J. of the Acad. Mark. Sci. (2011) 39:736–756
DOI 10.1007/s11747-010-0228-z

ORIGINAL EMPIRICAL RESEARCH

# Improving customer-focused marketing capabilities and firm financial performance via marketing exploration and exploitation

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Received: 14 July 2009 / Accepted: 21 September 2010 / Published online: 16 October 2010


**Abstract** Evidence within the marketing literature has shown that marketing capabilities are important drivers of firm performance. However, very little is known about how firms *improve* their marketing capabilities via the embedding of new market knowledge. Organizational learning theory provides us with a theoretical lens through which we can examine how existing customer-focused marketing capabilities may be improved and new customer-focused marketing capabilities may be created via marketing exploitation and exploration capabilities. In addition, this study investigates whether ambidexterity in marketing exploration and exploitation exists and finds that firms cannot do both at high levels without risking a negative impact on customer-focused marketing capabilities. This study also presents findings demonstrating how improving the two customer-focused marketing capabilities in our study, brand management and customer relationship management, impacts objective financial performance.

**Keywords** Exploration · Exploitation · Marketing capabilities · Complementarity · Firm performance

The authors wish to thank John Hulland, Neil Morgan, Robert E. Morgan, Charles Noble and Minu Kumar for commenting on earlier versions of this manuscript.

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## Introduction

Recent research in marketing capabilities (Day 1994; Vorhies and Morgan 2005; Vorhies et al. 2009) has sparked interest in understanding how relational and reputational resources (Srivastava et al. 1998) are deployed to achieve superior performance and long run competitive advantage (Krasnikov and Jayachandran 2008). Evidence within the marketing literature has shown that marketing capabilities are important drivers of firm performance (Krasnikov and Jayachandran 2008). However, very little is known about how firms *improve* their marketing capabilities (Vorhies and Morgan 2005). Fortunately, organizational learning theory provides us with a sound theoretical lens through which we can examine how existing marketing capabilities may be improved and new marketing capabilities may be created. To do this, we use the premise that the integration of new and existing market knowledge within the firm (Grant 1996) enables not only marketing capability development but also improvement. Thus, superior performance is dependent on increasing market knowledge stocks (Dierickx and Cool 1989; Kohli and Jaworski 1990; Narver and Slater 1990) and deploying those stocks through the firm's marketing capabilities (Barney 1991; Day 1994).

Organizational learning theorists have proposed the existence of two basic "adaptive processes"—exploitation and exploration—which firms use to increase market knowledge (March 1991, p. 71). Exploitation refers to the development of new knowledge about the firm's existing markets, products, and capabilities, while exploration refers to the development of new knowledge that goes beyond what is currently known about markets, products, technologies and capabilities. These adaptive processes are viewed as key factors in helping a firm attain and maintain a competitive advantage (March 1991) and in helping firms deploy market

knowledge to improve marketing capabilities (Day 1994; Grant 1996). In this study, we seek to understand and empirically examine the role of exploration and exploitation in improving two important customer-focused marketing capabilities, brand management and customer relationship management (CRM), and their impact on firm performance.

Several gaps exist in the marketing literature regarding firm adaptive processes, marketing capabilities, and performance. First, there is a dearth of research examining knowledge development and exploration and exploitation processes from a marketing capabilities improvement perspective. This seems surprising given that recent studies have shown that marketing capabilities are important drivers of business performance. To develop a greater understanding of how these factors are related, marketing strategy researchers need to develop theory regarding how specific marketing capabilities may be improved. Marketing strategy researchers also need empirical studies testing such theory and, since most firms have limited resources, studies that empirically examine specific marketing capabilities should be undertaken to aid managers in the field. To this end, we begin this process by developing and testing theory with an investigation of marketing exploration and exploitation as processes for improving brand management and CRM capabilities.

Second, while some firms may emphasize one adaptive process over the other (e.g., exploration over exploitation) organizational learning theory indicates that a firm that does not attempt to achieve a balance may suffer long run performance problems. March (1991, p. 72) states, "… choices must be made between gaining new information about alternatives and thus improving future returns and using the information currently available to improve present returns." This implies that a firm needs a balance between exploration and exploitation or needs to be adept at quickly moving from one adaptive process to the other. This notion of "ambidexterity" (Tushman and O'Reilly 1996) can be thought of as the ability to do both exploration and exploitation and may represent an important firm capability in its own right. If this premise is true, a firm which focuses only on exploitation will see its effectiveness diminish over time while the firm that focuses only on exploration will never delve deeply enough into utilizing the new knowledge to maximize efficiency, thus reducing the returns available from deploying newly gained knowledge and potentially increasing firm risk (Dickson and Giglierano 1986). Even in high tech markets, a firm focusing only on exploration will see its advantage erode (Mizik and Jacobson 2003). Thus, we examine whether such ambidexterity can be a source of improved marketing capabilities and if it ultimately impacts firm performance. To this end, testing the "ambidexterity hypotheses" in regards to brand management and CRM capability improvements may be a source of valuable new knowledge to both marketing researchers and practitioners.

A third gap in the marketing literature concerns the dearth of studies investigating exploration and exploitation outside of the new products context. While new products represent an important source of innovation, it seems likely that other aspects of marketing beyond new products are impacted by marketing exploration and exploitation. Branding and customer relationships have both been identified as critical marketing areas (Boulding et al. 2005; Keller 1993). However, few studies explore improving the management of these critical brand and customer relationship functions. Thus, it seems clear that innovation should be investigated beyond just the product innovation area. Yet, with the exception of Joshi (2009), Rindfleisch and Moorman (2001) and Vorhies and Morgan (2005), surprisingly little attention has been paid to innovation in marketing processes and capabilities. Interestingly, managers often view the *processes* of marketing as being more critical than product innovation (Duboff 2008). Furthermore, marketing capabilities may decay over time if not continually improved through organizational learning (Dickson 1992; Vorhies and Morgan 2005). To the extent that marketing exploration and exploitation, as forms of organizational learning, are valuable, rare, inimitable and non-substitutable (e.g., Barney's (1991) VRIN characteristics), they constitute important capabilities for firm adaptation in support of sustaining the firm's competitive advantage. Thus, a study extending theory beyond the product innovation context to brand management and CRM capabilities would add to our knowledge of these key organizational learning processes. To this end, we investigate both brand management and CRM as important areas for process innovation via marketing exploration and exploitation (Day 1994).

Fourth, and finally, there also appears to be a need for a study of exploration and exploitation and marketing capabilities that goes beyond subjective, managerially based measures of performance. While managerial assessments of performance have a long history of use in marketing studies, they potentially suffer from some well documented biases (e.g., Rindfleisch et al. 2008). A study in which exploration and exploitation were found to influence marketing capabilities and, in turn, impact objective financial performance would lend weight to the arguments that these adaptive processes are important antecedents to firm performance.

To address these important gaps in the marketing literature, we present the results of a study that provide new insight in several areas. Using the resource-based view of the firm, market orientation, organizational learning, and dynamic capabilities as our theoretical foundation, we develop a theory-based framework and empirically demonstrate that exploration and exploitation are key adaptive capabilities that can positively impact both brand management and CRM capabilities leading ultimately to improvements in

firm financial performance. These findings are important in that they are among the first to demonstrate linkages between exploration and exploitation and marketing capabilities. In addition, we postulate that firms have the ability to perform exploration and exploitation together (the ambidexterity hypothesis) and empirically demonstrate how this ambidexterity impacts firm marketing capabilities. While the complementary operation of exploration and exploitation has been studied in previous research (Atuahene-Gima 2005; Kyriakopoulos and Moorman 2004), we do not know whether these adaptive processes impact marketing capabilities and whether ambidexterity helps improve firm performance. Our study empirically demonstrates these relationships and shows how they help drive objective financial performance. As a result, our findings have important implications for marketing strategy research as well as implications for managers interested in improving firm financial performance.

## Theoretical foundations

Resource theory has added to our understanding of how firms acquire and deploy resources in order to obtain a competitive advantage (Barney 1991; Day 1994; Newbert 2007; Wernerfelt 1984). Increasingly, resource-based theorists believe that resources can be viewed as: (1) those resources that are easily acquired via purchase or imitation and (2) those resources that offer some protection from replication across organizational boundaries (Peteraf and Barney 2003; Ray et al. 2004). Easily acquired or imitated resources offer at best only a temporary basis for competitive advantage (Miller 2003). For example, this has been the case with firms deploying Enterprise Resource Planning systems (ERP) such as SAP. Early adopters gained significant advantages that have been eroded as more firms adopt ERP systems. Over time ERP systems have become a business standard necessary to remain competitive.

