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The resource-based and relational views: complementary perspectives of competitive advantage

Joel A. Ryman

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To the Graduate Council:

I am submitting herewith a dissertation written by Joel A. Ryman entitled "The resource-based and relational views: complementary perspectives of competitive advantage." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

William Q. Judge Jr., Major Professor

We have read this dissertation and recommend its acceptance:

Tom Dean, Bruce Behn, Tom Douglas

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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T. J. Dean

Bruce G. Behm

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Associate Vice Chancellor and
Dean of The Graduate School

The Resource-based and Relational Views:
Complementary Perspectives of Competitive Advantage

A Dissertation
Presented for the
Doctor of Philosophy Degree
The University of Tennessee

Joel A. Ryman
August 1999

Dedication

This dissertation is dedicated to my family:

Cynthia, my wife, who provided the loving support

Josiah, Hannah and Nathanael, who provided my

joy and laughter

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Abstract

Two theoretical perspectives that recognize that differences in firm performance are due to differences in resource endowments are the Resource-based View (RBV) (Barney, 1991) and the Relational View (Dyer & Singh, 1998). However, while the RBV focuses on the attributes of resources endowments that reside within the firm, the Relational View asserts that a firm's critical resources can reside outside the firm. The purpose of this research is to examine the Relational View and the Resource-based View as complementary perspectives by exploring the question: *Does the Relational View contribute additional and positive explanatory power to a Resource-based View of competitive advantage?*

This study offered a conceptual model of competitive position as comprised of a firm's *intraorganizational resource position* (the Resource-based View) as well as a firm's *interorganizational resource position* (the Relational View). To test the hypotheses developed from this model, data was gathered from reliable primary and secondary sources relating to resource endowments, integration strategy and organizational performance. This

data was gathered for hospitals (853 hospitals) in 33 of the largest Metropolitan Statistical Areas (MSAs).

Results obtained using regression indicated that the strength of both firms' intraorganizational resource positions as well as their interorganizational resource positions is positively related to performance. Performance was measured with four variables, Return on Assets, Cash Flow Margin, Growth and Market Share. This provided support for the notion that the Relational View provides a needed complementary perspective to the RBV of competitive advantage.

Finally, the study's non-findings indicated that while strategic complementarity was positively related to performance, organizational complementarity did not have the hypothesized moderating effect on the relationship between interorganizational resource position and performance.

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Chapter 1

Introduction

"Strategy is the act of aligning a company and its environment" (Porter, 1991: 97). As environments change, so too must organizations. The process of adjustment to the environment, whether that environment is physical or social (Barnard, 1938) or competitive (Porter, 1980), is a constant and dynamic process. While navigating the organization successfully through the environment is the critical task of management, clearly, some organizations have been able to accomplish this goal and have consequently performed at a higher level than other firms have.

The field of strategy has been concerned with trying to understand why some firms outperform others (Rumelt, Schendel & Teece, 1991). As strategy scholars have searched for differentials in firm performance, they have looked for various sources of competitive advantage.

The first theoretical perspective was the Industrial/Organizational (I/O) economic view which focused on differences in industry structure as the origin of competitive advantage (Porter, 1980). The I/O perspective

on competitive advantage was that above-average organizational performance was a function of a firm's membership in an industry that had favorable industry structure. A favorable industry structure was one that would lend itself to imperfect competition thereby allowing firms to gather monopoly rents (Caves & Porter, 1977). The advised role of managers then was to select domains where the focal firm can enjoy a monopoly position and avoid head-on competition through collusion with other similar firms (Porter, 1980). The I/O view treated all firms as essentially homogeneous, where the key to success was selecting a domain whose structure is conducive to imperfect competitive dynamics whereby monopoly rents can be extracted. Competitive position is established through both entry and mobility barriers and direct, head-to-head competition is avoided (Porter, 1980).

However, avoided competition has become a less viable approach in an increasingly competitive and turbulent environment (D'Aveni, 1994). Munificent domains are becoming increasingly scarce in certain industries thereby forcing firms to become more competitive within their existing markets. Adaptive behavior in response to competitive threats from rivals requires that firms build

defensible positions based on their unique competencies and attributes (Prahalad & Hammel, 1990).

In contrast to the I/O economic perspective, the Resource-based View (RBV) (Wernerfelt, 1984; Barney, 1991) and the Relational View (Dyer & Singh, 1998) argued that differences in firm performance are due to the fact that firms are fundamentally heterogeneous. This perspective held that firms are essentially bundles of resources. Those firms whose resource bundles are valuable, rare and imperfectly imitable will achieve a competitive advantage over the competition and enjoy superior organizational performance (Barney, 1991; Dierickx & Cool, 1989).

While the RBV focuses on resources internal to the firm, the Relational View asserts that resources critical to a firm may reside outside the boundaries of the firm and are created through interfirm linkages (Dyer & Singh, 1998). This perspective emphasizes that firms do not exist in isolation, but exist as parts of larger networks of relationships with buyer and suppliers. Interfirm linkages, such as strategic alliances, create bundles of resources that span firms. These interorganizational resource bundles are potentially important sources of competitive advantage. The role of the manager is to seek out interfirm linkages

that have the potential to generate rents and superior organizational performance.

The Resource-based View and the Relational View have different ideas regarding the origins of competitive advantage and therefore offer different prescriptions to managers on how to achieve an advantageous competitive position. However, while most environmental forces that impact the firms are largely beyond the control of the organizational decision-makers, organizational resources that reside within the boundaries of the firm, or those that span firms are arguably more available to manipulation through economically rational decisions and actions (Oliver, 1997). These resource endowments can be deployed in ways that enable an organization to position itself in the competitive environment (Wernerfelt, 1984) and attain its desired goals.

The selection of an advantageous position in the market, which is the most critical task facing managers, is accomplished through accumulating or acquiring firm resources (Barney, 1991; Wernerfelt, 1984; Peteraf, 1993) or by gaining access to resources through some form of interfirm linkages (Dyer & Singh, 1998; Eisenhardt & Schoonhoven, 1996). Thus, together, the Resource-based View

and the Relational View hold the potential to explain and predict when and why some firms outperform others.

Purpose

Dyer & Singh offer a complementary and potentially an important perspective on the origin of competitive advantage that merits further examination. However rather than treating the Relational View and the RBV as competing theories, Dyer & Singh (1998) suggest that these alternative perspectives are complementary in nature. While the Resource-based View suggests that the internal bundle of resources is the foundation upon which firm-level strategy is both enabled and constrained, the Relational View asserts that interfirm linkages enable firms to enhance their competitive position by gaining access to additional value-creating resources. Together, these theoretical perspectives suggest that firm managers can establish an advantageous competitive position by either acquiring or accumulating resources internal to the firm, or by seeking out relationships with other firms that can offer the needed resources.

Thus, a singular focus on one of these theoretical perspectives to the exclusion of the other may provide an

incomplete notion of competitive position. In addition, such a singular focus may handicap the models we develop to explain firm performance. As Dyer & Singh (1998) note " ... looking for competitive advantage within firms and industries has been (and is still) important, however a singular focus on these units of analysis may limit the explanatory power of the models we develop to explain firm-level profitability" (Dyer & Singh, 1998: 675).

The purpose of this research was to examine the Relational View and the Resource-based View as complementary perspectives of competitive advantage by exploring the question: *Does the Relational View contribute additional and positive explanatory power to a Resource-based View of competitive advantage?*

This study sought to answer this question by offering a conceptual model of *competitive position* as comprised of a firm's *Intraorganizational Resource Position* (the Resource-based View) as well as a firm's *Interorganizational Resource Position* (the Relational View). This approach allowed the researchers to expand the notion of competitive position to include resources that reside both within and outside the firm and to test the effects of this expanded notion of competitive position on

organizational performance.

Contribution

This research attempted to make a contribution to the literature in a several areas. First, it endeavored to build on the Resource-based View as well as the Relational View to conceptually establish the notion of competitive position and to empirically test the relationship between competitive position and performance.

A second contribution, specifically to the Resource-based View literature, was to provide an empirical test of the fundamental theoretical assertion that simultaneously valuable, rare and imperfectly inimitable resources will lead to a competitive advantage and superior performance. While this assertion is fundamental to the Resource-based View, few studies have comprehensively tested all three competitive attributes in a single study.

Finally, this study sought to contribute to the literature by empirically testing the Relational View. This theoretical perspective is a very recent newcomer to the literature and that has not as yet, to the knowledge of these researchers, been tested empirically.

Summary

The field of strategic management has been primarily concerned with the question of why some firms outperform others. Or, stated in an alternative fashion, why some firms are able to establish an advantageous competitive position relative to their rivals. The issue boils down to the question of where the origins of competitive advantage reside. While the I/O perspective has contributed much to understanding the market structure effects on organizational performance, it ignored the fact that firms are unique. Firms are comprised of heterogeneous bundles of resources and capabilities. Competitive advantage emanates from unique and valuable resources.

Two theoretical perspectives that recognize that differences in firm performance are due to differences in resource endowments are the Resource-based View and the Relational View. However these two theoretical perspectives differ with respect to where these valuable resource endowments and capabilities reside. While the RBV focuses on the attributes of resources endowments that reside within the firm, the Relational View notes that a firm's critical resources can reside outside firms. Interorganizational linkages enable allied firms to create

rent-generating resource bundles that span firms.

While both theoretical perspectives offer differing insights into why some firms may outperform others, a singular consideration of one perspective to the exclusion of the other handicaps the ability of to explain and predict organizational performance. This research effort tested the notion that the Resource-based and Relational Views are complementary perspectives of competitive advantage. When combined into a singular notion of competitive position, these two theoretical perspectives provide a more complete assessment of a firm's competitive position thereby enabling an improved ability to predict organizational performance. This dissertation will attempt to contribute to the literature by conducting an empirical examination of the Resource-based View and Relational View within a health care industry context.

Chapter 2

Literature Review

A central question in strategy has traditionally been why some firms succeed while others fail. Much of the work accomplished in the field has explored questions related to this most basic question and has sought to determine what those factors of success are. Historically, the field has offered three basic determinants of success and survival (Porter, 1991).

The first determinant of success was that firms develop and implement an internally consistent set of goals and functional policies that collectively defined its position in the market. Strategy in this context was seen as an integrating function, holding together diverse functions whose primary tendencies were to go their own ways by developing and implementing an overarching strategy (Barnard, 1938; Chandler, 1962; Andrews, 1971).

The second factor for firm success is that this overarching strategy needs to align the firm's internal strengths and weaknesses with the opportunities and threats the environment has to offer. Since the earliest works

in the field, (Chandler, 1962; Rumelt, 1974; Andrews, 1971) the strategic management literature has been concerned with the alignment of the resources of the firm with the environmental pressures. This alignment was a way for the firm to achieve the goals and objectives set forth by its owners or their agents. The environments as well as the capabilities of the organization were viewed as dynamic, requiring constant strategic adaptation. Both the external threats and opportunities as well as the strengths and weaknesses internal to the firm must be appraised through careful analysis (Andrews (1971) and strategies formulated which exploit those opportunities and strengths and reduced exposure to the threats and weaknesses.

The third condition for success was that the firm's strategy must be most concerned with the creation and exploitation of its unique competencies or strengths (Selznick, 1957; Wernerfelt, 1984; Prahalad & Hammel, 1990). While the external environment is largely beyond the control of the organizational decision maker, the unique attributes or resources of the firm are elements through which managers could exercise their choice (Child, 1972). These unique attributes were seen as the sources of sustained competitive advantage and ultimately the survival

of the firm (Barney, 1986, 1991).

In its essence then, strategy is "...the act of aligning a company and its environment" (Porter, 1991; 97). Indeed this notion of alignment is top management's central task. Analyzing the competitive environment and positioning the firm within it so as to gain a competitive advantage relative to competitors leads to superior levels of performance (Porter, 1980, 1985, 1991; Venkatraman & Prescott, 1990). While many of the factors of the external environment have direct and significant effects on a firm's performance they are largely beyond the control of the manager. Organizational resources, on the other hand, have the capacity to create value (Porter, 1985) and they are within the domain of the manager's choice and control. Resources and capabilities are the key weapons in the competitive struggle with rivals because they are the means to create and capture value and to secure a defensible position within the competitive environment (Porter, 1991; Wernerfelt, 1983; Barney, 1991).

Resource-based Theory

The Resource-based View (RBV) of the firm brings a distinctive contribution to the field's understanding of the source of competitive advantage. The RBV is based on

the notion that firms are fundamentally heterogeneous in terms of their resources and capabilities (Barney, 1991; Peteraf, 1993). Firm heterogeneity is defined as "relatively durable differences in strategy and structure across firms in the same industry that tend to produce economic rents and a sustainable competitive advantage (Oliver, 1997: 701).

From the RBV perspective, economic rents are derived from the unique resource attributes of each firm (Barney, 1986). Above-average returns or superior performance, which result from either differentiation or a low-cost position (Porter, 1980), flow from the distinctiveness of the firm's resources and capabilities (Barney, 1986). This puts the RBV squarely in the tradition of strategic management literature which describes the strategy formation process as necessarily beginning with an appraisal of the firm's organizational capabilities and competencies (Andrews, 1971). Those competencies, which are unique or superior, can be matched with some opportunity in the competitive environment (Andrews, 1971; Porter, 1980; Amit & Schoemaker, 1993). Thus, the primary concern of organizational decision-makers becomes the acquisition and application of these resource endowments. While these

decisions regarding resource acquisitions are often economically rational and value maximizing, they are nevertheless subject to decision biases (Amit & Schoemaker, 1993; Zajac & Bazerman, 1991), causal ambiguity (Lippman & Rumelt, 1982; Reed & DeFillippi, 1990) and resource longevity (Dierickx & Cool, 1989; Conner, 1991). These biases often lead to sub-optimal resource acquisition decisions and differences in organizational performance (Oliver, 1997).

The primary focus of RBV research has been on the source and the identification of these "strategic assets" from which a competitive advantage can be obtained. *Strategic assets* are defined as "the set of difficult to trade and imitate, scarce, appropriable and specialized resources and capabilities that bestow the firm's competitive advantage" (Amit & Schoemaker, 1993:36). These strategic assets, when matched with the strategic industry factors, will yield a competitive advantage and superior organizational performance (Amit & Schoemaker, 1993). The process of aligning a firm with its environment is comprised of accumulating or acquiring and deploying these strategic assets. Within the RBV context, the primary role of the manager is to identify, develop, protect and deploy

these strategic assets in a way that provides the firm with a sustainable competitive advantage (Amit & Shoemaker, 1993). Further definition of the components of *strategic assets* may help to illuminate the concept.

Resources are defined as "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm" (Barney, 1991: 101). Based on their origins, they can be classified in physical, capital and human categories (Barney, 1991).

These firm specific resources coupled with firm *capabilities* allow a firm to establish certain defensible "resource positions" within the market (Wernerfelt, 1984). *Capabilities* refer to "a firm's capacity to deploy resources, usually in combination, using organizational processes to effect a desired end (Amit & Shoemaker, 1993: 35). *Capabilities* are those abilities that enable organizations to assemble systems of resources that create and capture value in ways superior to their competition. Or stated alternatively, *capabilities* enable firms to effectively deploy resources to attain a competitive advantage relative to the competition. Those *capabilities* that are at the heart of a firm's competitive advantage and make the strongest contribution to a firm's value creating

activities are its core competencies (Prahalad & Hamel, 1990). These *core competencies* enable a firm to enjoy above-normal financial performance.

Thus, the basic question the RBV attempts to address concerns what combination of resources and capabilities will lead to a competitive advantage (Barney, 1991). *Competitive advantage* is defined as "...implementing a value-creating strategy not simultaneously being implemented by any current or potential competitors" (Barney, 1991: 102). In contrast to *competitive advantage*, **sustained** *competitive advantage* is the effect of "...implementing a competitive strategy, the benefits of which cannot be duplicated by other firms" (Barney, 1991: 102). In order to secure a *sustained competitive advantage*, a firm's resources endowments must have the following attributes (Barney, 1991): value, rareness, imperfect inimitability, and non-substitutability. These attributes determine the extent of resource heterogeneity and resource immobility that is required for a firm to attain a sustained competitive advantage (Barney, 1991) and earn supernormal profits or rents (Grant, 1991; Peteraf, 1993). These Ricardian rents flow from resource combinations that are in limited supply and cannot be readily acquired

through the factor markets (Barney, 1986).

In summary, firms are able to build a competitive advantage over rivals by acquiring or accumulating and then deploying a bundle of strategic assets. These strategic assets are comprised of resources and capabilities that are difficult to trade and imitate, scarce, appropriable and specialized (Amit & Schoemaker, 1993). These resources and capabilities must be both heterogeneous and difficult to imitate in order for them to generate superior economic rents. The following section examines these rent-generating resource attributes in more detail.

Firms are comprised of a bundle of resources. Those firms whose resource endowments are distinctive may be able to establish an advantageous resource position that leads to a superior level of performance. The resource endowments of firms can be characterized with regards to their level of value and rareness. Resources are not valuable in and of themselves, but because they allow firms to perform activities that create advantages in certain markets (Porter, 1991). "However, these resources are relevant only if they can be used to exploit opportunities or neutralize threats in the firm's environment" (Barney, 1991: 106).

Resource Value. Firm resources can only be a source of competitive advantage if they are able to be employed in such a way as to exploit an opportunity or neutralize a threat (Barney, 1991). Each industry has key success factors that represent critical opportunities in the environment (Amit & Schoemaker, 1993).

