategy, based on the market, may be critical to the creation of superior firm performance. Distinctive

capabilities may form this critical strategic link by which the organization is able to achieve superior performance and competitive advantage (Day 1994).

It becomes apparent that the numerous connections proposed by the above authors relate to, and may add additional theoretical support for the linkages we suggest. It is therefore hypothesized that one may gain superior performance via the combination of the appropriate distinctive logistical capabilities, and the correctly matched generic business strategy(ies). The linkages suggested here may be seen in the accompanying conceptual model (Figure 1.2). The hypothesized model along with the exact hypotheses are presented in Chapter III.

RESOURCE-BASED THEORY

Resource-Based Theory is the foundation upon which the concept of distinctive capabilities is based. In past strategy research, resource-based models dealt with the firm's internal analysis such as the firm's strengths and weaknesses from a traditional "strengths-weaknesses-opportunities-threats" perspective (Barney 1991). Resource-Based Theory has now evolved to also include the intangible resources that a firm can bring to bare in order to attain and sustain superior firm performance, and hence, a competitive advantage.

How a firm achieves such a competitive advantage and maintains that competitive advantage form some of the key questions for strategy research. Porter (1980) points to a competitive forces approach in which a firm examines the external environment -- such as the market and its rivals -- and then develops the appropriate

strategy by which to defend its market position. Rumelt, Schendel, and Teece (1991) contrast Porter's theory with a capability or resource-based approach. They believe that a firm develops certain capabilities or resources over a long period and that these capabilities eventually become the firm's competitive advantage. However, it is not the time period that defines a sustainable competitive advantage, but the inability of competitors to duplicate the firm's resources. (Barney 1991).

In 1937 Coase wrote of the importance of "...the allocation of resources in a firm..." (Coase 1937, p 389). Coase dealt primarily with economic theory and the definition of a firm from an economic standpoint. Initial writings on firm resources were mostly concerned with this economic and industrial organization perspective. Coase did, however, discuss the possibility of a link between the direction of resources and the possible costs to be saved in certain marketing functions.

Some of the early work relating to firm resources can also be attributed to Penrose (1959). Penrose was one of the earliest writers to propose a resource-based explanation of the firm. Her work examined the firm much more from a strategy based on resources viewpoint than an economic and industrial organization standpoint, as Coase had done.

Wernerfelt (1984) constitutes perhaps the seminal article on firm resources. His work proposes that firms are comprised of resources (a firm's human, physical, and organizational capital) and with these resources firms are able to conceive and implement their strategies. Additionally, he postulated that these resources would enable a firm to be more efficient and effective.

Mahoney and Pandian (1992) took this resource-based view a step further by developing a generalizable theory of a firm's corporate strategy and of the firm's growth. Their Resource-Based Theory is founded upon a firm's distinctive competencies and capabilities.¹ These authors offer a number of propositions with which to test their theory. They also discuss that it is management's job to determine how to best utilize the firm's distinctive capabilities for competitive advantage.

Barney (1991) wrote perhaps the most in-depth and thought provoking explanation of the Resource-Based Theory of the firm. Barney contemplated the link between sustainable competitive advantage and firm resources and laid out a framework by which to identify firm resources. He postulated that there were four indicators of firm resources. They are *value*, *rareness*, *imitability*, and *sustainability* (Barney 1991). Barney believed that in order for the resource to truly provide the firm with superior performance and competitive advantage it was necessary that these criteria be met. A description of each of the indicators of firm specific resources is outlined below.

Value: According to Barney, resources are valuable if they allow a firm to be more efficient or effective in pursuing their chosen strategy, that is, they can exploit opportunities and neutralize threats.

¹Consistent with Day (1994), the terms *competencies* and *capabilities* are used essentially interchangeably.

Rareness: Resources are considered rare when a firm's existing or potential competitors do not possess the same resource. If it were the case that most competitors possessed the same resource, then there would be no competitive advantage according to Barney.

Imitability: Barney refers to this as *imperfectly imitable resources*. What he means by this is that these firm specific resources are not easily copied by one's competition. This lack of ability to be copied by the competition may be explained by many factors. Two of the explanations cited by Barney are that either unique historic conditions may have occurred, or the resources may be socially complex in nature, and therefore, difficult to copy.

Sustainability: By sustainability Barney believes that competing firms should not be able to substitute similar or different resources that might allow them to conceive of or implement the same strategy as their competitors.

At this point it might be important to expand upon the underlying differences between Barney's view of strategy versus Porter's views on the subject. Porter (1981) postulates that firms within the same strategic group are identical in terms of available resources and in terms of strategic choices they pursue. Additionally, it has been postulated that if there were differences in resource availability, for example, first mover advantage that these differences would not last long (Barney 1986). This should be sharply contrasted with Barney's (1991) view of strategy. He proposes the above model that assumes resource heterogeneity rather than homogeneity, and that

this resource heterogeneity can be long lasting and provide the firm with sustainable competitive advantage.

Barney (1995) extends his earlier work by looking at various firms and their internal strengths and weaknesses. He believes firms must look inside at their own firms' specific resources, that is, their strengths and weaknesses for competitive advantage. He once again proposes that firms can have and hold a competitive advantage and/or superior performance based upon these firm resources/capabilities. In this article he discusses a number of exemplars of this Resource-Based Theory. He again postulates that these resources must meet his four criteria, that is, be valuable, rare, sustainable, and difficult to imitate. Among some of the examples he uses is Wal-Mart versus K-Mart. He believes that Wal-Mart has been able to maintain its competitive advantage through the use of its point of purchase and inventory control systems, that is, logistics capabilities. Although K-Mart has tried to duplicate these systems, even hiring some of Wal-Mart's employees, they have been unable to duplicate Wal-Mart's *rare* capabilities (Barney 1995).

Miller and Shamsie (1996) offer one of the few empirical tests of the Resource-Based Theory of the firm. The study done by these authors offers promise in terms of shedding some additional light on the relationships hypothesized in our study. The reason for this is that their study is one of the first to actually link firm performance to firm specific resources (Barney 1991). In their study they examined and tested the Resource-Based Theory in the motion picture industry from 1936 to 1965 utilizing historical data. Their findings were that financial performance was

enhanced through 'property-based resources,' that is, exclusive long term contracts with theaters and starts in more stable environments (1936-1950). Additionally, 'knowledge-based resources,' that is, talent in the form of production and coordination, enhanced financial performance in more unpredictable environments (1951-1965). The authors, in commenting on the Resource-Based Theory believe that:

“The resource-based view of the firm provides a useful compliment to Porter’s (1980) well-known structural perspective of strategy. This view shifts the emphasis from the competitive environment of firms to the resources that firms have developed to compete in that environment. Unfortunately, although it has generated a great deal of conceptualizing...the resource-based view is just beginning to occasion systematic empirical study...” (Miller and Shamsie 1996, p. 519).

With the importance of an alternative view of strategy in place, or one that might *complement* Porter’s view of strategy, we now turn our attention to distinctive capabilities and logistics capabilities.

DISTINCTIVE CAPABILITIES

Distinctive capabilities are “complex bundles of skills and accumulated knowledge, exercised through organizational processes, that enable firms to make use of their assets” and “functions like a key success factor” (Day 1994, p. 38).

Capabilities are created by a firm being able “to deliver value to customers in an appreciably more cost effective way” (Day 1994, p. 39). Capabilities are “...the glue that brings ... assets together and enables them to be deployed advantageously” (Day

1994, p. 38). Some examples of distinctive capabilities provided by Day (1994) are: Wal-Mart's unmatched logistics capabilities through cross-docking; the unparalleled consistency of the McDonald's Corporation; and L.L. Bean's superior order fulfillment processes.

Leonard-Barton (1992) explains that capabilities are based on knowledge and are distributed on four separate dimensions. These dimensions are knowledge and skills, technical systems, management systems, and values and norms. The author describes capabilities as being composed of these distinctive skills and managerial and technical systems. Twenty-one case studies are presented by the author that outline the above dimensions and show support for the theory.

Hall (1993) proposes that capabilities are intangible resources of the firm. He goes on to link these capabilities with competitive advantage through the use of six case studies. He postulates that firms are able to maintain their competitive advantage through their capabilities. Black and Boal (1994) discuss competitive advantage as it relates to resource-based theories as well. They propose that certain traits of the firm may play a role in sustainable competitive advantage. The traits mentioned in this study are numerous and, according to the authors, may be combined to form "factors" that would allow firms to maintain their competitive position. The traits and factors mentioned by Black and Boal appear to be linked closely to capabilities.

Stalk et al. (1992) argue that firms in the 1990s and beyond will be based on what the authors call "capabilities-based competition" (Stalk, Evans and Shulman

1992, p. 57). They discuss a number of firms and the capabilities these firms have used to get to the top in their respective fields. Although anecdotal in nature, these authors do lend credence to the distinctive capabilities approach to strategy. These authors also believe these capabilities are what will enable companies to compete in the long run.

Prahalad and Hamel (1990) discuss that certain firms possess core competencies. These core competencies are what enables the firm to outperform its competitors. Core competencies, in their opinion, are defined as intangible higher order resources. Lastly, Hunt and Morgan (1995) discuss the fact that both a firm's resources and its competencies may account for that firm's competitive advantage. Some of the resources and competencies they cite are: human competencies (for example, "the skills and knowledge of individual employees"), organizational competencies, informational competencies, and relational competencies.

As can be seen, a great deal of theory, case studies and anecdotal evidence exists which seems to support the existence of distinctive capabilities within the firm. However, little empirical evidence exists concerning how to define distinctive capabilities. Additionally, one of the most important considerations is the possibility of linking distinctive capabilities to superior firm performance and accordingly sustainable competitive advantage. It may be equally important that firms couple their distinctive capabilities with the appropriate generic strategies in order to attain superior firm performance.

Day (1994) believes that capabilities reside on a continuum. This continuum consists of an external emphasis and an internal emphasis. Outside-in processes represent the external emphasis, inside-out processes the internal emphasis, and spanning processes lie in the middle. Day classifies capabilities in the following manner.

Outside-in Processes: Which are composed of market sensing, customer linking, channel bonding, and technology monitoring capabilities.

Spanning Processes: That consist of customer order fulfillment, pricing, purchasing, customer service delivery, new product/ service development, and strategy development.

Inside-out Processes: That consist of financial management, cost control, technology development, integrated logistics, manufacturing/ transformation processes, human resources management, and environment health and safety capabilities.

Droge et al. (1994) examined the key sources of competitive advantage in the furniture industry in which they developed three “competency constructs.” The competencies that they defined were marketing competency, innovation (product design and development) competency, and manufacturing competency. Their exploratory findings indicate that competency in innovation may be a key source of competitive advantage. They examined 31 capabilities that they developed through

an extensive literature review. These capabilities are: product flexibility, volume flexibility, process flexibility, low production cost, new product introduction, delivery speed, delivery dependability, production lead time, product reliability, product durability, quality (conform to specifications), design quality/innovation, product development cycle time, product technological innovation, product improvement, new product development, original product development, brand image, competitive pricing, low price, advertising/promotion, target market identification/selection, responsive to target market, pre-sale customer service, post-sale customer service, broad product line, widespread distribution coverage, low cost distribution, selective distribution, personal sales proficiency, and company reputation. These 31 capabilities comprised the above referenced competencies. They consider these functional area competencies sources of competitive advantage. Next, we examine these distinctive capabilities in the logistics area of the firm.

LOGISTICS CAPABILITIES

Recently, capabilities have been examined in the logistics area (Global Logistics Research Team 1995, Eckert and Fawcett 1996, Morash et al. 1996). By far, the largest undertaking to examine logistical capabilities to date were done by Global Logistics Research Team (GLRT) and published in 1995 by the Council of Logistics Management in *World Class Logistics: The Challenge of Managing Continuous Change*. The GLRT study was part of an ongoing research project to better understand the role of logistics in business. The research design included a

baseline survey that was administered by mail in 11 countries. Also employed were in-depth interviews and completion of accompanying workbooks in Europe, North America, and the Pacific Basin. The base line survey resulted in 3,693 usable responses, a response rate of 17.1 % overall. This survey was designed to: identify trends in global logistics, elaborate on superior logistics performance, and to prioritize concerns in logistics (Global Logistics Research Team 1995, p. 7). The in-depth interview and workbook sample consisted of 111 firms representing 17 nations. These firms were selected by logistics experts as having the most potential for possessing superior logistical capabilities. This research project identified four logistics competencies that are: positioning, integration, agility, and measurement. The 17 capabilities that they mentioned are grouped into what the authors call competencies. These competencies are composed of 17 capabilities. A list and explanation of each competency/capability may be seen in the following table.