Resources that are not easily acquired or easily imitated offer a potential basis for sustainable competitive advantage. Organizational marketing capabilities offer perhaps the highest degree of inimitability due to their tacit and embedded nature (Brush and Artz 1999; Day 1994; Grewal and Slotegraaf 2007) and due to their evolution within an organization, which creates idiosyncratic path dependencies that helps prevent imitation (Teece et al. 1997). Together, these factors make diagnosing the impact of a firm's marketing capabilities difficult from a competitor's point of view (Teece et al. 1997). As a result, marketing capabilities can offer the firm a solid mechanism for building and sustaining a competitive advantage (Day 1994; Vorhies and Morgan 2005)

Although many resources have been studied by marketing strategy researchers (e.g., Morgan et al. 2003), knowledge may be the most critical (Grant 1996; Nelson and Winter 1982; Nonaka 1994). However, simply having large knowledge stocks is recognized as a necessary but not sufficient condition for value delivery (Dierickx and Cool 1989). It is only when knowledge is properly deployed via the firm's capabilities that superior organizational performance can be developed (Day 1994). Many resource theorists indicate that it is the integration and crystallization[1] of knowledge within the firm that forms the foundation of organizational capabilities (Conner and Prahalad 1996; Grant 1996; Vorhies et al. 2009). As firm marketers process and utilize market knowledge, it becomes embedded within organizational routines. These routines provide a mechanism for coordination, which is not dependent on explicating knowledge (Grant 1996), and form the basis for marketing capabilities when they are repeatedly used to deliver valued outcomes (Day 1994; Vorhies and Morgan 2005). Thus, while possession of market knowledge makes the conditions for superior performance possible, without marketing capabilities to *deploy* that knowledge, superior performance will not be the result.

Attaining and maintaining superior business performance is one of the main research questions that marketing strategists attempt to answer. According to dynamic capabilities theory (Eisenhardt and Martin 2000; Grant 1996; Nelson and Winter 1982; Teece et al. 1997), organizational capabilities lay the foundation for superior performance when they: (1) efficiently and effectively organize resources so that they may be deployed to gain competitive advantage and (2) enable adaptation through the development of new resources and the re-configuration of existing resources. As a result, dynamic capabilities theory indicates that maintenance of superior performance is dependent on the firm's ability to successfully redeploy resources and capabilities, not just within the firm, but also from one business environment to another, thus enabling a firm to expand into new product markets. Organizational learning theory (e.g., March 1991) suggests that marketing exploration and exploitation serve as the foundation for the firm's adaptive dynamic capabilities because they enable more efficient and effective utilization of marketing resources and enable adaptation to changing market conditions.

### Deployment of market-based assets via marketing capabilities

In the past decade, different marketing capabilities have been examined by marketing scholars (Krasnikov and Jayachandran 2008; Vorhies and Morgan 2005). Our study concerns itself with understanding how reputational and relational market-based assets (Srivastava et al. 1998) are deployed via specific marketing capabilities focused on

[1] We thank the anonymous reviewer for this suggestion.

increasing customer value and firm performance. As with knowledge, merely having a market-based asset is not a sufficient condition for assuring superior performance. It is the deployment of that asset that is critical. Thus, we examine the deployment of the firm's reputational market-based assets via brand management capabilities and the deployment of the firm's relational market asset deployment via CRM capabilities (Srivastava et al. 1998) to help us understand their impact on firm performance. Together these capabilities are seen as primary drivers of customer-lifetime value (Rust et al. 2000).[2]

These customer-focused capabilities are believed to be crucial for the success of a firm (Day 1994; Vorhies and Morgan 2005), yet empirical research investigating the impact of a firm's marketing capabilities on performance is relatively scarce (Krasnikov and Jayachandran 2008). As noted above, Srivastava et al. (1998) separate market-based assets into those that focus on acquiring new customers via brand building (reputational) and those that focus on building and maintaining the customer base (relational). We parallel this logic by focusing our study on the capabilities that would deploy reputational brand assets, such as brand image and reputation, and those that deploy relational assets such as customer satisfaction and loyalty (Wernerfelt 1984) that help to build and maintain effective relationships with current and potential customers. Ambler et al. (2002) note that brand and customer asset deployments are highly inter-related. Brand asset deployment focuses primarily on the capabilities of the firm that create new customers by offering valued products (goods and services) and striving to maintain attractive value propositions relative to competing offerings. Customer asset deployment focuses on creating opportunities to build relationships with potential customers and to leverage the established relationship with customers. Together, deploying brand and customer assets create the primary capabilities by which firms acquire and maintain customers (Ambler et al. 2002; Ambler 2004).

Brand asset deployment plays an important role in creating customer value by driving customer knowledge about a branded good or service offering and creating expectations about the performance of that offering along dimensions that are important to the customer. These may include quality, performance and image related associations (e.g., Aaker 1996; Keller 1993, 2000). The process of building a brand asset begins when brand managers make marketing communication investments focused on building brand awareness and image. From the customer's perspective, this process begins when the customer becomes aware of the brand and then tries the brand. As the customer gains experience with the brand, brand associations that ultimately drive brand image are created, which, according to Keller (1993), is a relatively enduring attitude. Brand equity is said to exist when a customer attributes more value to the brand than similar competing offerings (Keller 1993, 2000). Thus, we define *brand management capabilities* as the firm's ability to effectively deploy reputational resources. Brand management capabilities thus reflect the firm's ability to create, sustain and grow reputational brand assets. These capabilities allow firms to build a lasting bond with customers by creating and positioning important aspects of the firm's market offerings to the customer in ways that create perceived customer value (Ambler et al. 2002; Hooley et al. 2005).

The second market-based asset noted by Srivastava et al. (1998) deals with the deployment of assets that are focused on building and sustaining relationships with customers. We define *customer relationship management (CRM) capabilities* as the firm's ability to effectively deploy relational resources. These capabilities reflect the firm's ability to build and maintain beneficial relationships with target customers (Jayachandran et al. 2005; Srivastava et al. 1998). This definition reflects the view that relationships between customers and the firm are based on a foundation of shared interest. Firms strive to use interactions with customers to generate commitment, a lasting desire in customers to maintain a valued relationship, and trust, the readiness to rely on an exchange partner (Jayachandran et al. 2005). From the firm's perspective, the reason for building and maintaining these customer relationships is that encouraging continued purchase of currently used products and trial of other firm offerings reduces marketing expenses and leads to increased profitability. Together with brand management capabilities, CRM capabilities enable the firm to acquire new customers via deployment of the reputational-based brand assets of the firm and retain customers via deployment of relational assets such as customer loyalty (Wernerfelt 1984).

## Improving customer-focused marketing capabilities via market knowledge development

Building on the market orientation literature, Day (1994) notes that market knowledge is the foundation upon which firm marketing capabilities are built. It therefore follows that to improve marketing capabilities, the underlying processes upon which they are built must be modified by embedding new knowledge about various aspects of the market including customers, competitors, market trends, and regulation (Day 1994; Lavie 2006). Dynamic capabilities theory also indicates that embedding new knowledge about the market is a major source of adaptation driving changes to the firm's capabilities (Eisenhardt and Martin 2000; Helfat and Peteraf 2003). These theoretical perspectives indicate

[2] Rust, Zeithaml and Lemon (2000) also note value equity as a driver of customer lifetime value. However, we believe value is a brand association (e.g., Ambler 2004; Keller 1993) that contributes to brand equity.

that firms with superior market knowledge development and deployment also possess the greatest adaptive potential (Kohli and Jaworski 1990; Moorman 1995). Organizational learning theory also supports the idea that improving firm capabilities is dependent on learning and utilizing intelligence about the market (Slater and Narver 1995).

Market knowledge development refers to a firm's knowledge-producing activities focused on understanding the market (Hult et al. 2007). These activities include market knowledge acquisition, analysis, and distribution (Morgan et al. 2005). Once the analysis has been performed and information distributed, market information must proceed through a sense-making process (Hult et al. 2007; Johnson et al. 2004; Morgan et al. 2005; Slater and Narver 1995). Sense-making consists of meetings, discussions, and other forms of communication and interpersonal interactions. The results of these communications are fed into the organization's decision-making processes, and the new information is linked to existing knowledge, which may provide the basis for new understanding (Moorman and Miner 1997). This give-and-take process is important for the development of a shared understanding, which encompasses the meaning and implications of market information obtained, its analysis and distribution by various organizational members.[3]

## Market knowledge and marketing exploration and exploitation

Based on organizational learning theory (e.g., March 1991), we posit that two basic adaptive processes, marketing exploration and exploitation, exist within the marketing organization.[4] *Marketing exploration* (Kyriakopoulos and Moorman 2004) refers to the capabilities that focus on developing new skills, processes and marketing capabilities via the application of new market knowledge (Atuahena-Gima 2005; Kyriakopoulos and Moorman 2004; Levinthal and March 1993; Slater and Narver 1995). *Marketing exploitation* (Kyriakopoulos and Moorman 2004) refers to the capabilities that focus on improving and refining current skills, processes, marketing capabilities and the valued outcomes produced by those capabilities that are associated with *existing* markets. In this regard, marketing exploration and exploitation capabilities may be viewed as higher-order capabilities that act on lower-level "specialized" marketing capabilities (Grant 1996; Vorhies et al. 2009), represented in this study by brand management and CRM capabilities, to enable their development and improvement.