Certain resources in a firm's portfolio are valuable because they overlap with these market-level success factors. A valuable resource is one that allows the firm to either reduce costs or further differentiate relative to competitors by improving quality or enhancing attractive features (Grant, 1991) thereby enhancing access to markets or influencing customer preferences (Prahalad & Hammel (1990). In this way they are considered valuable because they enable the firm to implement a strategy that improves the efficiency and effectiveness of the firm. If a resource is valuable, it has the potential of yielding superior rates of return (Mahoney & Pandian, 1992).

Resource Rareness. Firm resources must also be rare in order to result in a competitive advantage. Valuable resources possessed by many firms in an industry or market cannot lead to a sustained competitive advantage. Each firm will be able to exploit this same resource in a similar

way. The rareness attribute has been somewhat more problematic in terms of determining what the extent of rareness must be in order to result in a competitive advantage and the enjoyment of rents. However "...as long as the number of firms that possess a particular valuable resource (or bundle of resources) is less than the number of firms needed to generate perfect competition dynamics in an industry (Hirshleifer, 1980), that resource has the potential of generating a competitive advantage" (Barney, 1991; 107). However, relatively higher levels of rareness should result in an increased level of rents firms can expect to attain through the deployment of their endowments of valuable resources.

Resource Imitability. The third resource attribute required to achieve sustained competitive advantage is imperfect resource imitability. If the focal firm is unable to protect its resource endowments from imitation by competitors then, over time, no sustained competitive advantage can be expected. Peteraf (1993) argued for the need to establish ex post limits to competition. "Therefore, subsequent to a firm's gaining a superior (resource) position and earning rents, there must be forces which limit competition for those rents. Competition may

dissipate rents by increasing the supply of scarce resources" (Peteraf, 1993; 182). Limiting ex post competition takes the form of "imperfect imitability" and "imperfect substitutability". 'Isolating mechanisms' are those phenomena that protect the individual firms' resource endowments from imitation (Rumelt, 1984; Peteraf, 1993). These isolating mechanisms are necessary for a firm to maintain the integrity and advantage of its unique resource endowments, or stated alternatively, to maintain a superior resource position in the market or industry. Traditional isolating mechanisms have included history dependence (Lippman & Rumelt, 1982), causal ambiguity (Reed & DeFillippi, 1990) and social complexity (Dierickx & Cool, 1989; Barney, 1986). However, Ghemawat (1986) also argues that inimitable resource positions result from size advantages, preferred access to either resources or customers or by restricting competitors' options (Peteraf, 1993). This categorization of isolating mechanisms is rooted in the notion that advantage emanates from establishing a superior market position relative to buyers, suppliers and existing rivals (Porter, 1980) by controlling the access to and distribution of key resources. These isolating mechanisms (Rumelt, 1987) protect the firm from

imitation by existing rivals or potential rivals. Resource inimitability allows firms to maintain an advantageous resource position and sustain superior organizational performance over time.

Resource substitutability includes the potential use of other resources to fulfill the purpose of a particular resource that are not rare or imperfectly imitable (Barney, 1991). However, due to the difficulty in defining suitable substitutes, some researchers have combined their assessments of substitutability and imitability into a single category (Amit & schoemaker, 1993).

While the RBV has been extensively developed conceptually it has not been extensively tested empirically for validity. However, some empirical work has been accomplished relating the RBV to organizational performance. For example, Robins & Wiersma (1995) found that corporations with high levels of resource-based relatedness between business units outperformed corporations whose business units had lower levels of relatedness. In another empirical study, Mehra (1997) found that resource-based strategic group designations explain a greater share of the variance in performance amongst banking firms than do traditional product market-based

strategic group designations.

The problems related to the measurement of resource attributes as well as the problems related to identifying and measuring resources and capabilities has made the empirical examinations of the primary assertions of this RBV very difficult. One empirical work, however, has successfully and simultaneously tested the effects of all three primary resource attributes (value, rareness and imperfect imitability) on organizational performance (Irwin, Hoffman & Lamont, 1998). This study examined the relationship between the acquisition of technological innovations and organizational performance. It hypothesized that the relationship between technology acquisition and performance would be moderated by value, rareness and imperfect imitability. It found that the acquisition of medical technologies that were simultaneously valuable, rare and imperfectly imitable contributed to higher organizational performance.

Summary

In summary, the RBV asserts that resource value, rareness and imperfect imitability, when present in the characteristics of a firm's resource endowments, enable a

firm to gain an advantage over the competition because they allow the focal firm to establish "resource barriers" which adversaries cannot completely overcome (Wernerfelt, 1984). These attributes essentially allow a firm to establish a superior resource position in the market by erecting resource barriers that inhibit a competitor's ability to imitate and implement the same strategies (Barney, 1991). This superior competitive position enables the focal firm to reap economic rents and to enjoy superior organizational performance.

However, while the RBV has been extensively developed conceptually, the primary tenets have not been widely supported through empirical examination. One of the key assertions of the RBV has been that firms are essentially bundles of heterogeneous resources and that firms "position" themselves within the competitive context by acquiring or accumulating these valuable, rare and difficult to imitate resources. To date, however, no empirical study has tested the basic assertion that a firm that is comprised of a resource bundle that is simultaneously more valuable, more rare and more difficult for rivals to imitate will result in sustained competitive advantage as reflected in superior levels of performance.

Further empirical work is needed to validate in a more comprehensive way these very basic assertions of the RBV.

While the RBV is an insightful theoretical perspective, the research activity surrounding it has focused almost exclusively on its conceptual development as well as identifying resources attributes that can potentially lead to a competitive advantage. What is implicit in the theory, but has not as yet been explored to any significant degree is this notion of competitive position (Chen, 1996). Indeed, the decision made regarding the types of resources to acquire determine where a particular firm is positioned relative to its competitors. The closer a firm positions itself to the competition, the more rivalrous the respective firms are likely to be (Chen, 1997).

While the I/O economics literature has discussed the notion of competitive positioning, the level of analysis has been at the market level and has treated all firms as homogeneous. Strategic group research has sought to address competitive positioning as well, but again, the level of analysis is a group or clustering of firms, not the individual firm. Thus there is significant opportunity to contribute to the literature specifically as it relates to

strategic positioning by developing a RBV notion of competitive positioning. Recent work in the field has begun to explore issues of rivalry and competitive positioning from a RBV perspective (Gimeno & Woo, 1996; Mehra, 1996; Chen, 1997; Gimeno & Chen, 1998). While this work provides a significant theoretical foundation for this study, further conceptual development as well as an empirical examination of the relationship between competitive position and organizational performance is needed.

As noted previously, the focus of the RBV of competitive advantage has been singularly on resources that reside within the firm. However, as Eisenhardt & Schoonhoven (1996) note, a firm in a disadvantageous competitive position will seek linkages with other firms who are endowed with those critical resources it lacks, thereby enhancing its position. Eisenhardt and Schoonhoven (1996) also note that firms in relatively advantageous positions will also seek relationships with other firms as a way to leverage their competitive advantage in an effort to maximize firm profitability. These important observations highlight the fact that competitive positions can be enhanced or solidified through interorganizational linkages. This implies that valuable resources reside not

only within the firm, but also span firms (Dyer & Singh, 1998) and therefore, the notion of competitive position may need to consider resources derived through interfirm relationships.

Chapter 3

Theoretical Framework

The primary focus of strategy scholars has been concerned with explaining differences in firm performance (Rumelt, Schendel & Teece, 1991) by searching for the underlying factors that lead to a competitive advantage. This search has utilized competitor analysis as a means to discern the critical differences that lead a certain firm to enjoy a superior position relative to the rest of its competitors. Indeed, the most critical task of managers is to establish an advantageous competitive position in the market relative to rivals.

As noted in the previous section, the RBV perspective asserts that competitive advantage is a function of the uniqueness of a firm's underlying resource base. Thus an advantageous competitive position is built upon a bundle of value-yielding resources which generate both Ricardian and monopoly rents (Peteraf, 1993; Barney, 1991). The RBV connects performance with a firm's competence in acquiring, accumulating, combining and deploying value-creating resources. In order for a firm to establish and defend an

advantageous market position, it must be able to gain and defend a superior position in the underlying resources which are the critical inputs into the production and distribution of its products or services (Wernerfelt, 1984). While the RBV provides powerful insights into the source of competitive advantage it is nevertheless incomplete in the sense that it ignores the fact that value-creating resources can exist outside the firm and are therefore may be important elements of competitive advantage. The Relational View (Dyer & Singh, 1998) provides a needed complementary perspective to the RBV notion of competitive advantage.

The Relational View

The Relational View (Dyer & Singh, 1998), like the RBV, asserts that competitive advantage results from unique resources that enable a firm to create an advantageous competitive position. However, in contrast to the RBV, the Relational View notes that a firm's critical resources often extend beyond the boundaries of the firm. The focus on resources that reside within the firm ignores the fact that no firm is an island, but is linked in a network of relationships with buyers, suppliers and other rivals (Brandenburger & Nalebuff, 1997). Firms enter into

relationships with partners when they are in a vulnerable competitive position and need resources, or when firms that are in strong social positions want to capitalize on their assets to create alliances opportunities (Eisenhardt & Schoonhoven, 1996).

However, these relationships or "idiosyncratic interfirm linkages", may be a source of competitive advantage and relational rents (Dyer & Singh, 1998). Dyer & Singh define relational rents as "supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners" (1998: 662).

Dyer and Singh note that there are four basic sources of relational rents that can be generated through interfirm linkages. By investing in (1) relation-specific assets, (2) knowledge-sharing routines, (3) complementary resources and capabilities and (4) effective governance mechanisms, allied firms will be able to generate relational rent and superior organizational performance (Dyer & Singh, 1998). The following section examines these determinants in more detail within the framework of the Relational View.

Interfirm Relation Specific Assets. Borrowing from the logic of the RBV, firms can generate a competitive advantage by accumulating or acquiring specialized assets. Alliance partners that invest in relation-specific assets will have a greater potential to generate relational rents. Asset specificity can include *site specificity*, *physical asset specificity* and *human asset specificity* (Williamson, 1985). *Site specificity* refers to a situation where production stages are physically located close to each other. This reduces costs related to inventory, transportation and improves coordination (Dyer, 1996). *Physical Asset Specificity* refers to transaction-specific capital investments that tailor investments to specific exchange partners. In previous studies, *physical asset specificity* has been shown to improve product differentiation (Clark & Fujimoto, 1991). *Human Asset Specificity* refers to relation specific knowledge that is transacted through long-term relationships. An example of this might perhaps be the existence of engineers who are solely dedicated to learning the requirements of large buyers. This specialization enables the relationship to accumulate specialized information and knowledge that allows each side to communicate more quickly and with fewer

errors (Dyer, 1996; Asanuma, 1989).

These three types of asset specificity represent "nonrecoverable investments". Parkhe (1993) found that in a study of strategic alliances that the greater the number of such "nonrecoverable investments", the greater the performance level of the strategic alliance. The dedicated investment are typically resources that have few alternative uses and therefore represent sunk costs both partners are eager to recoup.

Two additional factors are noted as having an effect on a firm's ability to generate relational rents from investing in relation-specific assets. First, in order to protect against the opportunism of partners, safeguards in the form of governance mechanisms must be of sufficient length to provide the incentives for firms to invest in relation-specific assets.

Second, the greater the volume of exchange between partners, the greater the potential for the relationship to generate relational rents. The logic driving this assertion is one of economies of scale and learning curve effects. The greater the volume of interaction, the more efficient the transactions become, and the greater the opportunity for relational rents.

Interfirm Knowledge-Sharing Routines. Dyer & Singh define an interfirm knowledge-sharing routine as "a regular pattern of interfirm interactions that permits the transfer, recombination, or creation of specialized knowledge" (1998: 665). Organizations learn through collaborative efforts with other organizations. By institutionalizing these interfirm knowledge transfer processes, firms can improve the flow and dissemination of valuable knowledge.

The ability of these interfirm knowledge transfers to generate rents is dependent on the partner-specific absorptive capacity and the degree to which incentives are designed to encourage transparency and reciprocity in information sharing. *Partner-specific absorptive capacity* refers to "the idea that a firm has developed the ability to recognize and assimilate valuable knowledge from a particular alliance partner" (Dyer & Singh, 1998: 665).

Complementary Resource Endowments. The third way in which firms can generate relational rents is through "leveraging" the complementary resource endowments of an alliance partner. Complementary resource endowments are defined as "distinctive resources of alliance partners that collectively generate greater rents than the sum of those

obtained from the individual endowments of each partner" (Dyer & Singh, 1998: 666-667). Alliances allow firms access to assets and capabilities that are not easily obtain in factor markets (Oliver, 1990) and enable firms in disadvantaged competitive positions to improve their competitive stature (Eisenhardt & Schoonhoven, 1996).

The combination of two or more firms' bundles of unique resources creates an interfirm resource bundle that is more valuable, more rare, and more difficult to imitate than before the individual resource bundles were combined. Consequently, the interfirm resource bundle enables each firm to enjoy a stronger competitive position (Dyer & Singh, 1998; Eisenhardt & Schoonhoven, 1996).

An example of the leveraging of complementary resources of partners to generate relational rents is the cooperative relationship between Coca-Cola and Nestea to market canned tea and coffee in Japan. This alliance combines the reputation and expertise of Nestea in producing soluble high quality teas and coffees with the powerful international distribution and vending machine network of Coca-Cola. The relationship created advantages over Suntory, a very well entrenched and dominant domestic company in the Japanese beverage industry. While Suntory

had a larger and more extensive distribution system than Nestea and was better at making soluble teas and coffees than Coca-Cola, it could not match the combined strengths of Nestea and Coca-Cola (Hamel & Prahalad, 1994).

The authors note that not all resources will be complementary. Only those resources in the bundles of each firm that are "synergy sensitive" will lead to the generation of relational rents. Thus, "the greater the proportion of "synergy sensitive" resources owned by alliance partners that when combined, increase the degree to which the resources are valuable, rare and difficult to imitate, the greater the potential will be to generate relational rents" (Dyer & Singh, 1998; 667).

However the ability for firms to capture rents through the linking of complementary resource bundles depends on prior alliance experience, the investment in search and evaluation of potential linkages, and occupying an "information rich position in its social/economic networks" (Dyer & Singh, 1998: 668). Also, the ability to capture relational rents depends on the degree of compatibility in the respective culture and organizational processes. Dyer & Singh term this organizational fit as "organizational complementarity" (1998: 668).

Effective Governance. Governance structures or safeguards against opportunism must be appropriate for an alliance to generate relational rents (Williamson, 1991). The authors note that governance structures must be properly applied to the relationship to provide the incentives for the relationship to maximize the potential of value creation and the generation of economic rents. Informal and self-enforcing (trust) rather than formal and third-party (legal contracts) safeguards provide the governance mechanisms that will best aligned with the value-creating goals of the alliance and will therefore enable the relationship to generate relational rents.

Self-enforcing safeguards (trust or investment hostages) rather than third-party (legal contracts) will hold greater potential to generate relational rents because they lower transaction costs and provide superior incentives for value-creation and are more difficult to imitate (Dyer & Singh, 1998).

Formal mechanisms include financial or investments in cospecialized assets. These types of safeguards represent a "visible collateral bond that aligns the economic incentives of each partner" (Dyer & Singh, 1998: 669). If either of the partners misbehaves, the value of the

"economic hostage" will decline. If both partners engage in value-creating behavior, then the joint investment will appreciate.

Summary

In summary, the Relational View asserts that resources critical to a firm may reside outside the boundaries of the firm and are created through interfirm linkages (Dyer & Singh, 1998). This perspective emphasizes that firms do not exist in isolation, but exist as parts of larger networks of relationships with buyers and suppliers. Interfirm linkages, such as strategic alliances or joint ventures, create bundles of resources that span firms. These interorganizational resource bundles are potentially important sources of competitive advantage. The role of the manager is to seek out interfirm linkages that enable a firm to establish a more advantageous competitive position in the market. Thus the Relational View may provide the needed complementary perspective to the incomplete RBV notion of competitive advantage.

Both the RBV and the Relational View emphasize valuable resources as the origin of competitive advantage. What contrasts the two perspectives is where these value-

creating resources reside. As noted previously, The RBV focuses on valuable, rare and imperfectly imitable resources that reside *within* the firm (Barney, 1991). The Relational View notes that firms do not exist in a vacuum but are instead parts of larger networks of firms (Dyer & Singh, 1998). Interfirm linkages that share knowledge, combine resources, build relation-specific assets and employ effective governance mechanisms to the relationships will generate relational rents and superior organizational performance.

This study will assert that these perspectives are complementary and that joint consideration of these theories is necessary in order to capture a more complete notion of competitive position. Together, these theoretical perspectives suggest that firm managers can establish an advantageous competitive position by acquiring resources internal to the firm and by seeking out relationships with other firms that have those resources the focal firm lacks. Focusing on one of these theoretical perspectives to the exclusion of the other may provide an incomplete notion of competitive position and therefore may handicap the models we develop to explain firm performance.

The purpose of this research was to examine the

Relational View and the Resource-based View in a complementary fashion by exploring the question: *Does the Relational View contribute additional and positive explanatory power to a Resource-based View of competitive advantage?*

This study addressed this question by offering a conceptual model of competitive position as comprised of a firm's *Intraorganizational Resource Position* (the Resource-based View) as well as a firm's *Interorganizational Resource Position* (the Relational View). This approach allowed the researchers to expand the notion of competitive position to include resources that reside both within and outside the firm. In addition, this study asserted that this expanded notion of competitive position provides increased power to predict organizational performance.

Hypotheses

Intraorganizational Resource Position and Performance.

The Resource-based View (RBV) of the firm asserts that competitive advantage is derived from the unique resource attributes of the firm (Barney, 1991). Above-average returns or superior performance, which result from either differentiation or a low-cost position (Porter, 1980), flow from the distinctiveness of the firm's resources and

capabilities (Barney, 1986). Thus, the primary concern of organizational decision-makers becomes the identification, acquisition and effective application of these resource endowments in response to an environmental threat or opportunity.

