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Market-Based Assets and Capabilities, Business Processes, and Financial Performance

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Market-Based Assets and Capabilities, Business Processes, and Financial Performance

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Summary

While there is recognition that market-based assets and capabilities contribute to performance of cross-functional, market-facing business processes and, in turn, a firm's financial performance, there are few empirical investigations related to this domain in the marketing literature. The present study addresses this gap.

We propose a resource-theory framework that is based on recent theoretical contributions by Srivastava, Shervani and Fahey (1998, 1999). This framework captures (1) the impact of market-based assets and capabilities on (2) market-facing (new product development, supply-chain and customer relationship management) business processes, and (3) firm financial performance. We develop related hypotheses and measures and test the framework empirically.

The study findings suggest that both supply chain and customer relationship management processes have an important impact on financial performance of firms. While marketing plays a central role in customer relationship management, its impact on supply-chain management is, although

important, more limited. Marketing also plays an important role in the new product development process; however, the latter does not impact financial performance of firms in our sample. Further, the study finds that market sensing, differentiation capability, focus on high-value customers, customer asset orientation and supply chain leadership are important capabilities that drive business process performance.

Overall, the study framework provides a process linkage between marketing, financial performance and shareholder value. The results of this research will provide strategic insights to managers on optimal customer management, product development and supply chain strategies.

Introduction

A significant proportion of the market value of firms today is based on intangible assets and capabilities that are shaped by the marketing function such as brands, customer and supplier relationships (Srivastava, Shervani, and Fahey 1999), market sensing (Day

1994), market orientation (Kohli and Jaworski 1990; Narver and Slater 1990) and customer nurturing (Day 1994, 1999), rather than on tangible, book assets. The process by which these assets and capabilities influence firm value is not well understood at this time (Day and Wensley, 1988; Bharadwaj, Varadarajan and Fahy, 1993).

Srivastava, Shervani, and Fahey (1999) suggest that assets and capabilities enable firms to execute their organizational processes effectively. Hunt and Morgan (1995) propose that comparative advantage in tangible and intangible resources result in competitive advantage to the firm, which, in turn, contributes to higher firm value. Integrating these two studies, the present study argues that comparative advantage in intangible assets and capabilities enables better process performance; and better process performance can lead to better financial performance and value. It should be pointed out that neither of these theoretical frameworks has been tested empirically thus far.

In providing this test, the present study offers three key premises. First, financial performance and shareholder value are expected to depend upon an organization's success in three key cross-functional business processes, namely, the new product development (NPD) process, the customer relationship management (CRM) process and the supply chain management (SCM) process (Srivastava, Shervani, and Fahey 1999; Hagel and Singer 1999). Second, success in these business processes is shaped by unique capabilities of a firm when compared to its competitors.¹ Such capabilities

¹ Note that capabilities are intangible assets of a firm (Hunt and Morgan 1995). Further, the manner in which capabilities are conceptualized in this study (to include uniqueness) would make this concept closely

contribute to developing market offerings that are perceived by customers as having superior value (Hunt and Morgan, 1995). Third, the assortment of advantage-yielding capabilities is likely to vary for each of the three different business processes, as suggested by Day (1997) and Srivastava, Shervani and Fahey (1999).

The study makes key contributions to the emerging literature on marketing-related capabilities and firm value. First, by integrating the comparative advantage theory proposed by Hunt and Morgan (1995) with the work of Srivastava, Shervani, and Fahey (1999) on market-based assets, it provides a theoretical background for tracking the pathways by which market-based capabilities generate value for the firm. Second, simultaneous examination of the three processes and their drivers enables capturing of interdependence among the processes. Finally, the study proposes a new measure for capturing a firm's 'comparative advantage in a resource.'

The rest of this paper is organized into four additional sections. The second (next) section provides an overview of the resource-based view of the firm. The third section outlines the research methodology, including details about the sample and measurement of comparative advantage in a resource. The fourth section presents empirical results based on a survey of senior marketing managers from a sample of firms. The last section discusses the implications of these preliminary findings for academic research and managerial practice.

conform to assets of a firm. Additionally, the terms 'resources' and 'capabilities' are used synonymously from hereon.

Theoretical Framework

The overall premise of the study is that organizations need to identify and build market-based capabilities (MBCs) that provide them with comparative advantage in the market place. Although this premise has been acknowledged for the last two decades, only limited research attention has been given within the marketing literature to identifying MBCs and assessing the process by which they yield higher financial performance. Using resource-based theory, the framework proposed below addresses this gap.

This section is divided into four parts. First, a brief description of the resource-based view of a firm is provided. Second, after identifying key processes, the study offers rationale for using performance on these processes as a key mediator between capabilities and financial performance. Third, the reasons behind choice of specific MBCs are explained. Finally the impact of these capabilities on the performance of three key organizational processes is discussed.

Resource Based View of the Firm

In recent years, market competition has not only increased in intensity, its nature has changed in fundamental ways. The source of competitive advantage has shifted from physical, tangible assets to intellectual and knowledge-based resources or capabilities (Prahalad and Hamel 1990). Capabilities are complex bundles of skills that are "deeply embedded" in organizational routines that create positional or comparative advantages for the firm (because they are valuable and rare) which are not easily imitable by competitors (Day 1994; Hunt and Morgan 1995). Valuable and rare conditions allow firms to exploit product

market imperfections that create rent-producing potential. For example, market-sensing capability of a firm could be a rare resource. Knowledge about one's competitors derived from market sensing could potentially enable a firm to produce a market offering that is differentially valuable. Some other capabilities examined in previous marketing literature include market orientation (Hunt and Morgan 1995), customer competence (Danneels 2002), innovation ability (Eisenhardt and Martin 2000), customer-linking ability (Song et al. 2005), and market knowledge competence (Li and Calantone 1998). The challenge facing a firm is to identify, *ex ante*, a set of intangible MBCs as grounds for establishing sustainable market advantage, and thereby generating organizational rents.

It should be noted that within the resource based theory (RBT) literature, one set of authors define resources rather broadly so as to include "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc." (Barney 1991; p. 101). Another set of authors, however, have attempted to separate resources from capabilities (Amit and Shoemaker 1993; Grant 1991). Their argument is that resources include know-how that can be traded, financial or physical assets, human capital, and the like, while capabilities refer to a firm's capacity to deploy resources. Since we do not address the issue of which resources need to be combined to develop a particular capability, we adopt the first perspective. We therefore use the terms 'resources' and 'capabilities' interchangeably to refer to the tangible and intangible assets firms use to develop and implement their business strategies.

Business Processes as a Mediator between Capabilities and Firm Performance

Business processes are actions or work practices that firms engage in to accomplish defined business purposes or objectives (Ray, Barney, and Muhanna 2004). They include the routines or activities that a firm carries out in order to get something done (Porter 1998). Execution of these activities requires assets such as personnel, knowledge, and capital that commingle and “come alive” as organizational capabilities.

For this study, we utilize three types of processes identified by Srivastava, Shervani, and Fahey (1999) as being crucial to the achievement of an organization’s goals. These include:

1. a new product development (NPD) process that aims to create solutions that customers need and want,
2. a supply chain management (SCM) process that manages acquisition of physical and informational inputs and converts them into customer solutions in an efficient and effective manner, and
3. a customer relationship management (CRM) process that manages identification of customers, creation of customer knowledge, building of customer relationships, and shaping of their perceptions of the organization’s products and image.

The position taken in the present study is that these processes mediate the impact of MBCs on firm performance. Interestingly, when utilizing a resource-based view (RBV) to explain firm performance, the most common approach adopted in previous studies has been to (a) develop measures of a firm’s resources and capabilities, (b) assess the extent to which these resources and capabilities meet the criteria established in the theoretical

literature for gaining sustained competitive advantages, and (c) correlate measures developed in (b) with measures of firm performance (Barney and Arikan 2004; Huselid, Jackson and Schuler 1997; Barnett, Greve, and Park 1994). While this approach has yielded positive dividends, it has one important limitation. Its focus on a highly aggregated dependent variable—namely firm performance—may not always be the best way to test resource-based theory. First, aggregating the outcomes of individual business processes can make it very difficult to examine whether a particular set of firm resources actually creates competitive advantages for a firm (Ray, Barney, and Muhanna 2004) and the specific arenas in which such competitive advantages are created. Second, business processes are the mechanisms through which the competitive potential of a firm’s resources and capabilities are exploited and therefore “deserve study in their own right” (Ray, Barney, and Muhanna 2004; p. 26). Not surprisingly, there has been a call from the above authors as well as from Srivastava, Shervani, and Fahey (1999) to use performance of business processes as the dependent variable, and, in turn, examine the impact of business process effectiveness on firm performance.

Choice of Market-Based Capabilities

We now turn to identifying MBCs that are relevant for business process performance, and, in turn, financial performance of firms. This identification is made for each process separately.

NPD Process: A review of previous literature indicates that NPD outcomes (such as product successes and product lead times) are shaped by both quantity and quality of new product investments. *R&D intensity* has been used

traditionally to capture the quantity dimension; higher R&D investments act as a barrier to entry precluding competition, while at the same time enabling the firm to develop and launch new products earlier than competition and giving the firm first-to-enter advantages. Quality of investments has been closely linked in the literature to a firm's *ability to develop differentiated products* (Cooper and Kleinschmidt 1993; Song and Parry 1997). When organizations fail to develop differentiated products, they suffer from the problem of appropriability—wherein they find themselves unable to fully appropriate the fruits of their innovations because competitors are able to easily imitate the new products they bring to the market (Mansfield 1985).