Daugherty and Pittman (1995) examined competitive advantage in the logistics field with interviews of *Fortune 500* firms. They believe that time-based capabilities are of critical importance in logistics. They believe that “Speed...can annihilate the competition.” (Daugherty and Pittman, 1995 p. 54). Additionally, the authors mention that information technology, as well as communications through information technology, and flexibility to be important capabilities.

Eckert and Fawcett (1996) examined the critical capabilities for logistical excellence and defined them as people, quality, and time. The items they used may be seen in Table 2.2.

Morash et al. (1996) defined logistics capabilities needed for competitive advantage as, delivery reliability, post-sale customer service, responsiveness to target market, delivery speed, pre-sale customer service, widespread distribution coverage, selective distribution coverage, and low total cost distribution. Clinton and Closs (1997) in examining the underlying factors associated with logistics strategy arrived at five factors that are; alliances, information systems, EDI practices, inventory management, and re-engineering.

Chapter III will follow. In Chapter III the methodology, research setting and measures to be employed are presented.

TABLE 2.1
GLOBAL LOGISTICS RESEARCH TEAM AT MICHIGAN STATE UNIVERSITY (1995, P. 28)

Competency/Capability	Explanation
Positioning	
Strategy	The establishment of financial, channel and customer objectives and the means to achieve them.
Supply Chain	The alignment of logistics resources through channel alliances.
Network	The structure and deployment of physical resources.
Organization	The structure and deployment of human resources.
Integration	
Supply Chain Unification	Relative intensity across the distribution channel.
Information Technology	The hardware, software, and network investment and design to facilitate processing and exchange.
Information Sharing	The willingness to exchange key technical, financial, operational and strategic data.
Connectivity	The capability to exchange data in a timely, responsive and usable format.
Standardization	Establishment of common policies and procedures to facilitate logistics operations.
Simplification	Designing routines and work to improve efficiency and effectiveness.
Discipline	Adherence to common operational policies and procedures.
Agility	
Relevancy	The ability to maintain focus on the changing needs of customers.
Accommodation	The ability to respond to unique customer requests.
Flexibility	The ability to adapt to unexpected circumstances.
Measurement	
Functional Assessment	The development of comprehensive functional performance measurement capability.
Process Assessment	The extension of performance measurement systems across internal and external logistical processes.
Benchmarking	The comparison of metrics and processes with best practice performance.

CHAPTER III

METHODOLOGY

INTRODUCTION

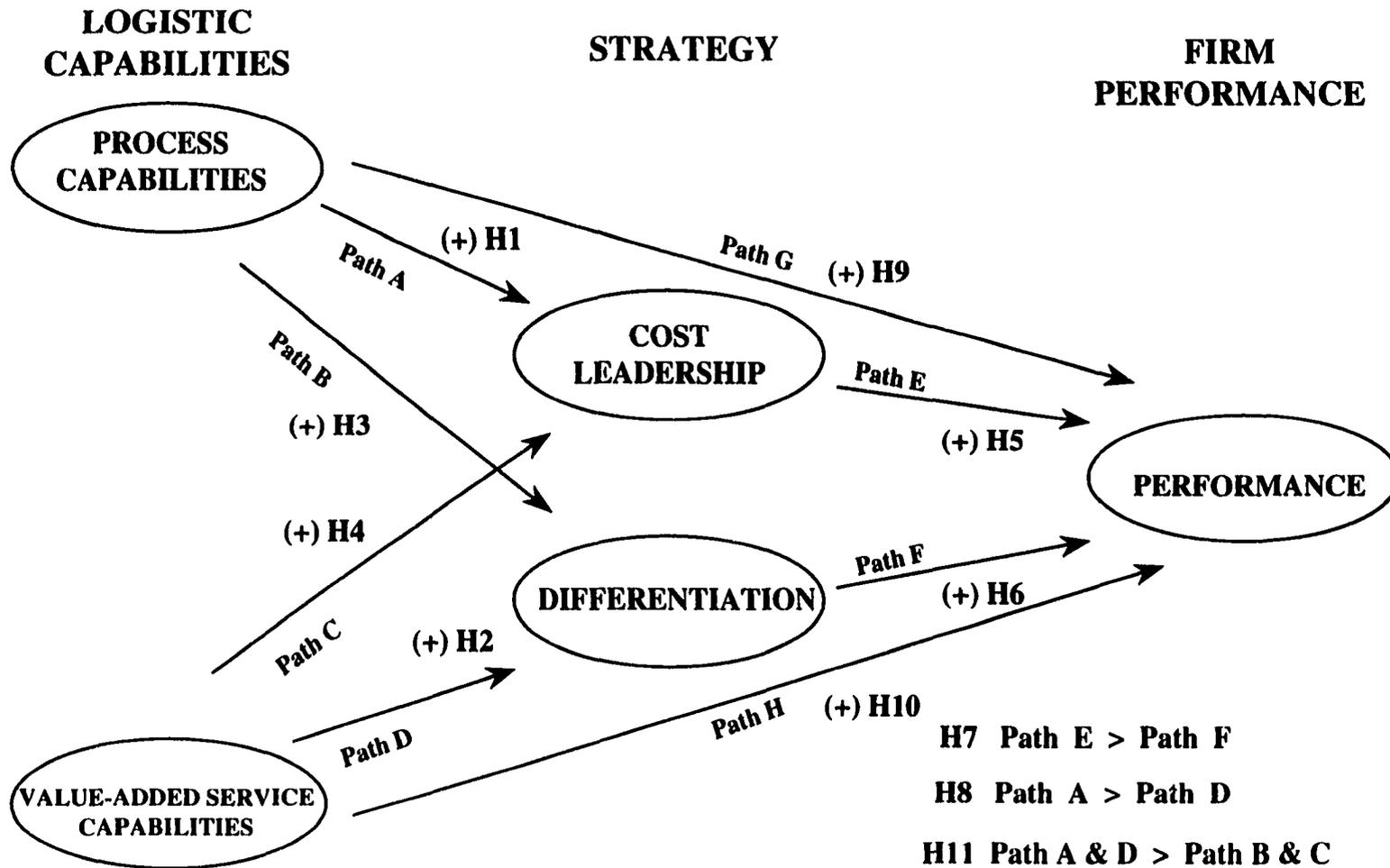
Chapter I served as an introduction and overview of the problem being researched. Chapter II provided a review of the literature as it relates to the hypothesized Capabilities - Strategy - Performance relationship(s). As can be seen from the previous two chapters, a number of questions remain unanswered that need to be researched. Specifically, the question to be answered by this research is: Do firms that match their capabilities to an appropriate business strategy perform better than firms that do not? Chapter I attempted to illustrate conceptually the need to match certain resources/capabilities with specific strategies. In the next section of this chapter, a more detailed model is presented along with the hypotheses to be tested. The section that follows details the research design. That section provides details on the research setting, the method to be employed, and the data collection procedures. This is followed by a section detailing the measurement of the various constructs to be utilized: Logistics Capabilities, Generic Business Strategy, and Performance.

HYPOTHESIZED MODEL

Figure 3.1 is provided as a graphical depiction of the hypothesized model. The importance of capabilities (resources) and the link to various generic strategies is

presented. With all of the proper elements in place, it is hypothesized that firms that possess distinctive capabilities that cannot be imitated (Barney 1991) and that offer a long term advantage in the marketplace (Hitt and Ireland 1986) should choose a strategy that matches those capabilities in order to achieve superior firm performance.

FIGURE 3.1
HYPOTHESIZED MODE



HYPOTHESES

The following hypotheses are presented in support of the various linkages suggested by the existing literature that has been presented previously; that is, Capabilities - Strategy - Performance. Many authors have discussed the possible links from resources to performance (Barney 1991; Hall 1993). Additionally, authors have tried to link capabilities to performance (Day 1994; Hitt and Ireland 1986; Droge et al. 1994; Morash et al. 1996). However, one of the gaps that seems to exist in these research streams is linking capabilities to strategy, and then to performance. Barney (1991) discusses the importance of resources in pursuing one's strategy. Additionally, Porter (1996) discusses how important a firm's *activities* and resources are in pursuing one's chosen strategy. However, central to this research is the proposition that some firms will be more successful than others in their selection of capabilities and strategy. Moreover, it is proposed here that the capabilities a firm employs will match its chosen strategy. Therefore, it is hypothesized that:

- H1 Process capabilities will be positively linked to a Cost Leadership strategy (Path A);
- H2 Value Added Service capabilities will be positively linked to a Differentiation strategy (Path D).

Additionally, based on the work of Porter (1980), Barney (1991), and Day (1994) it is hypothesized that firms will employ any and all resources to achieve their given strategy. The importance of resources in pursuing one's strategy is not at

contention here. What is at contention is the issue of the match (or *fit*) of these resources to the correct strategy. Porter (1996) discusses the need for resources and activities to support one's chosen strategy. Barney (1991) also stresses the importance of firm resources. Additionally, Day (1994) and Droge et al. (1994), among others discusses the need for capabilities and resources. Therefore, in addition to the previously hypothesized links from process (or value added service) capabilities to cost leadership (or differentiation) strategy, there will be firms that have not carefully matched their capabilities with their strategy. That is, some firms will be less successful in selecting a strategy that matches their capabilities. Thus, it is hypothesized that:

H3 Process capabilities will be positively linked to a Differentiation strategy (Path B);

H4 Value Added Service capabilities will be positively linked to a Cost Leadership strategy (Path C).

In testing Porter's theory, Dess and Davis (1984) established linkages from strategy to firm performance. Additionally, Dess and Davis (1984) found somewhat stronger links from cost leadership to the more traditional measures of firm performance (i.e., return on total assets) than from differentiation. These traditional measures of firm performance are utilized in this research. Thus, consistent with Dess and Davis' findings concerning the relationship between Porter's strategies and firm performance, it is hypothesized that:

- H5 A Cost Leadership strategy will be positively linked to firm performance (Path E);
- H6 A Differentiation strategy will be positively linked to firm performance (Path F);
- H7 A Cost Leadership strategy will lead to higher firm performance than a Differentiation strategy, that is, Path E > Path F.

Additionally, following the above reasoning, that is, that superior firm performance will be achieved through a cost leadership strategy, the following hypothesis is proposed. In order to ascertain which capability, coupled with which strategy, leads to superior firm performance.

- H8 The path from Process capabilities to a Cost Leadership strategy (Path A) will be stronger than the path from Value Added Service to a Differentiation strategy (Path D), that is. Path A > Path D.

Also, based on the work of authors who have proposed a link from capabilities to firm performance (Day 1994; Hitt and Ireland 1986; Droge et al. 1994; Morash et al. 1996), it is hypothesized that:

- H9 Process capabilities will be positively linked to firm performance (Path G);
- H10 Value Added Service capabilities will be positively linked to firm performance (Path H).

Additionally, as a further test of the hypothesized *fit*, that is, that firms will match their capabilities to the appropriate strategy, it is hypothesized that:

H11 The paths from Process capabilities to a Cost Leadership strategy, and from Value Added Service to a Differentiation strategy (Path A & Path D) will be stronger than the paths from Process capabilities to a Differentiation strategy, and from Value Added Service capabilities to a Cost Leadership strategy (Path B & Path C), that is, Path A & D > Path B & C.

RESEARCH DESIGN

The methodology to be employed in this research is designed to be confirmatory rather than exploratory in nature. It is expected that the relationships hypothesized will be confirmed based on a partial test of existing theory.

Research Setting and Method

The primary objective of this research is to examine the relationships between distinctive capabilities, generic business strategy, and firm performance. As previously mentioned, the logistics function is utilized to test the proposed model since logistics has a great deal of promise as a future arena of strategy, and logistics capability scales presently exist. To further narrow the scope of the study, the research setting that was chosen is the retail grocery industry. This industry has been

selected for a number of reasons. First, although somewhat less generalizable, utilizing just one industry allows for more control of extraneous variables and is well suited for theory testing. Second, some grocery chains are clearly cost-leaders and some are clearly differentiated. Third, in the retail grocery business, logistics is of paramount importance due to the low margins, numerous inventory turns, and the perishable nature of the products. Additionally, as an exploratory step in this research process, a large retail grocery chain has provided information relative to its strategy and the capabilities needed to achieve it. Having had the opportunity to be involved in this firm's strategic planning process should prove invaluable to this research endeavor. Finally, this writer has spent sixteen years in the retail industry which provides a good foundation from which to conduct this study.

In this study, confirmatory factor analysis via LISREL (Joreskog and Sorbom 1989) is employed to develop the actual distinctive capability items related to process and value added service capabilities, as well as the strategy items. This confirmatory factor analysis via LISREL does, of course, help to examine discriminant validity and reliability issues. LISREL was also utilized to test the hypotheses via various structural models to examine the proposed relationships between distinctive capabilities, generic strategy, and firm performance.