In this sense, strategy is really all about "firm-building". Firms are, in essence, intraorganizational bundles of resources built by the acquisition and accumulation of resources and competencies. Establishing an advantageous *Intraorganizational Resource Position* requires the accumulation of a portfolio of inter-related resources that are both heterogeneous and inimitable relative to the competition.

The role of the manager is to decide where to position the firm relative to competitors and to acquire the resources to do it. While there may be benefits related to locating the firm close to competitors (Foss & Erikson, 1995), the RBV has advocated a heterogeneous resource accumulation approach as the way to establish a superior competitive position.

An advantageous *Intraorganizational Resource Position* is one where the focal firm can employ its unique value-creating resource endowment to create and implement

strategies that cannot be imitated by competitors thereby leading to a sustained competitive advantage. Thus, the underlying resource bundles enable firms to derive strategies that differentiate themselves from the competition. This differentiation reduces head-to-head rivalry and damaging price competition (D'Aveni, 1994).

Rivalry in the RBV context is a function of the relative similarity of the respective resource endowments of competitors in a market (Chen, 1997) as well as the strategic deployment of those resource endowments (Gimeno & Woo, 1996). The greater the similarity of each firms' respective bundle of resources, the greater the likelihood of damaging head-to-head rivalrous behavior. This is due to the fact that firms with comparable resource endowments are likely to have similar capabilities and vulnerabilities. None of the firms can conceive of and implement a strategy that cannot be readily duplicated by a rival firm and so firms within that particular market will likely engage in damaging price-related competition. In other words, their respective *Intraorganizational Resource Positions* are not significantly differentiated.

Firms with distinctive *Intraorganizational Resource Positions* will be able to forge stronger competitive

positions in the market, secure a significant competitive advantage, and enjoy superior organizational performance. Thus, the *Intraorganizational Resource Position* is essentially a measure of the extent to which firms' resource bundles differ. The firm's *Intraorganizational Resource Position* is defined by a bundle of unique resources. The attributes of each firm's resource bundle then become critical in determining the relative strength of each firm's *Intraorganizational Resource Position*. The RBV asserts that the attributes of the firm's resource endowments are the primary determinants of competitive advantage (Barney, 1991). The RBV is particularly instructive as to which attributes lead to a competitive advantage. In order for a firm's particular resource portfolio to generate a competitive advantage, the resources must be heterogeneous relative to the competition and they must be imperfectly inimitable (Barney, 1986; 1991).

Resource Value. Barney (1986) further delineated the determinants of resource heterogeneity. The first determinant is *value*. In order for a resource or portfolio of resources to yield a competitive advantage, it must address some opportunity in the environment (Amit &

Schoemaker, 1993) thereby creating value for the customer. If a resource is valuable, it has the potential of yielding superior rates of return (Mahoney & Pandian, 1992). A valuable resource is one that allows the firm to either reduce costs or further differentiate relative to competitors by improving quality or enhancing product features. Each industry has key success factors that represent critical opportunities in the environment. Each of these opportunities is due to market imperfections resulting from the complex interactions among industry rivals, new entrants, customers, regulators, innovators and suppliers (Amit & Schoemaker, 1993). These market imperfections indicate that not only is there asymmetrical information in the market place it also indicates that firms cannot instantly adjust their stocks of resources. If firms could instantly shift or acquire the asset stocks to address these opportunities then establishing a competitive advantage would be impossible, even a very temporary competitive advantage. However, certain resources in a firm's portfolio are valuable because they overlap with or fulfill those market-level success factors.

Simply accumulating valuable resources is not a sufficient condition to establish a superior

intraorganizational resource position. The bundle of resources accumulated or acquired that comprise the firm must be **more valuable** relative to the rest of the competitors in the market in order for the focal firm to enjoy a competitive advantage and superior performance. Achieving parity in terms of the level of resource value with the competition does not represent an advantageous resource position. Parity only guarantees average organizational performance.

Resource Rareness. Resources must also be rare in order for the firm to generate a strong *Intraorganizational Resource Position*. Clearly, if resources are readily available to all market or industry participants, then all could conceive and implement the same strategies thereby eroding any advantages gained from having a particular resource. This would essentially be competitive parity (Barney, 1991). In such a situation, a competitive advantage would not be possible. However, as long as the number of firms that possess a particular resource is less than the number of firms needed to generate perfect competition, a particular resource has the potential to generate a competitive advantage (Barney, 1991). Resources that are both more valuable and more rare relative to rival

resource endowments will allow a firm to enjoy a competitive advantage and has the potential to generate rents and superior organizational performance.

Resource Imitability. The third resource attribute required to achieve sustained competitive advantage is resource *inimitability*. Valuable and rare resources can be sources of competitive advantage only if firms that do not possess them face a cost disadvantage in obtaining them (Barney, 1986). If the focal firm is unable to protect its resource endowments from imitation by competitors then no sustained competitive advantage and rent generation can be enjoyed, only temporary rents can be expected. 'Isolating mechanisms' are those phenomena that protect the individual firms' resource endowments from imitation (Rumelt, 1984). These isolating mechanisms may include unique historical conditions (Barney, 1991); causal ambiguity (Dierickx & Cool, 1989; Reed & DeFillippi, 1990); social complexity (Barney, 1986); and patents (Rumelt, 1984). Each firm's respective resource bundle contains resources that vary with respect to the level of *inimitability*. Again, what is critical is that the level of *inimitability* of the focal firm's resource bundle be higher relative to that same attribute in the respective resource bundles of all the

other rival firms.

In summary, resource value, rareness and inimitability, when present in the characteristics of a firm's resource endowments, enable a firm to gain an advantage over the competition because they allow the focal firm to establish a distinctive competitive position. These attributes allow a firm to establish a superior *Intraorganizational Resource Position* in the market by erecting resource barriers that inhibit a competitor's ability to imitate and implement the same strategies (Barney, 1991; Barney, McWilliams & Turk, 1989; Wernerfelt, 1984). As the RBV predicts and Figure 3.1 depicts, the greater the relative strength of the bundle of resources that reside **within** the firm, with regards to value, rareness and inimitability, the more advantageous its *Intraorganizational Resource Position* and subsequently, the higher its organizational performance.

Hypothesis 1: The strength of the firm's Intraorganizational Resource Position is positively related to Organizational Performance.

Interorganizational Resource Position and Performance.

The previous discussion on the Resource-based View highlighted the fact that the primary focus of this

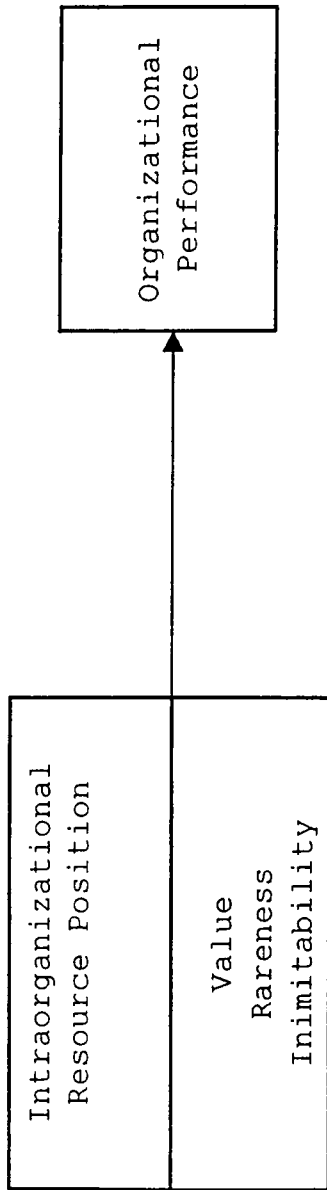


Figure 3.1
Intraorganizational Resource Position and
Organizational Performance

theoretical perspective is on the resources that reside within the firm. The previous discussion also noted that this perspective is incomplete because it ignores the contextual realities that exist outside the firm.

Firms exist as part of a larger competitive context as parts of networks of buyers and suppliers, joined together through various forms of interorganizational linkages (Auster, 1990) or relationships (Oliver, 1990). Interorganizational relationships or linkages are defined as "...the relatively enduring transactions or flows that occur between an organization and one or more organizations in its environment" (Oliver, 1990, p. 241). These relations are formed to facilitate the transfer, exchange, develop or produce technology, raw materials, products or information between two or more organizations (Auster, 1990).

Therefore, the Resource-based View ignores the value-creating resources that exist outside the firm in the way of interorganizational linkages of resource endowments. In doing so, the RBV ignores potential sources of competitive advantage. In an effort to address this shortfall, this research includes the Relational View (Dyer & Singh, 1998) as a needed complementary perspective to the Resource-based View of competitive advantage.

The Relational View recognizes that some of a firm's critical resources may reside outside the firm. Firms that link their resource bundles with other market players in unique ways create resources that may generate significant rents. These "relational" rents are the result of synergistic combinations of assets, capabilities and knowledge (Dyer & Singh, 1998).

Strategic alliances (Oliver, 1997; Oliver, 1990) or outright merger and acquisitions (Wernerfelt, 1984) enable firms to link their resource endowments to the complementary resource endowments of allied firms to create rent-generating combinations of assets, capabilities and competencies. These combinations of complementary resources determine a firm's *Interorganizational Resource Position* in a market and its subsequent ability to either capture relational rents or reduce transaction costs. Complementary resource endowments are defined as "...distinctive resources of alliance partners that collectively generate greater rents than the sum of those obtained from the individual endowments of each partner" (Dyer & Singh, 1998: 666-667). Interorganizational linkages enable firms to obtain assets, competencies and capabilities that are not readily available in the competitive factor markets (Oliver, 1997).

Each firm must then bring to the partnership a distinctive set of resources so that when combined, the relationship creates a combination of resources that are typically difficult to secure through factor market transactions. These rent-generating combinations result from "...synergistic effects whereby the combined resource endowments are more valuable, rare and difficult to imitate than they had before they were combined (Dyer & Singh, 1998: 667)."

Those linkages where partners bring to the relationship distinctive and complementary resources lead to a stronger competitive position for both firms (Dyer & Singh, 1998). This competitive position, in contrast to the RBV, relates to critical resources that have come about through the integration of participant firms' core resources. In the Relational View, integration strategies serve to establish a firm's *Interorganizational Resource Position*. The stronger and more complementary the resource linkages that a firm establishes with other firms, the more advantageous the focal firm's *Interorganizational Resource Positions* will be, and subsequently, the higher its performance.

The strength of the *Interorganizational Resource*

Position is determined by the level of complementarity of the separate resource bundles that are combined in unique ways. In order for an alliance to generate relational rents, that partner must have resources that is "synergy sensitive" with the focal firm's resources (Dyer & Singh, 1998). As the proportion of synergy sensitive resources held by a potential partner increases, so too does the potential that some type of integration between it and the focal firm will generate relational rents. In other words, the complementarity of the firms' respective resource endowments is sufficient to allow each of the cooperative firms to reap either lower transaction costs or relational rents. An interorganizational linkage is essentially a linkage of the respective resource bundles of each party. These linkages enable a firm to do things they could not normally accomplish on their own by joining or combining the resources and capabilities of the partner firms. In this way, interorganizational linkages allow participant firms to establish stronger competitive positions in the market by creating an interfirm resource bundle that is more valuable, more rare and more difficult for competitors to imitate (Dyer & Singh, 1998).

Complementary resource endowments are defined as

"...distinctive resources of alliances that collectively generate greater rents than the sum of those obtained from the individual endowments of each partner (Dyer & Singh, 1998). Therefore, the higher the level of resource complementarity, the greater the potential for these linkages to create relational rents and improved performance.

While the Resource-based View and the Relational Views offer contrasting viewpoints as to the origins of competitive advantage and economic rents, they are complementary in nature. Firms exist as parts of broader networks of firms. The linkages between buyer and suppliers provide conduits through which resources flow. To firms in disadvantageous *Intraorganizational Resource Positions* these linkages provide sustaining flows of critical resources. Conversely, firms in relative advantageous *Intraorganizational Resource Positions* seek to solidify their positions by leveraging their superior position within the relationship to capture additional economic rents (Dyer & Singh, 1998; Eisenhardt & Schoonhoven, 1996).

In summary, conceptually, both perspectives contribute to a more complete notion of competitive position. Firms in disadvantageous competitive positions will seek linkages

with other firms who have the resources they lack, while firms in relatively advantageous resource positions will also seek relationships with other firms as a way to leverage their competitive advantage to extract greater economic rents (Eisenhardt & Schoonhoven, 1996). And, as Dyer & Singh (1998) assert, this complementary approach should yield models that generate greater explanatory power of firm performance. These observations yield the following hypothesis.

Hypothesis 2: *Given the firm's Intraorganizational Resource Position, the strength of a firm's Inter-organizational Resource Position is positively associated with organizational performance.*

Moderating Effects of Organizational Compatibility. In the Relational View of competitive advantage, the role of the manager is to seek out relationships with firms whose resource bundles complement those of the focal firm and to establish an integration of the resource endowments. This search is focused on the strategic complementarity of resources. However, organizational complementarity is also essential to the success of an interorganizational relationship. *Organizational Compatibility* is defined as "the organizational mechanisms necessary to access the

benefits from complementary strategic resources" (Dyer & Singh, 1998, p. 668).

Organizational compatibility or organizational fit (Jemison & Sitkin, 1986) is distinct from strategic fit. While strategic fit is concerned with the complementarity of resources, organizational fit is related to organizational processes. These organizational processes include culture, decision-making processes, and information and control systems. Generally speaking, the greater the compatibility of the respective organizational frames of reference, the more likely the cooperative organizations will be able to capture the value of the synergies created through the interorganizational linkage. Common frames of reference enable firms to appropriate knowledge (Teece, 1977) and learn from the relationship. Common frames of reference and compatible organizational processes expedite the flow or exchange of information, technology and raw materials in such a way that participant firms are able to capture the value of the relationship.

Much of the research accomplished in this area has been related to international interorganizational relations and national culture (Park & Ungson, 1997). The more distance or difference there is between the national

cultures of international partners, the greater the difference in their organizational compatibility (Kogut & Singh, 1988) While the context of this research is international in nature, the lessons may potentially apply to interorganizational relationships between domestic organizations.

Indeed, Buono and Bowditch, (1989) found that the primary reason interorganizational relationships fail to meet their objectives is that the participant firms do not have compatible operating systems, decision-making processes or cultures. Dyer & Singh note that "although complementarity of strategic resources create the potential for relational rents, the rents can only be realized if the firms have systems and cultures that are compatible enough to facilitate coordinated action" (1998, p.668). This seems to suggest that Organizational compatibility has a moderating influence on the relationship between *Interorganizational Resource Position* and *Organizational Performance*. This suggests the following hypothesized relationship, which is shown in Figure 3.2.

Hypothesis 3: *The relationship between Interorganizational Resource Position and Organizational Performance will be stronger when Organizational Compatibility is high.*

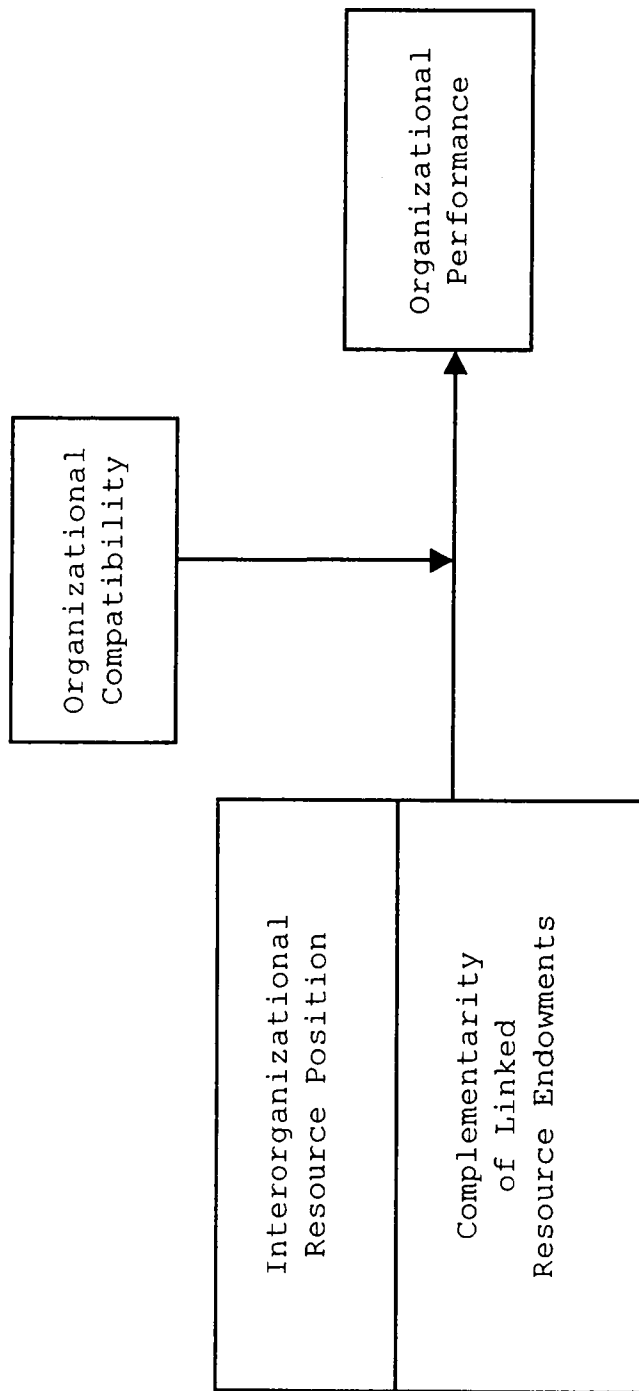


Figure 3.2
Organizational Compatibility as a Moderating Effect on
Interorganizational Resource Position and Performance

Summary of Hypotheses

The following figure (Figure 3.3) depicts the relationships hypothesized in the preceding theoretical development. While both the Resource-based View and the Relational View present different ideas regarding the source of competitive advantage, they are both concerned with establishing an advantageous competitive position.