Development of differentiated products, in turn, is closely linked to having superior information on customers (Langerak and Commandeur 1998) and competitors (Day 1994, 1999). *Market sensing* activities provide firms with greater insights on customer needs, how they are being met, and how they are changing (Calantone, Schmidt, and Song 1996; Song and Parry 1997). These insights, when combined with competitor information, enable firms to discover underdeveloped market niches and potential differentiation opportunities (Slater and Narver 1995).

Beyond market sensing, previous research has identified cross-functional integration as an important determinant of new product success (Griffin and Hauser 1993; Song and Parry 1996). In the current environment where firms outsource many of the value-added activities to suppliers and partners, cross-firm integration has become more important. *Intra- and inter-firm integration* enables enhanced internal and external communication, which

have the capacity to discriminate between success and failure of NPD projects. Additionally, each party possesses critical skills and information that must be integrated to develop successful new products (Ayers, Dahlstrom, and Skinner 1997).

Although previous literature has posited direct relationships between market sensing, integration and NPD performance (Song and Parry 1992, 1993, 1997), these are not evaluated as conceptually they are more likely to impact a firm's ability to develop differentiated products.

CRM Process: The primary goal of CRM processes is to forge stronger customer relationships and thereby improve customer retention and loyalty. The CRM philosophy stipulates that development of relationships should ideally start on a one-to-one basis, as this will facilitate firms to get to know the needs and wants of each customer and respond to them as well as they can. This one-on-one focus has two implications: while it provides the opportunity to firms to show good responsiveness to customer needs and sensitivities, because of the cost involved, firms can do this only on a selective basis. Coincidentally, it happens that not all customers are equally valuable to the firm. In other words, better customer focus or selection would enable firms to invest resources on customers that provide maximal value to them. There is even speculation that not focusing on the valuable customers is a recipe for failure of CRM processes.

The above arguments identify two important predictors of CRM performance—namely, *ability to focus on high-value customers* and *be responsive to their needs*. Beyond these two, organizations have come to

realize that to have a competitive edge, they need to invest in *nurturing their customer assets*; by helping customers get more value from their relationship with the firm, the firm will get a greater share of the customer's business. It is by building and nurturing the value derived by customers that the most valued companies separate themselves from the pack (Vandermerwe 2000).

Our study is somewhat different from other CRM studies that have focused primarily on organizational determinants of CRM performance. Some of the organizational factors identified include culture (McDermott and Stock 1999), cross-functional integration (Hahn, Duplaga, and Hartley 2000), management commitment (Wixom and Watson 2001), user participation (Nelson and Kirkby 2001), and training (Hanaman 1999). We believe that these organizational determinants will eventually impact CRM performance by their effect on organizations' ability to execute customer-related activities like the ones used in our study. For example, management commitment could result in (a) greater CRM investments, (b) greater authority for CRM implementers, and (c) greater coordination across business functions. These however will impact organizational ability to respond effectively to customer needs and treatment of customers as internal assets rather than as external entities (which are the determinants used in our study).

SCM Process: Over the last several years, two important and related trends have impacted the management of supply chains. The first is the use of the supply chain as a competitive weapon. Organizations today are building what are called as "value-chain constellations" (Poirier and Reiter 1996). These are organized networks of

businesses that are working together by sharing resources and rewards in the pursuit of targeted markets and consumers. By working together and creating superior value to customers, these constellations are outperforming the less tightly knit competing networks. To maximize value creation (for customers), it is necessary for the major partner in this network or constellation to take on a *leadership role* and coordinate efforts with other partners within the network.

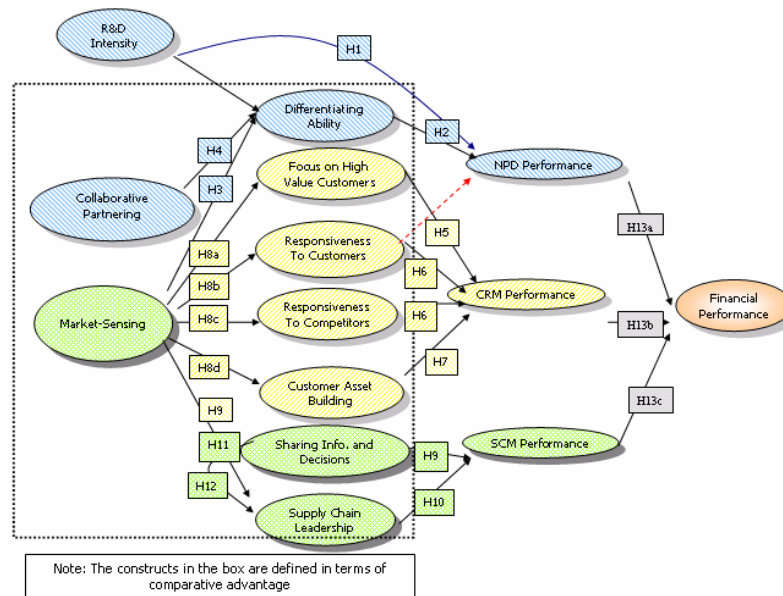
The ability of a firm to exercise leadership within a supply chain network is a function of its market sensing capability (Day 1994). Firms at the cutting edge have turned the supply chain into a 'demand value chain' by reversing the flow of marketing from "company to customer" to "customer to company." Market sensing is a key capability that organizations need to put this new approach into action—it enables firms to understand customer needs quickly and use well-defined procedures for responding to them (Day 1994). The premise of this study is that firms that do this process well would be in a position to assume leadership of their supply chain networks.

A second related trend is the use of information technology tools for transmission and processing of information necessary for synchronous decision making (Sanders and Premus 2005). Through use of technology, Walmart and Best Buy, for example, have a solid insight into the operations of their suppliers and can usually anticipate and react to supply problems before they have an impact on store performance. The focus in the present study is not on the technology itself, but more on what it can do to facilitate performance. Studies have shown that technology helps in information integration across the chain which, in

turn, impacts such initiatives as inventory management and distribution performance (Kulp, Lee, and Ofek 2004). The key component of information integration is *information sharing*—it has been found to be the most important factor for SCM performance (Bowersox, Closs, and

Stank 2000; Handfield et al. 2000; La Londe and Raddatz 2002).

The asset assortments that are posited (in the above discussion) to influence performance of each of the three processes—NPD, CRM, and SCM—are represented in Figure 1. We will look at the individual relationships next.



MBCs and New Product Development (NPD) Performance

Three criteria define the effectiveness of a firm's NPD process—namely, the number of new products developed, the extent to which these products are market winners, and the speed of development of these products. Why do some firms have more effective NPD processes than others? Is it because they are able to allocate larger resources toward R&D activities that create organic growth opportunities? Or, is it because they are better able to sense their markets and develop truly differentiated products? We now examine each of these causes in turn.

R&D Intensity: Previous research has tied a firm's capacity to develop new

products that are winners to its level of R&D spending (Nelson and Winter 1982; Hitt, Hoskisson, and Kim 1997; Hitt, Hoskisson, Johnson, and Moesel 1996; Li and Calantone 1998). The most widely advanced arguments for this premise are that higher R&D expenditure (a) creates a barrier to entry and precludes competition and enables a firm to enter new product lines earlier (Jose, Nichols, and Stevens 1986), (b) contributes to development of innovative products that match buyer needs more closely and thus are able to command a higher market share, and (c) facilitates improvements in existing products that make them less vulnerable to price wars and more likely to command a price premium (Szymanski, Bharadwaj, and Varadarajan 1993). Obviously, too little

or too much spending on R&D is unlikely to be beneficial to firms. However, in the linear portion of the s-shaped curve, we can expect quantity of R&D investments to be tied with increasing NPD performance.

H₁: The greater the R&D intensity, the better the firm's NPD performance.

Develop Differentiated Products:

The ability to differentiate products and services can be considered as a core element of a firm's innovation success for several reasons. First, focus on differentiation motivates the generation of new ideas, a key determinant of innovation (Amabile 1988). Second, differentiation ability results in development of products that enjoy superiority relative to competitive products in terms of uniqueness, quality, and technical performance (Cooper 1979). In a recent study, Song and Parry (1997) found a significant positive relationship between measures of product differentiation and the level of new product success. Third, product differentiation ability is an intangible resource embedded within the firm that can provide it with competitive advantage (Barney 1991) because it is valuable and rare.

It is no secret that many customers are not seeking the lowest price, but willing to pay a higher price for products that are unique and deliver important benefits. Beyond price premiums, a number of other positive outcomes have been associated with differentiated products. Such products have higher success rates (Cooper 1994) and add value by lowering own-price elasticity (cf. Boulding, Lee, and Staelin 1994). They also command greater buyer loyalty (Russell and Kamakura 1994), stimulate earlier trial and referrals (Zandan 1992), and are less affected by competitive clones (Purohit 1994).

Srivastava et al. (1998) proposed that differentiated products could accelerate cash flows by increasing the responsiveness of the marketplace to marketing activity. Further, vulnerability of cash flows is reduced because customers become less susceptible to competitive activity.

Organizations differ in their capacity to develop differentiated products. Not all organizations have the experience and skills needed to put together unique products. Some firms are better than others at recognizing new and evolving customer needs and developing unique solutions for them. Porter (1998) suggests that when competitors are unable to duplicate or find it too costly to imitate a firm's offerings, the firm can establish sustainable competitive advantage. Thus, if this is a rare asset within an industry, it should enable firms that have this capacity to turn out more number of products that are market winners (Song and Parry 1996).²

H₂: The greater a firm's comparative advantage for developing differentiated products, the higher the firm's NPD performance.