Data Collection

A key informant survey research strategy was employed in this study (Campbell 1955). The subjects consisted of the CEO, vice president or director of

logistics from retail grocery chains across the nation. These informants should be well aware of the business strategy employed and should be responsible for implementing that strategy at the functional level. This follows Campbell's (1955) suggestions that key informants be both knowledgeable about the issues being studied and willing and able to communicate this information. Although this technique has received some criticism (Philips 1981), it has also been suggested that there may be no other viable alternative where gaining information from top managers is concerned (John and Reve 1982). A survey was mailed with a cover letter outlining the goals of the research along with directions for filling out the survey. Before the survey was mailed, phone calls were made to each grocery chain to verify the correct individual to contact and then contact was made with that individual in order to generate interest in the study and, hence, a good response rate.

MEASUREMENT OF CONSTRUCTS

Logistics Capabilities

Given that the bulk of strategy research has focused on external market factors (Porter 1980; Dess and Davis 1984), enhancing features such as the firm's competitive advantage via internal resources/capabilities is relatively new in the literature (Barney 1991; Day 1994). Dess and Davis (1984) examined Porter's Generic Strategies and were able to group firms by the strategies originally postulated by Porter. A similar methodology was employed here to enhance existing knowledge concerning distinctive capabilities and their link to Porter's cost leadership and

differentiation strategies. Additionally, this approach may offer further insight into the alternative strategy paradigm of Resource-Based Theory. Dess and Davis (1984) developed the items that made up the scale by which to measure Porter's Generic Strategies. In this study the items that are used to measure capabilities have been obtained from the logistics area since scales currently exist (Global Logistics Research Team at Michigan State University 1995). However, the method employed by Dess and Davis (1984) (i.e., utilizing a panel of experts and factor analysis) was used to ascertain which logistics capabilities are necessary to successfully pursue a specific strategy (i.e., cost leadership versus differentiation).

The panel of experts did help to ascertain which distinctive logistics capabilities are most likely cost leadership oriented, and which distinctive logistics capabilities are most likely differentiation oriented. The measurement of capabilities were accomplished using the 32 logistics performance measurements along with the managers' perceptions of relative performance in comparison to competitors found in the Global Logistics Research Team at Michigan State University (1995) study. These measures may be seen in Table 3.1. Of the 32 measures, 17 were found to be significant at the .10 level, and of those 17, ten were significant at the .05 level. Even though only half of these measures were significant, all 32 measures were initially employed in this study. The 32 measures were split by the panel of experts to form the initial dimensions of distinctive logistics capabilities previously mentioned (i.e., process capabilities and value-added service capabilities). Thereafter, factor analysis was performed on the manager's responses to formalize the final factors.

TABLE 3.1
MEASURES OF LOGISTICS CAPABILITIES:
GLOBAL LOGISTICS RESEARCH TEAM AT MICHIGAN STATE
UNIVERSITY (1995, P. 313)

Capability Performance Measures	Correlation With Performance	P-Value
Product Flexibility	.394	.002*
Volume Flexibility	.106	.231
Process Flexibility	.218	.030*
Low Logistics Cost	.179	.068*
Delivery Speed	.122	.147
Delivery Dependability	.268	.001*
Problem Avoidance	.155	.091*
Problem & Complaint Resolution	.140	.113
Responsiveness to Key Customers	.214	.035*
Order Fill Capacity	.218	.029*
Value-Added Service	.289	.005*
Widespread Distribution Coverage	.127	.139
Selective Distribution Coverage	.120	.155
Customer Service Flexibility	.247	.015*
Product Introduction	.337	.001*
Product Phase Out	.076	.255
Disruption in Supply	.178	.062*
Product Recall	.107	.181
Product Flexibility During Logistics	.193	.059*
Location Flexibility	.106	.185
Reverse Logistics Timing	.129	.153
Differentiation	.159	.088*
Product Innovation	.200	.041*
Order Flexibility	.397	.001*
Delivery Time Flexibility	.013	.455
Expedited Delivery	.144	.108
Advanced Notification	.186	.053*
Advanced Shipment Notification	.099	.197
Substitution Flexibility	.088	.226
Innovativeness	.080	.247
Operational Simplification	.053	.325
Operational Standardization	.151	.099*

*Significantly Different at the .10 level or less

Porter's Generic Strategy

Generic business strategy was proposed and conceptualized by Porter (1980). Empirical testing of Porter's strategies was performed by Dess and Davis (1984), Davis and Miller (1988), Miller and Friesen (1986), and Miller (1988). The measurement of both the cost leadership and differentiation strategies will be done utilizing the scales developed by Dess and Davis (1984). As previously mentioned these authors empirically supported Porter's three generic strategies: cost leadership, differentiation, and focus. Since that study, a number of other authors have made the case, rather convincingly, that only two truly generic business strategies exist (cost leadership and differentiation) (Davis and Miller 1988; Inhofe 1992; Vorhies 1993). Additionally, Miller (1988) validated both the cost leadership and differentiation strategies and found that focus was just a special case of these two strategic alternatives. Therefore, the Dess and Davis (1984) scale is employed to measure both cost leadership and differentiation.

Some recent applications of the Dess and Davis (1984) scales have resulted in both adequate reliability and validity. Inhofe (1992) and Vorhies (1993) obtained coefficient alphas (Cronbach 1951) of .887 and .70, respectively on the differentiation strategy items. In testing the cost leadership items the same two authors obtained coefficient alphas of .798 and .67, respectively. Therefore, it appears that adequate reliability exists for these scales according to Nunnally (1978).

Inhofe (1992) also examined the issue of validity relative to this scale. Through the use of confirmatory factor analysis, the author was able to demonstrate

adequate convergent validity. This was determined by having high loadings on one factor while not having significant cross loadings on the other factor.

Performance

For the purposes of this study, the more traditional accounting performance measures are utilized. These include return on investments (ROI), return on assets (ROA), net profit margin, and yearly increases in revenue or sales growth (Venkatraman and Ramanujam 1986). The measures used are self reported by respondents utilizing a seven-point likert scale. These measures will attempt to ascertain both efficiency and effectiveness in terms of firm performance, as these may differ by companies that are more efficiency oriented (cost leadership) versus those that may be more effectiveness oriented (differentiated). In order to assess efficiency, ROI, ROA, and sales growth were asked relative to the firm's competitors. Respondents were asked to rate their firm in comparison to their competition on each measure of performance. Effectiveness refers to the ability of a firm to reach its goals (Ruekert, Walker, and Roering 1985). As such, the same scales mentioned above are utilized, with the addition of measures such as, overall customer service levels, overall competitive position, and the like in order to measure effectiveness. It is expected that the measures employed and discussed here will lead to the hypothesized relationships and support for the thesis proposed here. That is, that the correct match of distinctive capabilities with the correct generic strategy, will lead to superior firm performance.

CHAPTER IV

RESEARCH FINDINGS

INTRODUCTION

This chapter contains the results of the study. The study findings are presented in six sections. The first four sections assess the psychometric properties of the constructs. Those sections are: Response Rate, Reliability, Validity, and Discriminant Validity. These sections are followed by a discussion of the Hypotheses Testing and the Hypotheses Supported. Lastly, the chapter concludes with a Discussion section.

RESPONSE RATES

The mailing list was obtained from The Marketing Guidebook published by Trade Dimensions, a grocery industry trade group, and was used for the sampling frame of this study. This list contained the names and addresses of the CEO's and Vice Presidents of Logistics for the corporate headquarters of grocery firms in the United States and Canada. This list was reduced firms whose primary business (more than 50 percent) was in the retail grocery industry, as opposed to convenience stores, or warehouse stores. The final sample of 757 firms was randomly selected from the sampling frame, using a random number generator. These potential key-informants were then contacted by phone. Of those key-informants contacted by phone, 480 agreed to take part in the survey. The initial mailing containing a cover

letter, survey and a postage-paid return envelope yielded 35 responses (see Appendix A and Appendix D, respectively). Due to the low response rate the initial mailing was followed up by both a reminder letter (see Appendix B), and also reminder phone calls. Shortly thereafter another mailing containing another cover letter, survey, and an additional postage-paid envelope was mailed (see Appendix C and Appendix D). These mailings resulted in another 67 surveys being returned. A final total of 102 surveys were returned, for a response rate of 21% (102/480). Of the 102 total questionnaires returned, 17 had to be dropped from the final analysis due to missing values. The final analysis was performed on the remaining 85 returned surveys. This resulted in a response rate of 18% (85/480).

The respondent's characteristics may be seen in Table 4.1. CEO's comprised 26% of the key-informants. Vice Presidents of Logistics accounted for an additional 59% of the key-informants. An additional 12% of the respondents were also Vice Presidents of other functional areas within the firm, such as customer service and operations. The remaining 3% of the key-respondents were at the Director level in the same aforementioned divisions, that is, logistics, customer service, and operations. In summary, 97% of the key-informants were at the senior management level.

In terms of their years of experience, three measures were used. The results of which are also contained in Table 4.1. Experience in the grocery industry averaged 27 years. Time spent with their present company averaged 20 years.

Additionally, the respondents were asked how long they were in their present position, which averaged nine years,

Lastly, the respondents were asked about their level of education. Twenty-nine percent of the respondents had completed high school, 56 percent had completed college, and 15 percent had obtained a graduate degree. Thus, 71 percent of the respondents possessed a college degree or graduate degree. The remaining 29 percent had a high school education. One more point of additional information might help describe the key-informants, as well. The respondents were rather geographically diverse. Thirty-two states were represented. Of the 32 states, no particular state, or region of the country, was especially represented.

In conclusion, the key-informants who provided information for this study clearly represent upper management (97% CEO and Vice President), and therefore should be involved in the strategic planning process. Moreover, they are very experienced and well educated.

RELIABILITY

Previously, in Chapter III, the psychometric properties of both reliability and validity of the constructs to be studied were underscored. Reliability is a measure of internal consistency of a scale. It is normally assessed utilizing Cronbach's alpha and is utilized extensively in the social sciences (Churchill 1979). The purpose of this measure is to determine if the scales employed provided consistent results across

repeated measures. That is, it shows how well the indicants measure each of the constructs.

Reliability analysis was first accomplished using the Statistical Package for the Social Sciences (SPSS). The results of this analysis appear in Table 4.2. Each of constructs presented in Table 4.2 was refined utilizing principal component analysis on the initial items comprising each construct. Each principal components analysis extracted one factor, and factor loadings greater than .6 were retained for each principal component extracted (with the exception of one factor loading of .57). Each construct was then assessed for reliability. Additional scale refinement was assessed utilizing item-to-total correlations greater than .50 (with the exception of two items, one at .47 and one at .48). The results of this scale refinement process yielded the following results for each construct. The two capability constructs, predicted in the methodology section, to consist of value-added service and process capabilities had Cronbach alphas of .87 and .90, respectively. The value-added service capability construct resulted in five items being retained with factor loading ranging from .70 to .79. Item-to-total correlations for the scale ranged from .67 to .74. The process capability construct consists of seven items with factor loadings from .62 to .80. Item-to-total correlations for the construct ranged from .61 to .80.

The strategy constructs previously employed by Dess and Davis (1984) and others were utilized in this study as well, and the above scale purification procedures yielded the following results (see Table 4.2 continued). The two dimensions of Porter's Generic Strategy (i.e., cost leadership and differentiation) emerged from the

principal components analysis with Cronbach alphas of .83 and .92, respectively.

The cost leadership construct contains four items with factor loadings ranging from .57 to .81. The construct had an item-to-total correlation range from .47 to .53.

Netemeyer et al. (1995), in discussing scale development point out the importance of developing five item scales, if possible. However, the factor loadings, as well as the reliability of this construct are relatively good at .83 (Nunnally 1978).

The differentiation construct contains six items with factor loadings ranging for .67 to .85. The item-to-total correlations ranged form .66 to .82. The Cronbach alpha for the differentiation construct was .92.

Lastly, the performance construct was subjected to the same aforementioned reliability and scale development procedures with the following results. The performance construct resulted in five items being retained with factor loadings ranging from .88 to .92. The item-to-total correlations ranged from .84 to .89. The Cronbach alpha for the performance construct was .95.

After the reliability analysis and scale purification procedures it was concluded that all constructs were reliable based on the Cronbach alpha measure, which ranged from .83 to .95.