The RBV is concerned with establishing a superior *Intraorganizational Resource Position*. The RBV asserts that the attributes of the resources that reside **within** the firm are indicative of organizational performance. Firms, whose resource bundles are more valuable, more rare, and more difficult to imitate have established a superior *Intraorganizational Resource Position* and will subsequently enjoy performance levels that exceed those of the competition.

The Relational View, on the other hand, offers a different idea regarding the source of rents and superior organizational performance. The Relational View observes that critical firm resources reside **outside** the firm. Interfirm resource linkages between buyer, suppliers and even rival firms can create synergistic effects that

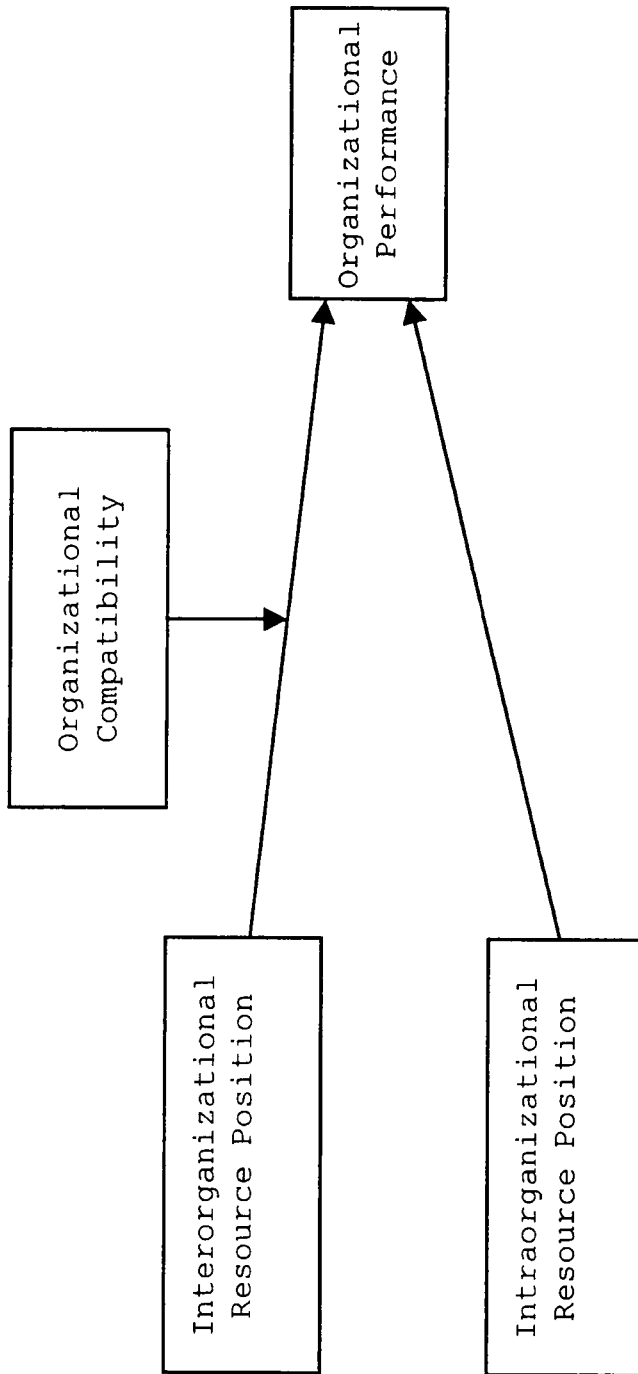


Figure 3.3
The Resource-based and Relational Views
of Competitive Advantage

generate relational rents and higher levels of firm performance. Firms that are able to identify and link with partners whose resource bundles are complementary will be able to establish a strong *Interorganizational Resource Position* and enjoy superior performance.

In addition, this research asserted that Organizational Compatibility influences the ability of partners to capture the anticipated relational rents from the interorganizational linkage. Similar organizational processes are necessary to expedite the exchange or flow of knowledge or product.

Thus, both the Resource-based View and the Relational View lend valuable insights into aligning the firm with its competitive environment to achieve a competitive advantage. Conceptually combining them into a complementary perspective on competitive position will yield models that have a greater ability to explain organizational performance. The combination of these two important theoretical perspectives into a singular notion of competitive position may provide a valuable contribution to the strategic management literature as well as assist managers in more practical applications.

The RBV is an established theoretical perspective while the Relational View is a more recent addition to the strategic management literature. The literature would benefit from an empirical examination of their respective assertions. In addition, An overview of the research methodology to used test the hypotheses asserted in this section follows.

Chapter 4

Methodology

Sample

Since this work focuses on competitive positioning and therefore on the firm's relationship to its competitive environment, it is important to firmly establish the appropriate environmental context (Dess, Ireland & Hitt, 1990). In order to accomplish this, our study was conducted within a single industry, the General Medical Hospital (SIC 8062) industry. This focus on the General Medical Hospital industry has a number of advantages.

First, by focusing on a single industry, we can control for the general environmental factors that affect the market as a whole. This approach allows us to compare organizations that face similar general environmental constraints while varying the task environment. Approaching the study in this way also avoids the tendency to over generalize (Ginsberg, 1988).

Second, because the primary concern of this research was to test the relationship between a firm's competitive position and its performance it was also important to account for the competitive environment. This is best

accomplished by selecting an industry that delivers its products/services within a readily definable market. Previous work on rivalry and competitive positioning has noted the importance of establishing the market context when examining competitive position (Chen, 1997; Gimeno & Chen, 1998). The hospital industry delivers its services within a readily definable geographic area where rivals are clearly identifiable (Ketchen, Thomas & Snow, 1993).

Third, to adequately test the assertions of the RBV and the Relational View, data related to resource bundles and integration strategies must be available on all the relevant competitors, not just a limited sample. Due to the comprehensive and stringent data collection efforts by government agencies, there is a comprehensive collection of high quality data on the hospital industry that allowed us to adequately explore this issue.

The fourth reason why this research selected the hospital industry as the focus of this study is that the health care industry is a very significant part of the U.S. economy. Total spending on health care in 1996 was \$1 trillion (13.6 percent of the Gross Domestic Product (GDP)). This total is expected to grow to \$2.1 trillion by the year 2007 (16.6 percent of GDP) (Health Care Financing

Administration, 1997).

Fifth, in contrast to the majority of industries examined in the strategic management literature, the hospital industry is a service-based industry. Researchers have begun to realize that the competitive dynamics of service industries are significantly different from those in manufacturing industries (Quinn, 1992). Services are becoming an ever-increasing portion of the U.S. economy. The service sector of the economy comprises approximately 74% of gross domestic product and 79% of national employment (Quinn & Bailey, 1994).

Sixth, testing our model within the hospital industry will enable us to build upon other studies that have previously used the hospital industry (Ketchen, Thomas & Snow, 1993; Miles & Snow, 1978; Zajac & Shortell, 1989; Kaluzny & Zuckerman, 1992; Zajac & D'Aunno, 1990).

The final reason, and perhaps the most important one, is that the health care industry is going through a transition from being an industry that was fairly insulated from competition to one where competition is the primary force in its evolution. One of the critical success factors in the increasingly turbulent industry is establishing a differentiated competitive position. It has become

critically important that hospital administrators, under pressure from rivals and powerful buyers, seek and maintain differentiated competitive positions within the market context they find themselves in.

As noted in the previous section, the *Intraorganizational Resource Position* focuses on the bundle of resources that are contained within the firm. Firm managers must identify, acquire or accumulate valuable resources that enable them to establish an advantageous *Intraorganizational Resource Position*. Decisions regarding resource acquisition in the hospital industry are strategic in nature (Teplensky, Pauly, Kimberly, Hilman & Schwartz, 1995).

The *Interorganizational Resource Position* focuses on creating a valuable resource bundle through interfirm linkages. These resource bundles, which span firms, are created through strategic alliances or through linkages between SBUs and can improve a firm's competitive position (Eisenhardt & Schoonhoven, 1996). In the hospital industry, strategic alliances are becoming increasingly prevalent as firms seek to improve their competitive position (Kaluzny & Zuckerman, 1992). A brief review of the evolution of the health care industry follows.

Historical Review of the Focal Industry. Throughout the first eighty years of this century competition in the hospital industry was minimal and orderly. Institutional concerns, not competitive issues, influenced the strategic decisions of hospitals. In the early 1980's, the health care industry underwent a significant environmental jolt (Meyer, 1982). The Medicare program's Prospective Payment System (PPS) was implemented in an effort to control the rampant growth of health care costs (Shortell, Morrison & Friedman, 1990; Zajac & Shortell, 1989). The PPS provided the impetus for other approaches to health care cost containment. Continued concern over the steady and significant rise in health care costs prompted policy makers to propose managed care. Managed care, in the form of Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), introduced strong market forces into an industry that previously was governed by pressures to conform, not to compete (Meyer, Brooks, & Goes, 1990). The managed care revolution pushed hospitals into a turbulent, competitive environment. Hospitals were no longer just in the business of mimicking neighboring hospitals, but were now forced to focus on the bottom line and to fight for survival with other hospitals. From the

managed care perspective of health care reform, this increased competition is necessary to contain costs (Christianson & McClure, 1979, Enthoven, 1978).

The competition among hospitals has continued to become ever more acute as rivals vie for physicians, patients and managed care contracts. While various markets throughout the United States are at different stages in the evolution of market-driven health-care, the hospital industry is an uncertain, turbulent environment where hospitals are searching for ways to distinguish themselves from the competition by establishing differentiated competitive positions in the market.

The increased competition has forced many hospitals out of business. Between 1987 and 1994, over 700 acute care hospitals closed their doors (Gerson & Vernarec, 1997). This is roughly 12% of short-term acute care hospitals. Even now, approximately 25% of hospitals are losing money so the numbers of hospital closures are expected to increase (Gerson & Vernarec, 1997). However, many other hospitals have responded to the challenge by seeking creative ways to compete. Hospitals have built complex organizations that provide an array of services that includes not only acute inpatient hospital care, but also

ambulatory care, home health care as well as nursing homes. Hospitals have formed networks of services that include linkages with other hospitals as well as linkages with health care providers both upstream and downstream from them.

The threat to hospitals is becoming ever more intense. Hospital administrators are searching for ways to combat increasing rivalry by seeking and building an advantageous competitive position in the market. The Resource-based and Relational Views provide complementary perspectives on how to establish an advantageous competitive position. The hospital industry provides an excellent context in which to empirically examine the fundamental assertions of these two theories. The following sections provide details into the variables and measures used as well as explain how this study was conducted. The design of the research study will be explained followed by a description of the measures utilized in this study.

Research Design

The data collection effort for this dissertation had two parts. The first phase of the data collection effort consisted of gathering secondary data pertaining to

hospital resource endowments, integration strategy, and financial performance. The second phase of the data collection consisted of administering a questionnaire to six hospital industry experts.

The questionnaire asked the six experts to evaluate sixty hospital resources on the basis of their relative levels of *Value* and *Inimitability*. The responses of the survey were then combined with the archival data. Subsequently, the combined data were analyzed using techniques appropriate to the research question.

Data Collection

Data related to resource endowments, tax status and performance was obtained from the 1995 American Hospital Association's (AHA) Annual Survey of Hospitals as well as the American Hospital Directory. Data related to integration strategies was obtained from the Health Strategy Group's 1996 Integrated Delivery Systems Directory.

These data were gathered for 33 large hospital markets as measured by the Metropolitan Statistical Areas (MSA). The MSA is the appropriate definition of market because hospitals typically compete within a limited geographical

region (Ketchen, Thomas & Snow, 1993). This sampling included 853 general medical hospitals. Veteran's Administration and military-base hospitals were excluded from the sample. This exclusion was necessary to limit the sample to only those hospitals, within each market, that are mutually subject to private sector competitive interaction and rivalry (Ketchen, Thomas & Snow, 1993).

While the 33 hospital markets selected were a convenience sample, they represented just over half the population of the U.S. These 33 markets, shown in Table 4.1, were selected on the basis of the availability of data related to the integration strategies of hospitals. Increasingly, hospitals are forging linkages with physicians, insurers and other health care providers outside the hospital industry into vertically integrated systems of care. The advent of Integrated Delivery Systems (IDS) is a relatively new and important evolution in the hospital industry so up until very recently, no comprehensive data on IDS was available.

The fact that this sample pulled from only the largest MSAs in the U.S. may raise concern regarding the representativeness of the sample. This sample excludes rural hospitals as well as hospitals in smaller MSAs.

Table 4.1
MSA Summary

| MSA Name | Number of Hospitals | Beds | Population |
|------------------------|---------------------|--------|------------|
| 0200 Albuquerque | 7 | 1,575 | 620 |
| 0520 Atlanta | 35 | 7,658 | 3,100 |
| 0720 Washington DC | 22 | 7,733 | 6,800 |
| 1120 Boston | 9 | 2,969 | 5,400 |
| 1520 Charlotte | 82 | 23,918 | 1,200 |
| 1600 Chicago | 15 | 4,486 | 8,400 |
| 1640 Cincinnati | 32 | 8,727 | 1,900 |
| 1680 Cleveland | 32 | 6,496 | 2,900 |
| 1920 Dallas/Ft Worth | 7 | 1,407 | 4,200 |
| 2080 Denver | 12 | 3,078 | 2,100 |
| 2160 Detroit | 40 | 10,358 | 5,200 |
| 3360 Houston | 32 | 8,191 | 4,000 |
| 3480 Indianapolis | 18 | 4,764 | 1,400 |
| 3760 Kansas City | 27 | 5,348 | 1,600 |
| 4480 Los Angeles | 81 | 23,316 | 15,100 |
| 4520 Louisville | 12 | 3,369 | 1,000 |
| 5000 Miami | 21 | 7,873 | 3,300 |
| 5080 Milwaukee | 17 | 3,264 | 1,600 |
| 5120 Minneapolis/St.Pa | 28 | 5,843 | 2,600 |
| 5360 Nashville | 14 | 4,197 | 1,020 |
| 5600 New York | 56 | 21,980 | 19,700 |
| 5960 Orlando | 8 | 1,733 | 1,300 |
| 6160 Philadelphia | 53 | 14,285 | 6,000 |
| 6200 Phoenix | 24 | 5,455 | 2,300 |
| 6280 Pittsburgh | 31 | 8,626 | 2,400 |
| 6440 Portland | 15 | 3,270 | 1,900 |
| 6640 Raleigh | 8 | 2,655 | 900 |
| 6920 Sacramento | 9 | 2,188 | 1,600 |
| 7320 San Diego | 32 | 7,507 | 2,600 |
| 7360 San Francisco | 15 | 4,053 | 6,400 |
| 7600 Seattle | 17 | 5,312 | 3,100 |
| 7040 St. Louis | 19 | 3,870 | 2,500 |
| 8280 Tampa | 28 | 6,916 | 2,100 |

Table 4.2 shows a comparison of the sample with the population of all hospitals located in MSAs with populations that exceed 200 thousand. As Table 4.2 indicates, while the sample does not differ with regards to the percentage of Academic Hospitals and ROA, there is a significant difference in the average hospital size. Interestingly, the average size in the population exceeds that of the sample. This may limit the generalizeability of the results.

The second part of the data collection utilized industry experts to evaluate the hospital resource endowments with regards to their relative heterogeneity and inimitability. The American Hospital Association (AHA) was solicited for names of prominent industry experts. The participation of the nominated industry experts was obtained and a two-part survey (exhibited in the Appendices) related to hospital resource attributes was conducted.

The six industry experts were identified and recruited through a careful selection process. The first step in this process was to contact a knowledgeable source within the American Hospital Association (AHA). After explaining the

Table 4.2
 Comparison of the Population and Sample Means

| Item | Mean | | Mean Difference | t | Sig. |
|------------------------|------------|--------|-----------------|-------|------|
| | Population | Sample | | | |
| 1. ROA | 0.033 | -0.003 | 0.036 | 1.52 | |
| 2. Organizational Size | 82.17 | 56.54 | 25.630 | 6.47 | **** |
| 3. Medical School | 0.36 | 0.36 | 0.00 | -0.01 | |

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

nature of this study, the AHA contact was asked to identify potential industry experts. Subsequently, these experts were contacted and asked to participate. The panel of experts all had a significant amount of experience in the health care industry across a number of functions. Four of the six experts were consultants from top tier consulting organizations in the health care industry. Their backgrounds reflected experience in general hospital administration, nursing administration as well as financial management.

Of the remaining two consultants, one was an academic from a prestigious Chicago-area university while the other was a former-CEO of a very large integrated delivery system in the Northwest U.S.

Following the approach of previous work in this area (Irwin, Hoffman & Lamont, 1998). Each expert was given a survey that asked them to rate the relative level of value and inimitability of each hospital resource. The responses of the six industry experts were then checked to determine whether or not there was sufficient interrater reliability. These ratings were averaged and then applied to each hospital's resource endowment to determine the level of

resource heterogeneity and resource inimitability, both determinants of the firm's *Intraorganizational Resource Position*. A sample of the hospital resource survey related to resource value and resource imitability is included in Appendix A and Appendix B.

In addition to rating the relative value and inimitability of hospital-based resources, these same industry experts were asked to rate the relative value of integrated delivery system services. Following the methodology used in rating hospital services, each system service were assigned a value rating that was subsequently applied to measure each hospital's *Interorganizational Resource Position*. A sample of the integrated delivery system resource survey is included in Appendix C.