What competencies contribute to a firm's ability to develop products that are differentiated from those of competition? In this study, we are particularly interested in the importance of two market-based competencies—*market sensing* which is at the core of the market orientation concept (Kohli and Jaworski 1990) and *collaboration with internal and external stakeholders*.

Market Sensing: Day (1994) defines market sensing as a firm's ability to

² We have used the term comparative advantage in H₂ (and the other hypotheses that follow) to refer to the combination of (a) capability, and (b) rarity of that capability.

continuously sense and respond to trends and events in its markets. Today, most firms realize that they need to develop the capacity to pick up and amplify signals from the market and respond effectively to each new development. According to the Chief Executive magazine, market sensing provides firms with this ability and the result is *fewer missed opportunities and a faster response* to emerging opportunities. The end result is increased rate of innovation within the firm and thus greater success in its NPD process.

A key advantage of being good in market sensing is that it enhances the characteristics and features of new products that are developed by the firm. It enables organizations to develop a better understanding of customers and their requirements, which knowledge can then be used to create distinctive points of difference (PODs) in the products that are developed (Keller 1993). They could also disseminate such external market information to the development people within the firm for use in combination with available technical information. Performed during each stage of the product development process, these activities contribute to creating market knowledge; such knowledge, in turn, can be converted into differentiated products.

Why is this capability important? All industries undergo substantial changes over time that is driven by customers, competitors, or technology suppliers (Achrol 1991). These changes put continuous pressure on businesses to augment their products and services to maintain or increase their value to customers (Slater and Narver 1995). Market sensing becomes valuable as it directs the firm's attention to changing customer requirements and emerging competitive threats and guides it in its

efforts to develop a constant stream of differentiated new products ahead of current and emerging rivals' offerings.

Are all companies good at market sensing? The answer is no. Some companies do not understand the need for market intelligence. Of those that do, some may not have the resources—money and people—to handle the function. In some, in spite of having the best information and people at their disposal, they may fail to exploit market intelligence because it gets buried in day-to-day operations. Therefore:

H₃: The greater a firm's comparative advantage in market sensing, the greater will be the firm's comparative advantage in developing differentiated product offerings.

Collaborative Partnering:

Collaborative partnering refers to the degree to which organizations use and integrate internal and external entities when pursuing new product solutions. In the traditional paradigm, the NPD process was carried out by multiple functional areas in distinct, sequential stages from concept development to product delivery. Each stage was handled by a certain functional area and the development job moved from one area to another as it progressed. Such a sequential operation resulted in longer development times and many quality related problems due to the lack of communication and collaboration between functions (Haque 2003). It also contributed to less attention being given to product design parameters, manufacturing capabilities, and above all, customer requirements. In the late 1980s, the concept of integrated product development was introduced as an organizational mechanism to overcome these barriers and induce a collaborative environment. Under this concept, the process is performed by a

cross-functional dedicated team who share a common set of performance objectives (Cooper and Kleinschmidt 1994). Such integration has been shown to have a salutary effect on the quality and speed of development of the new offerings. For example, if manufacturing and design are involved at the earliest possible stage of the product development process, it makes it easier to develop creative solutions further upstream before significant resources have been spent.

Externally, innovation is increasingly recognized as being the result of the combination of different knowledge and expertise residing in different organizations (Griffin and Hauser 1993; Song and Parry 1997). In today's competitive environment, few companies can rely on their internal strengths to gain competitive advantage in national and international markets. Customer and supplier organizations are two sources that firms use for such collaboration. With respect to customer partnerships, firms increase their chances of developing really unique products since managerial judgments (that are not always accurate) can be substituted with more relevant customer inputs at every stage of product development—from concept to prototype to the final product. Von Hippel's (1988) studies indicated that a certain class of users—the lead users—can be tapped by firms for unique ideas by which they can not only improve the differential advantage and value to customers of existing products, but also develop new and unique solutions. Similarly, companies can involve their suppliers in an attempt to reduce development cost and time and increase product value (Roy, Sivakumar, and Wilkinson 2004). This will particularly be possible if the supplier has superior knowledge of the components they design and supply to the firm.

Overall, collaboration facilitates information sharing and problem solving across functions and collaborating firms; these are likely to enhance a firm's comparative advantage in developing differentiated solutions. Thus:

H₄: The greater a firm's comparative advantage in collaborative partnering, the greater its comparative advantage in developing differentiated products.

Customer Relationship Management (CRM) Performance

In recent years, a variety of market forces such as commoditization of brands, more intense competition, advent of new marketing channels such as the Internet, and ever-rising customer expectations (Sheth and Parvatiyar, 1995) have put pressure on companies to come up with better ways of managing their relationships with customers. Not surprisingly, companies are turning to Customer Relationship Management (CRM) solutions. CRM is a management approach that uses deep customer insights and analysis, drawn from individual customer interactions, to understand and predict consumer behavior and fulfill customer needs as completely as possible (Sheth and Parvatiyar 1995). CRM requires that organizations (a) identify and focus resources on high-value customers, (b) capture and use knowledge about them to develop customized offerings and personalized communication, and (c) nurture them by maximizing the value of their relationship with the organization. Doing these will enable firms to maximize customer satisfaction, loyalty, and retention—all key indicators of CRM performance.

Focus on High Value Customers: Many companies still follow the maxim "the more customers the better."

However, not all customers yield the same value to the firm. High-value customers are those that bring in most revenue and profitability to the firm. In a recent study, Zhou, Yim, and Tse (2005) indicated that by prioritizing customers, a market-oriented firm can excel in its ability to create and deliver superior value. According to Smith (2001), focusing on “high-value” customers (HVCs) will lead to retention of the right customers and ultimately increased profits. Companies usually have a limited budget for customer retention and would like to spend it on those with the highest lifetime value (Greenyer 2003). Greenyer suggests that organizations have to build analytical skills for identifying customers that have the highest probability of churning, as well as the ones who have the greatest potential lifetime value. The model outputs can then be used to predict which products and services will be of interest to the high-value customers—and develop the best strategies to target them.

Organizations are likely to differ in their capability to gather customer information, design databases, and use analytics such as data-mining to identify HVCs. According to Muller and Gelbrich (2003), in reality, firms rarely evaluate customers, because of several reasons—lack of appreciation of customer value, lack of good customer databases, and lack of analytical skills, to name a few. It should come as no surprise that organizations that have this capability will be in a better position to satisfy the needs of HVCs in a personalized manner and maximize the chances of retaining them. Therefore,

H₅: The greater a firm’s comparative advantage in focusing on high-value customers, the better its CRM performance.

Market (Customer/ Competitor)

Responsiveness: Upon identification of high-value customers, the next step is to be responsive to their requirements. Market responsiveness is defined in this study as the speed with which organizations respond to customer needs taking into account competitive offerings (Kohli and Jaworski 1990). The argument for faster response to customer needs is its potential impact on creation of customer value and customer retention. Faster response leads to closer connections with customers, which can lead to stronger feelings of loyalty (Day 1994); the relationship created by this loyalty allows the company to develop customer-specific information and capabilities that are hard to match.

It should be pointed out that superior customer value can only be assessed in relation to the offerings of rival firms. Thus market-responsive firms in addition to being customer-oriented should also be responsive to competitor’s actions (Narver and Slater 1990). They need to know why rivals may be gaining an edge, calibrate themselves against the best of class, and become obsessive with beating their rivals (Day 1999). Understanding competitor strengths and weaknesses may allow organizations to prepare for competitor activity and minimize its adverse effects.

Several reasons have been identified for the variability in organizations’ ability to respond to customers and competitors—differences in the degree to which market information is shared within the organization, how such information is mutually appreciated, and employees’ ability to understand clearly the application potential for such information (Day 1994). Regardless, responsiveness is a quality that will lead to higher levels of customer satisfaction

and loyalty and favorable competitive advantage in the market. Thus:

H₆: The greater the comparative advantage of a firm in its ability to respond to customers and competitors, the better its CRM performance.

Customer Relationship Assets: With increasing competition, the basis for differentiation seems to be ratcheting up in every type of business. Organizations have come to realize that they need to find avenues by which customers can increase the value derived from their relationship with the firm. Relating to this, a new view gaining ground among both academics and practitioners is that organizations have to manage customer relationships as assets. The notion that a firm's relationship with a customer can be viewed as an asset is grounded in both the resource-based view of the firm (Barney 1991) and the relationship-marketing paradigm (Hunt and Morgan 1995). However, in most organizations, the focus is on short-term revenues and salespeople try to maximize today's share of the customer wallet. Mathias and Capon (2003) are of the view that this short-term strategy is more likely to lead to declining margins and commoditization. On the other hand, companies can facilitate growth of relationship capital if they are willing and able to make investments in nurturing customers and participating in their growth. According to Mathias and Capon (2003),

"Investing in customers is a lot more than building good personal relationships and chemistry. In today's performance-driven economic environment, companies are under severe pressure to move costs and capital out of their financial statements and onto other members of their extended enterprise as much as possible. For many suppliers, this is a difficult financial decision—it is quite

literally investing in the customers' future." (p. 48).

Organizations differ in their ability to nurture customers as organizational assets (Sheth and Parvatiyar 1995). Because customer nurturing takes time to develop, the potential exists for this ability to be relatively rare and difficult for rivals to replicate (Francis 2000). Accordingly,

H₇: The greater the comparative advantage of a firm in building customer relationship assets, the better its CRM performance.