Developed market knowledge represents the accumulated stores (Dierickx and Cool 1989) of processed market knowledge from which a firm can draw upon to modify existing processes via marketing exploitation or to develop new processes via marketing exploration. When existing knowledge stores are insufficient, marketing knowledge development processes can be employed to gain the required knowledge. Marketing theory indicates that firms with higher levels of market knowledge are believed to be able to provide more and better information to the firm's marketing exploration and exploitation processes (Atuahene-Gima 2005; Kyriakopoulos and Moorman 2004). The processes that firms use for marketing exploration and exploitation require informational feeds to function successfully. Firms with higher levels of market knowledge will be better able to collect and process relevant information about customer needs, competitor moves and market trends (Atuahene-Gima 2005). This previous research indicates that firms with higher levels of market knowledge would be more likely to have collected information that marketing employees can use when incrementally refining the firm's brand management and CRM capabilities via marketing exploitation. Likewise, marketing employees seeking new insights about customers or competitors via the firm's marketing exploration processes would also have a higher likelihood of finding information or of being able to utilize existing marketing information collection processes to gather the needed information (Slater and Narver 1995) to drive more radical change. Therefore, we propose:

H1: Market knowledge development is positively related to marketing exploration.

H2: Market knowledge development is positively related to marketing exploitation.

## Improving marketing capabilities via marketing exploration and exploitation

*Marketing exploration and marketing capabilities* Marketing exploration capabilities are needed when fundamental assumptions about customers and competitors are no longer supported and, thus, the brand management and CRM capabilities needed to respond to these market changes must produce outcomes that are different from those produced by existing capabilities (Slater and Narver 1995). Marketing exploration capabilities help firms avoid missing market opportunities. Previous research has noted that the capabilities represented by marketing exploration are important if a firm is to avoid complacency with current markets and capabilities (Dickson and Giglierano 1986). Firms without such capabilities are

[3] Related to sense-making are the conceptual and instrumental uses of information (e.g., Menon and Varadarajan 1992; Moorman 1995; Morgan et al. 2005). Please see these sources for a complete discussion.

[4] We use the term "marketing organization" as do Vorhies and Morgan (2003) and Webster (1997) to recognize that marketing tasks are performed by both marketing and non-marketing personnel throughout the broader organization.

more likely to miss market opportunities, resulting in low performance, weakened competitive advantage and increased firm risk.

Marketing exploration focuses on applying new knowledge to develop effective brand management and CRM capability outcomes, such as getting the right product produced and marketed in response to newly identified or changed customer needs. This is done via: (1) development of a completely new initial configuration of market-based resources or (2) the reconfiguration and redeployment of existing market-based resources (Vorhies and Morgan 2005). If the new resource configuration upon which brand management and CRM capabilities are built produces the desired outcome, the resulting capabilities are evaluated and typically adopted. If the new brand management or CRM capability does not produce the desired outcome, the resources used will be reconfigured again. If the new capability proves useful, it may eventually undergo exploitative process improvements moving the capability toward more efficient use of the base marketing resources (Helfat and Peteraf 2003; Zollo and Winter 2002).

In the case of brand management capabilities, firms seek to deploy reputational market based assets combined with new knowledge about the market to create entirely new value propositions for customers. This is seen when a firm's brand managers introduce a new brand with significant benefits above and beyond what exists in the market. An example of this would be the original iPhone, which combined music, touch screen and advanced applications in one smart phone package. By enabling a user not to have to carry multiple devices, the iPhone has attained high levels of customer satisfaction, which has driven demand, thus enabling Apple to jump to the forefront of the cellular industry with its first market entry.

Similarly, CRM capabilities may be improved via marketing exploration. An example of this is when a firm decides to develop the CRM capabilities necessary to "fire" customers (Sherrell and Collier 2008). This represents a major step forward in the thinking about customer value to the firm. Customers may be "fired" when the relationship management team recognizes that the dollars spent on marketing exceed the revenue collected over the customer's lifetime (Rust et al. 2000). To enable this ability, marketers need to utilize the information from the CRM system in new ways. First, marketers need to be able to recognize that not all unprofitable customers are the same. Some are unprofitable because of the channel they are served by, while others are unprofitable due to poor fit between product benefits and customer needs. Second, marketers need to be able to identify "strategic" accounts. These may be small accounts that can grow or large accounts that are underserviced by the firm's sales people. In any event, marketers must develop processes for making determinations about these customers. This requires marketers to deploy market knowledge resources in new ways to determine who is retained and who is not. This new configuration of CRM capabilities is essential in improving marketing performance. Given the need for marketing exploration discussed above, we therefore propose:

H3: Marketing exploration is positively related to the firm's customer-focused marketing capabilities.

*Marketing exploitation and marketing capabilities* Market knowledge developed and deployed via marketing exploitation capabilities is used to incrementally modify existing brand management and CRM capabilities to improve outcomes that are used by both external and internal stakeholders (Levinthal and March 1993; Slater and Narver 1995). These outcomes may be new knowledge resources that are used in various decision-making processes or they may be outcomes that will be deployed in the marketplace in the form of brand building activities, service-focused activities, and product related activities (Srivastava et al. 1998). Marketing exploitation applies incremental knowledge and is appropriate when incremental innovation is sought (Atuahene-Gima 2005). This results in responding to the need for action with minimum disruption to existing processes, enabling a continued focus on efficiency (Leonard 1995).

Previous research has noted that the modification of existing marketing capabilities through exploitative processes may be more common than exploration processes (Atuahena-Gima 2005; Kyriakopoulos and Moorman 2004; Lavie 2006; March 1991). Exploitative process improvement has been documented as being a preferred method for most managers when changes in a capability are needed due to the ability to return to full efficiency quickly (Leonard 1995). These incremental modifications create change by operating within the boundaries of what is known about the market, various resource inputs, system process flows and operations, as well as the needs of those downstream that use the outputs of the capabilities (Slater and Narver 1995). Rather than re-design the entire marketing capability, limited experimentation is used to drive change (Dickson 1992; Vorhies and Morgan 2005; Zollo and Winter 2002). This typically results in the marketing capability returning to full efficiency quickly, once the needed outputs are correctly delivered (Leonard 1995). If the desired outputs are not delivered, the marketing capability will be modified again. These incremental changes continue until the desired outputs are being delivered to downstream users and/or customers.

Firms often use marketing exploitation when they modify brands to be more relevant. For example, Mattel constantly updates their brands (e.g., Barbie or Hot Wheels) via exploitative marketing processes, which are designed to

utilize market research to "freshen" their brands via brand extensions. An example of this is the recent addition of "Twilight" Barbie. This is simply a brand extension designed to tap the Twilight craze that appeals to girls in the target age group. By putting Barbie in a trendy new outfit (e.g., Twilight Bella Barbie) Mattel keeps the Barbie brand relevant to its target customers. A scan across Mattel's product line and trademarks demonstrates that Mattel is constantly refreshing its brands with the information collected by market knowledge development processes to keep its brands relevant to target consumers and represents evidence of an exploitative capability designed to maintain brand asset deployment.

Similarly, marketing exploitation can be used to improve relationships with customers. For example, Harrah's Casino has one of the most sophisticated player tracking systems in the casino industry. Harrah's knows when a customer has played in a certain casino and sends them "rewards" for their play which often include offers designed to entice players back to that casino. Harrah's constantly uses data from this system to refine offers in an exploitative way. For example, during the recent recession, Harrah's increased the frequency and amounts of offers to players to serve as a stronger incentive to visit nearby casinos. By incorporating existing CRM capabilities with new data about existing customers, Harrah's was able to increase patronage. Thus:

H4: Marketing exploitation is positively related to the firm's customer-focused marketing capabilities.

## Marketing exploration and exploitation—striking a balance

Previous theoretical and empirical research in marketing (Atuahene-Gima 2005; Kyriakopoulos and Moorman 2004) and strategic management (Gupta et al. 2006; March 1991) has indicated that firms that are able to combine exploration and exploitation in complementary ways may have a significant advantage over those firms that are unable to integrate exploration and exploitation capabilities. March (1991) argues for this balance between exploration and exploitation by suggesting that firms using only exploitation may under-perform due to a lack of new ideas. They may also suffer from potential rigidities (Atuahene-Gima 2005; Leonard-Barton 1992), which develop when previous marketing decisions result in path dependencies. In effect, managers and other decision makers create a set of knowledge-based "rules" which govern the interaction of resources in a marketing capability and which govern the degree to which change to that marketing capability can occur (Eisenhardt and Martin 2000). The tacit and explicit knowledge contained in these rules ultimately limits the degree of marketing capability change. This is believed to occur because most managers prefer operating within their knowledge base due to time constraints and cognitive limitations (Dickson 1992; Leonard 1995; Simon 1991; Winter 2000). This idea of not "sinking the boat" (Dickson and Giglierano 1986) due to an over-emphasis on risk taking may create constrained decision making. In addition, a reluctance to develop new processes may create "competency traps" where good performance with an inferior but well-known brand management or CRM capability may create barriers to new knowledge creation (Leonard 1995). Even superior capabilities may be utilized past the point of best practice, creating barriers to adoption of new knowledge that would ultimately result in new brand management or CRM capabilities capable of delivering superior value (Helfat and Peteraf 2003).