Variables and Measures

This section will define and operationalize the constructs used in this study. The approaches used to operationalize the relevant constructs are built upon methodologies used successfully in the literature.

Control Variables. While the RBV and the Relational View focuses on firm-level differences, market structure remains an important determinant of firm performance

(Porter, 1980). This study included both market supply and market demand characteristics by controlling for local market concentration rates and local market growth rates. In addition to controlling for differences in market structure, controls are also necessary for organizational size, tax status and organizational mission.

Market Growth. The level of market growth has a significant effect on the firm performance (Dean & Brown, 1995). The demand for hospital services was measured by the rate of population growth from 1990 to 1995 of the MSA in which the hospital operates. Growth in the population represents growth in number of potential clients that a hospital can serve. Data on population growth was obtained by the U.S. Bureau of Census (Interstudy, 1995).

Market Concentration. Market supply structural effects related to the level of competition in a market have a significant effect on firm performance. In order to control for the level of competition in a market, the Herfindahl index was used (Boyd, 1990). The Herfindahl index determines not only the market shares of the top competitors in a market it also accounts for relative differences in market shares. Wholey, Christianson, Sanchez, Feldman, and Peterson (1992) used the Herfindahl

index to operationalize the level of competition in their study of HMO information dissemination by market area. The Herfindahl index was calculated as follows:

$$\Sigma[(\text{Market Share})^2, \text{Firm A}) + \dots + [(\text{Market Share})^2, \text{Firm N}]$$

Where:

$$\text{Market Share} = \frac{\text{Total Revenue}}{\Sigma[(\text{Total Revenue, Firm A}) + \dots + (\text{Total Revenue, Firm N})]}$$

N = Total number of hospitals in market

The score of zero represents perfect competition while a score of 1 represents a monopoly situation. The market share calculation was based on total revenue.

Tax Status. In addition to market supply and demand controls, an additional variable has been represented in the literature as having an influence on hospital performance beyond the effects of our independent variables. Tax Status has been indicated as a significant influence on performance (Graeff, 1980). A for-profit hospital will likely have different organizational goals than those of the not-for-profit hospital (Zajac & Shortell, 1989). Therefore it was important to control these different competitive orientations and classify

each hospital accordingly. Data on tax status was obtained from the 1995 AHA Annual Survey of Hospitals. The data was coded as follows:

For Profit = 1

Not For Profit = 0.

Organizational Size. Organizational size has been a significant predictor of firm performance in the literature (Graeff, 1980). This study also controlled for variations in performance due to differences in organizational size. Organizational size was measured as the average of 1997 and 1996 total assets. This data was obtained from the 1998 American Hospital Directory.

Academic Hospital. The missions of the academic hospitals differ from their non-academic counterparts (Blumenthal, Campbell & Weissman, 1997). The dual missions of providing health care to a market as well as providing graduate education puts them at a distinct competitive disadvantage (Topping, Hyde, Barker & Woodrell, 1998). The cost structure of an academic hospital reflects the high degree of specialization and expenditures related to providing graduate medical education. Therefore it is important to acknowledge these different organizational

missions and classify each hospital accordingly. Data on whether or not a hospital is an academic institution was obtained from the 1995 AHA Annual Survey of Hospitals. The data was coded as follows:

Academic Hospital = 1

Non-Academic Hospital = 0.

Performance. Multiple measures were used to fully evaluate the performance of each hospital (Ketchen, Thomas & Snow, 1993). Four performance measures relating to a firm's profitability, market share and growth were utilized to evaluate firm performance. A summary of each of the four measures of organizational performance follows.

Profitability. Return on total assets (ROA) as well as cash flow margin was used to measure the level of hospital profitability (Levitz & Brooke, 1985). The ROA measure for each hospital was calculated for the years 1996 & 1997 and then averaged to eliminate any single year anomaly. The data needed to calculate this measure was obtained from the 1998 American Hospital Directory (AHD). ROA was calculated as follows:

$$\frac{\text{Net Income}}{\text{Total Assets}}$$

The second measure of hospital profitability this study employed was a measure of cash flow (Gapenski, Vogel & Langland-Orban, 1993; McCue, 1991). Not-for-profit firms whose missions are service oriented and not profit maximization dominate the hospital industry. However, all hospitals, whether for-profit or not, need to be concerned with an adequate cash flow to sustain operations. The cash flow margin (CFM) will be calculated as follows:

$$\text{CFM} = \frac{\Sigma (\text{Net Income} + \text{Depreciation} + \text{Interest Exp.})}{\Sigma (\text{Net Patient Revenue} + \text{Total Other Income})}$$

The cash flow margin measure of profitability for each hospital was calculated for the years 1996 and 1997 and then averaged to eliminate any single year anomaly. The data needed to calculate this measure was obtained from the 1998 American Hospital Directory (AHD).

Market Share. Market share has long been used as a measure of organizational performance (Prescott, Kohli & Venkatraman, 1986). It is an indication of a firm's ability to exert influence in the market (Porter, 1980). Market

share was calculated for each hospital for the years 1996 and 1997 and then averaged to eliminate any single year anomaly. This study calculated market share as follows:

$$\frac{\text{Total Revenue}}{\Sigma [(\text{Total Revenue, Firm A}) + \dots + (\text{Total Revenue, Firm N})]}$$

Where:

Total Revenue = Outpatient Revenue + Inpatient Revenue

N = Total number of hospitals in the market

The data needed to calculate this measure was obtained from the 1998 American Hospital Directory (AHD).

Growth. The final performance measure utilized in this study was a measure of growth in total revenue. The growth measure was calculated as follows:

$$\left[\sqrt[3]{\frac{1997 \text{ Revenue}}{1995 \text{ Revenue}}} \right] - 1$$

Competitive Position. The relative level of performance enjoyed by any particular firm is a function of its competitive position in the market. The RBV asserts

that a firm's competitive position is related to the attributes of the individual resources that comprise a resource bundle. We have called this position a firm's *Intraorganizational Resource Position*. The Relational View, on the other hand, asserts that a firm's competitive position is established through interfirm linkages that create resources that span organizations. We have called this position a firm's *Interorganizational Resource Position*.

The focal firm's position in the market is relative to all other competitors that inhabit the market. Therefore, when measuring the distinctiveness of either a firm's *Intraorganizational Resource Position* or a firm's *Interorganizational Resource Position* an indication of the relative distance between a firm and the rest of its rivals is required to measure the distinctiveness of its competitive position.

Intraorganizational Resource Position. As noted in the previous section, the *Intraorganizational Resource Position* is determined by the attributes of the individual resources that comprise each firm's resource bundle and how they compare with those of the competition. By comparing the individual attributes of each competitor's respective

resource bundle, a measure of the distinctiveness of each firm's *Intraorganizational Resource Position* can be determined and competitor analysis can be conducted.

As Barney (1991) suggested, there are three attributes of resources that can lead to a sustained competitive advantage. Resources must be simultaneously valuable, rare, and difficult to imitate for them to result in a sustained competitive advantage for the firm that possesses them.

Measuring Value, Rareness and Inimitability. A panel of six industry experts was used to evaluate 60 hospital-based services on the basis of how valuable and difficult to imitate they are. Secondary data, relating to the resource endowments of all hospitals in a market, was used to determine the relative rareness of each resource in its competitive context. The following section details the methods and measures used in this study to determine the *Intraorganizational Resource Position*.

Resource Value. In order for a resource to be considered valuable, it would have to either reduce costs or differentiate the firm relative to the competition (Porter, 1991). While certain hospital services may in fact help to reduce costs, the primary function of adding hospital services is to improve the desirability of the

hospital in the eyes of current and potential customers (patients, physicians, insurance companies) and improve the quality of care.

Attracting physicians and their patients is critical to the success of a hospital. Improving the reputation of the hospital makes it more suitable in the eyes of insurance companies as well. Hospitals compete with rivals to establish a position that differentiates them from the competition.

Anderson and Steinberg (1994) offer three plausible theories explaining the behaviors of hospitals in acquiring new services: the price competition model; the technology competition model; and the utility maximization model. While all three models provide insights into hospital service adoption behavior, the technology competition model provides the best fit. In a study that explored the decision to acquire a Magnetic Resonance Imaging (MRI) service, Teplensky, Pauly, Kimberly, Hilman & Schwartz (1995) verified that the technology competition model best described hospitals' motivations to acquire selected services. This model is a composition of 3 different theories: the sales maximization theory (hospitals want to be the biggest); the conspicuous consumption theory

(hospitals want to show they are the most technologically advanced); and the physician cooperative theory (hospitals seek to acquire those technologies that maximize the income of the physician).

In this model, physicians and patients are assumed to be attracted by the services offered by the hospitals and thus, it is important for hospitals to obtain a competitive advantage by offering a range of value-creating services that differentiate them from the competition. Therefore, success in acquiring and accumulating resources and capabilities, represented by the bundle of service offerings, which differentiate a firm from its competition, is a critical success factor in the hospital industry.

The industry experts were asked to evaluate on a 5-point Likert-type scale, independent of any specific market context, the potential of each hospital service to enhance the reputation or increase the attractiveness of the hospital to physicians, patients and insurance companies. In this 5-point Likert-type scale "5" designates a "high potential to enhance a hospital's reputation and attractiveness to customers", the "1" represents a "low potential to enhance a hospital's reputation and attractiveness to customers" while the "0" indicates no

strategic value whatsoever (Irwin et al., 1998).

Subsequent to the appraisal of the resource value survey, interrater reliability between the six industry experts was calculated which resulted in a reliability coefficient of .712. Since this reliability coefficient indicated sufficient agreement, the average of the six experts' ratings for each hospital resource was calculated and assigned as weights to each respective hospital service.

Subsequently, an overall measure of the value of each hospital's resource bundle was calculated. The measure was calculated as follows:

$$\frac{\Sigma[(\text{Value, Resource A}) + \dots (\text{Value, Resource N})]}{\text{Total Number of Resources}}$$

This measure represents the average value of each hospital's resource bundle. The practical significance of this approach is that the number of resources a hospital has (which may be indicative of organizational size) is not relevant. Indeed, a hospital with only 20 resources may have a resource bundle that is, on average; more valuable than the resource endowment of a larger competitor that has

60 resources. A similar approach was followed for the inimitability variable.

Resource Inimitability. A valuable resource can only result in a sustained competitive advantage if it is not easily imitated by the competition. While value and rareness are sufficient attributes for a firm to enjoy a competitive advantage, if that advantage is to be sustained over time, then the resource must be difficult for rivals to copy.

In the hospital industry, services vary with regards to the level of inimitability they represent (Meyer & Goes, 1988). The cost of acquiring or developing a service as well as the day-to-day operation of the service may be prohibitive. For example, the MRI service, due to the significant investment in the acquisition, maintenance and training costs, represents a resource that requires a hospital to make a strategic decision regarding its adoption (Teplensky, Pauly, Kimberly, Hilman & Schwartz, 1995). Acquisition costs of over a million dollars along with costs related to training, building a facility to house the service, as well as routine maintenance costs make the MRI relatively more difficult to imitate.

The panel of six industry experts was also asked to

evaluate each hospital service on the basis of its difficulty to imitate or adopt. They were asked to consider the costs of acquiring the service (including the costs of training and maintaining it) as well as the relative level of expertise required to operate such a service effectively. Again, a 5-point Likert-type scale was used with "5" being "difficult to imitate" and "1" being "simple to imitate".

Subsequent to the appraisal of the resource inimitability survey, interrater reliability between the six industry experts was calculated which resulted in a reliability coefficient of .861. Since this reliability coefficient indicated sufficient agreement, the average of the six experts' ratings of inimitability for each hospital resource was calculated and assigned as weights to each respective hospital service.

Subsequently, an overall measure of the inimitability of each hospital's resource bundle was calculated. The inimitability measure was calculated as follows:

$$\frac{\Sigma[(\text{Inimitability, Resource A}) + \dots (\text{Inimitability, Resource N})]}{\text{Total Number of Resources}}$$

This measure represents the average *inimitability* of each

hospital's resource bundle. Again, the significance of this approach is that the number of resources a hospital has is not influential.

Resource Rareness. The third attribute, which determines a firm's relative *Intraorganizational Resource Position*, is resource rareness. Rareness essentially measures the relative availability of a particular resource in a market. A resource cannot lead to a competitive advantage if rival firms also hold it. A firm that holds a bundle of resources that are relatively more rare than those of the competition's has established a more advantageous *Intraorganizational Resource Position*.

The measure of resource rareness was calculated as:

$$\frac{\Sigma[(\text{Rareness, Resource A}) + \dots (\text{Rareness, Resource N})]}{\text{Total Number of Resources}}$$

Where Rareness =

$$1 - \left[\frac{\Sigma(\text{Firms with Resource A})}{\text{Total number of hospitals in MSA}} \right]$$

According to the Resource-based View, resources that are simultaneously valuable, rare and difficult to imitate will generate a sustained competitive advantage. Therefore

each of the three resource attributes must be considered jointly. Previous research has advocated an interactive or multiplicative relationship between the critical resource attributes of *value*, *rareness* and *inimitability* (Irwin et al., 1998).

Following this previous research, this study sought to combine these critical resource attributes by multiplying them together. However, as shown in Table 4.3a, in subsequent descriptive analysis of the data, it was discovered that these three core resource attributes are highly correlated. This suggested that the three resource attributes were measuring the same construct.

Based on these high correlations, the researchers decided to combine the three resource attribute measures through factor analysis. The technique of principle components (SPSS) was utilized to complete the factor analysis. The resulting factor loadings are shown in Table 4.3b.

The factor scores generated from the analysis were then used as a measure of each firm's resource endowment or *Intraorganizational Resource Position*. However, each firm's ability to generate a competitive advantage depends on the respective resource endowments of all other firms in a

Table 4.3
**Combining Value, Rareness and Inimitability:
 Intraorganizational Resource Position**

Table 4.3a
Correlations

| | 1 | 2 | 3 |
|------------------|------|------|-----|
| 1. Value | 1.0 | | |
| 2. Rareness | 0.52 | 1.0 | |
| 3. Inimitability | 0.81 | 0.78 | 1.0 |

Table 4.3b
Factor Loadings

| | Loadings |
|--------------------|----------|
| 1. Value | 0.868 |
| 2. Rareness | 0.853 |
| 3. Inimitability | 0.967 |
| Variance explained | 81% |

market. In order to reflect each firm's relative resource position, the measure of firm resource bundle calculated above was standardized relative to the local market. This was accomplished by transforming each observation into a Z score. Using Z scores in this fashion facilitates the testing of the assertion that an advantageous *Intraorganizational Resource Position* is one that is differentiated from the rest of the competitors in the market.

Interorganizational Resource Position. The Relational View asserts that a firm can generate a competitive advantage by leveraging the complementary resource endowments of alliance partners (Dyer & Singh, 1998). Strategic alliances allow firms to join resource bundles which create a combined resource bundle that is difficult to procure in the factor markets and difficult for competitors to imitate. These interfirm linkages establish each firm's *Interorganizational Resource Position*. However, in order for two or more firms to enjoy a competitive advantage from linking their respective resource bundles, their resource endowments must be complementary. That is, they must be able to be combined to create a bundle of resources that produces value.

In the health care industry, providers as well as insurance companies have historically operated very independently from each other. This has resulted in care that has been very fragmented, inefficient and expensive (Meyer, 1982; Starr, 1982). In the broader health care industry there is increasing pressure to reduce costs and improve the quality of care. The pressure to reduce health care costs and improve the coordination of care has lead many hospitals to seek out alliances with other hospitals, physicians, and even insurance companies. Increasingly, integration has become a strategic industry factor (Amit & Schoemaker, 1993) in the hospital industry. Hospitals, in order to survive, have sought to improve their respective competitive positions through both vertical and horizontal integration.

These alliances have taken the form of Integrated Delivery Systems (IDS) (Kaluzny, Zuckerman & Ricketts, 1995; Shortell, 1988). Integrated delivery systems provide a coordinated continuum of care that includes linkages with primary care physicians, specialist groups, nursing homes, rehabilitation facilities, and home health care as well as health insurance companies. The integration provides value to customers by linking the services of historically

independent providers into a continuous coordinated system of care. The result of which is improved quality of care and reduced costs through improved coordination.

Hospitals that combine their complementary resource endowments to those of other health care organizations through interorganizational linkages are expanding the scope of the continuum of care. The combined resource bundles create a resource endowment that spans firms and is potentially more valuable and difficult to imitate than prior to integration. This interorganizational resource endowment generates superior organizational performance for the participant firms. The resultant superior level of performance is the result of the synergistic effects of the complementarity of the resource linkages. Therefore, the level of resource complementarity determines the extent to which a firm can establish an advantageous *Interorganizational Resource Position*.

A hospital's *Interorganizational Resource Position* is determined by the strength of its interorganizational linkages. These interorganizational linkages are the result of the integration of the resource bundles of related organizations that reside either upstream or downstream from the focal hospital. Subsequently, these linkages were

weighted or adjusted for the relative strategic value of each service.

This adjustment was important because not all vertically integrated services are equally important in creating an effective integrated delivery system. For example, primary care physicians who act as gatekeepers directing the care of patients throughout the continuum of care, may be considered to be more valuable to an integrated delivery system than a hospice or a dental clinic.

Industry experts, familiar with the development of integrated delivery systems, were asked to evaluate on a 5-point Likert-type scale the relative importance of each service in building an efficient and effective integrated delivery system. In this Likert-type scale, "5" denotes the particular service as "critical to the effectiveness of an integrated delivery system" while "1" designates a service as "not an important part of an integrated delivery system".