Impact of Market Sensing: Market sensing enables firms to gain a better understanding of different customer groups and their relevance for the firms' products. Through this understanding, they will be in a better position to identify high-value customers. Having the capability to sense and understand the needs of high value customers is the first step in the customer lifecycle and a critical step in being responsive to their needs. Responsiveness accounts for the largest part of what customers score as a positive relationship. Those scores soar when responsiveness is combined with proactive relationship building—the latter arising from the market sensing efforts of the firm.

Day suggests that a key and early step in the market-sensing process is the "active acquisition and distribution of information about the needs and responses of the market, how it is segmented, ... , the intentions and capabilities of competitors..." (Day 1994; p. 43). In other words, a market-sensing organization, in contrast to an organization that is oriented to internally driven optimization, will identify key events and trends in the markets before their competitors. It

also enables firms to stay in touch with competitor moves and thus respond to them quickly and effectively. Further, the closer a firm is to its customers and understands their motivations, the greater its ability to enhance value delivered to customers.

H₈: The greater a firm's comparative advantage in market sensing, the greater will be its comparative advantage in (a) focusing on high value customers, (b) responding to customers and competitors, and (c) nurturing customers.

Supply Chain Management (SCM) Performance

A supply chain process encompasses activities relating to production and delivery of products/services to customers. What factors contribute to higher SCM performance? First, the SCM success of a firm is no longer a function of its individual efforts—it depends, to a great extent, on how well the entire supply chain performs (Christiaanse and Kumar 2000). One implication of this trend is that one or more firms in the network will need to take a leadership role in coordinating operations across the chain such that value accruing to customers is maximized. Second, the ability of a firm to execute such a role in a successful manner will depend on how well it shares information and decisions among the network members. Increased transparency is a necessary condition for implementing JIT systems and improving responsiveness to changes in demand conditions.

Information Sharing: Information sharing has been singled out as the most important factor for successful supply chain management (Bowen et al. 2000; Closs and Stank 2000; Handfield et al.

2002; La Londe and Raddatz 2002). Schalet (2001) identified two types of information that can be shared among supply chain members: demand and decisions. Transparency of demand information would ensure that suppliers are making available the right supplies (i.e., for those products in demand) at the right time. If demand information is not transparent, the result for suppliers is either manufacturing too much of low-demand products (resulting in high levels of inventory) or too little of high-demand products (resulting in a shortage). Such mismatch between supply and demand is at the base of what researchers call a bullwhip effect which further paralyzes the supply chain process (Lee, Padmanabhan, and Whang 1997). Transparency of decision information would ensure that the suppliers are in the know and can adjust their policies accordingly. For example, supplier firms involved early in the design process have a better knowledge of the material and design requirements of the new product.

Overall, information transparency enables a firm to reduce supply chain costs and create a competitive advantage due to stronger vendor relationships as amply demonstrated by Dell Corporation. For one, suppliers could manufacture and supply products when an order is received using JIT systems, thereby reducing the amount of inventory that needs to be held. In addition, it allows for quicker response to changes in the demand environment (Dess, Rasheed, McLaughlin, and Priem, 1995) in ways that do not increase costs.

H₉: The greater a firm's ability to share information and decisions, the better the SCM performance.

Supply Chain Leadership: It is important to note that without a champion, collaboration in the supply

chain will not occur (Mentzer 2001). Organizations, however, differ in their ability to lead the supply chain. Leadership from a customer perspective implies that a firm is able to use its relationships within the supply chain to enhance operational efficiencies and deliver better value to customers. A distinction is made in this study between “networked leadership” and “linear leadership.” In linear leadership, firms are responsible for its performance and no one else’s. In networked leadership, the leaders are also responsible for the performance of other firms within the network. Our focus in the present study is on networked leadership. For example, Cisco Systems has organized and led successfully a supply chain network that includes not just the first tier suppliers but suppliers from multiple tiers. Cisco owes its leadership position to the high quality relationships that it has established with both suppliers upstream and customers down the supply line. This form of leadership has obvious benefits for the customer; however, because it also benefits the supply chain partners, the latter exhibit a positive propensity to belong to and work for the network. Thus:

H₁₀: The greater a firm’s ability to lead a supply chain network, the better the SCM performance.

We propose that market sensing should contribute to a firm’s ability to lead supply chain networks. Market sensing provides the firm with superior ability to handle uncertainties and take advantage of opportunities. The firm can enjoy an advantage over its rivals if it can forecast trends and changes in its market environment more accurately. Further, possessing superior knowledge of its customer base, particularly those who form the backbone—loyal, high-value potential—and gaining intimate

knowledge about them affords a firm competitive advantage. Firms within the supply chain that have this capacity will also be firms that can take a leadership role to leverage this competitive advantage for providing higher value to customers.

H₁₁: The greater the market sensing ability of a firm, the greater its ability to lead supply chain relationships.

Sensing is only one part of the equation for good management. The other part is communication and sharing of the sensed information. To manage the supply chain network well, a firm should control uncertainties associated with supply chain operations. Uncertainties arise from the complexity of ongoing coordination of procurement and distribution activities across organizational boundaries and the difficulties associated with specifying requirements precisely to partners in the alliance, which require ongoing communication of demand information and decisions (Gulati and Singh 1998). Sharing information and decisions can reduce the uncertainty level of supply chain members. Through transparency, organizations make elements of the supply chain system more predictable by establishing suitable standards (Leifer and Mills 1996). Predictability will allow supply chain members to achieve higher and more stable returns. Predictability will also accord to the instrumental firm greater legitimacy to take on the leadership role within the supply chain network. Thus:

H₁₂: The greater the sharing of information and decisions, the greater is the firm’s ability to lead a supply chain network.

Linking Business Process Performance to Financial Performance

Ultimately, the competitive advantage arising from effective use of resources in each of the three business processes must be reflected in superior financial performance. For example, effective SCM processes can reduce costs in such areas as inventory management, warehousing, and transportation and enhance revenues through programs that assure higher product availability (Thomas 1999). Improvements in a company's distribution network can translate into increased sales. These improvements, in turn, could result in significant improvements to corporate profitability.

Similarly, effective CRM processes because of their effects on customer satisfaction and retention could lead to higher firm profitability. In a CRM study in the communication industry, Accenture examined 54 customer relationship management capabilities in marketing, sales and customer service and concluded that 11 specific areas had the greatest impact on a company's financial performance (Business Wire, Sep. 27, 1999). Their results indicated that as much as 50 percent of the difference in return on sales between average- and high-performing companies could be explained by CRM performance. In another similar study done for high tech companies, they found that a typical \$1 billion high-tech company can gain as much as \$130 million in profits by improving its ability to manage customer relationships (Business Wire, March 21, 2000). Overall, these two studies suggest that a focus on improving performance in CRM can separate the leaders from the rest of the pack in a competitive industry. Yet, not all of the CRM capabilities may be equally important.

The key drivers of increased financial performance were (1) understanding customer profitability and cost to serve, (2) articulating the "value proposition" to customers, (3) effectively managing product mix and bundling, and (4) focusing on HVCs. These are also some of the drivers included in the present study.

Finally, NPD performance should impact financial performance positively. The NPD process allows organizations to deliver a stream of new products to the marketplace with meaningful benefits that consumers are willing to pay for. Additionally, it could facilitate in bringing these products to the market at a faster pace. The effect of these would be to increase share of the market and provide scale economies to the firm. Through these benefits, the organization can increase financial performance. Thus:

H_{13a}: The greater the NPD performance, the better the financial performance.

H_{13b}: The greater the CRM performance, the better the financial performance.

H_{13c}: The greater the SCM performance, the better the financial performance.

Combined Impact of Process Performance on Financial Performance

There are two viewpoints regarding tradeoffs among the three organizational processes and their impact on firm performance. One view espoused by Hagel and Singer (1999) is that although organizationally intertwined, these processes are actually very different and that the economies governing them are in conflict. They further state that "bundling them into a single corporation inevitably forces management to compromise the performance of each

process in ways that no amount of reengineering can overcome" (p. 136). The CRM process requires organizations to maximize depth of relationship with customers (economies of scope), the NPD process requires products to be developed and launched faster (speed), and the SCM process requires routinization of activities and predictability of demand (economies of scale). Their main argument is that scope, speed, and scale cannot be optimized simultaneously. Extending these arguments, it can be inferred that high levels of performance on each process does not mean that the firm's performance will be maximized. The more traditional view offered by Srivastava, Shervani, and Fahey (1999) stipulates that the three core processes are not independent and that exploiting the interdependencies is more likely to lead to firm success than a focus on just one. The expectation is that top management is not only interested in maximizing the performance of each process, but also discovering and using synergies among the processes to maximize financial performance. To test which view is relevant, we offer the following hypothesis.

H₁₄: The three business processes—NPD, SCM, and CRM—are likely to have a synergistic positive impact on firm performance.

Research Methods

Sample and Procedure

A sampling frame of firms was developed for four big cities in the mid-western and southern parts of the country. Fifty firms were selected from each city in a random manner. The key informant was

defined as a top manager from the marketing function—VP, Director, or Manager. If the firm did not have a separate marketing department, the person in charge of marketing was identified as the key informant. A search process was initiated to find a contact person in each firm. In some cases, the contact person and the key informant were the same person. This contact person was given a detailed explanation of the survey questions in a face-to-face meeting. Wherever the contact person and the informant were not one and the same, the former took responsibility for conducting a personal interview on behalf of the researchers with the latter. Given the strategic focus of the study and the need to contact top managers, we recognized that mail surveys will get a low response rate; telephone surveys would be impossible; and personal interviews was a must.