Mizik and Jacobson (2003) demonstrate that both exploration (value creation) and exploitation (value appropriation) of new technologies represent critical strategic technological emphases. They state that, "the majority of typical unpatented innovations can be imitated within a year, and major patented innovations within three years." (p. 69). This illustrates the difficulty firms have when their sole source of competitive advantage stems from *exploration*. Furthermore, a sole focus on exploration is very expensive and would be expected to diminish performance over time. As a result, firms need *exploitation* to reap the full benefits of new innovations; Mizik and Jacobson's (2003) results demonstrate that exploitation (value appropriation) is equally important across high, stable and low technology markets. These results provide further evidence that striking a balance between exploitation and exploration is necessary to maximize firm performance.

Other marketers have also explored this issue. Atuahene-Gima (2005, p. 65) states, "a firm that is too oriented toward exploration suffers the costs of exploration without gaining many of its benefits because it exhibits too many new and risky ideas and little refinement of its existing competencies." This implies that novel products may be underdeveloped and capabilities designed to deliver these products may never achieve peak efficiencies due to rapid product-market churn. Kyriakopoulos and Moorman (2004) also note that while there may be tensions between marketing exploration and exploitation, firms should attempt to develop both marketing exploration and exploitation to maximize their ability to capitalize on new products and to leverage those investments to maximize efficiency. They indicate that complementarities must exist to enable a firm to maximize performance: "… complementarity occurs when the returns associated with marketing exploitation strategies (marketing exploration strategies) increase in the presence of marketing exploration strategies (marketing exploitation strategies)" (Kyriakopoulos and Moorman 2004, p. 223).

While there are no known studies that specifically investigate marketing exploration and exploitation and their relationships with brand management and CRM capabilities, when firms use market exploitation they are applying market knowledge to capabilities they already understand and about markets they already serve (Kyriakopoulos and Moorman 2004; Zollo and Winter 2002). This could lead to a bias against making major changes to brand management or CRM capabilities and a desire to avoid the risks inherent in adopting or developing new technologies, or in serving new markets with new products (Leonard 1995). This is not to say that these capabilities automatically become rigidities. Instead, this represents the natural tendency among marketing decision makers to stay with what is working and to support investment in evolving existing capabilities through application of new knowledge focused on improving efficiency (Helfat and Peteraf 2003). This also does not mean that useful new processes cannot come from exploitation (Henderson and Clark 1990). Rather, we expect that marketing exploitation would drive modest marketing capability improvement (Atuahene-Gima 2005).

At some point, a need for more radical marketing capability change will likely occur (Atuahene-Gima 2005; Helfat and Peteraf 2003; Leonard 1995). This stimulus may be from an external source, such as a change in customer tastes or competitor offerings, or it may be internally generated by a desire to grow the business by moving into a new market or by a desire to act on a new discovery from the area of research and development (Jayachandran et al. 2004). Regardless of the source of the stimulus, managers will recognize the potential benefit of creating new brand management and CRM capabilities through marketing exploration (Atuahene-Gima 2005; Kyriakopoulos and Moorman 2004; Slater and Narver 1995). Marketing exploration will thus develop new knowledge that forces a complete change in the way resources are deployed through the firm's brand management and CRM capabilities and will result in major changes in capability output. In the short term, the efficiency of these reconfigured brand management and CRM capabilities would be expected to decrease while management focuses on attaining the desired outcome of the processes (Helfat and Peteraf 2003; Miller and Friesen 1982; Solow 1957). This means that initially the firm will focus brand management and CRM capabilities on producing the right set of outcomes necessary to take advantage of the new opportunity or to meet the new market challenge (Zollo and Winter 2002). Over the longer term, these new capabilities will be submitted to marketing exploitation processes and over time will benefit from incremental improvements (Helfat and Peteraf 2003; Slater and Narver 1995). This implies that both marketing exploration and exploitation are needed within firms (Kyriakopoulos and Moorman 2004) and that the ability to switch between marketing exploration and exploitation may be an important capability in itself (Slater and Narver 1995). However, based on the literature in both marketing and management discussed above, we predict a tradeoff, in which firms that attempt to maximize both marketing exploration and marketing exploitation will result in reduced levels of customer-focused marketing capabilities. Therefore, we hypothesize a moderating relationship:

H5a: The relationship between marketing exploitation and the firm's customer-focused marketing capabilities will be moderated by marketing exploration, such that higher levels of marketing exploration will lead to a weaker relationship between marketing exploitation and the firm's customer-focused marketing capabilities.

H5b: The relationship between marketing exploration and the firm's customer-focused marketing capabilities will be moderated by marketing exploitation, such that higher levels of marketing exploitation will lead to a weaker relationship between marketing exploration and the firm's customer-focused marketing capabilities.

## Objective firm financial performance

In recent years, researchers have called for more studies assessing the exact impact of marketing activities on firm performance (Rust et al. 2004). Previous research in marketing (e.g., Krasnikov and Jayachandran 2008; Vorhies and Morgan 2005) and strategic management (Morgan et al. 2009; Vorhies et al. 2009) has shown that marketing capabilities are important drivers of firm performance. While not studied extensively in previous capabilities research, brand management and customer relationship management (CRM) capabilities are two of the most theoretically interesting marketing capabilities firms can use to adapt to and influence markets. Accordingly, research has found significant links between brand image, reputation, and organizational performance (Brown et al. 2006; Orlitzky et al. 2003; Roberts and Dowling 2002). In terms of CRM, researchers have called for more study in understanding the link between CRM processes and firm performance (e.g., Boulding et al. 2005; Gupta et al. 2004). In addition, research in the customer equity stream (Rust et al. 2000) indicates that both brand management and CRM capabilities should be important factors in driving positive return on marketing investments, thus helping to drive financial performance. Thus, we hypothesize that:

H6: Customer-focused marketing capabilities are positively related to objective firm financial performance.

Please see Fig. 1 for more information.

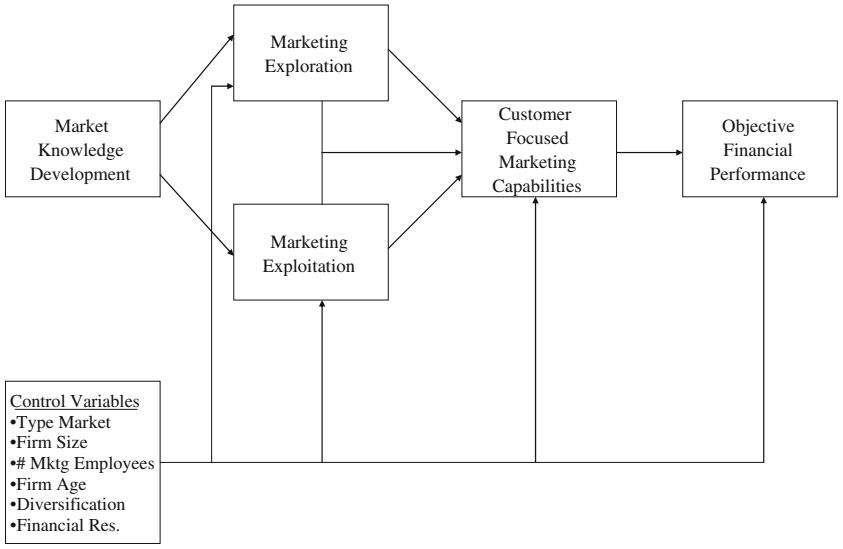


**Fig. 1** Market knowledge development and marketing exploration and exploitation as antecedents to customer-focused marketing capabilities and financial performance

## Methodology

To test the hypotheses, a two-stage data collection process was used. First, following measure development and refinement, survey data were collected from the Chief Marketing Executive (CME) of single business unit firms (as indicated by SICs) and where possible from additional informants in the same firm. This was done to help control for the possibility that a firm has some business units using an exploration strategy and other business units using exploitation. Studying single business unit firms helps insure that both marketing exploration and exploitation are present together within the *same* business unit.

Firms were selected for the study from across several goods and services industries and from firms serving consumer and business markets. For a subset of the respondent firms ($n$=44), we were able to collect data from multiple informants, allowing us to test for important biases that may be present when only a single informant is used (Rindfleisch et al. 2008). Following collection of the survey data, secondary data on these single business firms was collected to pair with the survey data. The secondary measures used in this study were publicly available data concerning objective financial performance, organization size, organization age (which proxies knowledge stores), marketing knowledge stores (proxied by the number of marketing employees) and the diversity of markets served. This is discussed in more detail below.

### Measures

Market knowledge development was measured as a second-order construct comprising market information acquisition, dissemination, analysis and shared understanding. Market information acquisition and dissemination were measured with items adapted from previous market orientation studies (e.g., Kohli et al. 1993). Market data analysis and shared understanding were measured with items adapted from Hult et al. (2004), Moorman (1995) and Johnson et al. (2004). In order to develop measures of marketing exploration and exploitation capabilities, an extensive development process was used. First, we reviewed the literature in depth to develop preliminary conceptual definitions of our constructs. Then we conducted 25 in-depth interviews with senior-level marketing executives from firms across 10 industries. An open-ended and semi-structured format was used to enable executives to provide a better view of market exploration and exploitation in their firm (Bryman 1989). We also consulted previous studies using marketing exploration and exploitation, such as Atuahene-Gima (2005) and Kyriakopoulos and Moorman (2004), when developing our construct definitions and items. Our items differ from those in the previous two studies in terms of focusing primarily on how marketing processes (that are the foundation for marketing capabilities) are impacted by marketing exploration and exploitation.