TABLE 4.1**SURVEY RESPONDENT CHARACTERISTICS**

Usable Questionnaire Responses	85
Job Title	
CEO	26%
VP Logistics	59%
VP Other	12%
Other	3%
Average	
Years in Industry	27 yrs
Years in Company	20 yrs
Years in Position	9 yrs
Education	
High School	29%
College	56%
Graduate Degree	15%

TABLE 4.2**RELIABILITIES AND PRINCIPAL COMPONENT SCORES**

ITEMS	PC SCORES	ITEM-TO-TOTAL CORRELATION	ALPHA IF ITEM DELETED	CRONBACH ALPHA FOR SCALE
VALUE ADDED SERVICE				.87
PC 11	.74	.72	.84	
PC 12	.71	.74	.83	
PC 14	.70	.72	.84	
PC 15	.74	.67	.85	
PC 23	.79	.67	.85	
PROCESS				.90
PC 4	.62	.64	.89	
PC 7	.70	.76	.88	
PC 21	.80	.61	.89	
PC 22	.63	.68	.88	
PC 30	.68	.72	.88	
PC 31	.64	.73	.88	
PC 32	.73	.80	.87	

TABLE 4.2 continued

ITEMS	PC SCORES	ITEM-TO-TOTAL CORRELATION	ALPHA IF ITEM DELETED	CRONBACH ALPHA FOR SCALE
COST LEADERSHIP				.83
CS 11	.78	.47	.82	
CS 12	.81	.48	.82	
CS 13	.69	.53	.81	
CS 19	.57	.53	.81	
DIFFERENTIATION				.92
CS 1	.77	.69	.91	
CS 3	.75	.66	.91	
CS 4	.67	.69	.91	
CS 6	.85	.82	.90	
CS 7	.78	.77	.91	
CS 8	.74	.71	.91	
PERFORMANCE				.95
CP 3	.88	.84	.94	
CP 5	.89	.86	.94	
CP 6	.91	.87	.94	
CP 7	.87	.84	.94	
CP 8	.92	.89	.93	

VALIDITY

Validity is the ability of a construct to measure, accurately, what it is attempting to measure (Bollen 1989; Hair et al. 1995). Validity, therefore, is crucial in assessing the psychometric properties of the constructs under study. To ascertain the validity of the scales utilized in this study, Confirmatory Factor Analysis was performed as suggested by Gerbing and Anderson (1988) to assess unidimensionality. Content, convergent, and discriminant validity were also examined to add to the usefulness of the measures of the constructs utilized in this study. The results of this analysis may be seen in Table 4.3 and are presented here.

Content Validity

The scales employed in this study were developed after a thorough review of the literature on capabilities, strategy, and performance, as discussed in Chapters II and III. The scales employed were derived from the aforementioned literature review. Additionally, the initial items were reviewed by a panel of academic and professional experts in the areas of logistics and strategy. Lastly, a pretest of the questionnaire was mailed to several CEO's and Vice Presidents in the retail grocery industry. These procedures were employed to clarify the wording of the scales and to assure the accurate use of terminology therein. The pretest also assisted in clarification of the questionnaire instructions.

Unidimensionality and Convergent Validity

Confirmatory Factor Analysis was performed on all of the scales via LISREL 8 (Joreskog and Sorbom 1996). The procedures employed were outlined by Alwin and Jackson (1979), and the results are presented in Table 4.3.

The value-added service capability scale resulted in a five-item construct. Based on the recommendations of Alwin and Jackson (1979), a parallel measurement model is presented in Table 4.3. The results indicate a single dimension and therefore, a unidimensional construct ($\chi^2 = 30.05$, $df = 5$, $p = .00$; $GFI = .86$). Additional fit indices are presented in Table 4.3. Convergent validity may be seen in Table 4.4. All items loaded significantly (t values > 1.96) and therefore, indicate convergent validity (Anderson and Gerbing 1988).

Process capability consists of a seven-item scale. A common factor measurement model (Alwin and Jackson 1979), presented in Table 4.3, indicates a single dimension exists and fits the data well ($\chi^2 = 24.56$, $df = 14$, $p = .03$; $GFI = .92$). Additional fit indices are presented in Table 4.3. Convergent validity results are presented in Table 4.4. All items loaded significantly (t values > 1.96) and therefore, indicate convergent validity as outlined by Anderson and Gerbing (1988) with the process capability scale, as well.

The strategy scales of cost leadership and differentiation were also assessed for unidimensionality. The cost leadership strategy construct resulted in a four-item scale. Table 4.3 presents the results of a parallel measurement model (Alwin and Jackson 1979). The results are as follows and indicate a single dimension which fits

the data well ($\chi^2 = 18.07$, $df = 8$, $p = .02$; $GFI = .90$). Additional fit indices are presented in Table 4.3. Convergent validity may be observed in Table 4.4. All items loaded significantly (t values > 1.96) and therefore, indicate convergent validity (Anderson and Gerbing 1988).

Next, the differentiation strategy scale was examined for unidimensionality. The results of a common factor measurement model (Alwin and Jackson 1979), are presented in Table 4.3. The results indicate a single dimension exists and fits the data well ($\chi^2 = 15.55$, $df = 9$, $p = .07$; $GFI = .99$). Additional fit indices are presented in Table 4.3. Convergent validity results, presented in Table 4.4, indicate all items loaded significantly (t values > 1.96) and therefore, indicate convergent validity as outlined by Anderson and Gerbing (1988).

Lastly, the performance scale resulted in a five-item construct. A common factor measurement model is presented in Table 4.3 (Alwin and Jackson 1979). The results presented indicate a single dimension which fits the data well ($\chi^2 = 19.80$, $df = 5$, $p = .00$; $GFI = .90$). Additional fit indices are presented in Table 4.3. Convergent validity may be observed in Table 4.4. All items loaded significantly (t values > 1.96) and therefore, indicate convergent validity (Anderson and Gerbing 1988).

TABLE 4.3

CONSTRUCT UNIDIMENSIONALITY AND ITEM LAMBDA FOR MEASUREMENT MODELS

CONSTRUCTS/ ITEMS	λ	T VAL	χ^2	DF	P VAL	CFI	NNFI	IFI	GFI
VALUED ADDED SERVICE			30.05	5	.000	.96	.95	.96	.86
PC 11	1.00	12.31							
PC 12	.57	5.44							
PC 14	.69	6.83							
PC 15	.58	5.31							
PC 23	1.00	12.31							
PROCESS			24.56	14	.03	.96	.92	.96	.92
PC 4	.65	6.14							
PC 7	.76	7.56							
PC 21	.65	6.10							
PC 22	.76	7.66							
PC 30	.75	7.46							
PC 31	.82	8.54							
PC 32	.88	9.53							

TABLE 4.3 continued

CONSTRUCTS/ ITEMS	λ	T VAL	χ^2	DF	P VAL	CFI	NNFI	IFI	GFI
COST LEADERSHIP			18.07	8	.02	.89	.82	.89	.90
CS 11	.75	7.01							
CS 12	.84	8.08							
CS 13	.68	6.23							
CS 19	.60	5.29							
DIFFERENTIATION			15.55	9	.07	.97	.94	.98	.99
CS 1	.67	6.38							
CS 3	.63	5.87							
CS 4	.77	7.79							
CS 6	.89	9.76							
CS 7	.84	8.84							
CS 8	.81	8.43							
PERFORMANCE			19.80	5	.001	.97	.96	.97	.90
CP 3	.91	10.26							
CP 5	.94	10.94							
CP 6	.96	11.29							
CP 7	.81	8.54							
CP 8	.95	11.10							

TABLE 4.4
OVERALL MODEL ITEM LAMBDA

Value Added Service		Process		Cost Leadership		Differentiation		Performance	
PC 11	.99 (12.18)	PC 4	.65 (4.84)	CS 11	.71 (5.92)	CS 1	.67 (6.33)	CP 3	.90 (9.11)
PC 12	.57 (6.05)	PC 7	.74 (5.41)	CS 12	.78 (5.96)	CS 3	.63 (5.00)	CP 5	.94 (13.92)
PC 14	.68 (8.12)	PC 21	.63 (5.87)	CS 13	.77 (5.92)	CS 4	.78 (6.07)	CP 6	.95 (14.64)
PC 15	.56 (5.16)	PC 22	.78 (5.60)	CS 19	.60 (4.71)	CS 6	.88 (6.64)	CP 7	.81 (9.81)
PC 23	.99 (51.38)	PC 30	.73 (5.43)			CS 7	.84 (6.43)	CP 8	.95 (14.35)
		PC 31	.83 (5.85)			CS 8	.80 (6.15)		
		PC 32	.87 (6.04)						

T-values are in parentheses.

Discriminant Validity

In a further effort to assess the validity of the constructs under study, the procedures outlined by Fornell and Larcker (1981) were employed. Fornell and Larcker (1981) recommend examining the average variance extracted as a stringent test of discriminant validity. The average variance extracted is the ratio of the sum of squared loadings to the sum of the squared loadings plus the error variance (Fornell and Larcker 1981). In order to determine discriminant validity, the average variance extracted for the construct should exceed the squared correlation among the latent constructs (Fornell and Larcker 1981).

Table 4.5 contains the average variance extracted measures for each construct as well as the construct correlation coefficients as recommended in the literature (Anderson and Gerbing 1988; Fornell and Larcker 1981). The procedures outlined by Fornell and Larcker (1981) were followed and the variance extracted measures were all greater than the shared variance. As can be seen in Table 4.5, this criterion was met for all the constructs employed in this study. Therefore, it may be concluded that the constructs meet this stringent test of discriminant validity.

Based upon the previous discussions as well as the information presented, it was ascertained that the measures of the constructs employed in this study have high reliabilities. Additionally, it was concluded that the constructs had reasonable validities.

Therefore, it was determined that the resultant constructs were appropriate measures to be employed in the testing of the various hypotheses proposed in Chapter III. The results of hypothesis tests are presented in the next section.

TABLE 4.5
CONSTRUCT DISCRIMINANT VALIDITY

	Value Added Service	Process	Cost Leadership	Differentiation	Performance
Average Variance Extracted	.44	.57	.52	.60	.83
Shared Variance					
Value Added Service	--				
Process	.24 (.49)	--			
Cost Leadership	.03 (.16)	.41 (.64)	--		
Differentiation	.18 (.43)	.14 (.38)	.16 (.40)	--	
Performance	.09 (.30)	.09 (.30)	.27 (.52)	.24 (.49)	--

Construct correlation coefficients are in parentheses.