Using the above process, a total of 190 contacts were made. Of these, complete survey responses were obtained from 88 firms, yielding a response rate of 46 percent. The most important reason for non-response was inability of the contact person to get together with the key informant. To improve response rate, the participating firm was promised a benchmarking copy of the findings of the study. Other factors that contributed to greater participation were the strategic focus of the study, perceived usefulness of the study, novelty of the survey measures and the personal solicitation.

The sample profile of responding firms is reported in Table 1. Respondents are primarily in B to B firms (56.8%) that have a separate marketing department (92%). These firms are large in size with

65.5% employing more than 1000 employees and have been around for more than 15 years (71.6%). Of the respondents, 59% are involved in

the CRM process, 59% in the NPD process, while 36% are involved with the SCM process.

Table 1
Sample Description

Type of Firm

<i>Type</i>	<i>#.</i>	<i>Percent</i>
Retail	5	5.7
Consumer Services	9	10.2
B – to – B	50	56.8
Consumer	14	15.9
Others	10	11.4

Size

<i>Size range</i>	<i>#</i>	<i>Percent</i>
< 50	5	5.7
50-250	13	14.9
251-500	6	6.9
501-1000	6	6.9
> 1000	57	65.5

Length of Existence

<i>Length range</i>	<i>#.</i>	<i>Percent</i>
< 1 year	1	1.1
1-5	9	10.2
6-15	15	17.0
> 15	63	71.6

Marketing Structure

<i>Structure</i>	<i>#.</i>	<i>Percent</i>
No marketing department	7	8.0
One overall marketing department	36	41.4
One marketing department for Each SBU	44	50.6

Process Involvement

<i>Process Responsibility</i>	<i>#</i>	<i>Percent</i>
CRM	52	59
SCM	32	36
NPD	52	59

Measurement

Table 2 includes a complete description of the measures used in the study. Similar to the procedure used by Moorman and Rust (1999), if the organization had only one strategic business unit (SBU), respondents were asked to focus on the overall firm when providing responses.

Table 2 - Reliability Analysis¹

Construct/Item	Cronbach alpha	Item-to-Total Correlation
Develop differentiated products (DP)	0.80	
1. Our products are difficult for competition to copy.		0.816
2. Our product designs are unique.		0.852
3. Our products do not have a significant advantage over those of our competitors. (R)		0.778
Market Sensing (MS)	0.82	
How would you rate your company's: (5-point scale; very poor --- very good)		
1. ability to track changes in customer needs and wants?	0.812	
2. analyses of customer satisfaction with your products?	0.824	
3. surveillance of competitors?		0.734
4. collection of strategic information about customers and competitors for use in strategic planning?		0.817
Collaboration with Partners (CP)	0.73	
1. We use cross-functional teams (e.g., involving R&D, manufacturing, sales and marketing) in designing new products.		0.902
2. We use trans-organizational teams (e.g., involving customers, suppliers and complementors) while designing new products.		0.902
Focus on High-Value Customers (HVC)	0.73	
1. We continuously refine our customer base by eliminating low-value customers.		0.660
2. We make a conscious attempt to minimize catering to price-sensitive customers.		0.746
3. We focus our sales resources on high-value customers.		0.706
4. Our products are positioned at the high-end of the price-quality continuum.		0.634
5. We like to personalize services to our major customers.		0.671
Market Responsiveness – (MKTR)	0.85	
How would you rate your company's: (5-point scale; very poor --- very good)		
1. Quickness of response to meeting changes in customer needs and wants?		0.799
2. Response to customer complaints?		0.812
3. Making product/service changes to overcome customer dissatisfaction with existing products?		0.890
4. Speed of dissemination of information in-house about competitors?		0.916
5. Response to competitive moves in the marketplace?		0.799
Customers as Assets (CN)	0.85	
1. Our firm recognizes customers as assets.		0.791
2. Our firm is willing to spend dollars to nurture our customers.		0.735
3. Our competitors envy our customer support capabilities.		0.697
4. We have designed systems to better understand and serve our customers.		0.763
5. We look upon CRM as the most important business process for driving financial performance.		0.766
Information Transparency (IT)	0.83	
1. Our component suppliers often place some of their personnel on our product development teams.		0.922
2. We share demand knowledge with key component suppliers.		0.922
(Networked) Supply Chain Leadership (SCL)	0.85	
1. We play a lead role in integrating products and services across vendors in developing customer solutions.		0.825
2. We actively leverage our "customer ownership" in negotiating with other members (suppliers, distributors, and complementors) of the value chain.		0.851
3. We are considered a partner-of-choice by our strategic partners.		0.827
4. We actively manage strategic alliances to enhance the value of our products and services to our customers.		0.736

¹ All items were measured using a 5-point strongly disagree-strongly agree scale, unless mentioned otherwise.

Comparative Advantage: The conceptual framework identified a number of capabilities or resources that drive business process performance. The measurement of comparative advantage is illustrated with an example for one of the capabilities—namely, market sensing.

As defined in this study, comparative advantage has two components: ability and rarity. The position of a firm on a capability (e.g., how well a firm does market sensing, in its own opinion) is termed as “resource ability.” The following four items were used to rate a firm’s market sensing capacity: ability to track changes in customer needs and wants, analyze customer satisfaction, monitor competitors, and collect strategic information on customers and competitors for use in strategic planning (for more information, see Table 2). An average score is computed based on responses to the four items to represent market sensing ability.

For this capability to provide comparative advantage to a firm, one important condition is that it must be rare (i.e., other firms are not as good on market sensing). The rarity of a resource is measured by asking the following question: “To what extent do you believe market sensing (monitoring customers and competitors and obtaining information that can be used by the firm) is unique to your firm/business unit when compared to your most relevant competitors?” The response values range from “not at all” to “very unique.”

Based on the above responses, comparative advantage in market sensing is computed with the help of a multiplicative term:

$$\text{Comparative Advantage} = \text{Resource Ability} \times \text{Resource Rarity}$$

More information about the rarity factor is presented in the Appendix. The

following three sections detail how the ability aspect is measured for each capability. Scale items used in such measurement are detailed in Table 2. It should be noted that while the ability scales have multiple items, the rarity scales are made up of single items.

NPD Capability: NPD performance is hypothesized to be a function of two resources—comparative advantage (CA from hereon) in developing differentiated products and R&D Intensity. The product differentiation concept captures the degree to which a firm is able to develop products that are truly differentiated and distinctive. This concept is measured with the help of a three-item scale drawn from measures recommended by Storey and Easingwood (1998) and Sengupta (1998). This scale has good internal consistency property ($\alpha = 0.80$; see Table 2). R&D Intensity is measured as the proportion of annual sales that is spent on research and development.

CA in product differentiation, in turn, is hypothesized to depend upon a firm’s CA in market sensing and CA in collaboration with internal and external partners. The ‘market sensing’ concept was proposed by Day (1994) and refers to the ability of a firm to learn about market players (customers and competitors) by continuously gathering, analyzing, and interpreting information about them. It is measured with the help of four items that capture a firm’s ability to track market information and integrate them within the firm’s strategic planning process. The Cronbach alpha for this scale is 0.82. Collaboration refers to the degree to which a firm or SBU uses cross-functional teams internally and trans-organizational teams externally in the design and development of new products. The two-item scale, drawn

from Harmsen, Grunert, and Bove (2000), has a correlation of 0.73.

CRM Capability: The study focuses on three capabilities that drive CRM performance—focus on high-value customers, responsiveness to customers and competitors, and nurturing customers as assets of the firm. Since no previous study has empirically examined the impact of a firm's ability to identify and service high value customers, a new scale is developed for this study. Five items were developed that measure whether the firm makes a conscious attempt to serve high-value customers (HVCs) and avoid serving low-value customers. The five-item scale has an acceptable Cronbach alpha of 0.73. Market responsiveness refers to the firm's ability to respond quickly to customer needs and competitor strategies based on what it senses. Five items proposed by Harmsen, Grunert, and Bove (2000) were used to measure this construct. The Cronbach alpha for this construct is 0.85. Customer asset orientation refers to whether a firm views its customers as assets and is willing to invest in their future. A five-item scale developed for this concept has high internal consistency (alpha = 0.85).

SCM Capability: The key capabilities driving SCM performance are information transparency among supply chain members and leadership of the supply chain network. A three-item scale was developed to measure information transparency, of which one item was dropped due to low correlation with the remaining two items. The two items remaining show a high consistency (alpha = 0.83). Ability to lead is defined in terms of how a firm leverages supply chain relationships to create value for customers. A good supply chain leader uses their "ownership" of customers for negotiating with other members of the

value chain. Their customer focus increases the willingness of supply chain partners to enter into relationships with them. This concept was measured using four items (alpha = 0.85).

Business Process Performance: There are two ways to measure process performance—objective, secondary measures and subjective managerial perceptions. The latter approach is used in the present study for several reasons. The most important of these are that respondents were unwilling to share objective performance information at the business process level, and creation of valid measures of performance across industries was difficult (Moorman and Rust 1999). In support, previous studies have found a strong correlation between subjective measures and their objective counterparts (Dess and Robinson 1984). When measuring a firm's performance, respondents are asked to rate relative to their firm's or SBUs stated objectives.