Subsequent to the appraisal of the strategic value of Integrated Delivery System (IDS) services, interrater reliability between the six industry experts was calculated which resulted in a reliability coefficient of .712. Since

this reliability coefficient indicated sufficient reliability, the average of the six experts' ratings for each IDS service was calculated and assigned as weights to each respective IDS service.

This weighting factor was then applied to a simple count of the range of the integrated delivery system services each hospital is linked to. Subsequently, the weighted count of system services was summed to derive a measure of the strength of each hospital's interorganizational linkages or its *Interorganizational Resource Position*.

Interorganizational Resource Position was calculated as follows:

$$\Sigma [(\mathbf{V}alue, \text{IDS Service A}) + \dots (\mathbf{V}alue, \text{IDS Service N})]$$

It is important to note that each hospital's *Interorganizational Resource Position* is relative to all the other hospitals in a market. Therefore, the initial measure of *Interorganizational Resource Position* was standardized relative to the local market. This was accomplished by transforming each observation into a Z score. Using Z scores in this fashion facilitates the

testing of the assertion that an advantageous *Interorganizational Resource Position* is one that is differentiated from the rest of the competitors in the relevant competitive context. Data regarding the vertical integration and the IDS services was obtained from the Integrated Healthcare Systems directory (Health Strategies Group, 1996).

Organizational Compatibility. This study argued that organizational compatibility influences the ability of partners to capture the anticipated relational rents from the interorganizational linkage. Similar organizational processes are necessary to expedite the exchange or flow of knowledge or product. These organizational processes include culture, decision-making processes, and information and control systems.

Within the context of this study, the primary impetus of the integration of health care providers can come from either hospitals or other key health care providers such as physician groups or insurance companies. While these key healthcare providers are related, their respective organizational processes and accompanying frames of reference differ significantly.

Individual IDS structures and processes vary

significantly depending on the primary organizing force behind them. For example, from the perspective of a hospital, if the key integration driver of an IDS are hospitals as opposed to physician groups or health plans then there is greater similarity in the systems or flows of information and product that link the participant organizations. Therefore, the compatibility related to the critical flow of knowledge and product is higher. As the Relational View asserts, this higher level of organizational compatibility should enable the focal hospital to capture more of the synergies generated by the interorganizational linkages.

Therefore, organizational compatibility is directly related to the key driver of the IDS. The key driver of the integration effort is essentially the central organizing force behind the integration activity. As the primary organizing force, the decision-making processes and control systems as well as culture will likely mirror those of the dominant organization. If the key driver of the IDS is a hospital then, from the perspective of the hospitals represented in this study, the level of organizational compatibility is high. If, on the other hand, the key driver of the IDS is a physicians group or health plan then

the organizational compatibility is low. The data was coded as follows:

High Organizational Compatibility = 1

Low Organizational Compatibility = 0

These data related to the key driver of the IDS integration was obtained from the Integrated Healthcare Systems Directory (Health Strategies Group, 1996).

Data Analysis

Given the form of this model as well as the nature of the research question, the researchers employed hierarchical regression to test the hypothesized relationships. The following table, Table 4.4, shows the order of variable input into the regression model.

Support for the hypotheses were determined by the statistical significance of the subsequent change in the R-squared coefficient. After each of the steps, highlighted below, a test (SPSS method) for the significance in the accompanying change in the R-squared value was conducted. If the change was statistically significant then support for the relevant hypothesis was found.

Table 4.4
**Hierarchical Regression Analyses:
 Order of Variable Entry**

| Step | Variables |
|------|---|
| 1. | Population Growth Market Concentration Organizational Size Tax Status Academic Hospital |
| 2. | Intraorganizational Resource Position |
| 3. | Interorganizational Resource Position |
| 4. | Organizational. Compatibility |
| 5. | Interorganizational Resource Position X Organizational. Compatibility |

Summary

To summarize, this study tested the hypotheses developed in Chapter 3. The General Medical Hospital industry was selected for this study not only because it represents an industry that is increasingly turbulent and competitive but also because testing the notion of competitive position and its effect on performance requires an extensive data collection to include all competitors. The hospital industry is one of the few industries where such a wealth of data is available. In addition, interorganizational linkages in the form of Integrated Delivery Systems are becoming increasingly prevalent in the industry as hospitals are searching for ways to establish

superior competitive positions. Data was gathered from reliable primary and secondary sources. Both the measures and the methodology utilized in the study are represented in the literature.

Chapter 5

Results

Descriptive Statistics

Before testing the hypotheses, various descriptive statistics (histograms, correlations, and frequencies) were run to check for miscoded data and outliers. Upon careful consideration of the data, 10 of the original 865 observations were eliminated. The researchers took a consistent and conservative approach to identifying outliers. Each of the components of the measures included in this study were examined and compared to the prior year or subsequent year or both. For example, for Return on Assets (ROA) each of the individual observations of net income and total assets were examined and compared to those same observations in either the previous year, subsequent year, or both. If the focal observation was clearly not in line with the comparative years then it was eliminated.

The descriptive statistics, including the means, standard deviations, correlation coefficients of all of the variables used in the test of the hypotheses, are summarized in Table 5.1. Table 5.1 indicates that there

Table 5.1
Descriptives and Correlations
 N = 853

| Item | Mean | Std. Dev. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|----------------------------------|--------|-----------|----------|----------|----------|---------|----------|----------|----------|----------|---------|--------|----------|
| 1. ROA | -0.003 | 0.14 | | | | | | | | | | | |
| 2. Cash Flow | 0.05 | 0.14 | .855 ** | | | | | | | | | | |
| 3. Market Share | 0.04 | 0.05 | .011 | -.001 | | | | | | | | | |
| 4. Growth | 0.05 | 0.06 | .296 ** | .275 ** | .060 | | | | | | | | |
| 5. Population Growth | 4.60 | 3.67 | .186 ** | .171 ** | .266 ** | .150 ** | | | | | | | |
| 6. Market Concentration | 0.05 | 0.04 | .093 ** | .104 ** | .524 ** | .095 ** | .545 ** | | | | | | |
| 7. Organizational Size | 56.54 | 70.91 | -.047 | -.065 | .517 ** | .017 | -.058 | -.006 | | | | | |
| 8. Tax Status | 0.17 | 0.37 | .309 ** | .246 ** | -.094 ** | .028 | .239 ** | .043 | -.175 ** | | | | |
| 9. Academic Hospital | 0.36 | 0.48 | -.138 ** | -.161 ** | .300 ** | -.032 | -.146 ** | -.103 ** | .401 ** | -.216 ** | | | |
| 10. Intraorganizational Position | 0.00 | 0.98 | .021 | .036 | .535 ** | .042 | .000 | .000 | .620 ** | -.174 ** | .413 ** | | |
| 11. Interorganizational Position | 0.00 | 0.98 | .119 ** | .118 ** | .084 * | .070 * | .000 | .000 | .128 ** | .082 * | .012 | .084 * | |
| 12. Organizational Compatibility | 0.96 | 0.20 | .032 | -.004 | -.126 ** | -.016 | -.050 | -.094 ** | -.010 | .028 | .004 | -.027 | -.188 ** |

* p < .05; ** p < .01

are some significantly high inter-correlations to warrant some additional attention. Specifically, the variable used to control for organizational size is highly correlated with the measure of Intraorganizational Resource Position (.68). In addition, the correlations between Market Share and Market Concentration and Market Share and Intraorganizational Resource Position are correlated at .52 and .54 respectively. Also, Population Growth and Market Concentration are correlated at .55 while Organizational Size and Market Share are correlated at .59. While none of these correlations exceeded the level that would indicate concern over multicollinearity (Hanushek & Jackson, 1977) these high correlations were nevertheless investigated further within the context of the regression analysis. The Variance Inflation Factors (VIFs) were calculated and were found to be below 2.1. This indicates that multicollinearity is not a problem (Neter, Wassermann & Kutner, 1990).

Each of the three hypotheses as well as their corresponding sub-hypotheses was tested using various forms of regression. Hypothesis 1 tested the expected relationship between a firm's *Intraorganizational Resource Position* and performance. Hypothesis 2 tested the proposed

relationship between firm's *Interorganizational Resource Position* and performance while Hypothesis 3 tested the moderating effects of *Organizational Compatibility* on the relationship between *Interorganizational Resource Position* and performance.

Table 5.2 shows the results of the first step in the hierarchical regression. In this step, only the controls were added into the model. This model provided the baseline for the subsequent models that tested the 3 hypotheses.

Hypothesis 1. Table 5.3 presents the results of the hierarchical regression analysis that tested Hypothesis 1. The results indicate that a firm's *Intraorganizational Resource Position* is positively associated with all but one of the four measures of organizational performance after controlling for population growth, market concentration, organizational size and tax status. *Intraorganizational Resource Position* was positively associated with *Return on Assets* ($t = 3.30, p < .001$), *Cash Flow Margin* ($t = 4.31, p < .001$) and *Market Share* ($t = 11.48, p < .001$). *Growth*, the remaining dependent variable, was not found to be significant. Therefore, Hypothesis 1 found fairly strong support across three of the independent variables. The

Table 5.2
Control Variables

N = 853

| Variables | ROA | | Cash Flow | | Market Share | | Growth | |
|----------------------|------------|-----------|------------|-----------|--------------|------------|-----------|----------|
| | β | t | β | t | β | t | β | t |
| Population Growth | 0.09 | 2.37 ** | 0.08 | 2.02 ** | 0.03 | 1.20 | 0.14 | 3.34 *** |
| Market Concentration | 0.04 | 1.01 | 0.05 | 1.30 | 0.51 | 18.79 **** | 0.01 | 0.29 |
| Organizational Size | 0.04 | 1.03 | 0.02 | 0.51 | 0.47 | 18.99 **** | 0.03 | 0.92 |
| Tax Status | 0.28 | 8.09 **** | 0.21 | 5.94 **** | 0.00 | -0.21 | 0.00 | 0.04 |
| Academic Hospital | -0.08 | -2.08 ** | -0.11 | -2.88 *** | 0.17 | 6.90 **** | -0.02 | -0.60 |
| R-Squared | 0.12 | | 0.09 | | 0.57 | | 0.02 | |
| F | 22.34 **** | | 16.06 **** | | 226.52 **** | | 3.97 **** | |

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

Table 5.3
 Results of Regression Analysis Testing Hypothesis 1
 N = 853

| Variables | ROA | | Cash Flow | | Market Share | | Growth | |
|---------------------------------------|------------|-----------|------------|------------|--------------|------------|-----------|----------|
| | β | t | β | t | β | t | β | t |
| Population Growth | 0.08 | 2.07 ** | 0.07 | 1.62 ** | 0.00 | 0.18 | 0.13 | 3.20 *** |
| Market Concentration | 0.04 | 1.12 | 0.06 | 1.46 | 0.52 | 20.66 **** | 0.01 | 0.33 |
| Organizational Size | -0.04 | -0.93 | -0.08 | -1.92 * | 0.30 | 10.92 **** | 0.00 | 0.09 |
| Tax Status | 0.29 | 8.35 **** | 0.22 | 6.30 **** | 0.01 | 0.59 | 0.00 | 0.13 |
| Academic Hospital | -0.10 | -2.78 *** | -0.14 | -3.79 **** | 0.11 | 4.63 **** | -0.03 | -0.86 |
| Intraorganizational Resource Position | 0.14 | 3.30 **** | 0.19 | 4.31 **** | 0.32 | 11.48 **** | 0.06 | 1.26 |
| R-Squared | 0.13 | | 0.11 | | 0.63 | | 0.03 | |
| F | 20.66 **** | | 16.77 **** | | 240.10 **** | | 3.58 **** | |
| Change in R-Squared | 0.01 *** | | 0.02 **** | | 0.06 **** | | 0.004 ** | |

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

addition of *Intraorganizational Resource Position* to the model containing the control resulted in a significant change in R-squared for *ROA* ($\Delta R^2 = .01$, $p < .01$), *Cash Flow Margin* ($\Delta R^2 = .02$, $p < .001$) and *Market Share* ($\Delta R^2 = .06$, $p < .001$).

Hypothesis 2. Table 5.4 presents the results of the hierarchical regression analysis related to Hypothesis 2. Fairly strong support was found for this hypothesis which asserted that given a firm's *Intraorganizational Resource Position*, the strength of a firm's *Interorganizational Resource Position* is positively associated with organizational performance. *Interorganizational Resource Position* was found to be positively associated with *ROA* ($t = 2.88$, $p < .01$), *Cash Flow Margin* ($t = 3.03$, $p < .01$) and *Growth* ($t = 1.92$, $p < .05$) but not associated with *Market Share*. The addition of *Interorganizational Resource Position* to the model containing the control variables and *Intraorganizational Resource Position* resulted in a significant change in R-squared for *ROA* ($\Delta R^2 = .01$, $p < .01$), *Cash Flow Margin* ($\Delta R^2 = .013$, $p < .01$) and *Growth* ($\Delta R^2 = .004$, $p < .05$).

It is also important to note that despite the

Table 5.4
 Results of Regression Analysis Testing Hypothesis 2
 N = 853

| Variables | ROA | | Cash Flow | | Market Share | | Growth | |
|---------------------------------------|------------|-----------|------------|------------|--------------|------------|-----------|----------|
| | β | t | β | t | β | t | β | t |
| Population Growth | 0.08 | 2.14 ** | 0.07 | 1.70 | 0.01 | 0.20 | 0.14 | 3.25 *** |
| Market Concentration | 0.04 | 1.11 | 0.06 | 1.45 | 0.52 | 20.66 **** | 0.01 | 0.33 |
| Size | -0.05 | -1.24 | -0.10 | -2.24 *** | 0.30 | 10.76 **** | -0.01 | -0.12 |
| Tax Status | 0.28 | 8.05 **** | 0.21 | 5.99 **** | 0.01 | 0.50 | 0.00 | -0.07 |
| Academic Hospital | -0.10 | -2.70 *** | -0.14 | -3.72 **** | 0.11 | 4.65 **** | -0.03 | -0.81 |
| Intraorganizational Resource Position | 0.14 | 3.25 **** | 0.18 | 4.26 **** | 0.32 | 11.46 **** | 0.05 | 1.22 |
| Interorganizational Resource Position | 0.09 | 2.88 *** | 0.10 | 3.03 *** | 0.02 | 0.84 | 0.07 | 1.92 ** |
| R-Squared | 0.14 | | 0.12 | | 0.63 | | 0.03 | |
| F | 19.05 **** | | 15.82 **** | | 205.83 **** | | 3.60 **** | |
| Change in R-Squared | 0.01 *** | | 0.01 *** | | - | | 0.004 ** | |

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

addition of *Interorganizational Resource Position* to the model, the *Intraorganizational Resource Position* variable remained significant and therefore complementary to the *Interorganizational Resource Position*. Therefore, Hypothesis 2 is supported by the results.

Hypothesis 3. Table 5.5 presents the findings related to Hypothesis 3. This hypothesis, that the level of *Organizational Compatibility* will moderate the relationship between *Interorganizational Resource Position* and performance, was tested using moderated regression. As Table 5.5 indicates, the interaction term is not significant for any of the four performance variables. This result indicates that the relationship between *Interorganizational Resource Position* and performance is not conditional on the level of *Organizational Compatibility* and therefore Hypothesis 3 is not supported by our data.

Control Variables. The contribution of the control variables employed in each of the regression models remained fairly consistent throughout the series of analyses. Organizational size, measured as the number of staffed beds, was significantly and negatively related to

Table 5.5
Results of Regression Analysis Testing Hypothesis 3
 N = 853

| Variables | ROA | | Cash Flow | | Market Share | | Growth | |
|---|------------|-----------|------------|------------|--------------|------------|-----------|----------|
| | β | t | β | t | β | t | β | t |
| Population Growth | 0.09 | 2.16 ** | 0.07 | 1.70 * | 0.00 | 0.18 | 0.14 | 3.24 *** |
| Market Concentration | 0.05 | 1.23 | 0.06 | 1.49 | 0.51 | 20.37 **** | 0.01 | 0.34 |
| Size | -0.05 | -1.30 | -0.10 | -2.25 ** | 0.30 | 10.91 **** | 0.00 | -0.10 |
| Tax Status | 0.27 | 7.92 **** | 0.21 | 5.93 **** | 0.02 | 0.68 | 0.00 | -0.06 |
| Academic Hospital | -0.10 | -2.72 *** | -0.14 | -3.71 **** | 0.11 | 4.69 **** | -0.03 | -0.79 |
| Intraorganizational Resource Position | 0.14 | 3.29 **** | 0.18 | 4.26 **** | 0.31 | 11.43 **** | 0.05 | 1.21 |
| Interorganizational Resource Position | 0.09 | 0.50 | 0.13 | 0.71 | 0.03 | 0.30 | 0.16 | 0.87 |
| Organizational Compatibility | 0.05 | 1.12 | 0.03 | 0.55 | -0.06 | -2.18 ** | 0.02 | 0.50 |
| Interorganizational Resource Position X Organizational Compatibility | 0.02 | 0.10 | -0.02 | -0.13 | -0.03 | -0.27 | -0.09 | -0.52 |
| R-Squared | 0.14 | | 0.12 | | 0.64 | | 0.03 | |
| F | 15.12 **** | | 12.33 **** | | 162.89 **** | | 2.93 **** | |
| Change in R-Squared | - | | - | | - | | - | |

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

Cash Flow ($p < .05$) while it was positively and significantly associated with Market Share ($p < .001$). Tax Status, either "for profit" or "not for profit", had a significant positive effect on ROA ($p < .001$) and Cash Flow ($p < .001$) and no significant effect on either Growth or Market Share. The sign of the coefficient in the each of the regression models was positive since the value "1" was assigned to "for profit" firms and the value "0" was given to "not for profit" hospitals. The "for profit" hospitals represented in this sample are able to realize greater profitability than their "not for profit" counterparts. No significant difference between "for profit" hospitals and "not for profit" hospitals were detected for the Market Share and Growth measures of performance.