Similar to insights from the marketing literature, the interviewees seemed to take one of two approaches in their responses to how their marketing organizations deal with exploitation or exploration: (1) making minor modifications to existing marketing capabilities, and (2) creating vastly different marketing capabilities than currently exist. In regards to the first approach to marketing capabilities, marketing executives frequently mentioned terms like adaptation (i.e., "you have to be able to adapt …"and "the biggest innovations in our market have been our minor packaging changes"), indicating mostly exploitative processes. Executives also mentioned changes that were reflective of marketing exploration (i.e., "The goal is to create new [product] categories that are really different" and "sometimes you have to completely overhaul your marketing

processes to implement the changes you need"). Given the insights from our qualitative interviews and the insights we gathered from the literature (e.g., Atuahene-Gima 2005; Kyriakopoulos and Moorman 2004; Leonard 1995; Levinthal and March 1993; March 1991; Slater and Narver 1995; Zollo and Winter 2002), we developed a 12-item scale for measuring marketing exploration and exploitation capabilities as two separate constructs each measured with six items. Both scales were measured relative to competitors (e.g., Vorhies and Morgan 2005) with values ranging from −3 (much worse than your closest competitors) to +3 (much better than your closest competitors). Similarly, we developed the measures of brand management and CRM capabilities using our interview process and the existing literature. As has been suggested in the previous literature regarding marketing capabilities (e.g., Vorhies and Morgan 2005) these measures focus on how well a business undertakes CRM and brand management activities in comparison to the firm's closest competitors. We modeled CRM and brand management activities as a second-order construct (e.g., Vorhies and Morgan 2005) representing customer-focused marketing capabilities.

Objective financial data were obtained from multiple secondary data sources (e.g., *Compustat*, *Hoover's*, and *D&B's Million-Dollar Database*) for the year immediately following the survey data collection year. To help control for extraneous variation from unknown industry sources we calculated relative ROA by subtracting firm ROA from the SIC mean ROA (using the firm's primary SIC). This serves to control for environmental variation (Slater and Zwirlein 1992). Please see Appendix for more information.

## Control variables

Several organizational variables have been suggested as having a possible effect on the relationships examined in this study and are therefore included as control variables (e.g., Jaworski and Kohli 1993). Firm size may be an important variable because many aspects of an organization's strategy and its resource levels are related to firm size. Consistent with previous studies, the logarithm of number of employees was used to measure firm size. Firm age was included as a control variable proxy for firm knowledge stores (e.g., Berthon et al. 2001; Grewal et al. 2003) while the number of marketing employees (also logged) was included as a control variable proxy for marketing knowledge stores. Served market effects are controlled for via three mutually exclusive, market-focus dummy-coded variables representing firms operating in primarily goods-based versus services markets(goods=1/services=0), consumer versus primarily business to business markets (consumer=1/business=0) and a dummy code for businesses that are serving both consumer and business markets to approximately the same extent (serving both markets=1). Finally, we included a variable that represented the degree of diversification within the business unit, which was measured by the number of firm SIC codes reported in *Compustat* and *Hoover's*. This diversification variable was done to recognize that even single business unit firms may serve closely related markets. Thus, having a measure of diversification helps us to isolate an additional potential source of variation in performance.

We also model several relationships that we feel could potentially impact our model. For example, to help control for previous performance, we include a measure of free cash flow normalized for firm asset size from previous periods ($CFROA_{t-1}$), as suggested by Boulding and Staelin (1995). The argument made is that firms with higher levels of free cash flow might simply be better able to deploy resources due to having more cash to invest in these businesses. Furthermore, though we do not specifically hypothesize relationships between market knowledge development and marketing capabilities, we do include market knowledge development as a variable in the marketing capabilities equation. We do this to control for the potential impact of existing stores of market knowledge that may already be embedded in the firm's marketing capabilities and to test for a direct relationship from market knowledge development to marketing capabilities. We also include market knowledge development as a variable in the ROA equation to help test for a direct relationship from market knowledge development to ROA.

## Data collection

Following measure development and refinement, a pretest was performed. Items were subjected to psychometric analysis and modified where necessary. Following the pretest, U.S. industries were categorized based on whether they focused on consumer versus business markets. Within the consumer markets we categorized industries based on whether they supplied offerings primarily for durable goods, non-durable goods and services markets. Similarly within the business markets we categorized industries based on their offering durable goods, non-durable goods and services. We then randomly selected two industries within each market type based on four digit SICs and then randomly selected firms within those industries. The 12 industries in the sample were: consumer durable goods—household appliances and home furnishings; consumer non-durable goods—cosmetics/toiletries and food manufacturing; consumer services—property/casualty insurance and retailers; business durable goods—machine tools and instruments and processes equipment; business non-durable goods—maintenance supplies and industrial chemicals and gasses; and business services—commercial banks and commercial property/casualty insurers.

Ultimately, we selected a sample of 406 single business predominant firms. We then determined contact information for the CMEs using secondary data sources such as *Hoover's* and *D&B's Million-Dollar Database* and via telephone contact with the firms. To implement the data collection, a survey packet was mailed to the CME at each firm.

In all, three waves were mailed with appropriate reminders (e.g., Dillman 2000). Prior to determining the response rate, we culled any respondent that rated their knowledge of their firm's marketing programs or their competitor's marketing programs lower than a three in two separate questions. After culling out respondents with low knowledge levels regarding their own firm's marketing programs or competitor's marketing programs, 169 useable responses were retained for a 42% response rate. Non-response bias was assessed by examining differences between early and late respondents (Armstrong and Overton 1977). Tests between each wave revealed no significant differences on the constructs. We also checked for potential key informant bias by performing t-tests on the construct mean differences between the key informant and the secondary informants. This was done by calculating the mean for the multiple secondary respondents for each of the 44 firms in the validation sample and subtracting the mean score of the secondary respondents from the score of the primary respondent (CME) for each of the 44 firms in the validation sample. The test of mean differences for each construct was not significant, thereby lending credence to the lack of substantial key informant bias in our data.

## Results

Before testing the hypotheses, a psychometric analysis was performed on the constructs using reliability analysis and confirmatory factor analysis (CFA). This analysis was first performed on the constructs at the first-order level of analysis. To insure acceptable parameter estimate-to-observation-ratios in the CFA, the measures were divided into subsets of theoretically related constructs (Bentler and Chou 1987). Thus, market knowledge development, marketing exploration and exploitation and customer-focused marketing capabilities were run in three separate CFAs. In these CFAs, all items were modeled to load on their corresponding first-order factors and all the first-order latent variables were allowed to correlate. In all cases, the items loaded well on the first-order constructs they were intended to measure with little evidence of cross loadings. Construct reliability and average variance extracted (AVE) were calculated. The measures proved reliable, and the AVE was good. Discriminant validity among the first-order constructs was tested by setting the inter-factor correlation equal to one and comparing this result to the unconstrained measurement model. A further check on discriminant validity was performed by comparing the AVE to the squared inter-factor correlations. In all cases, first-order convergent and discriminant validity was supported. Results from these analyses are presented in Table 1 along with the means and standard deviations for the measures. Table 2 provides the correlations.

Having validated the first-order constructs, we then developed our second-order constructs for market knowledge development and marketing capabilities by preparing CFAs in which the second-order constructs were modeled as higher order latent variables. We confirmed that each of the first-order constructs loaded well on the higher-order latent variable it was intended to represent. We also confirmed that the higher-order latent variables exhibited good discriminant validity. Having determined the measures were psychometrically sound, testing of the hypotheses was performed using seemingly unrelated regression (SUR) to simultaneously model the relationships discussed above. Using such a modeling approach has a number of benefits. First, it allows us to model our data in a way that reflects the process by which market knowledge development is believed to impact marketing exploration and exploitation, which in turn impacts the marketing capabilities, which in turn impact objective financial performance. Second, a system of equations produces better estimates when the error terms of different regressions are correlated, as is the case in our model. Finally, due to the need to include multiple categorical variables, a structural equation model was ruled out due to the inability to model multiple categorical variables in a practical manner, as well as the inability to model an interaction term as an endogenous variable (e.g., Ping 1995). As a result, SUR was selected as the appropriate method. The system of regressions estimated simultaneously is detailed below:

$$\begin{aligned}\text{Marketing Exploration} = {} & \beta_0 + \beta_1\text{*MARKET KNOWLEDGE DEVELOPMENT} \\ & + \beta_2\text{*GOODS} + \beta_3\text{*CONSUMER} + \beta_4\text{*BOTHMKTS} + \beta_5\text{*SIZE} \\ & + \beta_6\text{*MKTEMPL} + \beta_7\text{*FIRMAGE} + \beta_8\text{*DIVERSIFICATION} \\ & + \beta_9\text{*CFROA}_{t-1} + \varepsilon_{\textit{Marketing Exploration}}\end{aligned}$$