Performance is measured for the three core business processes—NPD, CRM, and SCM. Because a good NPD process is associated with developing new products that are market winners and enhancing speed of product development, these metrics are used to evaluate NPD performance. The scale items used are internally consistent (alpha = 0.82). CRM performance is related to the firm's performance on (1) customer satisfaction and retention, (2) ability to charge price-premium for products, (3) number of customer relationships, and (4) reputation or image (alpha = 0.85). Finally, SCM performance assesses the firm's performance on (1) inventory cost and (2) demand volatility (alpha = 0.78).

Financial Performance: The study adapted a measure used by Moorman and Rust (1999) for measuring financial

performance. This measure has the following components: (1) return on assets, (2) net profits, (3) sales and market share. Together, the items show good reliability ($\alpha = 0.91$). Additionally, **objective** financial measures—profitability (return on assets, EBIT), sales, cash flow, and market value—were collected from Compustat tapes. A three year average is used for return on assets and EBIT to overcome year-to-year variability. For the last three measures, the average growth for the last three years was computed. A limitation of the objective data is that information is not available for firms that are not public; this problem was also experienced even with some of the publicly listed firms. The net result was that objective data was available only for 30 of the 88 firms in the sample.

Measurement Validity

Measurement Properties: The first analytical step was to examine the distribution properties of the comparative advantage measures. The mean value is in the range of 7.26 to 9.22 on a 20-point continuum, suggesting lower levels of comparative advantage. A reason for these low numbers is the low value of uniqueness for each capability (this value is reported in Table 5). The highest value of 2.76 on a four point scale corresponds to firms' treatment of customers as assets. The skewness of the CA measures is low to moderate (ranging from .44 to .92), indicating that the data is skewed to a small degree to the right. The kurtosis values are peaked for two of the measures, while being close to zero for the others. Overall, the comparative advantage measures can be said to be symmetric and relatively flat.

Reliability Analysis: The scale reliability values (coefficient alpha) and item-to-total correlations are also reported in Table 2. Without exception, reliability for all of the study constructs exceeds 0.70.

Discriminant Validity: The next step was to explore the discriminant validity of the measures using confirmatory factor analysis (CFA). Given the small sample size, it was decided to conduct CFA within subsets of constructs—each subset including constructs that pertain to each of the three business processes. The NPD subset includes a firm's ability to differentiate products and services, its collaboration with internal and external stakeholders, and market sensing. The CRM subset included customer focus, market responsiveness, customer asset orientation and market sensing. Finally, the SCM subset included information transparency, supply chain leadership and market sensing. The fit statistics were as follows: NPD: chi-square = 42.49 (d.f. = 23), GFI = 0.90, NNFI = 0.89, and CFI = 0.93; CRM: chi-square = 192.51 (d.f. = 125), GFI = 0.81, NNFI = 0.86, CFI = 0.88; SCM: chi-square = 55.26 (d.f. = 31), GFI = 0.89, NNFI = 0.91, CFI = 0.94. Although some may consider this type of piecemeal analysis as not compelling, given the limits of the sample size and combined with the other evidence presented, we can conclude that the individual measures are not confounded.

In addition, an exploratory factor analysis (EFA) was carried out. In a CFA, the cross-loadings are constrained and one can argue that pockets of poor items are swamped by the overall fit of the model and a large number of "good" items. An EFA is less forgiving by allowing each item to cross-load and laying bare the poor items (Ramaswami and Singh 2003). For reasonable

discriminant and convergent validity, we would expect that each item has a significant and dominant loading on its hypothesized factor ($> .30$, $p < .05$) and the spread between the dominant and cross-loading is large and reasonable (e.g., $> .30$). Both these conditions are satisfied for all items but one. Overall, each item has a dominant loading on its hypothesized factor and cross loadings are significantly smaller in magnitude.

Method of Analysis: Multiple regression analysis, using the hierarchical method of entry, was performed to test the hypotheses. The hierarchical method evaluates the mediation role of the three process performance (NPD, CRM, and SCM) concepts. Regression was chosen rather than a structural equations approach because of sample size limitations. A variant of structural equations, namely path analysis, was used for the limited purpose of identifying relevant relationships among the study concepts beyond those posited by the model (using modification indices data). Regression analysis was also used for capturing the interdependencies among the three processes (NPD, CRM, and SCM) within organizations. The three two-way interaction terms (NPD * CRM, NPD * SCM, and CRM * SCM) and the one three-way interaction term (NPD * CRM * SCM) for the process performance variables are computed based on the residual method to make them orthogonal to the main effect terms and thereby eliminate any multicollinearity among them.

Results

Path Analysis Findings

The path analysis model did not signal any problems with estimation and convergence was achieved without any boundary conditions. The model fit

statistics indicate the following: chi-square with 65 degrees of freedom = 184.35 ($p=.00$); GFI = 0.79; CFI = 0.80; normed fit index (NFI) = 0.73. The modification indices suggested the addition of four paths: CA in supply chain leadership \rightarrow NPD performance; CA in high-value customer focus \rightarrow CA in differentiation ability; CA in Market Responsiveness \rightarrow CA in customer asset orientation; and CA in customer asset orientation \rightarrow SCM performance. The relationships signaled by these paths make intuitive sense. Supply chain leadership provides tighter connections among firms that can be used to positively impact the NPD performance of a firm. More focused attention to high value customers contribute to a firm's ability to differentiate. When customers are considered as assets, the firm has more information on them which leads to greater demand certainty and better SCM performance. After adding these paths, the fit statistics improved as follows: chi-square with 61 degrees of freedom = 107.49 ($p = .000$); GFI = 0.87; CFI = 0.92; and NFI = 0.88. Considering the sample size, these statistics provide reasonably strong support for fit of the model.

Mediation Analysis

To test for the explanatory power of the three process performance variables—NPD, CRM, SCM—a hierarchical regression approach was used. Initially, the influence of the seven drivers of process performance was evaluated using a step-down F-test. This involved including both drivers (7) and process performance variables (3) in a model explaining financial performance, and then selectively excluding either the drivers or the process performance variables. The exclusion of the seven drivers did not significantly change the explanatory power of the regression model (change in R-square = .085; change in mean-squares = .929, $F =$

1.772, $p = .106$). On the other hand, the exclusion of the three process performance concepts significantly decreased model fit (change in R-square = .175, change in mean squares = 4.442, $F = 8.468$, $p = .000$). Further, the model R-squares for the three equations explaining process performance as a function of the drivers were all significant (R^2 (NPD) = .22; R^2 (CRM) = .34; R^2 (SCM) = .30). These results show that NPD performance, CRM performance, and SCM performance mediate the influence of firm capabilities on firm financial performance.

Test of Hypotheses

The standardized parameter estimates corresponding to the regression model are reported in Table 3.³ Overall, it appears that the model provides a reasonable explanation for the endogenous constructs as the range of variance explained is between 18 % and 56 %. Hypotheses 1 and 2 focus on R&D Intensity and CA in developing differentiated products, respectively, as predictors of NPD performance. Results provide support for both hypotheses; the coefficient for R&D intensity is 0.17 ($p < .10$), and the coefficient for CA in developing differentiated products is 0.22 ($p < .05$). Additionally, supply chain leadership has a positive impact on NPD performance ($b = .36$, $p < .01$).

Table 3
Effects of Market-Based Resources on Financial Performance of Firms

		Path Coefficient ^b	T-value	R ²
<i>Dependent Variable: NPD Performance (PNPD)</i>				.22
H1	R&D Intensity (RD) → PNPD	.17	<i>1.70</i>	
H2	CA in Product Differentiation (DP) → PNPD	.22	2.20	
	CA in Supply Chain Leadership (SCL) → PNPD ¹	.36	3.57	
<i>Dependent Variable: CA^a in Product Differentiation (DP)</i>				.22
H3	CA in Market Sensing (MS) → DP	.02	0.17	
H4	CA in Collaboration (CP) → DP	.46	3.25	
	R&D Intensity (RD) → DP	.07	0.67	
	CA in Focus on High Value Customers (HVC) → DP ¹	.29	2.43	
<i>Dependent Variable: CRM Performance (PCRM)</i>				.34
H5	CA in Focus on High Value Customers (HVC) → PCRM	.17	<i>1.65</i>	
H6	CA in Market Responsiveness (MKTR) → PCRM	.24	2.14	
H7	CA in Customer Asset Orientation (CN) → PCRM	.30	2.59	
<i>Dependent Variable: CA in Focus on High-Value Customers (HVC)</i>				.18
H8a	CA in Market Sensing (MS) → HVC	.43	4.31	
<i>Dependent Variable: CA in Market Responsiveness (MKTR)</i>				.27
H8b	CA in Market Sensing (MS) → MKTR	.52	5.59	
<i>Dependent Variable: CA in Customer Asset Orientation (CN)</i>				.39
H8c	CA in Market Sensing (MS) → CN	.29	2.85	
	CA in Market Responsiveness → CN ¹	.42	4.13	
<i>Dependent Variable: SCM Performance (PSCM)</i>				.30
H9	CA in Information Transparency (IT) → PSCM	.02	0.12	
H10	CA in Supply Chain Leadership (SCL) → PSCM	.23	<i>1.67</i>	
	CA in Customer Asset Orientation (CN) → PSCM ¹	.39	3.58	
<i>Dependent Variable: CA in Supply Chain Leadership (SCL)</i>				.56
H11	CA in Market Sensing (MS) → SCL	.24	3.09	
H12	CA in Information Transparency (IT) → SCL	.66	8.60	
<i>Dependent Variable: Financial Performance (FP)</i>				.51
H13a	NPD Performance (PNPD) → FP	-.04	-0.42	
H13b	CRM Performance (PCRM) → FP	.49	4.25	
H13c	SCM Performance (PSCM) → FP	.28	2.59	
H14	PNPD * PSCM	-.29	-2.43	
H14	PNPD * PCRM	.10	0.90	
H14	PCRM * PSCM	.23	2.47	
H14	PNPD * PSCM * PCRM	.07	0.89	

^a comparative advantage

^b Coefficients in **bold** are significant at p = .05 and coefficients in **bold and italics** are significant at p = .10.