FIGURE 4.1
STRUCTURAL MODEL PARAMETER RESULTS

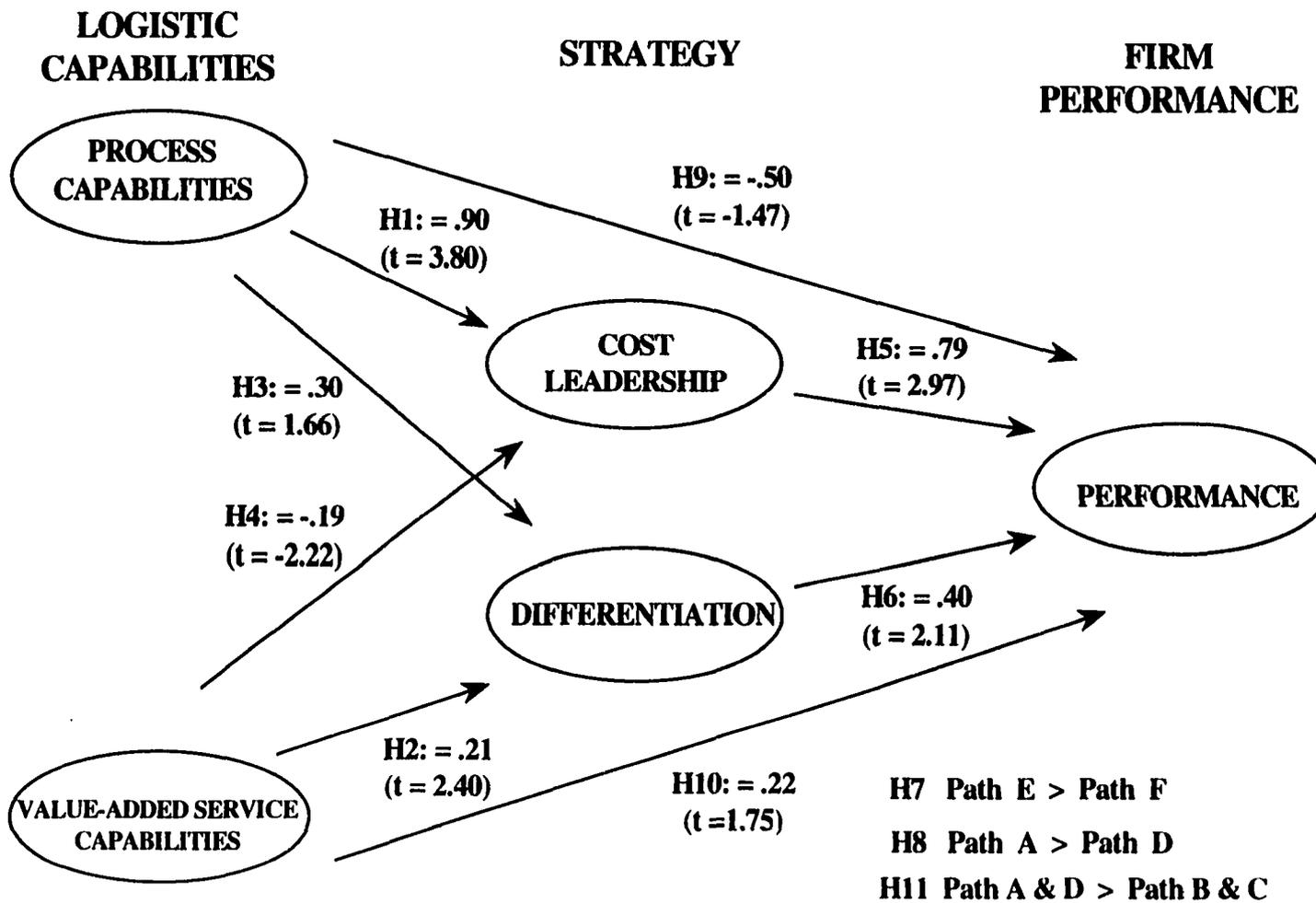


TABLE 4.6

**OVERALL MODEL FIT STATISTICS AND
CONSTRUCT RELATIONSHIPS**

	Value Added Service	Process	Cost Leadership	Differentiation
Process	$\phi = .49$ (3.24)			
Cost Leadership	$\gamma = -.19$ (-2.22)	$\gamma = .90$ (3.80)		
Differentiation	$\gamma = .21$ (2.40)	$\gamma = .30$ (1.66)	$\gamma = .26$ (1.99)	
Performance	$\gamma = .22$ (1.75)	$\gamma = -.50$ (-1.47)	$\beta = .79$ (2.97)	$\beta = .40$ (2.11)

χ^2	DF	P-VAL	CFI	IFI	NNFI	GFI
852.65	314	.00	.74	.75	.71	.64

T-values are in parentheses.

HYPOTHESES TESTING AND HYPOTHESES SUPPORTED

As discussed in Chapter III, the hypotheses were tested using LISREL 8. The paths between the constructs represent each individual hypothesis. Each path was assessed for the statistical significance of the path coefficients. The results of each hypothesis are discussed in this section. The results of the hypothesis tests are presented in Table 4.6 and are also depicted in a graphic format in Figure 4.1.

Hypothesis One

H1: Process capabilities will be positively linked to a Cost Leadership strategy (Path A).

As hypothesized, there was a positive relationship between process capabilities and a cost leadership strategy ($\gamma = .90$, $t\text{-value} = 3.80$). Therefore, hypothesis one is supported. The results may be seen in both Table 4.6 and are depicted graphically in Figure 4.1.

As one may remember, the essence of the research at hand was to ascertain if capabilities are related to strategy. It appears, given the data at hand, that this is the case. Therefore, authors such as Barney (1991), who postulated that resources (capabilities) were an important component in both strategy and in attaining a sustainable competitive advantage may be correct. In an effort to further test this theory, hypothesis two was examined.

Hypothesis Two

H2: Value Added Service capabilities will be positively linked to a Differentiation strategy (Path D).

As hypothesized, there was a positive relationship between value added service capabilities and a differentiation strategy ($\gamma = .21$, $t\text{-value} = 2.40$). Therefore, hypothesis two is also supported. The results may be seen in both Table 4.6 and are also depicted graphically in Figure 4.1.

Again, it appears that there is a significant path from value-added service capabilities to a differentiation strategy. The importance of this path, as well as the aforementioned findings, is that, as Barney (1991), Porter (1996) and others have postulated, some firms in the retail grocery industry do seem to match their capabilities to their strategy. Therefore, the *fit* that was originally proposed between capabilities and strategy appears to correspond with the data presented here.

Hypothesis Three

H3: Process capabilities will be positively linked to a Differentiation strategy (Path B).

As hypothesized, there was a positive relationship between process capabilities and a differentiation strategy ($\gamma = .30$, $t\text{-value} = 1.66$). However, where the previous two hypotheses were supported at the .05 level ($t\text{-value} > 1.96$), this relationship is significant at the .10 level ($t\text{-value} > 1.645$). Therefore, hypothesis

three is somewhat supported, but not at the more stringent .05 level of significance. The results may be seen in both Table 4.6 and are depicted graphically in Figure 4.1.

Although, this hypothesis is supported, as previously mentioned, it is at a significance level of .10. Even with this being the case, it still may add credence to the theory that any and all capabilities (resources) are indeed necessary and may be linked to strategy, adding further credence to the Resource-Based Theory of the firm (Barney 1991).

Hypothesis Four

H4: Value Added Service capabilities will be positively linked to a Cost Leadership strategy (Path C).

The hypothesized relationship in this instance was not supported. There was a significant relationship between value added service capabilities and a cost leadership strategy ($\gamma = -.19$, $t\text{-value} = -2.22$), but it was negative, not positive. Therefore, hypothesis four is not supported as originally envisioned. The results may be seen in both Table 4.6 and are depicted graphically in Figure 4.1.

Although the original hypothesis was not supported, there was a significant relationship. In fact, it appears to be a negative relationship, given the data. Therefore, it may also lend credence to the proposition that there is a relationship between capabilities and strategy. Additionally, and perhaps, what is most important, this negative relationship may give additional support to the notion of a *fit* between a firm's capabilities and that firm's chosen strategy. For example, adding additional

services might not *fit* well with a cost leadership strategy. In fact, it might affect a cost leadership strategy negatively, as costs would be increased by additional services, which appears to be the case in this instance.

Hypothesis Five

H5: A Cost Leadership strategy will be positively linked to firm performance (Path E).

As hypothesized, there was a positive relationship between and a cost leadership strategy and performance ($\gamma = .79$, $t\text{-value} = 2.97$). Therefore, hypothesis five is also supported. The results may be seen in both Table 4.6 and are also depicted graphically in Figure 4.1.

As hypothesized by Dess and Davis (1984) and Miller (1988), a cost leadership strategy appears to be positively related to performance. This relationship, although previously empirically tested, does give additional support to the proposition that a strategy is important to performance.

Hypothesis Six

H6: A Differentiation strategy will be positively linked to firm performance (Path F).

As hypothesized, there was also a positive relationship between a differentiation strategy and performance ($\gamma = .40$, $t\text{-value} = 2.11$). Therefore,

hypothesis six is supported. The results may be seen in both Table 4.6 and are also depicted graphically in Figure 4.1.

Like hypothesis five above, the important aspect of the hypothesized relationship is that strategy seems to be linked to performance in the retail grocery industry, given the data available. Therefore, an additional empirical test has shown a link from strategy to performance. Of particular interest is that differentiation appears to be related to performance as well as cost leadership. Dess and Davis (1984), did not find as strong a relationship between a differentiation strategy as they had from a cost leadership - performance perspective. Therefore, the following hypothesis was tested.

Hypothesis Seven

H7: A Cost Leadership strategy will lead to higher firm performance than a Differentiation strategy, that is, Path E > Path F.

It was hypothesized that there would be a stronger relationship between a cost leadership strategy and performance ($\gamma = .79$, t-value = 2.97, Path E) than from differentiation strategy and performance ($\gamma = .40$, t-value = 2.11, Path F).

Testing this hypothesis was accomplished by examining the difference in strength of the parameters utilizing the chi-square statistic (852.65, df = 314, p = .00) with all paths free to vary. There was not a statistically significantly smaller ($p < .05$) chi-square (853.61, df = 315, p = .00) when the paths were set to be equal (per Hair et al. 1995, p. 644). Therefore, hypothesis seven is not supported.

Therefore, it appears there is not a stronger relationship to performance given a cost leadership strategy versus a differentiation strategy. This may perhaps be explained in that, regardless of the strategy chosen, both a cost leadership strategy and a differentiation strategy may lead to firm performance equally well. This seems to somewhat contradict the findings of Dess and Davis (1984), and may require further empirical research in the future to examine the relationship of strategy to performance.

A number of conclusions, as well as several implications, may be tied to the above findings. Chapter V presents a discussion of the conclusions and the implications of this study along with the limitations of the study and the directions for future research.

Hypothesis Eight

H8: The path from Process capabilities to a Cost Leadership strategy (Path A) will be stronger than the path from Value Added Service to a Differentiation strategy (Path D), that is. $\text{Path A} > \text{Path D}$.

It was hypothesized that there would be a stronger relationship between process capabilities and a cost leadership strategy ($\gamma = .90$, $t\text{-value} = 3.80$, Path A) than from value-added service capabilities to a differentiation strategy ($\gamma = .21$, $t\text{-value} = 2.40$, Path D).

Testing this hypothesis was accomplished by examining the difference in strength of the parameters utilizing the chi-square statistic (852.65, $df = 314$, $p = .00$)

with all paths free to vary. There was a statistically significantly smaller ($p < .05$) chi-square (863.53, $df = 315$, $p = .00$) when the paths were set to be equal (per Hair et al. 1995, p. 644). Therefore, hypothesis eight is supported.

Hypothesis Nine

H9 Process capabilities will be positively linked to firm performance (Path G).

The hypothesized relationship in this instance was not supported ($\gamma = .50$, t -value = -1.47, Path G). It therefore appears that, at least in this sample, that capabilities are not positively linked to firm performance directly as has been previously proposed by some authors (Day 1994; Hitt and Ireland 1986; Droge et al. 1994; Morash et al. 1996).

Hypothesis Ten

H10 Value Added Service capabilities will be positively linked to firm performance (Path H).

The hypothesized relationship in this instance was also not supported ($\gamma = .22$, t -value = 1.75, Path H). It therefore appears that, again, in this sample, capabilities are not positively linked to firm performance as has been contemplated by various authors (Day 1994; Hitt and Ireland 1986; Droge et al. 1994; Morash et al. 1996).

Hypothesis Eleven

H11 The paths from Process capabilities to a Cost Leadership strategy, and from Value Added Service to a Differentiation strategy (Path A & Path D) will be stronger than the paths from Process capabilities to a Differentiation strategy, and from Value Added Service capabilities to a Cost Leadership strategy (Path B& Path C), that is, Path A & D > Path B & C.

It was hypothesized that there would be a stronger relationship between the paths from process capabilities and a cost leadership strategy ($\gamma = .90$, t-value = 3.80), and value added service capabilities to a differentiation strategy ($\gamma = .21$, t-value = 2.40). Path A & Path D, than the paths from process capabilities to a differentiation strategy ($\gamma = .30$, t-value = 1.66), and from value added service capabilities to a cost leadership strategy ($\gamma = -.19$, t-value = -2.22), Path B& Path C.

Testing this hypothesis was accomplished by examining the difference in strength of the parameters utilizing the chi-square statistic (882.07, df = 316, p = .00) with all paths free to vary. Essentially, the two competing models were compared. There was a statistically significantly smaller (p < .05) chi-square (860.64, df = 316, p = .00) when the paths were set to be equal (per Hair et al. 1995, p. 644). Therefore, hypothesis eleven is supported.

The results of this analysis do shed additional light on the hypothesized *fit* between capabilities and strategy. It does appear, at least with this data, that firms do seem to match their capabilities to their strategy. Although, there appears to be no

significant difference from strategy to performance (hypothesis seven), there is a significant difference between capabilities and strategy. Therefore, the data points in the direction that firms might be best served by investing in process capabilities linked to a cost leadership strategy to attain superior firm performance.

CHAPTER V

CONCLUSIONS

INTRODUCTION

This chapter presents a recap of the results of this study along with the contributions associated with the study. Additionally, the limitations inherent in the study are presented along with the possible directions that future research might be directed. The chapter is separated into five main sections. The first section presents the conclusions and implications. The second section discusses the contributions of the study. In section three, the limitations of the study are presented. Section four, future research, presents possible directions for additional avenues of research. Lastly, a concluding comments section is included.

CONCLUSIONS AND IMPLICATIONS

The focus and the motivation for this study were to ascertain if capabilities were indeed related to strategy, and if so, in what manner. Additionally, an examination of firm strategy, the dimensions of firm strategy, and its possible link to firm performance was important to this endeavor. As may be seen in the previous chapter, Chapter IV, a number of the relationships hypothesized did transpire. One is therefore, faced with the question, what are the implications of this study?