The Academic Hospital variable was found to be significantly and negatively associated with ROA ($p < .01$) and Cash Flow ($p < .01$). At the same time, the Academic Hospital Variable was positively related to Market Share ($p < .001$). These findings seem to indicate that while academic hospitals have a significant share of the market, their teaching mission takes precedence over profitability considerations.

Market Concentration was strongly and positively related to Market Share ($p < .001$) in each of the models. The remaining control variable, Population Growth, was positively related to Growth ($p < .01$) and ROA ($p < .05$).

Summary

In this section the hypotheses that were developed in Chapter 3 were tested utilizing the methodologies outlined in Chapter 4. These hypotheses were developed to answer the broader research question offered in Chapter 1, which was; does the Relational View contribute additional explanatory power to the Resource-based View of competitive advantage? The results provide support for the assertion that the Relational View is a significant complementary perspective to the Resource-based View of competitive advantage. These results also provide the means to employ these complementary theoretical perspectives in a very practical way by utilizing them in a model of competitor analysis.

The following section discusses both the theoretical and practical implications of these results.

Chapter 6

Discussion and Conclusions

The purpose of this research was to address the question: does the Relational View contribute additional and positive explanatory power to a Resource-based View of competitive advantage? Consistent with Dyer and Singh a theoretical model and a series of hypotheses were developed which treated the Resource-based View and the Relational View as complementary perspectives of competitive advantage. In order to test this assertion, the strength of the Resource-based View of competitive advantage was first tested to ascertain its ability to explain firm performance. Subsequently, the Relational View of competitive advantage was incorporated into the regression model to see whether or not it added significant, incremental explanatory power. The following sections discuss the study's findings as well as its theoretical and practical implications. In addition, limitations of the study are described and suggestions for additional research are offered.

Resource-based View of Competitive Advantage

The Resource-based View of competitive advantage argues that resources that reside within the firm are the fundamental sources of competitive advantage (Wernerfelt, 1984). Specifically, those resources that are simultaneously valuable, rare and difficult for competitors to imitate will lead to a competitive advantage and superior organizational performance (Barney, 1991).

The Resource-based View of the firm argues that firms are essentially bundles of resources. And while each of the individual resources that comprise the bundle may vary with regards to their level of value, rareness and inimitability, they are nevertheless an integral part of the firm and therefore must be accounted for when assessing a firm's overall competitive position (Wernerfelt, 1984; Barney, 1991).

This research effort attempted to empirically examine the Resource-based View of competitive advantage and to test its fundamental assertions. Following the approach of Irwin, Hoffman and Lamont (1998), this study identified the majority of hospital core resources and then applied to each resource the corresponding industry expert derived weights of the relative value and inimitability along with

the relative rarity of that particular resource. These measures of value, rareness and inimitability were aggregated such that all hospitals received an overall score for each of these three attributes. In subsequent descriptive analysis of the data, it was discovered that these three core resource attributes are highly correlated. This suggested that the three resource attributes were measuring the same construct.

This finding may raise the question of whether rareness and imitability are separate and distinct resource attributes or whether they are, in fact, simply components of resource value. Within the context of a *differentiation strategy*, an argument may perhaps be made that value and rareness go hand in hand. In other words, when managers are seeking to establish a *differentiated* competitive position, those resources they consider to be the most valuable may be those that are also most rare. With respect to the inimitability attribute, a similar argument can perhaps be made. Specifically, when managers consider the value of a particular resource they will likely account for how quickly a competitor can acquire the same resource. The industry experts, utilized to evaluate the relative value and imitability of each of the hospital resources

considered in this study, seemed to employ this logic.

While these three attributes have been treated in the theory as being distinct, the Resource-based View has also noted the need to combine these three attributes in order to assess the overall capability of a resource to garner a competitive advantage. The approach taken by this study is in keeping with the theory's fundamental logic.

Given their high inter-correlation, the critical resource attributes, *value*, *rareness* and *inimitability*, were factored together to produce a singular measure of each firm's relative resource position. Factoring *value*, *rareness* and *inimitability* scores, essentially produced an overall measure of the competitive strength of an organization's resource bundle and its relative position in the market (a firm's *Intraorganizational Resource Position*).

Following the Resource-based View of competitive advantage (Barney, 1991), we argued that the strength of a firm's *Intraorganizational Resource Position* is positively associated with organizational performance. This hypothesis (Hypothesis 1) was supported by the results of the study.

These results provide empirical support for the Resource-based View of competitive advantage. Specifically,

our findings seem to indicate that establishing an advantageous resource position in the market, by acquiring *valuable, rare and inimitable* resources, leads to a competitive advantage and supernormal performance (Barney, 1991; Barney, McWilliams & Turk, 1989). If strategy is the process of aligning a firm to its environment (Porter, 1991), then the primary role of management is to identify, develop, and deploy these resources in such a way that these strategic assets match a strategic industry factor in the environment (Amit & Schoemaker, 1993). These value-creating assets, especially those that are rare and difficult to imitate, enable firms to enjoy a competitive advantage.

In this sense, strategic management, from the Resource-based View is essentially "firm-building". That is, assembling a bundle of *valuable, rare and difficult to imitate* resources that establishes an advantageous and defensible competitive position within the relevant competitive context.

The decisions made regarding the types of resources to acquire determine where a particular firm is positioned relative to the competition. The more similar the respective resource endowments are, the more direct and

intense the competition will be between firms and consequently, due to predatory behavior, the lower the organizational performance will be. Therefore, it is imperative for managers to understand where the focal firm is positioned relative to the competition.

Despite the importance of competitor analysis, the Resource-based View has had limited application to this important aspect of strategic management. Indeed, a reoccurring criticism of the Resource-based View has been that this theoretical perspective is too internally focused (Porter, 1991; Amit & Schoemaker, 1993; Chen, 1996). Critics of the RBV note that the focus on internal resources to the exclusion of the external or environmental context limits the credibility of theory (Porter, 1991). While the RBV is a unique and insightful theoretical perspective, its long-term viability as a theory of the firm (Peteraff, 1993) is diminished unless it can be applied in a meaningful way to the external competitive context (Porter, 1991).

Chen (1996) and Gimeno & Chen (1998) have begun to broadly apply Resource-based logic the study of competitor interaction and competitor analysis. This research study extends and refines the work of Chen (1996) and Gimeno and

Chen (1998) by conceptually building the notion of competitive position as essentially a "resource" position that is defined by the relative value, rareness and inimitability of a firm's resource bundle. It is hoped that this refinement can be built upon to begin to understand how competing firms interact over time by changing the composition of their respective resource endowments to either directly challenge competing firms or avoid competition.

In summary, this study found support for the Resource-based notion that the strength of a firm's *Intraorganizational Resource Position* is positively associated with its organizational performance. This finding provides empirical support for the Resource-based View assertion that *valuable, rare, and inimitable* resources are a source of competitive advantage. The findings also highlight the importance of competitive positioning as the fundamental element of strategic management and offer a Resource-based measure of competitive position. These results also lay the foundation to address the research question of whether the Relational View adds any explanatory power to this Resource-based notion of competitive advantage.

The Relational View of Competitive Advantage

The previous discussion on the Resource-based View highlighted the fact that the primary focus of this theoretical perspective is on the resources that reside within the firm. The previous discussion also noted that this perspective is incomplete because it ignores the contextual realities that exist outside the firm. The fact is that firms exist as part of a larger competitive context as parts of networks of buyers and suppliers.

Specifically, the Resource-based View ignores the fact that value-creating resources can exist outside the firm in the way of interfirm linkages of resource endowments and are therefore potential sources of competitive advantage. This research offered the Relational View (Dyer & Singh, 1998) as a complementary perspective to the Resource-based View of competitive advantage.

The Relational View of competitive advantage argues that firms that link their complementary resource bundles can generate greater economic rents than the sum of those obtained from the individual resource endowments of each partner. This perspective, while acknowledging the centrality of the resources that reside within the firm,

argues that interfirm linkages create bundles of value-generating resources that span firms. These linkages allow firms access to assets and capabilities they lack and enable firms in disadvantaged competitive positions to improve their competitive stature (Eisenhardt & Schoonhoven, 1996).

We argued that these combinations of complementary interfirm resources determine a firm's *Interorganizational Resource Position*. More specifically, we argued that given a firm's *Intraorganizational Resource Position*, the strength of a firm's *Interorganizational Resource Position* is positively associated with organizational performance. The results of this study supported this hypothesis (Hypothesis 2).

This study found support for the argument that the Relational View provides a needed complementary perspective to the Resource-based notion of competitive advantage. The results of the study confirmed the importance of interfirm linkages of complementary resources as sources of competitive advantage (Dyer & Singh, 1998). The study found that the strength of a firm's *Interorganizational Resource Position* is positively associated with organizational performance.

Firms in disadvantageous competitive positions will seek linkages with other firms who have the resources they lack, while firms in relatively advantageous resource positions will also seek relationships with other firms as a way to leverage their competitive advantage to extract greater economic rents (Eisenhardt & Schoonhoven, 1996). Thus, our findings support the assertion that these interorganizational linkages of resources are the means through which core competitive positions can be enhanced or solidified. In this way, the *Interorganizational Resource Position* complements a firm's *Intraorganizational Resource Position*.

It is also important to note that when the *Interorganizational Resource Position* measure was added to the analysis, the *Intraorganizational Resource Position* remained positive and strongly significant. This is an indication that the *Intraorganizational Resource Position* is orthogonal to or distinct from the *Interorganizational Resource Position*. This empirical observation lends further weight to the central argument of this research that the Relational View of the firm is a complementary perspective to the Resource-based View.

Theoretically, these findings imply an expanded notion

of competitive position. The results of this research provide support for the idea that a firm's overall competitive position is comprised of its *Intraorganizational Resource Position* as well its *Interorganizational Resource Position*. Therefore, a joint consideration of both is recommended for a more comprehensive conceptualization of competitive position.

Moderating Effects of Organizational Compatibility

Hypothesis 3 argued that the relationship between *Interorganizational Resource Position* and organizational performance would be stronger when *Organizational Compatibility* is high. The study found no support for the moderating effect of *Organizational Compatibility*.

This non-finding seems to confirm previous research which has shown that while organizational compatibility may be positively related to the initial satisfaction in a relationship, it does not have a positive impact on the performance of the relationship (Saxton, 1997). It does however contrast to other studies which have found that the primary reason for failure of both acquisitions and alliances has been due to the lack of organizational compatibility (Buono & Bowditch, 1989; Doz, 1996; Jemison &

Sitkin, 1986).

From a theoretical perspective, the failure to find support for the moderating effect may suggest that the nature of the relationship and the type of governance structure utilized to guide the relationship may supercede the effect of organizational compatibility. If the relationship is governed by the use of highly formalized scripting of the relationship (more contractual in nature), then organizational compatibility becomes less critical to the success of the relationship. However, when the relationship is less scripted and is more "free-formed" and where the goals for the relationship are less clear, then organizational compatibility may perhaps be more critical to the success of the relationship.

An alternative explanation for the non-finding may be related to the interaction routines or the "interfirm knowledge-sharing routines" that are developed to facilitate resource exchanges between partners. The investment in these interfirm-knowledge sharing routines (Dyer & Singh, 1998), or joint development of preset interaction routines enable firms to overcome differences in their core process and frames of reference that may confuse the relationship.

Perhaps these findings indicate that strategic complementarity is the key ingredient to the success of interorganizational linkages. Finding a partner that thinks alike may not be conducive to generating the desired synergy. Partners with varied perspectives may bring a productive level of conflict to the relationship that leads to superior decisions than a like-minded consensual approach (Schweiger, Sandberg and Rechner, 1989). Perhaps it can be said that as each partner must bring to the relationship different and complementary resources, they must also bring with them complementary organizational processes and frames of reference. Being compatible partner does not mean that each partner must be alike. It may mean that difference in each side's respective frames of reference may bring a more complete understanding of reality.

While these researchers have offered theoretical explanations for these non-findings, a potential reason why our study failed to find support for this hypothesis was that the measure used to operationalize *Organizational Compatibility* was perhaps too limited in scope and too simplistic. This measure assumed that if two organizations were in the same industry then their compatibility would be

high relative to firms in different industries. The non-findings seem to indicate that this assumption is simplistic. It perhaps indicates that firms within the same industry may be just as incompatible as firms in different industries may be. This shortcoming provides a further indication of the difficulty in measuring organizational compatibility and points again to the need to refine this construct and its measurement in subsequent studies (Osborn & Hagedoorn, 1997).

Overall, this non-finding may suggest that organizational compatibility is of secondary importance to that of strategic complementarity (Saxton, 1997). Or stated alternatively, firms should perhaps be less concerned with finding an organization that thinks and operates in the same way than they should be with finding a partner who is strategically complementary (Jemison & Sitkin, 1986).

Research Contributions

This research sought to contribute to the literature in a number of ways. First, this research provided an empirical test of the basic tenets of the Resource-based View. Little empirical support has been found for the Resource-based assertion that simultaneously valuable, rare

and difficult to imitate resources will generate a competitive advantage.

This research found a high inter-correlation between the three resource attributes. Our findings indicated that when the critical success factor is in building a differentiated position (Amit & Schoemaker, 1993), then perhaps those core resources that enable a firm to differentiate itself from the competition will also be those that are rare in the market or industry. And if a particular resource is rare then it is probably due to the fact that it is difficult for competitors to imitate. This question lies at the heart of Resource-based theory and therefore warrants further conceptual work.

Second, this research also contributes an empirical investigation of the Relational View. This recent theoretical perspective, to the authors' knowledge, has not been tested for empirical validity. This study has conducted an empirical examination of the Relational View and has found significant support for its assertion that the linking of firms' complementary resources can generate superior organizational performance.

However, this finding failed to find support for the moderating effect of organizational compatibility. This

research pointed to the need to find appropriate measures of organizational compatibility (Osborn & Hagedoorn, 1997).

Thirdly, this research contributes conceptually by combining two complementary theories of competitive advantage to build an expanded notion of competitive position. This research then proceeded to empirically test and find support for the primary assertion that the Relational View complements the Resource-based View and therefore joint consideration of the two is necessary for a more comprehensive perspective of competitive positioning. These findings may have important and more practical implications for competitor analysis as well as partner identification.

Managerial Implications

The practical implications of these findings are that firms should seek to establish relationships with other firms as a way to enhance or solidify a core competitive position. Therefore, the role of the manager is to seek out relationships with firms whose resource bundles complement those of the focal firm. Whether the cooperative relationship is a strategic alliance or an agreement between fellow SBUs, the resulting cross-firm resource

bundle has the potential to generate either lower transaction costs or relational rents if the combined resource endowment is more valuable, rare and difficult for competitors to imitate (Dyer & Singh, 1998).

This expanded notion of competitive position implies a need for managers to also expand the scope of competitor analysis to include the integration activities of the competition. Interfirm linkages change the dynamics of competitive interaction. The focus of the competitive interaction moves from the firm level to the network or system level. Therefore, managers also need to shift the focus of their competitor analysis to the network level.

This phenomenon can be seen in the hospital industry. Hospitals, in order to deflect intense head to head competition, have joined networks of providers. These integrated health care delivery systems are comprised of linkages between hospitals as well as linkages between hospitals and other related health care providers such as physicians and insurance functions. In many health care markets, the focus of competition is now between networks of providers.

Finally, the usefulness of this framework of competitive position extends beyond competitor analysis. As

managers seek alliance partners or acquisition targets, this framework can also be used to identify potential partners. By "mapping" out the competitive context, the firm can identify those competitors whose resource positions most complement the resource endowment of the focal firm. The selection of the appropriate partner is critical to the success of an alliance. Choosing partners with complementary resources enable firms to enhance their performance. However, while this study found that resource complementarity is important to the success of inter-firm linkages, organizational compatibility was not found to have an effect on the organizational performance.

Research Limitations and Future Research Recommendations

While this research has sought to contribute to the literature in some significant ways, there are some potential limitations to the study. First, the study is limited by the sample. The sample of firms was drawn from a single industry, the hospital industry. In addition, this sample included only hospitals located in large metropolitan areas. Rural hospitals and those hospitals located in less populated areas were excluded. These sampling limitations reduce the generalizability of the

results. Future research should conduct this study in other industries and in other competitive environments as a way to validate these findings.

Second, this study is a cross-sectional study. Future research would benefit from a longitudinal approach. A longitudinal study would enable the researchers to examine the competitive interaction of firms positioning and repositioning themselves in response to the strategies of the competition.

Thirdly, this study did not distinguish between interorganizational linkages that were virtual and those that were equity or ownership positions. While both types of linkages have the potential to capture relational rents through linkages of complementary assets, there could be a moderating effect of the type of linkage (virtual or actual) on the relationship between *Interorganizational Resource Position* and organizational performance. It would be beneficial for future research to examine the effect of type of linkage on the ability of an organizational to generate and capture relational rents.

Summary

In closing, the overall results of this study support the assertion that the Relational View provides a needed complementary perspective to the Resource-based View of competitive advantage. This study shows that resources that reside within the firm as well as those that span the firm can be sources of competitive advantage. Managers seeking to establish a superior competitive position can look to enhance their core resource positions as well as look to partners with complementary resources to build and defend a superior competitive position.

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Appendices

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Dear Dr. Dranove,

Thank you very much for your willingness to participate in this data collection effort for my dissertation. Your input is greatly valued and deeply appreciated. Attached is a three-part survey related to the strategic value and inimitability of hospital and integrated delivery system services. In addition to the survey instrument, I have included a brief abstract of my dissertation.