H₃ and H₄ examine the degree to which CA in market sensing and collaboration influence a firm's CA in product differentiation. Results show support for only one of the hypotheses; the coefficient for market sensing is not significant, while the coefficient for CA in collaboration is positive ($b = 0.46$) and significant ($p < .01$). R&D Intensity is used as a covariate in this equation to examine if firms are able to develop CA in product differentiation by increasing investment in R&D. The non-significant coefficient for this covariate suggests that integration support provided by internal and external partners is more meaningful for the development of differentiated products more so than the amount of R&D expenditure. One path was added to this equation—CA in high value customer focus. This path showed a significant ($p < .05$) positive coefficient (0.29).

H₅, H₆ and H₇ investigate the determinants of CRM process performance. Results suggest that CRM performance is influenced by a firm's CA in responsiveness to customers and competitors ($b = 0.24$; $p < .05$) and treating customers as assets ($b = 0.30$, $p < .01$). However, it is only marginally related to CA in focusing on high value customers.

H₈ postulates that one source of a firm's strength in these CRM predictors is its CA in market sensing. There is overwhelming support for this postulate. CA in market sensing is related to a firm's ability to focus on high-value customers (H_{8a}) ($b = 0.43$, $p < .01$), its market responsiveness (H_{8b}) ($b = .52$, p

3 Three firm-level control variables—firm size, type of firm, and presence of marketing department—were used as predictors against each of the endogenous constructs of the model. With one exception, none of the variables showed a significant association suggesting that firm-level effects were not relevant in this study.

$< .01$) and nurturing of customers as assets (H_{8c}) ($b = 0.29$, $p < .01$).

H₉ and H₁₀ hypothesized that CA in sharing demand information and supply chain leadership respectively would contribute to better SCM performance. The results do not support H₉, but provide marginal support for H₁₀ ($b = .23$, $p < .10$). Moreover, it is influenced primarily by a firm's CA in nurturing of customers as assets ($b = 0.39$, $p < .01$). However, as hypothesized in H₁₁ and H₁₂, CA in market sensing and CA in information transparency are related positively to supply chain leadership.

Finally, of the three business processes, both CRM and SCM have a positive, significant association with the financial performance of firms. The beta coefficient for CRM process is 0.49 ($p < .01$) and the SCM process is 0.28 ($p < .01$). On the other hand, the NPD process performance is not related to financial performance of firms. These results support H_{13b} and H_{13c}, while not supporting H_{13a}.

The combined impact of the three process performance variables was tested next. Among the two-way interactions, NPD performance and SCM performance exhibit a negative relationship with firm performance ($b = -.296$, $p = .017$), while CRM performance and SCM performance show a positive association ($b = .230$, $p = .016$). Thus there is mixed support for H₁₄.

Validation of the Performance Relationship: Objective performance data—profitability (return on assets, EBIT), and growth in sales, cash flow, and market value—were collected using Compustat tapes for some of the survey participants. For profitability, a 3-year average was computed to account for year-to-year variability. For the growth measures, the average growth for the

period 1999-2001 was computed. Because of limitations in sample size (only 30 data points out of a sample of 88), a simple univariate correlation is computed between each process performance measure and the objective financial measures. The correlation numbers are reported in Table 4. While the NPD process performance measure is unrelated to any of the financial measures, the CRM and SCM process performance measures exhibit positive and significant associations with sales growth, cash flow growth, and growth in market value. These results validate the survey study findings.

Marketing's Role in the Three Business Processes

Table 5 presents two pieces of information about each capability—its

uniqueness and the role played by marketing in leveraging the capability. It appears that customer asset orientation and developing differentiated products are the top two unique capabilities. It also seems that the marketing function plays an important, if not critical, role in generation of most of the capabilities under study. Of these, marketing plays a more important role in capabilities that are relevant for the CRM and NPD processes. For example, marketing has the most impact in a firm's ability to develop differentiated products (mean = 2.98). It also has an impact on capabilities that influence CRM processes either directly or indirectly—including customer asset orientation, market sensing, and focus on high-value customers.

Table 4

Correlation Between Subjective Process Performance Measures and Objective Financial Data

Objective Financial Measure	Process Performance Measure		
	NPD	CRM	SCM
Return on Assets	-.259	.048	.110
Earnings Before Interest and Taxes	-.241	-.291	-.073
Sales growth	.179	.401 ^b	.465 ^a
Cash flow growth	.002	.399 ^b	.378 ^c
Growth in market value	.136	.354 ^c	.394 ^b

^a p < .01

^b p < .05

^c p < .10

Table 5
Managerial Perceptions of Resource Ability, Uniqueness, CA and Marketing's Role

Resource	Uniqueness Score ^a	Ability Score ^b	Comparative Advantage	Marketing's Role ^c
Market Sensing	2.18	3.27	7.42	2.80
Collaboration (inter-functional, customers, suppliers)	2.44	3.20	7.99	2.46
Developing differentiated products	2.46	2.94	7.26	2.98
Focus on high-value customers	2.42	3.35	8.41	2.78
Responsiveness to market (customers & competitors)	2.24	3.16	7.27	2.52
Customer asset orientation	2.72	3.32	9.22	2.88
Information transparency	2.34	2.87	6.72	1.98

^a Uniqueness of resources is measured on a 4-point scale (1=not at all unique, 4=very unique).

^b This measures the extent to which a firm focuses on each resource. (1-5 scale)

^c Measures the role of marketing in creation of each resource using a 4-point scale (1=no role, 4=critical role)

Discussion

The primary objective of the present study was to gain a better understanding of marketing-related capabilities and their influence on value-adding processes such as NPD, CRM, and SCM and consequently financial value of a firm. Although marketing theorists (c.f., Hunt 2000) and resource-based view proponents (RBV) have noted its relevance (Srivastava, Shervani, and Fahey 1999), with only a few notable exceptions (e.g., Bharadwaj, Varadarajan and Fahy, 1993; Capron and Hulland, 1999), marketing scholars have not addressed the capability-process performance-financial performance linkage empirically. The present paper addresses this gap. Before discussing

the study's contributions in greater detail, we would like to acknowledge the limitations of the study.

Limitations

Several limitations of our study are noteworthy. First, the study is based on cross-sectional data and we advise caution in drawing cause – effect inferences. The results, therefore, might not be interpreted as proof of causal relationships, but rather as lending support for a prior causal scheme. The development of a time-series database and testing of the capability drivers in a longitudinal framework would provide more insight into probable causation. Second, the

study is based on a small sample of 88 firms. The study is therefore likely to yield results that are conservative as any significant effects found in smaller samples will become more apparent in larger samples. Third, the study could not provide an exhaustive account of all capabilities that affect business process performance. Future studies could extend our study by including additional capabilities in the conceptual model. Despite these limitations, our results offer useful insights into the relevance of RBV for business process performance. We discuss key findings of the study and draw managerial implications from them in the next section.

MBCs and Firm Value

The overall position of the study is that (a) the financial performance of a firm is dependent on how well it does in each of three business processes; and (b) performance in these processes is dependent on a firm enjoying comparative advantage vis-à-vis competitors on a set of relevant resources or capabilities. We will discuss the results relating to each of these study facets in greater detail below.

Business Process Capabilities: A firm's NPD performance is driven primarily by (a) its CA in differentiation ability and (b) its leadership within the supply chain network. When (a) is coupled with the finding that R&D intensity has a lower (although significant) impact on NPD performance, it appears that more than the level (quantity) of R&D spending, it is the quality of those investments (as signaled by the capacity of the firm to design and develop differentiated products) that matters for successful NPD performance. This result underscores the need for organizations

to become market-centric rather than remain product-centric, a prescription that is consistent with previous research (cf. Slater and Narver 1995). The second result is interesting as it shows the integrative nature of business processes. If a firm is able to establish a leadership role in its supply chain end of business, it appears that it can leverage that position to improve its NPD processes.

Results also show that CA in differentiation ability, in turn, is a function of CA in high-value customer focus and CA in collaboration with internal and external partners. These results imply that organizations can be better at this capability if they are good at taking a well-defined segment of customers (targeting customers with high-value rather than spreading themselves thin) and developing products for them in coordination with important internal and external stakeholders.

With respect to CRM performance, the study findings are thought provoking. CRM performance is based on loyalty and satisfaction metrics. Results show that these are influenced by firm capabilities in the areas of market responsiveness and nurturing customers as assets. One main area of focus of the responsiveness concept is quickness of response to changed market conditions. Our result seems to suggest that quickness of response matters more than targeting a high potential group. The second result indicates that customers not only expect organizations to be responsive to their needs, but also hold them to a higher standard. This higher standard may be more likely met by a nurturing stance taken by organizations toward their customers. Finally, it appears that skills with respect to targeting high value customers represent pre-conditions for staying in the game but may not result

in competitive CRM advantages. This result is at odds with the prescription of most CRM pundits that companies need to achieve focus in serving high-value customers rather than serve all customers.