There are several important implications relevant to this study. First, and foremost, capabilities, and most specifically, logistics capabilities appear to be

significantly linked to strategy. Therefore, two issues related to the link from capabilities to strategy seem to be clear. First, Barney (1991), among others, postulated that resources (capabilities) were necessary in order for firms to pursue a given strategy. That appears to be evident, at least in the retail grocery industry. Secondly, and perhaps most interesting, there appears to be a *fit* between capabilities and strategy. Porter (1996) postulated the *activities* that a firm performs would lead to sustainable competitive advantage. This study adds empirical support for the above two author's theories. That is, capabilities appear to be linked to strategy and therefore, are necessary in order to pursue a strategy, and perhaps capabilities and strategies need to be properly matched.

Although there has been previous empirical work in the area of strategy (Dess and Davis 1984; Miller 1988), the exact number of strategies and relationships have not been consistent throughout all studies. Porter (1980), hypothesized that two or three strategies existed that a firm could pursue. In this study two strategies emerged, and two issues seem evident given the available data. First, firms in the retail grocery industry pursue two clearly defined strategies. They appear to be either cost leaders or differentiators. Secondly, some firms do seem, for the most part, to match their capabilities to their strategy. That is, firms that are cost leaders appear to invest in the processes and technology to pursue that strategy. Additionally, differentiators, appear to differentiate their firm by providing services that add value to their supply chain. One other aspect of the relationships that is quite interesting is the negative relationship between value-added service capabilities and a cost leadership strategy.

What is particularly interesting about this relationship is that it is intuitively appealing, and perhaps most telling with regard to the hypothesized *fit* between capabilities and strategy. For example, if there are capabilities that may be matched with the correct strategy to form the correct *fit*, the corollary that some capabilities may be mismatched with an incorrect strategy seems prudent.

Although the links from strategy to performance had been previously examined (Dess and Davis 1984), the results were not always consistent. Again, two issues are important here. Number one, strategy does appear to be positively linked to performance, while capabilities, by themselves, were not. Therefore, it is important for a firm to both adopt and pursue a strategy. Number two, and again, perhaps most intriguing, is that superior firm performance may be obtained by being *both* a cost leader and a differentiator. Conventional wisdom seems to dictate that cost savings measures, along with a low price strategy, is the only avenue to firm performance. It is somewhat enlightening to see that it appears, at least in the retail grocery industry, that differentiating a firm (based on value-added service, and perhaps even process capabilities) may also lead to superior firm performance. Additionally, the link from cost leadership to firm performance was not stronger. Therefore, given the significant link from differentiation to firm performance it appears *both* strategies may be equally linked to performance. If this is indeed the case, determining the capabilities to be employed in pursuing either strategy becomes even more intriguing and important. Hence, further research endeavors might concentrate on the apparently stronger link from process capabilities to a cost

leadership strategy, as well as a further investigation of the matching between capabilities and strategy.

LIMITATIONS OF THE STUDY

As with any research endeavor, there are inherently limitations. This study was undertaken in the retail grocery industry. As such, any generalizations to other contexts or industries must be acknowledged as a limitation of this particular study. Also, the focus was on the provider side of the relationship. Therefore, the customer might have a different view of the firm's capabilities and its strategy. Additionally, key informants were used for the data collection. This being the case the validity of the responses may be questioned. It is, however, important to point out that 97% of the respondents were at either the CEO or Vice President level. Since these individuals hold positions at the upper levels of management they would be involved in the strategic planning process of the firm, and, therefore, have adequate knowledge of the firm's capabilities, strategy, and performance.

Another limitation is that firm performance may be effected by various other extraneous variables not accounted for in this study; additionally, only measures of logistics capabilities were employed. It would be beneficial to examine the myriad of extraneous variables, as well as other capabilities and resources, such as marketing, finance and the like, which might be employed by firms to enhance the understanding of the relationships hypothesized here.

One other limitation of the study is sample size. The low response rate of 21% (102/480), along with the resulting low usable sample size of 18% (85/480) raises questions as to the statistical power of the results, given the data available. A greater sample size would have definitely increased the statistical power. However, it is important to note that of the six hypothesized paths, five were significant at the .05 level. Additionally, as previously mentioned, the majority of respondents were in upper management and possessed considerable industry and firm experience. This should add some credibility to the results of this study.

FUTURE RESEARCH

A number of issues that have been addressed in this study may warrant additional research. The original research objectives of this dissertation were to examine whether superior firm performance is achieved when resources/capabilities are properly matched with strategy (what one might call—*fit*) and to ascertain which capabilities should be linked to which strategy. To a certain degree, this was accomplished. However, as was mentioned in the limitations section of this study, a number of other avenues for future research seem evident.

Although we have successfully linked logistics capabilities to strategy, it would be quite beneficial to examine other types of capabilities and their links to strategy. In this manner the role(s) of capabilities and resources within a firm and their link to strategy and performance may become clearer. Additionally, this study was conducted in one industry, the retail grocery industry. Therefore, there are

obvious generalizability issues due to this limitation. It would be quite beneficial to examine the role that logistics capabilities, as well as other capabilities, play in strategy and firm performance in other industries.

As an empirical test of the Resource-Based Theory of the firm, this study is but a small step to empirically testing this theory. Additional and significant contributions could be made by further tests of this theory. Along those same lines, it might be beneficial to examine further the relationships of the two divergent views of strategy. That is, are they two distinct theories, the Resource-Based Theory and Porter's Generic Strategy Theory, that stand alone and are indeed dichotomous. Or, perhaps, do these theories exist on a continuum, one in which capabilities (resources) are every bit as important to the success of a firm as is its Generic Strategy based on competitive market forces. These are but a few of the areas worthy of additional research.

CONCLUDING COMMENTS

Firm strategy, and the antecedents to firm strategy, for example, structure, have formed many of the more important questions concerning firm performance and sustainable competitive advantage for a number of decades. Also, recently much has been written concerning firm resources and capabilities with regards to firm strategy. This research endeavor is perhaps a small contribution linking these two previous research streams. That is, as previously mentioned, there may not be two divergent theories of strategy, Resource-Based Theory (based on firm capabilities) and Porter's

Generic Strategy (based on competitive market forces), but there may indeed be a strategy continuum based on matching one's capabilities (resources) with an appropriate strategy based on the market forces at hand.

The results of this study seem to point to the linkages of capabilities and strategy, the *fit* of those two, and ultimately a link to firm performance. This is ultimately the question to be answered in more depth, what exact capabilities need to be matched with which firm strategy for superior firm performance, and ultimately, sustainable competitive advantage.

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EXHIBITS

APPENDIX A
INITIAL COVER LETTER

APPENDIX A INITIAL COVER LETTER

Dear _____ :

This is a request for you to participate in a **research study on firm capabilities and business strategy** being sponsored by The Center for Supply Chain Management at the University of Arkansas. Because of your company's success in providing services to its customers, your firm has been selected to participate in this research. We understand that you are very busy, therefore we have tried to make the survey as short as possible and easy to fill out. All that is required of you is that you take approximately fifteen minutes to fill out the survey, and enclose it in the postage paid envelope provided.

The research investigates the relationships among firm capabilities, business strategies, and company performance. **The benefits of the study are three-fold.** The study will help to gain further insight into firm capabilities, provide a context for understanding the relationship of firm capabilities to business strategy, and build a foundation for further research on the **strategic role of logistics and capabilities** in the success of the firm.

We have enclosed a questionnaire and a postage paid return envelope for your convenience. **WE PROMISE THAT ALL YOUR RESPONSES WILL REMAIN STRICTLY CONFIDENTIAL.**

The research benefits envisioned are very much dependent on getting the survey back. Therefore, your participation is very important, and very much appreciated. In return for your efforts we will send you a summary of the findings. Should you wish to receive the summary please provide your name and address on the last page of this survey.

In closing, several of the questions ask for information you might not have at your fingertips. In that case, please estimate this information, to the best of your ability. If you have any questions, or need additional information please contact me at (501) 575-6142. We are confident of your support and look forward to your response.

Thank you for your valuable time and support.

Dr. John D. Ozment
Oren Harris Chair

Daniel F. Lynch
Senior Research Associate

APPENDIX B
REMINDER COVER LETTER

**APPENDIX B
REMINDER COVER LETTER**

Dear _____ :

A few weeks ago we mailed you a questionnaire concerning firm capabilities, logistics and business strategy being sponsored by The Supply Chain Management Research Center at the University of Arkansas. We have not received your completed questionnaire yet and would very much like to include your responses in our data base. We plan to start analyzing and summarizing the responses in about three weeks.

If you have already completed and returned the questionnaire, we would like to take this opportunity to thank you. If you have not yet had the time to complete the questionnaire, we would like to encourage you to do so at your earliest convenience.

The research benefits are very much dependent on getting the survey back. Individuals such as yourself are essential to this study. You can provide meaningful and useful information concerning the relationships among logistics capabilities, business strategies, and company performance in a retail setting. Therefore, **your participation is very important, and very much appreciated.** *The information you provide will be considered strictly confidential.* We are enclosing another copy of the questionnaire, and a postage-paid return envelope, for your convenience.

We appreciate and acknowledge the contribution you are making by providing us with your valuable time, assistance, and support. We look forward to receiving your completed questionnaire.

Sincerely,

Dr. John Ozment
Oren Harris Chair
University of Arkansas

Daniel F. Lynch
Assistant Professor
Montana State University

APPENDIX C
THIRD COVER LETTER

**APPENDIX C
THIRD COVER LETTER**

Dear Mr. Jones:

Mr. Jones, I would like to thank you very much for considering filling out my survey! As Vice President of Logistics you are in a unique position to have the necessary knowledge of the supply chain; consequently, your participation in my dissertation research is *really* important. **As a participant you will receive the initial aggregate results of this study on supply chain capabilities and strategy, the preliminary results of which are quite interesting!**

I would greatly appreciate it if you could please fill out and return the enclosed survey in the postage-paid envelope. *Please be assured that ONLY AGGREGATE RESULTS WILL BE REPORTED, and that your responses will remain STRICTLY CONFIDENTIAL.*

As a graduate student on a limited budget, I would like to wholeheartedly thank you for your completed questionnaire.

Sincerely,

Daniel F. Lynch
Graduate Student
University of Arkansas

APPENDIX D
QUESTIONNAIRE

**APPENDIX D
QUESTIONNAIRE**



**CAPABILITIES AND STRATEGY
QUESTIONNAIRE**

A Study of Capabilities, Strategy, and Performance

Project Team:

John Ozment
Oren Harris Chair of Transportation
University of Arkansas
Fayetteville, AR 72701
(501) 575-6142

Daniel F. Lynch
Assistant Professor
Montana State University-Billings
Billings, MT 59101
(406) 657-2035

Sponsored by
The Supply Chain Management Research Center
College of Business Administration
University of Arkansas
Fayetteville, AR 72701

THANK YOU IN ADVANCE FOR TAKING THE TIME TO COMPLETE THIS SURVEY.
All your responses are strictly confidential. We would be happy to provide you with a summary of the results of this survey. If you would like to receive this information, please provide us with your name and address, or attach a business card.

NAME _____
TITLE _____
ADDRESS _____

APPENDIX D (continued)

SECTION I: PERFORMANCE CAPABILITIES

INSTRUCTIONS: Please indicate the extent to which you agree or disagree with the following statements by checking the appropriate column. (For retailers, please respond to the "customer" questions as your next logistical destination, for example, it could be a retail store serviced by a company-owned distribution center.)