$$\begin{aligned}\text{Marketing Exploitation} = {} & \beta_0 + \beta_1\text{*MARKET KNOWLEDGE DEVELOPMENT} \\ & + \beta_2\text{*GOODS} + \beta_3\text{*CONSUMER} + \beta_4\text{*BOTHMKTS} + \beta_5\text{*SIZE} \\ & + \beta_6\text{*MKTEMPL} + \beta_7\text{*FIRMAGE} + \beta_8\text{*DIVERSIFICATION} \\ & + \beta_9\text{*CFROA}_{t-1} + \varepsilon_{\textit{Marketing Exploitation}}\end{aligned}$$

$$\begin{aligned}\text{Marketing Capabilities} = {} & \beta_0 + \beta_1\text{*MARKETING KNOWLEDGE DEVELOPMENT} \\ & + \beta_2\text{*MARKETING EXPLORATION} \\ & + \beta_3\text{*MARKETING EXPLOITATION} \\ & + \beta_4\text{*MARKETING EXPLORATION * MARKETING EXPLOITATION} \\ & + \beta_5\text{*GOODS} + \beta_6\text{*CONSUMER} + \beta_7\text{*BOTHMKTS} + \beta_8\text{*SIZE} \\ & + \beta_9\text{*MKTEMPL} + \beta_{10}\text{*FIRMAGE} + \beta_{11}\text{*DIVERSIFICATION} \\ & + \beta_{12}\text{*CFROA}_{t-1} + \varepsilon_{\textit{Marketing Capabalities}}\end{aligned}$$

$$\begin{aligned}\text{Relative ROA} = {} & \beta_0 + \beta_1\text{*MARKET KNOWLEDGE DEVELOPMENT} \\ & + \beta_2\text{*MARKETING CAPABILITIES} \\ & + \beta_3\text{*GOODS} + \beta_4\text{*CONSUMER} + \beta_5\text{*BOTHMKTS} + \beta_6\text{*SIZE} \\ & + \beta_7\text{*MKTEMPL} + \beta_8\text{*FIRMAGE} + \beta_9\text{*DIVERSIFICATION} \\ & + \beta_{10}\text{*CFROA}_{t-1} + \varepsilon_{ROA}\end{aligned}$$

Please note: Variables: Relative ROA, SIZE, MKTEMPL and $\text{CFROA}_{t-1}$ are logarithmically transformed in the analysis

This simultaneous system of equations was modeled using standardized data to reduce the effects of the units of measurement, which varied across the constructs modeled. We found non-normal distributions for our relative ROA, organizational size, number of marketing employees and the $\text{CFROA}_{t-1}$ variables. We logarithmically transformed these variables to normalize the distributions and then confirmed normality. We then checked our models for linearity and heteroskedasticity and found no problems as evidenced by diagnostic tests and scatter-plot analyses of residuals in the regressions. Multicollinearity diagnostic tests (e.g., Belsley et al. 1980) confirmed that little multicollinearity exists for the analyses (all variance inflation factors are 2.61 or less). Lastly, we confirmed that the error terms in the four equations were in fact correlated which supports the use of SUR.

Our results demonstrated $R^2$ values ranging from .15 to .69 and our overall system $R^2$ of .40 suggest that our independent variables account for significant variance in the dependent variable for the firms in our sample. Support was found for H1 which predicted a positive relationship between market knowledge development and marketing exploration ($\beta$=.40, t=4.97). Support was also found for H2, which predicted a positive relationship between market knowledge development and marketing exploitation ($\beta$=.34, t=4.07). H3, which predicted a positive relationship between marketing exploration and customer-focused marketing capabilities was supported ($\beta$=.13, t=2.08), as was H4, which predicted a positive relationship between marketing exploitation and customer-focused marketing capabilities ($\beta$=.53, t=8.39). H5a and H5b, which predicted a tradeoff between marketing exploration, marketing exploitation and customer-focused marketing capabilities were supported ($\beta$= −.21, t= −4.06). The plot testing H5a is shown in Fig. 2. As can be seen in Fig. 2, the relationship between marketing exploitation and customer-focused marketing capabilities is moderated by marketing exploration such that higher levels of marketing exploration lead to a weaker relationship between marketing exploitation and customer-focused marketing capabilities. The plot testing H5b is shown in Fig. 3. As can be seen in Fig. 3, the relationship between marketing exploration and customer-focused marketing capabilities is moderated by marketing exploitation such that higher levels of marketing exploitation lead to a weaker relationship between marketing exploration and customer-focused marketing capabilities.

**Table 1** Descriptive statistics

| Variables | Mean | Standard deviation | Average variance extracted | Composite reliability | Loadings range |
|---|---|---|---|---|---|
| Objective Performance | | | | | |
| Relative ROA | 0.07 | 0.14 | | | |
| Multi-item Measures | | | | | |
| Marketing Exploitation | 5.12 | 1.05 | 71% | 0.91 | 0.78–0.91 |
| Marketing Exploration | 4.79 | 1.26 | 73% | 0.91 | 0.79–0.91 |
| Shared Understanding | 5.06 | 0.86 | 55% | 0.78 | 0.60–0.91 |
| Mkt. Information Acquisition | 5.42 | 1.05 | 53% | 0.81 | 0.65–0.88 |
| Mkt. Information Dissemination | 5.23 | 1.12 | 58% | 0.85 | 0.67–0.85 |
| Mkt. Information Analysis | 3.71 | 0.72 | 59% | 0.81 | 0.70–0.83 |
| Customer Relationship Management Capabilities | 5.59 | 1.08 | 69% | 0.92 | 0.78–0.87 |
| Brand Management Capabilities | 5.07 | 1.06 | 65% | 0.90 | 0.70–0.89 |
| Other Measures | | | | | |
| Goods Dummy (categorical) | 0.32 | 0.47 | | | |
| Consumer Market Dummy (categorical) | 0.42 | 0.50 | | | |
| Consumer & Business Market Dummy (categorical) | 0.40 | 0.49 | | | |
| Total Employees | 5204.02 | 8027.92 | | | |
| Marketing Employees | 308.96 | 867.70 | | | |
| Firm Age | 42.82 | 38.06 | | | |
| Diversification | 1.71 | 0.81 | | | |
| $CFROA_{t-1}$ | 0.08 | 0.07 | | | |

[a] Relative ROA is calculated by subtracting firm ROA from the SIC mean ROA

Lastly, H6, which predicted a positive relationship between customer-focused marketing capabilities and objective firm financial performance was supported ($\beta$=.22, $t$=2.36).

In further support of our hypotheses, we see little indication of significant effects in our model from the various control variables included in this analysis. Only in the case of the relative ROA equation did the control variables have any significant relationships with the variables of conceptual interest in our analysis. For the relative ROA equation there was a significant negative relationship between firms operating in both the consumer and business markets and relative ROA ($\beta$= −.29, $t$= −2.32). We also found evidence of a positive relationship between the number of marketing employees (logged) and relative ROA ($\beta$=.32, $t$= 3.44). Overall, these control variables do not appear to have directly impacted the proposed relationships we model and, therefore, lend credence to our empirical findings. We also found that market knowledge development was positively related to customer-focused marketing capabilities ($\beta$=.23, $t$= 4.07), as we suspected, but market knowledge development was not related to relative ROA ($\beta$= −.09, $t$= −0.91). Additionally, we also see little impact from potential multi-collinearity as VIF values were all 2.61 or lower. Regarding our control for previous period performance, the logarithm of available cash from the t-1 period was not significantly related to marketing exploration or exploitation, nor to marketing capabilities. It was also not related to relative ROA. According to Boulding and Staelin (1995) by controlling for previous period performance we reduce endogeneity concerns and should help provide confidence in the SUR analysis.

## Additional analyses

To further assess the appropriateness of our model we tested several alternative models, which included possible direct effects and we tested our results for robustness in terms of possible common method variance.

*Investigating potential direct effects* We acknowledge that direct effects may exist where none are hypothesized. As a result, we tested for potential direct effects with two nested models using the base model shown in Table 3. The first test of direct effects concerned the marketing exploitation and exploration constructs and relative ROA. When the marketing exploitation, marketing exploration and the marketing exploration-exploitation interaction variables were included in the relative ROA equation, none proved significant in the equation, thus providing support for the model proposing mediation via firm marketing capabilities.