If you have any questions related to the survey please do not hesitate to contact me. I can be reached at (423) 470-4894 (Home Office) or at (423) 974-3161 (Campus Office). Upon completion of this study, I would be happy to provide you with an "Executive Summary" of my findings and would also be available should you have any questions regarding my study.

If you would, please either fax the completed survey to (423) 974-3163 or mail it to the following address:

Joel A. Ryman
University of Tennessee
Department of Management
402 Stokely Management Center
Knoxville, TN 37996

Again, thank you very much for your very generous contribution to my dissertation efforts.

Sincerely,

Joel A. Ryman

Survey Instructions

Part 1 of the survey is related to the strategic value of hospital services. This section contains a list of 60 hospital services taken from the American Hospital Association's (AHA) Annual Survey of Hospitals. In this section, I am interested in your evaluation of the potential of each of these services to provide value by enabling the hospital to differentiate itself from competitors. For each service, please rate its potential to enhance the reputation of the hospital and/or attract physicians and patients.

Part 2 of the survey is related to the barriers to hospital service acquisition and implementation. This section contains the same 60 services from Part 1. In this section, please appraise each of the services in terms of the degree to which they are difficult to acquire or implement. Factors to consider will be the cost to acquire these services, costs related to the support and maintenance of these services, as well as the level of training required for the personnel that staff them.

Part 3 of the survey is related to the strategic value of integrated delivery system services. This section contains 22 services that could potentially be part of an integrated delivery system. For each of these services, please rate them in terms of their strategic importance as part of a competitive, efficient and effective system of health care delivery.

Appendix A - Hospital Service Survey Potential Strategic Value of the Hospital Service

1. Purpose: The purpose of this survey is to evaluate medical services used by hospitals in terms of the degree to which they may enhance a hospital's reputation and/or result in increasing patient volume.

2. Instructions: For each hospital service, please rate the following hospital services in terms of their **potential for enhancing a hospital's reputation and/or result in increasing patients**. When determining the rating, please consider the potential attractiveness to both patients and physicians.

| <u>Hospital Resource</u> | <u>No Potential</u> | <u>Very Low Potential</u> | <u>Low Potential</u> | <u>Moderate Potential</u> | <u>High Potential</u> | <u>Very High Potential</u> |
|--|-------------------------|-------------------------------|--------------------------|-------------------------------|---------------------------|--------------------------------|
| Aids Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Anesthesia | 0 | 1 | 2 | 3 | 4 | 5 |
| Angioplasty | 0 | 1 | 2 | 3 | 4 | 5 |
| Blood Bank | 0 | 1 | 2 | 3 | 4 | 5 |
| Bone Marrow Transplant | 0 | 1 | 2 | 3 | 4 | 5 |
| Burn Care Unit | 0 | 1 | 2 | 3 | 4 | 5 |
| Cardiac Catheterization | 0 | 1 | 2 | 3 | 4 | 5 |
| Chiropractic Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Clinical Psychiatry | 0 | 1 | 2 | 3 | 4 | 5 |
| Computerized Tomography Scanners | 0 | 1 | 2 | 3 | 4 | 5 |
| Dental Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Diagnostic Ultrasound | 0 | 1 | 2 | 3 | 4 | 5 |
| Dietary Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Electrocardiography | 0 | 1 | 2 | 3 | 4 | 5 |
| Electroconvulsive Therapy | 0 | 1 | 2 | 3 | 4 | 5 |
| Emergency Department | 0 | 1 | 2 | 3 | 4 | 5 |
| Extracorporeal Shock Wave Lithotripter | 0 | 1 | 2 | 3 | 4 | 5 |
| General Anatomical Laboratory Service | 0 | 1 | 2 | 3 | 4 | 5 |
| Heart Transplant Facility | 0 | 1 | 2 | 3 | 4 | 5 |
| Heart/Lung Transplant Facility | 0 | 1 | 2 | 3 | 4 | 5 |
| Hemodialysis/Acute Renal Dialysis | 0 | 1 | 2 | 3 | 4 | 5 |
| Home Health Care Program | 0 | 1 | 2 | 3 | 4 | 5 |
| Hospice | 0 | 1 | 2 | 3 | 4 | 5 |
| Cardiac Intensive Care Unit (Cardiac O | 0 | 1 | 2 | 3 | 4 | 5 |
| Intensive Care Unit (Mixed) | 0 | 1 | 2 | 3 | 4 | 5 |
| Kidney Transplant Facility | 0 | 1 | 2 | 3 | 4 | 5 |
| General Clinical Laboratory Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Liver Transplant Facility | 0 | 1 | 2 | 3 | 4 | 5 |
| Lung Transplant Facility | 0 | 1 | 2 | 3 | 4 | 5 |
| Megavoltage Radiation Therapy | 0 | 1 | 2 | 3 | 4 | 5 |
| Neonatal Nursery | 0 | 1 | 2 | 3 | 4 | 5 |
| Neonatal Intensive Care Unit | 0 | 1 | 2 | 3 | 4 | 5 |

Appendix A - Hospital Service Survey Potential Strategic Value of the Hospital Service

1. **Purpose:** The purpose of this survey is to evaluate medical services used by hospitals in terms of the degree to which they may enhance a hospital's reputation and/or result in increasing patient volume.

2. **Instructions:** For each hospital service, please rate the following hospital services in terms of their **potential for enhancing a hospital's reputation and/or result in increasing patients.** When determining the rating, please consider the potential attractiveness to both patients and physicians.

| <u>Hospital Resource</u> | <u>No Potential</u> | <u>Very Low Potential</u> | <u>Low Potential</u> | <u>Moderate Potential</u> | <u>High Potential</u> | <u>Very High Potential</u> |
|--------------------------------------|-------------------------|-------------------------------|--------------------------|-------------------------------|---------------------------|--------------------------------|
| Magnetic Resonance Imaging | 0 | 1 | 2 | 3 | 4 | 5 |
| Neurology Special Care Unit | 0 | 1 | 2 | 3 | 4 | 5 |
| Neurosurgical Intensive Care Unit | 0 | 1 | 2 | 3 | 4 | 5 |
| Nuclear Medicine Department | 0 | 1 | 2 | 3 | 4 | 5 |
| Observation Beds | 0 | 1 | 2 | 3 | 4 | 5 |
| Obstetrics Department | 0 | 1 | 2 | 3 | 4 | 5 |
| Occupational Therapy Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Open Heart Department | 0 | 1 | 2 | 3 | 4 | 5 |
| Optometric Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Organ Bank | 0 | 1 | 2 | 3 | 4 | 5 |
| Organ Transplant Facilities | 0 | 1 | 2 | 3 | 4 | 5 |
| Outpatient Surgery Department | 0 | 1 | 2 | 3 | 4 | 5 |
| Pancreas Transplant Facility | 0 | 1 | 2 | 3 | 4 | 5 |
| Pediatric Department | 0 | 1 | 2 | 3 | 4 | 5 |
| Pharmacy Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Physical Therapy Service | 0 | 1 | 2 | 3 | 4 | 5 |
| Postoperative Recovery Room | 0 | 1 | 2 | 3 | 4 | 5 |
| Psychiatric Educational Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Pulmonary/Respiratory Intensive Care | 0 | 1 | 2 | 3 | 4 | 5 |
| Radioactive Implants | 0 | 1 | 2 | 3 | 4 | 5 |
| Recreational Therapy Facility | 0 | 1 | 2 | 3 | 4 | 5 |
| Respiratory Therapy | 0 | 1 | 2 | 3 | 4 | 5 |
| Self Care | 0 | 1 | 2 | 3 | 4 | 5 |
| Skilled Nursing Long Term Care | 0 | 1 | 2 | 3 | 4 | 5 |
| Social Services | 0 | 1 | 2 | 3 | 4 | 5 |
| Speech Pathology | 0 | 1 | 2 | 3 | 4 | 5 |
| Therapeutic Radioisotope Facility | 0 | 1 | 2 | 3 | 4 | 5 |
| Trauma Center Level 1 | 0 | 1 | 2 | 3 | 4 | 5 |
| Trauma Center Level 2 | 0 | 1 | 2 | 3 | 4 | 5 |
| Trauma Center Level 3 | 0 | 1 | 2 | 3 | 4 | 5 |
| X-Ray Radiation Therapy | 0 | 1 | 2 | 3 | 4 | 5 |

Appendix B - Hospital Service Survey Barriers to Service Acquisition and Implementation

1. Purpose: The purpose of this survey is to evaluate medical services used by hospitals in terms of the degree to which they are difficult to acquire and implement.

2. Instructions: For each hospital service, please rate the following hospital services in terms of the degree to which they are difficult to acquire and implement. When determining the rating, please consider the acquisition cost, the costs related to the support services required to maintain the service, as well as the the level of training required.

| <u>Hospital Resource</u> | <u>Very Low Difficulty</u> | <u>Low Difficulty</u> | <u>Moderate Difficulty</u> | <u>High Difficulty</u> | <u>Very High Difficulty</u> |
|--|--------------------------------|---------------------------|--------------------------------|----------------------------|---------------------------------|
| Aids Services | 1 | 2 | 3 | 4 | 5 |
| Anesthesia | 1 | 2 | 3 | 4 | 5 |
| Angioplasty | 1 | 2 | 3 | 4 | 5 |
| Blood Bank | 1 | 2 | 3 | 4 | 5 |
| Bone Marrow Transplant | 1 | 2 | 3 | 4 | 5 |
| Burn Care Unit | 1 | 2 | 3 | 4 | 5 |
| Cardiac Catheterization | 1 | 2 | 3 | 4 | 5 |
| Chiropractic Services | 1 | 2 | 3 | 4 | 5 |
| Clinical Psychiatry | 1 | 2 | 3 | 4 | 5 |
| Computerized Tomography Scanners | 1 | 2 | 3 | 4 | 5 |
| Dental Services | 1 | 2 | 3 | 4 | 5 |
| Diagnostic Ultrasound | 1 | 2 | 3 | 4 | 5 |
| Dietary Services | 1 | 2 | 3 | 4 | 5 |
| Electrocardiography | 1 | 2 | 3 | 4 | 5 |
| Electroconvulsive Therapy | 1 | 2 | 3 | 4 | 5 |
| Emergency Department | 1 | 2 | 3 | 4 | 5 |
| Extracorporeal Shock Wave Lithotripter | 1 | 2 | 3 | 4 | 5 |
| General Anatomical Laboratory Services | 1 | 2 | 3 | 4 | 5 |
| Heart Transplant Facility | 1 | 2 | 3 | 4 | 5 |
| Heart/Lung Transplant Facility | 1 | 2 | 3 | 4 | 5 |
| Hemodialysis/Acute Renal Dialysis | 1 | 2 | 3 | 4 | 5 |
| Home Health Care Program | 1 | 2 | 3 | 4 | 5 |
| Hospice | 1 | 2 | 3 | 4 | 5 |
| Cardiac Intensive Care Unit (Cardiac Only) | 1 | 2 | 3 | 4 | 5 |
| Intensive Care Unit (Mixed) | 1 | 2 | 3 | 4 | 5 |
| Kidney Transplant Facility | 1 | 2 | 3 | 4 | 5 |
| General Clinical Laboratory Services | 1 | 2 | 3 | 4 | 5 |
| Liver Transplant Facility | 1 | 2 | 3 | 4 | 5 |
| Lung Transplant Facility | 1 | 2 | 3 | 4 | 5 |
| Megavoltage Radiation Therapy | 1 | 2 | 3 | 4 | 5 |
| Neonatal Nursery | 1 | 2 | 3 | 4 | 5 |
| Neonatal Intensive Care Unit | 1 | 2 | 3 | 4 | 5 |

Appendix B - Hospital Service Survey Barriers to Service Acquisition and Implementation

1. **Purpose:** The purpose of this survey is to evaluate medical services used by hospitals in terms of the degree to which they are difficult to acquire and implement.

2. **Instructions:** For each hospital service, please rate the following hospital services in terms of the degree to which they are difficult to acquire and implement. When determining the rating, please consider the acquisition cost, the costs related to the support services required to maintain the service, as well as the the level of training required.

| <u>Hospital Resource</u> | Very Low | Low | Moderate | High | Very High |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|
| | <u>Difficulty</u> | <u>Difficulty</u> | <u>Difficulty</u> | <u>Difficulty</u> | <u>Difficulty</u> |
| Magnetic Resonance Imaging | 1 | 2 | 3 | 4 | 5 |
| Neurology Special Care Unit | 1 | 2 | 3 | 4 | 5 |
| Neurosurgical Intensive Care Unit | 1 | 2 | 3 | 4 | 5 |
| Nuclear Medicine Department | 1 | 2 | 3 | 4 | 5 |
| Observation Beds | 1 | 2 | 3 | 4 | 5 |
| Obstetrics Department | 1 | 2 | 3 | 4 | 5 |
| Occupational Therapy Services | 1 | 2 | 3 | 4 | 5 |
| Open Heart Department | 1 | 2 | 3 | 4 | 5 |
| Optometric Services | 1 | 2 | 3 | 4 | 5 |
| Organ Bank | 1 | 2 | 3 | 4 | 5 |
| Organ Transplant Facilities | 1 | 2 | 3 | 4 | 5 |
| Outpatient Surgery Department | 1 | 2 | 3 | 4 | 5 |
| Pancreas Transplant Facility | 1 | 2 | 3 | 4 | 5 |
| Pediatric Department | 1 | 2 | 3 | 4 | 5 |
| Pharmacy Services | 1 | 2 | 3 | 4 | 5 |
| Physical Therapy Service | 1 | 2 | 3 | 4 | 5 |
| Postoperative Recovery Room | 1 | 2 | 3 | 4 | 5 |
| Psychiatric Educational Services | 1 | 2 | 3 | 4 | 5 |
| Pulmonary/Respiratory Intensive Care Unit | 1 | 2 | 3 | 4 | 5 |
| Radioactive Implants | 1 | 2 | 3 | 4 | 5 |
| Recreational Therapy Facility | 1 | 2 | 3 | 4 | 5 |
| Respiratory Therapy | 1 | 2 | 3 | 4 | 5 |
| Self Care | 1 | 2 | 3 | 4 | 5 |
| Skilled Nursing Long Term Care | 1 | 2 | 3 | 4 | 5 |
| Social Services | 1 | 2 | 3 | 4 | 5 |
| Speech Pathology | 1 | 2 | 3 | 4 | 5 |
| Therapeutic Radioisotope Facility | 1 | 2 | 3 | 4 | 5 |
| Trauma Center Level 1 | 1 | 2 | 3 | 4 | 5 |
| Trauma Center Level 2 | 1 | 2 | 3 | 4 | 5 |
| Trauma Center Level 3 | 1 | 2 | 3 | 4 | 5 |
| X-Ray Radiation Therapy | 1 | 2 | 3 | 4 | 5 |

**Appendix C - Integrated Delivery System Service Survey
Strategic Value of Integrated Delivery System Services**

1. Purpose: The purpose of this survey is to evaluate integrated delivery system services in terms of the degree to which they are vital to the formation of an effective integrated system of medical care.

2. Instructions: For each system service, please rate its level of *strategic importance as a part of a competitive and effective integrated system of health care delivery.*

| <u>Integrated Delivery System Resource</u> | <u>Very Low Importance</u> | <u>Low Importance</u> | <u>Moderate Importance</u> | <u>High Importance</u> | <u>Very High Importance</u> |
|--|--------------------------------|---------------------------|--------------------------------|----------------------------|---------------------------------|
| General Acute Care Hospitals | 1 | 2 | 3 | 4 | 5 |
| Teaching Hospitals | 1 | 2 | 3 | 4 | 5 |
| Medical University Hospitals | 1 | 2 | 3 | 4 | 5 |
| Behavioral Hospitals | 1 | 2 | 3 | 4 | 5 |
| Primary Care Clinics | 1 | 2 | 3 | 4 | 5 |
| Speciality Group Practices | 1 | 2 | 3 | 4 | 5 |
| Diversified Group Clinics | 1 | 2 | 3 | 4 | 5 |
| Self Insurance | 1 | 2 | 3 | 4 | 5 |
| PPOs | 1 | 2 | 3 | 4 | 5 |
| IPA Network HMOs | 1 | 2 | 3 | 4 | 5 |
| Staff/Group HMOs | 1 | 2 | 3 | 4 | 5 |
| Medicare HMOs | 1 | 2 | 3 | 4 | 5 |
| Medicaid HMOs | 1 | 2 | 3 | 4 | 5 |
| Rehabilitation Facilities | 1 | 2 | 3 | 4 | 5 |
| Nursing Homes | 1 | 2 | 3 | 4 | 5 |
| Visiting Nurses | 1 | 2 | 3 | 4 | 5 |
| Home Infusion/Home Health | 1 | 2 | 3 | 4 | 5 |
| Hospice | 1 | 2 | 3 | 4 | 5 |
| Surgicenters | 1 | 2 | 3 | 4 | 5 |
| Mobile Services | 1 | 2 | 3 | 4 | 5 |
| Occupational Medicine | 1 | 2 | 3 | 4 | 5 |
| Wellness/Preventative Programs | 1 | 2 | 3 | 4 | 5 |

Vita

Joel A. Ryman was born in Goshen, Indiana on June 18, 1961. He graduated from Northridge High School in June 1979. He entered Goshen College in September 1979, earning a Bachelor of Arts in Economics in August 1983. He taught English at the Hijiyama Girls High School in Hiroshima, Japan from 1985 to 1987.

In December 1988, he completed a Master of International Management (M.I.M) from the American Graduate School of International Management (Thunderbird Campus) at Glendale, Arizona where he concentrated his studies in the Japanese language and in international finance. After working for Bristol-Myers Squibb from May 1989 to July 1995, he resigned from the position as Manager of Finance in the Zimmer Division, Warsaw, Indiana.

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