My firm has the ability to:		Strongly Disagree	Neutral					Strongly Agree
1	Handle difficult, nonstandard orders to meet special customer specifications and to produce products characterized by numerous features, options, size and/or colors.	1	2	3	4	5	6	7
2	Rapidly modify capacity to accelerate/decelerate supply in response to changes in demand.	1	2	3	4	5	6	7
3	Supply smaller quantities efficiently so that product mix changes are easily accommodated.	1	2	3	4	5	6	7
4	Attain the lowest total cost logistics by efficient operations, technology, or scale economies.	1	2	3	4	5	6	7
5	Reduce the time between order receipt and customer delivery to as close to zero as possible.	1	2	3	4	5	6	7
6	Meet quoted or anticipated delivery dates and quantities on a consistent basis.	1	2	3	4	5	6	7
7	Proactively seek solutions to logistics problems before they occur.	1	2	3	4	5	6	7
8	Quickly solve logistically-related customer problems and complaints.	1	2	3	4	5	6	7
9	Respond to the needs and wants of key customers.	1	2	3	4	5	6	7
10	Provide desired quantities on a consistent basis.	1	2	3	4	5	6	7
11	Perform services that add value for the customer during the actual sales process.	1	2	3	4	5	6	7
12	Comprehensively and effectively target a given distribution region.	1	2	3	4	5	6	7
13	Effectively target selective or exclusive customers.	1	2	3	4	5	6	7
14	Accommodate special customer service requests.	1	2	3	4	5	6	7
15	Accommodate new product/service introductions (roll-outs to market).	1	2	3	4	5	6	7
16	Facilitate old product/service phase outs.	1	2	3	4	5	6	7
17	Accommodate supply disruption in a manner that does not adversely affect customers.	1	2	3	4	5	6	7
18	Accommodate product recalls.	1	2	3	4	5	6	7
19	Handle product modifications while in the logistics system.	1	2	3	4	5	6	7
20	Service customers from alternative warehouse locations.	1	2	3	4	5	6	7
21	Perform reverse logistics operations in a timely manner.	1	2	3	4	5	6	7
22	Differentiate logistical service offerings from that offered by competitors.	1	2	3	4	5	6	7
23	Continuously add new products or variations.	1	2	3	4	5	6	7
24	Modify order size, volume or composition during logistics operation(s).	1	2	3	4	5	6	7
25	Accommodate delivery times for specific customers.	1	2	3	4	5	6	7
26	Expedite shipments or partial shipments.	1	2	3	4	5	6	7
27	Notify customers in advance of delivery delays or product shortages.	1	2	3	4	5	6	7
28	Notify customers in advance of delivery when products will arrive.	1	2	3	4	5	6	7
29	Substitute product or service offerings in the event of a delay or stock out.	1	2	3	4	5	6	7
30	Develop creative logistical solutions for specific situations, emergencies or customers.	1	2	3	4	5	6	7
31	Simplify the overall logistical process.	1	2	3	4	5	6	7
32	Provide a consistent approach to performing key logistics work.	1	2	3	4	5	6	7

APPENDIX D (continued)

SECTION II: CORPORATE STRATEGY

INSTRUCTIONS: Please indicate the extent to which your company pursues the following strategies by checking the appropriate column.

		1	2	3	4	5	6
1	Develop new products and/or services?	1	2	3	4	5	6
2	Provide unique products and/or services?	1	2	3	4	5	6
3	Offer products and/or services for specialized needs?	1	2	3	4	5	6
4	Offer higher quality products and/or services than your competitors?	1	2	3	4	5	6
5	Offer innovative products and/or services?	1	2	3	4	5	6
6	Offer highly differentiated products and/or services?	1	2	3	4	5	6
7	Offer a high degree of value in your products and/or services?	1	2	3	4	5	6
8	Offer products/services with distinctly different features from those of competitors?	1	2	3	4	5	6
9	Be the lowest cost provider in your industry?	1	2	3	4	5	6
10	Provide your customers with the lowest prices among your major competitors?	1	2	3	4	5	6
11	Invest in cost saving technology?	1	2	3	4	5	6
12	Emphasize efficiency?	1	2	3	4	5	6
13	Redesign products and/or services to reduce costs?	1	2	3	4	5	6
14	Strive for high volume to spread costs?	1	2	3	4	5	6
15	Stick to your own geographic area?	1	2	3	4	5	6
16	Offer only a few products and services specifically designed for customers?	1	2	3	4	5	6
17	Appeal to a specific niche in the market place?	1	2	3	4	5	6
18	Focus our efforts on a particular line or type of product/service?	1	2	3	4	5	6
19	Keep all costs as low as possible so we can offer lower prices?	1	2	3	4	5	6
20	Accept higher costs which will improve customer satisfaction?	1	2	3	4	5	6
21	Be a cost leader in our industry?	1	2	3	4	5	6
22	Be a differentiator in our industry?	1	2	3	4	5	6
23	Be <i>both</i> a cost leader and a differentiator in our industry?	1	2	3	4	5	6
24	Our company has a written mission statement (check one) Yes _____ No _____ Don't Know _____						

SECTION III: LOGISTICS STRATEGY

1 Logistics has a separate mission statement (Check one) Yes _____ No _____ Don't know _____

2 What is the primary emphasis of your logistics strategy, cost vs service? (circle one)
 Lowest Total Cost 1 2 3 4 5 6 7 Highest Customer Service

3 Of the following four statements, please circle the one that most accurately describes your primary logistics strategy.

PROCESS A process-based strategy is concerned with managing a broad group of logistics activities as a value-added chain. Emphasis is on achieving efficiency from managing purchasing, manufacturing, scheduling and physical distribution as an integrated system.

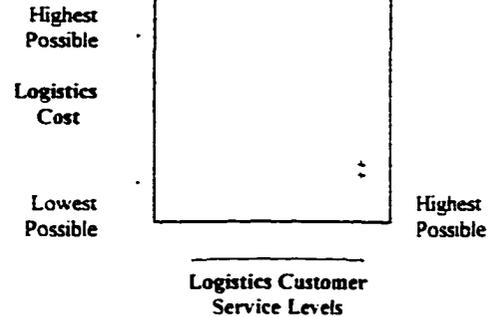
MARKET A market-based strategy is concerned with managing a limited group of logistics activities for a multi-divisional single business unit or across multiple business units. The logistics organization seeks to make joint product shipments to common customers for different product groups and seeks to facilitate sales and logistical coordination by a single order-invoice. Often senior sales and logistics executives report to the same manager.

APPENDIX D (continued)

CHANNEL A channel-based strategy is concerned with managing logistics activities performed jointly with dealers and distributors. The strategic orientation places a great deal of attention on external control. Significant amounts of finished inventories are typically maintained forward or downstream in the distribution channel.

OTHER If your strategy does not fit into one of the above, please briefly describe it below

Logistics strategy is frequently measured as a single cost-customer service continuum. However, cost and customer service can also be represented as two dimensions of logistics strategy. Using a (●), please indicate how you characterize your firm's logistics strategy in terms of logistics cost and customer service. (Example. As marked, the (♣) indicates a logistics strategy of moderately high customer service levels while achieving a low cost emphasis.)



SECTION IV: STRATEGIC TYPES

Which one of the following descriptions most closely fits your company compared to other companies in the industry? (Please consider your company as a whole and note that none of the types listed below is inherently "good" or "bad.") Please circle the most correct choice.

- 1 This company attempts to locate and maintain a secure niche in a relatively stable product or service area. The company tends to offer a more limited range of products or services than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices, and so forth. Often this company is not at the forefront of developments in the industry—it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area.
- 2 This company typically operates within a broad product-market domain that undergoes periodic redefinition. The company values being "first in" in new product and market areas even if not all of these efforts prove to be highly profitable. The company responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this company may not maintain market strength in all of the areas it enters.
- 3 This company attempts to maintain a stable, limited line of products or services, while at the same time moving out quickly to follow a carefully selected set of the more promising new developments in the industry. The company is seldom "first in" with new products or services. However, by carefully monitoring the actions of major competitors in areas compatible with its stable product-market basis, the company can frequently be "second in" with a most cost-efficient product or service.
- 4 This company does not appear to have a consistent product-market orientation. The company is usually not as aggressive in maintaining established products and markets as some of its competitors, nor is it willing to take as many risks as other competitors. Rather, the company responds in those areas where it is forced to by environmental pressures.

APPENDIX D (continued)

SECTION V: BUSINESS COMPETENCIES

INSTRUCTIONS: Please indicate how your company performs the following activities relative to your major competitors.

		<i>Much Worse</i>						<i>Much Better</i>							
1	Knowledge of customers.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2	Knowledge of competitors.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3	Knowledge of industry trends.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4	Accuracy of profitability and revenue forecasting.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5	Awareness of organizational marketing strengths.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
6	Awareness of organizational marketing weaknesses.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
7	Marketing planning process.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	Allocation of marketing department resources.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9	Integration of marketing activities.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
10	Skill to segment and target markets.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
11	Ability to differentiate product/service offerings.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
12	New product/service development process.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
13	Quality of product/service and offerings.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
14	Effectiveness of pricing program(s).	1	2	3	4	5	6	7	1	2	3	4	5	6	7
15	Advertising effectiveness.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
16	Effectiveness of public relations.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
17	Company image.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
18	Locations of facilities.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
19	Effectiveness of cost containment.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
20	Control and evaluation of marketing activities.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

SECTION VI: CORPORATE PERFORMANCE

INSTRUCTIONS: Please indicate how your company performs relative to your major competitors along the following dimensions.

		<i>Much Worse</i>						<i>Much Better</i>							
Relative to major competitors in our industry, my firm's performance over the past three years has been:															
1	Sales growth.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2	Gross Margins.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3	Net profit margin.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4	Market share growth.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5	Return on Assets (ROA).	1	2	3	4	5	6	7	1	2	3	4	5	6	7
6	Return on Investment (ROI).	1	2	3	4	5	6	7	1	2	3	4	5	6	7
7	Overall competitive position.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	General profitability.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9	Overall customer service level.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

APPENDIX D (continued)

SECTION VII: LOGISTICS PERFORMANCE

INSTRUCTIONS: Please indicate the importance of these logistics performance measures in monitoring operations or identifying problems.

If you do not use the measure, please check NA.		<i>Unimportant</i>					<i>Important</i>		
1	Inventory turns	1	2	3	4	5	6	7	NA
2	Inventory levels, number of days supply	1	2	3	4	5	6	7	NA
3	Cost as a percentage of sales	1	2	3	4	5	6	7	NA
4	Inbound freight costs	1	2	3	4	5	6	7	NA
5	Outbound freight costs	1	2	3	4	5	6	7	NA
6	Units shipped per employee	1	2	3	4	5	6	7	NA
7	Warehouse labor productivity	1	2	3	4	5	6	7	NA
8	Fill rates	1	2	3	4	5	6	7	NA
9	Shipping errors	1	2	3	4	5	6	7	NA
10	On time delivery	1	2	3	4	5	6	7	NA
11	Cycle time	1	2	3	4	5	6	7	NA
12	Overall reliability	1	2	3	4	5	6	7	NA
13	Order entry accuracy	1	2	3	4	5	6	7	NA
14	Document/invoicing accuracy	1	2	3	4	5	6	7	NA
15	Number of customer returns	1	2	3	4	5	6	7	NA

SECTION VIII: LOGISTICS ACTIVITIES

INSTRUCTIONS: Please indicate the extent to which you agree or disagree with each statement by checking the appropriate column.

		<i>Strongly Disagree</i>			<i>Neutral</i>		<i>Strongly Agree</i>	
1	My firm's mission statement is widely disseminated internally and shared with customers.	1	2	3	4	5	6	7
2	Our senior logistics executive is involved in business unit strategic planning.	1	2	3	4	5	6	7
3	We are currently redesigning our logistics information system.	1	2	3	4	5	6	7
4	Our logistics operations have more formal rules and procedures today than five years ago.	1	2	3	4	5	6	7
5	We utilize more postponement strategies to defer movement today than five years ago.	1	2	3	4	5	6	7
6	We have improved overall performance measurement capabilities over the past five years.	1	2	3	4	5	6	7
7	My company regularly solicits customer input for planning logistics strategy.	1	2	3	4	5	6	7
8	My company has procedures in place to facilitate reverse logistics.	1	2	3	4	5	6	7
9	Environmental considerations significantly impact logistics operations at my company.	1	2	3	4	5	6	7
10	My company has inventory located at fewer sites today than five years ago.	1	2	3	4	5	6	7
11	My company has clear guidelines and procedures for creating alliances.	1	2	3	4	5	6	7
12	My company has clear guidelines and procedures for monitoring alliances.	1	2	3	4	5	6	7
13	My company has specific logistics strategies to deal with distinct customers.	1	2	3	4	5	6	7
14	My company has logistics alliances that operate under principles of shared rewards/risks.	1	2	3	4	5	6	7
15	On an equal volume basis, we hold less average inventory today than five years ago.	1	2	3	4	5	6	7
16	My company is flexible in terms of accommodating customers' special requests.	1	2	3	4	5	6	7

APPENDIX D (continued)

SECTION IX: VISION AND PRIORITY

INSTRUCTIONS: Please indicate the extent to which you agree or disagree with each of the following statements by checking the appropriate column.

	1	2	3	4	5	6	7
	<i>Strongly Disagree</i>		<i>Neutral</i>				<i>Strongly Agree</i>
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Please describe in the space below the *strategic priority* which you feel is currently the *primary vision* for your company:

SECTION X: BACKGROUND

In this section we ask about your background and your company's background. Remember, all of your responses are *strictly confidential*. We appreciate your help in providing this important information.