Finally, SCM performance is only a marginal function of one of the two supply chain process determinants hypothesized in the model (namely, supply chain leadership). We had expected both determinants to reduce demand certainty and increase supply chain efficiency. Together, the objective was to keep supply and demand in sync, increase supply chain efficiencies and pass on the lower costs to customers. However, we did find that information transparency provided firms with the ability to lead supply chain networks. Transparency has been identified as an important coordination mechanism affecting the inventory and production levels of all parties in the supply chain (Lee, Padmanabhan, and Whang 1997).

Impact of Process Performance on Financial Performance: CRM and SCM performance (PCRM and PSCM, from hereon) are associated with both subjective and objective measures of financial performance. Among the objective indicators, significant relationships were found with growth in cash flow, sales revenues, and market value. Thus the study is able to link CA in several drivers of business processes to market value of the firm. If some of these drivers are strengthened by activities of the marketing function, it would then be possible to discuss the contributions of marketing to firm value. The lack of a main effect relationship between NPD performance (PNPD, from hereon) and financial performance suggests that the NPD process although yielding benefits, may also involve costs that can make it less efficient.

This view is somewhat justified by the negative relationship shown by the two-way term $PNPD * PSCM$. Maximization of PNPD indicates more new products and faster market introductions. There is likely to be greater demand volatility (because of market uncertainties) and the need to hold higher levels of inventory to reduce that uncertainty. But doing this will weaken the impact of PSCM on financial performance of the firm. On the other hand, the two-way term $PCRM * PSCM$ shows a positive coefficient, suggesting that economies of scope and economies of scale can move together in the same direction. The message is that firms that can protect customer relationships by developing a network of firms that can create additional value to customers can maximize financial performance. Overall, there is support for unbundling as well as bundling of processes, but in different areas within the firm.

Implications for Marketing: The key drivers of business process performance are market sensing and responsiveness, product differentiation ability, identifying high value customers and customer asset orientation. All of these capabilities are focused primarily on a firm's markets and customers. Thus the marketing function should have an important role to play in enhancing business process performance. When asked specifically if this was the case, the responses obtained were somewhat mixed. The mean response for the five key capabilities was in the range of 2.46 to 2.88 on a 4-point scale (where 3 = important and 4 = critical), suggesting that, on the average, the marketing function plays an important but not a critical role in developing these capabilities. One possible reason for these average scores may be a recognition that developing these capabilities will have to be done with organization-wide participation. For

example, responsiveness to markets and customers may be influenced not only by marketing, but also by customer service, design and engineering, distribution, and IT. Overall, the study has one important message for the marketing function: once the drivers of business process performance are identified, marketing can examine the processes more closely to discover ways by which it can play a more important role and thereby increase its stake in organizational success. From a process perspective, it appears that while marketing plays a central role in CRM, its impact on the SCM process is, although important, more limited. Marketing also plays an important role in the NPD process.

Comparative Advantage Concept

A substantive contribution of the study relates to incorporating the comparative advantage (CA) concept in building a conceptual framework to explain the impact of market-related capabilities on business process performance. The CA theory is simple in its prescription—CA in resources leads to sustainable competitive advantage in the marketplace (which in turn leads to better financial performance). Using this premise, our study tested the relevance of several key cross-functional organizational capabilities—market sensing and responsiveness, customer asset orientation, differentiation ability, collaboration with customers and suppliers, and supply chain leadership. Although some of these capabilities have been examined in previous studies, the point of departure in the present study is that it examines their relative influences by incorporating all of them in a single study. Additionally, none of these capabilities have been used previously to predict business process performance; instead, the focus has been on final organizational

outcomes such as financial and market performance.

Another significant contribution of the study relates to operationalization of the CA concept. CA is a complex construct that incorporates several properties of a resource—namely, rarity, convertibility, and imitability. No previous study known to the authors has developed a measure that includes any of these dimensions. Our study makes an initial attempt at capturing the richness of the concept by combining two resource elements—ability and rarity.

Importance of Market Sensing

It appears that market sensing is an important driver of all three business processes. Our empirical findings show that market sensing skill enhances comparative advantage in a number of capabilities, including focusing on high value customers, customer responsiveness, customer nurturing and supply chain leadership. Our results thus are consistent with Day's (1999) stipulation that market sensing and market relating capabilities are at the heart of market-driven companies. The popular press has reported numerous instances of companies moving from a product to a market-driven organization and sharpening their focus on new market opportunities.

Interestingly, while market sensing ability is important, companies are involved in practices that make achieving this capability difficult. First, more and more companies are outsourcing the customer data base maintenance function. Outsourcing adds a layer between the firm and the customer and makes the firm's understanding of its customers less complete. Second, the silo mentality that still prevails within organizations means that marketing is seen as most responsible for interacting with

customers. Other functions use this as a reason for not wanting to interact with customers when such interaction could contribute to better sensing of customer needs. Third, there is still a large gap between attitude and action with respect to market sensing. While most companies are thinking and talking a lot about sensing and relating to customers better, there is still plenty to be done in understanding how that can become a reality. Finally, many organizations now have at their disposal a wide variety of data that potentially can reveal far more about customer behavior than previously thought possible. This potential has unfortunately created an agonizing paradox: the more data resources available, the harder it is for the organization to understand its customers. The reason for this paradox is that technology for generating, capturing, and storing data has far outpaced the human capacity to understand, analyze, and exploit it for maximum impact. Organizations need to improve their analytic expertise to exploit the information potential present in data generated from market sensing.

Conclusion

The purpose of this study was to develop and test a conceptual framework that broadens our understanding of the role of marketing-related capabilities in driving performance and creating shareholder value. While Srivastava and his colleagues (1998, 1999) have exhorted marketing to bring in relevant inputs into business processes, no previous study has (a) provided clarity with respect to what these inputs should be, or (b) how important they are likely to be in impacting process performance and firm value. The present study addresses these gaps—it identifies relevant drivers of business processes and firm value and examines their implications for the marketing function. In addition to illustrating the need for organizations to be marketing driven, its contributions are in several areas: simultaneous evaluation of performance of NPD, CRM, and SCM processes; testing of the comparative advantage theory of resources; and evaluating the interdependence of the processes through the drivers. More detailed studies incorporating other process drivers and evaluating the interactions among the processes themselves would be natural extensions to the work reported in the present study.

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Appendix: Measures

This section includes measures for constructs not included in Table 2. A 5-point strongly disagree – strongly agree scale is used for measurement, if not mentioned otherwise.

Business Process Performance

(7 point scale where 1 = worse, 4 = on par, and 7 = better)

New Product Development (NPD) – Adapted from Moorman and Rust (1999)

Relative to your firm's (division's) stated objectives, how is your firm (division) performing on:

- Number of new products developed
- Number of new products that are “winners”
- Speed of new product/service development

Customer Relationship Management (CRM) – Adapted from Moorman and Rust (1999)

Relative to your firm's (division's) stated objectives, how is your firm (division) performing on:

- Customer satisfaction
- Customer retention
- Ability to charge price premium for products/services
- Increasing number of relationships with customers
- Image/reputation

Supply Chain Management (SCM) – New scale

Relative to your firm's (division's) stated objectives, how is your firm (division) performing on:

- Inventory cost
- Implementing JIT processes
- Smoothing demand volatility

Financial Performance – Adapted from Moorman and Rust (1999)

(7 point scale where 1 = worse, 4 = on par, and 7 = better)

Relative to your firm's (division's) stated objectives, how is your firm (division) performing on:

- Sales
- Profitability

- Market share
- Net operating margins
- Return on assets

Comparative Advantage: Rarity -- New Scale

Rarity: To what extent do you believe each competency or skill (that follows) is unique to your firm/ business unit when compared to your most relevant competitors? (4 point scale where 1=not at all, and 4 = very unique")

- Developing differentiated products
- Collaborative design: Designing products that are customer-driven
- Market sensing
- Market responsiveness
 - capacity to respond to market needs quickly
 - capacity to respond to market needs effectively
- Focus on high value customers
- Nurturing customers as assets
- Sharing information with suppliers
- Leading supply partnerships

R & D Intensity

What is your annual R&D expenditures as a percentage of sales?
(< 1%, 1-3%, 4-6%, 7-9%, 10-12%, 13-15%, >15%)

Our Mission

The Zyman Institute of Brand Science pursues the advancement of brand-driven business performance.

Founded in 2004, the Zyman Institute of Brand Science is the definitive source for cutting-edge knowledge and thinking about brands. The Institute is an independently managed organization within the Goizueta Business School at Emory University.

Who we work with

The Institute works with top management teams to solve pressing issues in brand strategy.

What we do

The Institute's lauded scholars lead the development of new knowledge and insights for building, maintaining, enhancing, and revitalizing persistently profitable brands. We help companies link brand equity to business and shareholder value. We help management make decisions in managing brands to accelerate cash flows, enhance cash flows, and reduce vulnerability and volatility of cash flows, and optimize the long-term value of the organization.

How we do it

The Institute works collaboratively with its sponsors, other universities, research organizations, and its members to devise cross-disciplinary solutions for managing real world problems in brand strategy. We play an integrative role in problem solving, and capability building. We focus on viable actions

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Emory University is an internationally recognized institution based in Atlanta that was founded over 150 years ago. Emory sustains top ranked programs in medicine, law, business, theology, nursing, public health, arts & sciences. It supports world-class research across its disciplines.

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The Goizueta Business School was established in 1919 and is named for Roberto Goizueta, former president of The Coca-Cola Company. The school is considered a top-tier school and is consistently ranked in the top 20. It offers degrees in business including Bachelor, Master and PhD. Its Executive MBA is ranked 10 globally by both BusinessWeek and U.S. News.

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