**Table 2** Correlations

| Variables: | | X1 | X2 | X3 | X4 | X5 | X6 | X7 | X8 | X9 | X10 | X11 | X12 | X13 | X14 | X15 | X16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | Relative ROA | | | | | | | | | | | | | | | | |
| X2 | Marketing Exploitation | .22** | | | | | | | | | | | | | | | |
| X3 | Marketing Exploration | .10 | .52** | | | | | | | | | | | | | | |
| X4 | Shared Understanding | .14*** | .25** | .39** | | | | | | | | | | | | | |
| X5 | Mkt. Information Acquisition | .12 | .17* | .21** | .26** | | | | | | | | | | | | |
| X6 | Mkt. Information Dissemination | .07 | .10 | .23** | .41** | .31** | | | | | | | | | | | |
| X7 | Mkt. Information Analysis | .13 | .32** | .40** | .72** | .36** | .37** | | | | | | | | | | |
| X8 | Brand Management Capabilities | .23** | .63** | .55** | .41** | .34** | .28** | .44** | | | | | | | | | |
| X9 | CRM Capabilities | .18* | .65** | .51** | .28** | .36** | .16** | .26** | .56** | | | | | | | | |
| X10 | Goods Mkt. | .13 | .06 | .02 | .01 | .06 | .04 | .10 | .09 | .01 | | | | | | | |
| X11 | Consumer Mkt. | .12 | .04 | .01 | .03 | .07 | .10 | .06 | .02 | .03 | .53** | | | | | | |
| X12 | Cons. & Bus. Mkt. | −.18* | −.10 | −.05 | −.03 | −.15* | −.02 | .02 | .06 | −.13 | −.37** | −.69** | | | | | |
| X13 | Total Employees (Log) | .06 | −.01 | −.07 | −.05 | −.04 | −.16* | −.05 | −.01 | −.11 | −.08 | .02 | .08 | | | | |
| X14 | Mktg. Employees (Log) | .19* | .06 | .07 | .15 | .11 | .05 | .21 | .25** | −.03 | −.08 | −.13 | .33** | .20* | | | |
| X15 | Age of Firm | −16* | .08 | −.01 | −.08 | −.05 | −.08 | .01 | −.01 | .04 | −.14*** | .01 | .02 | .31** | .16* | | |
| X16 | Diversification | .02 | .07 | .08 | −.03 | .07 | −.03 | .06 | .02 | .09 | .13*** | .18* | −.08 | .19* | .15*** | .09 | |
| X17 | $CFROA_{t-1}$ (Log) | .25** | .06 | .07 | .06 | .06 | −.04 | .02 | .01 | .15*** | .12 | .11 | −.22** | −.04 | −.17* | −.24* | .07 |

* $p < .05$

** $p < .01$

*** $p < .10$

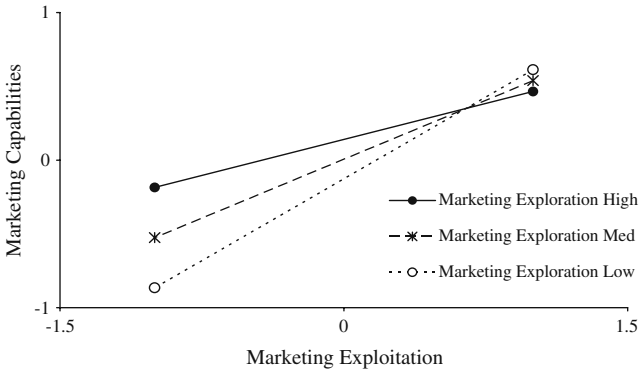


**Fig. 2** The relationship between marketing exploitation and customer-focused. marketing capabilities across different levels of marketing exploration

*Testing for common methods variance* Several of our constructs were measured using items collected via a survey instrument. To ascertain potential influence from common methods variance stemming from the survey items, a main effects only structural equation model (SEM) was prepared using summated scales for the constructs with a common methods factor modeled (using SAS-Calis) as suggested by Netemeyer et al. (1997). Since SEM techniques cannot typically model multiple categorical data, we eliminated the three dummy coded variables from this model.[5] This SEM reproduced the results of the SUR analysis shown in Table 3 with only minor variations in parameter coefficients for the theorized relationships. Thus, as a result of this analysis, we find little impact from potential common methods variance on our SUR model, thus lending credibility to the findings presented above.

## Discussion

This study supports marketing knowledge integration as the foundation for firm marketing capabilities (Day 1994; Grant 1996). Furthermore, this study demonstrates the importance of building marketing exploration and exploitation capabilities to improve the firm's customer-focused marketing capabilities. As discussed above, dynamic capability and organizational learning theories support the idea that embedding new market knowledge is the primary mechanism for driving firm capability improvement. Our study supports these theories by demonstrating that there is a strong relationship between marketing exploration and exploitation and customer-focused marketing capabilities. This demonstrates support for the idea that marketing exploration and exploitation are important capabilities that enable dynamic adaptation to market changes and that marketing exploration and exploitation serve as higher-order capabilities acting on the lower-level capabilities represented by brand management and CRM capabilities.

Extant organizational learning theory (Leonard 1995; March 1991) indicates that when incremental marketing capabilities improvement is needed, marketers will rely on marketing exploitation capabilities to make minor changes in the configuration of resources that deploy market-based assets. Reviewing the results of our analysis, we find that for the firms in our study, marketing exploitation does appear to be providing a stronger capability for improving brand management and CRM capabilities than marketing exploration. This is largely consistent with the extant theory that indicates that firms use exploitation capabilities more regularly in adaptive, evolutionary ways and typically use exploration-based capabilities only when exploitation fails to deliver needed outputs or when managers make the choice to perform more radical reconfiguration of resources (Grant 1996; Teece et al. 1997).

The extant theory previously discussed predicts that firms will use marketing exploration capabilities to reconfigure marketing resources when marketing exploitation processes fail to yield desired results. This is consistent with the findings in our study in that a significant relationship between marketing exploration and brand management and CRM capabilities is demonstrated. This finding implies that the firms in our study use marketing exploration capabilities to reconfigure marketing resources and that new market knowledge, when embedded in the firm's brand management and CRM capabilities, does result in improved brand management and CRM capabilities. However, it is also important to note that, in this study, firms do not see the same level of improvement from marketing exploration that they see from marketing exploitation. Furthermore, by testing for direct paths from marketing exploration and exploitation to relative ROA and finding no significant relationships, we strengthen our support for marketing

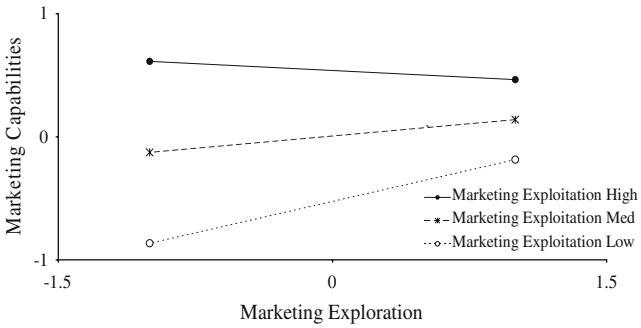


**Fig. 3** The relationship between marketing exploration and customer-focused marketing capabilities across different levels of marketing exploitation

[5] This should not cause a significant issue due to the lack of significance from these variables in the SUR modeling.

**Table 3** System of Equations (SUR) Results[a]

| | Equation 1 Marketing Exploration Capabilities | Equation 2 Marketing Exploitation Capabilities | Equation 3 Customer-Focused Marketing Capabilities | Equation 4 Objective ROA |
|---|---|---|---|---|
| *Independent Variables:* | Standardized Estimate (t-value) | Standardized Estimate (t-value) | Standardized Estimate (t-value) | Standardized Estimate (t-value) |
| *Main Effects* | | | | |
| Market Knowledge Development | .40 (4.97) | .34 (4.07) | .23 (4.07) | -.09 (-0.91) |
| Marketing Exploitation Capabilities | | | .53 (8.39) | |
| Marketing Exploration Capabilities | | | .13 (2.08) | |
| Marketing Exploration x Marketing Exploitation | | | -.21 (-4.06) | |
| Customer-Focused Marketing Capabilities | | | | .22 (2.36) |
| *Control Variables:* | | | | |
| Goods | .04 (0.47) | .09 (0.95) | -.04 (-0.65) | .12 (1.30) |
| Consumer Market Focus | -.13 (-1.06) | -.19 (-1.52) | .08 (0.95) | -.19 (-1.51) |
| Cons. & Bus. Market Focus | -.07 (-0.56) | -.21 (-1.64) | .11 (1.42) | -.29 (-2.32) |
| Total Employees (Log) | -.06 (-0.76) | .01 (0.16) | -.05 (-0.86) | -.07 (-0.83) |
| Marketing Employees (Log) | .02 (0.19) | .06 (0.58) | .07 (1.26) | .32 (3.44) |
| Firm Age | .04 (0.45) | .08 (0.91) | .01 (0.03) | -.14 (-1.63) |
| Diversification | .06 (0.67) | .06 (0.72) | .02 (0.41) | .03 (0.33) |
| $CFROA_{t-1}$ (Log) | .09 (1.11) | .06 (0.74) | .08 (1.60) | .03 (0.39) |
| Individual Equation $R^2$ | .18 | .15 | .69 | .18 |
| System Weighted $R^2$ | .40 | | | |

[a] Complete case analysis with n=169

1. Sensitivity analysis was performed with ROS as the dependent variable in Equation 4. With ROS as the dependent variable, the standardized coefficient for marketing capabilities on ROS is .26 (t=2.85). We thank an anonymous reviewer for this suggestion. No other relationships change significantly.