- | | |
|--|---|
| <p>1. What is your official job title? _____</p> <p>2. Number of years in this position? _____</p> <p>3. What is your primary area of expertise?</p> <p style="margin-left: 20px;">a. Logistics e. Accounting</p> <p style="margin-left: 20px;">b. Marketing f. Finance</p> <p style="margin-left: 20px;">c. Operations g. Law</p> <p style="margin-left: 20px;">d. Information systems h. Other _____</p> <p>4. Number of years in this company? _____</p> <p>5. Number of years in this industry? _____</p> <p>6. Please circle your highest level of education</p> <p style="margin-left: 20px;">High School, College, Graduate Degree</p> | <p>7. Company's annual sales last year were \$ _____</p> <p>8. Company's average growth in sales _____%</p> <p>9. Company's average gross margin _____%</p> <p>10. Company's average net profit margin _____%</p> <p>11. The number of independent locations we have is _____</p> <p>12. We operate (check one) Locally _____ Regionally _____</p> <p style="margin-left: 100px;">Nationally _____ Globally _____</p> <p>13. Number of employees in company _____</p> <p>14. Number of employees in division _____</p> <p>15. The competition facing our company is (circle one)</p> <p style="margin-left: 20px;">Very low 1 2 3 4 5 6 7 Immense</p> |
|--|---|

APPENDIX E
CORRELATIONS, MEANS, AND STANDARD DEVIATIONS

APPENDIX E
CORRELATIONS, MEANS, AND STANDARD DEVIATIONS

Variable	PC 11	PC 12	PC 14	PC 15	PC 23	PC 4	PC 7	PC 21	PC 22	PC 30	PC 31	PC 32
PC 11	1.00											
PC 12	.667	1.00										
PC 14	.618	.557	1.00									
PC 15	.552	.619	.542	1.00								
PC 23	.540	.553	.658	.515	1.00							
PC 4	.349	.493	.333	.424	.245	1.00						
PC 7	.400	.432	.387	.355	.376	.525	1.00					
PC 21	.340	.369	.212	.260	.250	.427	.564	1.00				
PC 22	.346	.489	.395	.388	.487	.548	.563	.482	1.00			
PC 30	.407	.485	.348	.448	.282	.556	.569	.478	.480	1.00		
PC 31	.450	.598	.463	.317	.385	.460	.557	.423	.570	.615	1.00	
PC 32	.480	.607	.429	.443	.401	.542	.649	.526	.629	.640	.742	1.00
MEAN	5.342	5.096	5.904	5.247	5.583	5.189	5.189	4.829	5.055	5.528	5.083	5.151
STD	1.379	1.269	1.149	1.345	1.254	1.253	1.166	1.112	1.286	1.192	1.254	1.177

APPENDIX E (continued)

Variable	CS 11	CS 12	CS 13	CS 19	CS 1	CS 3	CS 4	CS 6	CS 7	CS 8
CS 11	1.00									
CS 12	.585	1.00								
CS 13	.447	.512	1.00							
CS 19	.354	.448	.419	1.00						
CS 1	.174	.070	.171	.085	1.00					
CS 3	.333	.134	.151	.120	.526	1.00				
CS 4	.312	.274	.334	.283	.437	.507	1.00			
CS 6	.202	.133	.303	.115	.556	.528	.693	1.00		
CS 7	.331	.086	.171	.259	.547	.538	.648	.677	1.00	
CS 8	.152	.064	.258	.175	.497	.427	.548	.728	.631	1.00
MEAN	5.446	5.932	5.135	5.288	4.838	5.041	5.473	4.635	5.459	4.838
STD	1.299	.991	1.055	1.197	1.358	1.208	1.280	1.509	1.126	1.288

APPENDIX E (continued)

Variable	CP 3	CP 5	CP 6	CP 7	CP 8
CP 3	1.00				
CP 5	.794	1.00			
CP 6	.831	.899	1.00		
CP 7	.724	.667	.745	1.00	
CP 8	.861	.839	.871	.767	1.00
MEAN	5.041	5.473	4.635	5.459	4.838
STD	1.208	1.280	1.509	1.126	1.288

APPENDIX F
CONSTRUCTS AND RESULTING INDICANTS

APPENDIX F CONSTRUCTS AND RESULTING INDICANTS

Value Added Service

- PC 11 Perform services that add value for the customer during the actual sales process
- PC 12 Comprehensively and effectively target a given distribution region
- PC 14 Accommodate special customer service requests
- PC 15 Accommodate new product/service introductions (roll-outs to market)
- PC 23 Continuously add new products or variations

Process

- PC 4 Attain the lowest total cost logistics by efficient operations, technology, or scale economies
- PC 7 Proactively seek solutions to logistics problems before they occur
- PC 21 Perform reverse logistics operations in a timely manner
- PC 22 Differentiate logistical service offerings from that offered by competitors
- PC 30 Develop creative logistical solutions for specific situations, emergencies or customers
- PC 31 Simplify the overall logistical process
- PC 32 Provide a consistent approach to performing key logistics work

Cost Leadership

- CS 11 Invest in cost saving technology
- CS 12 Emphasize efficiency
- CS 13 Redesign products and/or services to reduce costs
- CS 19 Keep all costs as low as possible so we can offer lower prices

Appendix F continued

Differentiation

- CS 1** Develop new products and/or services
- CS 3** Offer products and/or services for specialized needs
- CS 4** Offer higher quality products and/or services than your competitors
- CS 6** Offer highly differentiated products and/or services
- CS 7** Offer a high degree of value in your products and/or services
- CS 8** Offer products/services with distinctly different features from those of competitors

Performance

- CP 3** Net profit margin
- CP 5** Return on Assets (ROA)
- CP 6** Return on Investment (ROI)
- CP 7** Overall competitive position
- CP 8** General profitability

**THE INTEGRATION OF FIRM RESOURCES:
THE ROLE OF CAPABILITIES
IN STRATEGY AND FIRM PERFORMANCE**

Abstract of dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

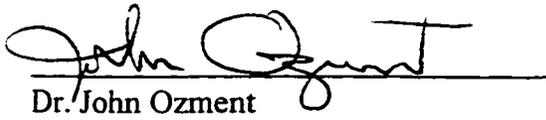
By

Daniel F. Lynch, B.S., M.P.A.
Fairleigh Dickinson University, 1975
University of Colorado, 1977

December 1998
University of Arkansas

This abstract is approved by:

Dissertation Director:



Dr. John Ozment

**THE INTEGRATION OF FIRM RESOURCES:
THE ROLE OF CAPABILITIES
IN STRATEGY AND FIRM PERFORMANCE**

Distinctive capabilities are defined as a firm's accumulated skills and knowledge that may lead to competitive advantage (Day 1994). Distinctive capabilities are founded upon Resource-Based Theory (Barney 1991) that focuses on internal resources as opposed to external market forces (Porter 1980). The present research discusses the integration of distinctive capabilities into this framework: that is, do certain distinctive capabilities (resources) create superior firm performance when linked to the appropriate generic business strategy?

The literature on firm performance has a rich history and is theoretically grounded in several disciplines including economics, sociology, and organizational behavior (Anderson 1982). However, there has not been much empirical support for any specific theory. That is, authors have not been successful in explaining why certain firms perform well while others do not. Several authors have attempted to link strategy to performance (Miller 1986; Dess and Davis 1984; Miles and Snow 1978; Porter 1980), but with varying levels of success. More recently, authors have attempted to tie firm performance to resources (Barney 1991; Hall 1993) and/or capabilities (Day 1994; Droge et al. 1994; Hitt and Ireland 1986), but here, too, there has not been convincing empirical support.

The objectives of this dissertation are to examine whether superior firm performance is achieved when resources/capabilities are properly matched with market strategy (what one might call *fit*) and to ascertain which capabilities should be linked to which strategy. Strategy, for the purpose of this study, will be those strategic choices that were defined by Porter (1980). He hypothesized that firms may pursue two different generic business strategies in order to achieve superior firm performance, i.e., cost leadership or differentiation. These strategic alternatives will form the basis of our strategy construct for this thesis.

Since capabilities (firm resources) reside mostly at the functional level of the organization, that is where this dissertation will begin. There are many resources and/or capabilities that firms rely on to pursue their objectives. Some of these are related to specific functions such as finance, operations, logistics, or marketing. However, there has been very little research that has identified and measured the resources/capabilities of specific functional areas. One of the few areas in which studies have been conducted and for which scales have been developed is the logistics function (Global Logistics Research Team at Michigan State University 1995; Eckert and Fawcett 1996; Morash et al. 1996; Clinton and Closs 1997). Logistics expenses may represent as much as twenty percent of the total cost in many industries (Coyle, Bardi, and Langley 1996; Lambert and Stock 1993). Accordingly, this study builds upon that prior knowledge in an effort to gain a better understanding of how capabilities, strategy, and performance are related.

DISSERTATION DUPLICATION RELEASE

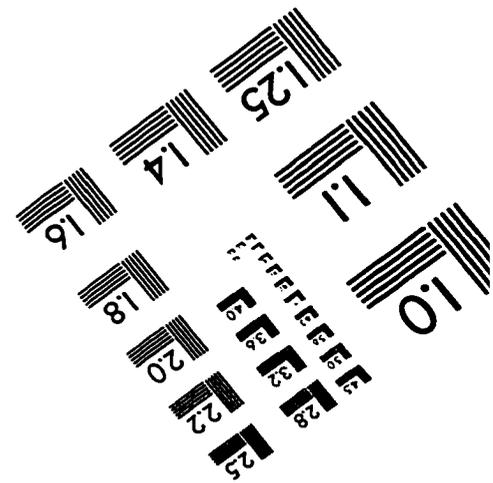
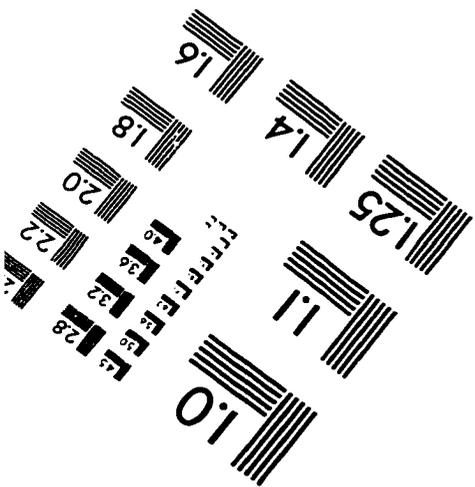
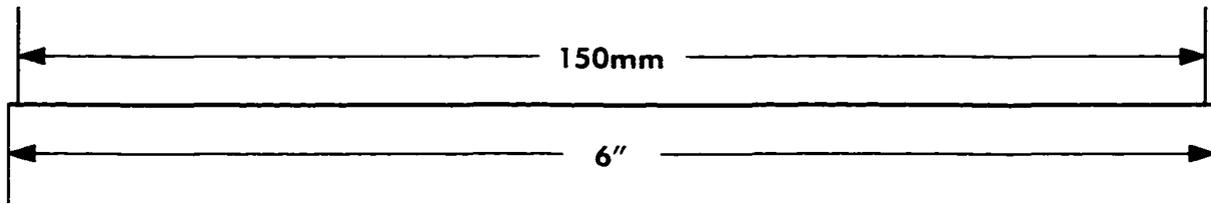
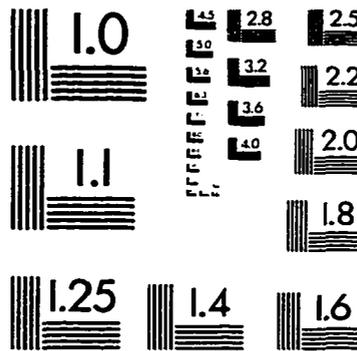
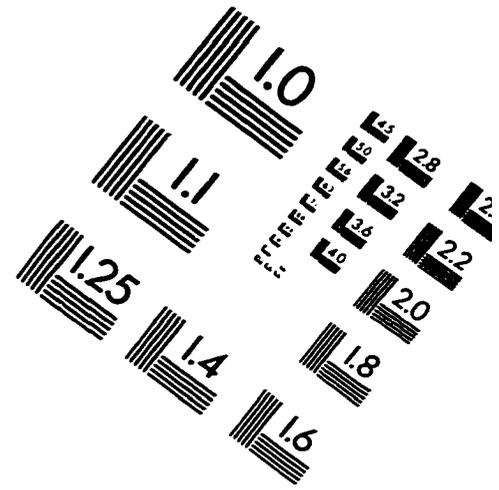
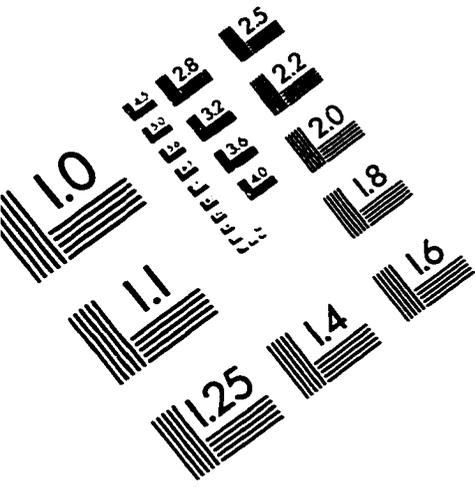
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