2. The significance of interaction was confirmed with a simple slopes test of the high and low conditions for marketing exploration and exploitation.

capabilities as a mediator in the marketing exploration and exploitation relationships with relative firm ROA.

Extant theory in marketing and strategic management (Atuahene-Gima 2005; Gupta et al. 2006; Kyriakopoulos and Moorman 2004; March 1991) has also argued that firms that are ambidextrous regarding marketing exploration and exploitation may have a significant advantage over less ambidextrous firms. Firms using only exploitation may under-perform competitors due to a lack of marketing capabilities innovation because they suffer from rigidities and competency traps created by over-reliance on well known, existing marketing capabilities (Atuahene-Gima 2005; Leonard-Barton 1992). Likewise, a firm that focuses exclusively on marketing exploration never gains the full return from its investment in process innovation (Atuahene-Gima 2005; March 1991). Thus, extant theory predicts that there is a benefit to firms which exhibit "ambidexterity" and are thus able to embed new market knowledge through both marketing exploration and exploitation capabilities.

To demonstrate how ambidexterity works in our sample, we plotted the relationship between marketing exploitation and marketing capabilities across the different levels of marketing exploration (please see Fig. 2). Our results show that higher levels of marketing exploration weakened the relationship between marketing exploitation and the customer-focused marketing capabilities. This may indicate that for the firms in our study, marketing exploration capabilities divert critical knowledge resources from exploitation capabilities. We also plotted the relationship between marketing exploration and customer-focused marketing capabilities across the different levels of marketing exploitation (please see Fig. 3). As shown in Fig. 3, higher levels of marketing exploitation capabilities did weaken the relationship between marketing exploration and the brand management and CRM capabilities. This implies that there is a tension between marketing exploration and exploitation capabilities in the firms in our study. From this result, we infer that firms should not attempt to maximize both marketing exploration and marketing exploitation because it will negatively impact customer-focused capabilities. This may be evidence that the firms in our study are resource constrained or it may represent a point of diminishing returns

in terms of embedding new market knowledge. Clearly, more study in this area is needed.

Our findings have interesting implications for further theory development in marketing. From a theoretical perspective, our findings are supportive of finite resource theory, which predicts that due to finite firm resources, firms are not able to do everything at maximum levels. Whether due to constrained non-knowledge resources—a limit in the gathering, processing and sense-making processes present in market knowledge development—or whether due to a limit in the ability to reconfigure and embed new market knowledge, our findings indicate a limit to exploration and exploitation capabilities. For researchers interested in organizational ambidexterity, our findings provide empirical evidence that firms cannot maximize both, given constrained resources.

This finding also has interesting implications for managers. From a managerial perspective, firms interested in developing superior brand management and CRM capabilities should understand that doing either marketing exploration or exploitation at high levels is likely to be counter-productive. There exists an inflection point for both marketing exploration and exploitation beyond which further development is counter-productive in terms of impacting brand management and CRM capabilities. What is important to note is that firms that want to be "ambidextrous" should strive for moderate levels of both marketing exploration and exploitation. The tradeoff between marketing exploration and exploitation is likely idiosyncratic within the firm. Some firms may find a lower tradeoff point than the firms in our study and some may find it at higher levels.

In addition, managers should take note that our study predicted that higher levels of brand management and CRM capabilities would result in higher objective firm financial performance as measured by relative ROA. This prediction was supported as the firms in our study that increased their brand management and CRM capabilities saw improvements in relative ROA. Furthermore, working back through our model demonstrates that a major way to improve these marketing capabilities is to increase marketing exploration and exploitation capabilities. However, as noted above, firms should be careful in overemphasizing either marketing exploitation or marketing exploration capabilities. Instead, they should strive to have sufficient ambidexterity to be able to utilize both marketing exploration and exploitation in the moderate range. We also note that while we did not hypothesize a direct relationship between market knowledge development and brand management and CRM capabilities, our study does find support for the idea that market knowledge development does have a direct influence on brand management and CRM capabilities development. This finding supports the logical notion that there are other avenues of market knowledge utilization besides marketing exploration and exploitation. This finding is also supportive of the general market orientation literature.

Lastly, our study further contributes to marketing science and practice by supporting the generalizability of the findings from previous marketing studies (Atuahene-Gima 2005; Kyriakopoulos and Moorman 2004) which used only the product innovation context to study marketing exploration and exploitation. Broadening the applicability of the relationships between marketing exploration and exploitation and marketing capabilities demonstrates generalizability of previous findings and indicates that firms should be able to improve their marketing capabilities by marketing exploration and exploitation as marketing capabilities improvement processes.

## Limitations and directions for future research

Our study has several limitations, which are the result of research design tradeoff decisions required in research of this type. First, while our data are not strictly cross-sectional, in that our financial data (objective relative ROA) were collected after the survey data, our data provide only a limited ability to impute causality. Future research could complement our findings by utilizing longitudinal and time-series research designs that will provide additional causal evidence and make it easier to control for the effect of unobservables. Second, to ensure a sufficient response rate resulting in adequate number of observations from our sample, we used a single key informant design, supplemented by secondary informants to validate the key informant data. Future research using multiple informants would further enhance confidence in our findings. Finally, future researchers may wish to investigate the learning mechanisms themselves, particularly focusing on the conditions that indicate that a firm has reached the limit of what its current marketing capabilities may provide. Understanding what drives firms to embed new market knowledge and what drives the shift between marketing exploration and marketing exploitation is an important research topic for future research. Thus, future research can add to our knowledge by explicating the conditions under which flexibility is maximized and what it costs the firm to attain this sort of flexibility.

## Appendix

Purified survey measures used in the research

**Marketing Exploitation Capabilities** *Please indicate how your business uses market knowledge to make modifications to existing marketing processes, relative to your main competitors. (Seven point scale: −3=much worse; +3=much better).*

Consistently reexamining information from previous projects and/or studies to modify existing marketing processes

Routinely adapting existing ideas when developing new marketing processes.

Incrementally and routinely improving our existing marketing procedures.

Focusing changes in marketing procedures on improving efficiency.

**Marketing Exploration Capabilities** *Please indicate how your business uses market knowledge to change the way it thinks and to create new, or replace, existing marketing processes, relative to your main competitors. (Seven point scale: −3=much worse; +3=much better).*

Continually developing new marketing procedures that are very different from others developed in the past.

Routinely introducing new marketing procedures which are daring, risky, or bold.

Consistently using market knowledge to develop new marketing processes which deliver different outputs from existing processes.

Using marketing knowledge to "break the mold" and create new marketing processes not used before.

**Market Information Acquisition** *Please consider how your marketing organization gathers and uses information about its marketplace. (7-point scale: 1=Strongly Disagree; 7=Strongly Agree)*

We meet with customers at least twice a year to find out what products or services they will need in the future.

We poll end users at least twice a year to assess the quality of our products and services.

We encourage our sales representatives and other frontline marketing employees to gather information about customer needs.

We closely monitor our competitors to determine potential or missed opportunities.

**Market Information Dissemination** *Please consider how your marketing organization gathers and uses information about its marketplace. (7-point scale: 1=Strongly Disagree; 7=Strongly Agree)*

We have interdepartmental meetings at least once a quarter to discuss market trends and developments

When something important happens with a major customer or market, the whole organization is informed within a short period

We share information effectively between marketing and other departments

We have informal networks that insure marketing decision makers have the information they need.

**Market Information Analysis** *Please consider how your marketing organization gathers and uses information about its marketplace. (7-point scale: 1=Strongly Disagree; 7=Strongly Agree)*

New marketing ideas are regularly analyzed to assess their potential merit.

Various marketing strategy alternatives are always carefully evaluated.

Market information is routinely organized in meaningful ways.

**Shared Understanding** *Please consider how your marketing organization gathers and uses information about its marketplace. (7-point scale: 1=Strongly Disagree; 7=Strongly Agree)*

Frequently, we clearly articulate our intended marketing actions to all marketing employees.

We regularly develop a shared understanding of the available marketing information

We frequently develop a shared understanding of the implications of marketing activities.

**Customer Relationship Management Capabilities** *Please indicate how your marketing organization performs the following activities with your customers. In comparison with our main competitors, we: (Seven point scale: −3=much worse; +3=much better).*

Routinely establishing a "dialogue" with target customers.

Get target customers to try our products/services on a consistent basis.

Focus on meeting customers' long term needs to ensure repeat business.

Systematically maintain loyalty among attractive customers.

Routinely enhance the quality of relationships with attractive customers.

**Brand Management Capabilities** *Please indicate how your marketing organization performs the following activities with your brands. In comparison with our main competitors, we: (Seven point scale: −3=much worse; +3=much better).*

Routinely use customer insight to identify valuable brand positioning.

Consistently establish desired brand associations in consumers' minds.

Maintain a positive brand image relative to competitors.

Achieve high levels of brand awareness in the market on a regular basis.

Systematically leverage customer-based brand equity into preferential channel positions.

**Financial Performance** *Relative Return on Assets was calculated using objective data from Compustat, A.M. Best Insurance Reports and Dun and Bradstreet.*

Relative Return on Assets (ROA) is calculated as: Firm ROA—Industry segment ROA at 4 digit SIC level.

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