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The effects of internal and external competition on innovation breadth

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ABSTRACT

Prior research shows that increasing the breadth of elements used to create a firm's innovations can improve its ability to successfully introduce innovations. Yet, our understanding of the antecedents of innovation breadth is limited. This study investigates how competition affects product managers' decision to expand the breadth of elements used to create an innovation. I build on the awareness–motivation–capability (AMC) framework to propose that inter-firm competition from rivals' innovations and intra-firm competition from a firm's own innovations both create pressures for product managers to increase innovation breadth, but that the greater awareness and motivation resulting from internal competition will lead managers to increase innovation breadth more in response to intra-firm competition. I find support for these propositions based on a longitudinal examination of mutual fund innovations. This study offers contributions by developing theory about how competition shapes managers' decision to expand the diversity of elements used to develop an innovation.

1. Introduction

Developing innovations requires companies to integrate new and existing knowledge components to create new products (Kogut & Zander, 1992; Nelson & Winter, 1982). Increasing the diversity of knowledge helps a firm to create innovations based on new knowledge combinations (Fleming, 2001; Schumpeter, 1934). Moreover, studies indicate that drawing on a diversity of elements in its inventive activities enhances a firm's ability to create innovations (Ahuja & Katila, 2004), and that combining diverse types of scientific knowledge increases the value of the firm's innovations (Fleming & Sorenson, 2004). Research also finds that the number of knowledge sources from which a company draws increases its innovative output and contributes to the commercial success of its innovations (Leiponen & Helfat, 2010). Taken together, these studies show that expanding the diversity or breadth of elements used to create innovations increases the firm's innovation output and contributes to the success of its innovations. In spite of the importance of innovation breadth to a firm's efforts to develop and commercialize its innovations, relatively little is known about the antecedents of managerial decisions to expand the breadth of elements used to create an innovation.

Prior research has emphasized how inter-firm competition can trigger the search for new ideas and numerous studies show that competitive feedback relative to social and historical aspirations increases a firm's motivation to identify and incorporate new ideas (Chen, 2008; Chen & Miller, 2007; Cyert & March, 1963; March, 1991). However, in knowledge-intensive contexts, decision-making is often decentralized and the firm's innovation strategy may culminate from the decisions of managers across different parts of the organization charged with the development of products (Brown & Eisenhardt, 1995; Grant, 1996). Our understanding of how competition affects product managers' decision to incorporate new elements in their innovations is presently limited. This current study attempts to answer the following question: How do different types of competition influence product managers' decision to increase the breadth of elements used to develop an innovation?

This study shifts the focus from firms to the product managers inside of these firms by examining how differences between how companies and employees respond to competition influence decisions about innovation breadth. Whereas companies only face competition from other firms in their industry, the managers responsible for developing an organization's products are subject to competitive pressures emanating both from internal and external sources (Birkinshaw & Lingblad, 2005; Taylor, 2010). Prior research also shows that awareness, motivation and capability (AMC) are important determinants of competitive behavior (Chen, 1996). In this study I build on the AMC framework to develop theory about how external competition from similar innovations sponsored by rival firms and internal competition emanating from other similar innovations sponsored by the same firm influence product managers' decisions about innovation breadth. Specifically, I propose that since internal and external competition from similar innovations both threaten the uniqueness of product managers' knowledge, both types of competition will lead to a heightened awareness of competitive threats and an increased motivation to differentiate their knowledge by increasing the breadth of elements used in the development of their innovations.

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Studies also show how managers are subject to internal and external labor market pressures (Becker, 1964; Coff, 1997; O'Mahony & Bechky, 2006). Accordingly, I argue that the degree to which product managers increase innovation breadth in response to competition is influenced by the relative strength of incentives from internal and external labor markets. I propose that internal competition, which increases product managers' awareness of and motivation to respond to competition due to the increased proximity and similarity of internal competitors, will exert a greater effect than external competition on product managers' decision to expand innovation breadth.

I test these propositions using data from the U.S. mutual fund industry. Not only has this context been used as a backdrop for other organizational studies (e.g., Eggers, 2012; Rao & Drazin, 2002), but it has also been used to examine the effects of competition on managerial behavior (e.g., Brown, Harlow, & Starks, 1996; Wahal & Wang, 2011). Moreover, studies show that the selection of investments is an important managerial decision (Csaszar, 2012) and when developing a mutual fund its managers choose among different investments that are either new or that have been used previously (Grinblatt, Titman, & Wermers, 1995), thereby making it possible to observe the addition of new elements to a mutual fund portfolio. Importantly, this empirical context also allows for a longitudinal examination of more than 2000 mutual fund innovations developed between 2004 and 2011. For all of these reasons the mutual fund industry is appropriate to test theory about the influence of inter-firm and intra-firm competition on innovation breadth.

This study makes important theoretical contributions to the innovation and strategic management literature. Extant literature has mainly drawn attention to the benefits that firms can achieve by increasing the breadth of elements used to develop their innovations (e.g., Ahuja & Katila, 2004; Fleming & Sorenson, 2004; Leiponen & Helfat, 2010). In this current study I build on theoretical insights about the relevance of internal competition to product managers' decision making (e.g., Birkinshaw & Lingblad, 2005; Taylor, 2010) to consider how different types of competition affect decisions about innovation breadth. Accordingly, one important contribution of this current study to the innovation management literature is to advance understanding of the determinants of innovation breadth.

This current research also contributes to the strategic management literature by developing theory that considers the relative effects of inter-firm and intra-firm competition on decision making about product development. In spite of the fact that intra-firm competition can lead to cannibalization and duplication of resources, the literature suggests that firms are sometimes willing to allow intra-firm competition in order to accelerate product development efforts and increase the number and variety of technological alternatives (Birkinshaw, 2001; Kalnins, 2004; Sorenson, 2000; Taylor, 2010). However, at present, our theoretical understanding of the relative effects of external and internal competition on managerial behavior is limited. This current study contributes to the strategic management literature by developing theory that simultaneously considers the effects of both of these types of competition.

2. Theory development

Competition related to performance aspirations and firm survival is a common thread that links many of the organizational antecedents of search and strategic change (Cyert & March, 1963; March, 1991). Therefore, when examining the antecedents of product managers' decision to increase innovation breadth, competition is a natural starting point. In many organizations the decision about how to create innovations is a decentralized one that is overseen by product managers who possess the technical expertise and knowledge to undertake this critical responsibility (Brown & Eisenhardt, 1995; Katz & Allen, 1985). Accordingly, it is important to consider potential differences between the incentives faced by managers who develop innovations and the firms that employ them. Whereas firms predominantly face external competition from innovations sponsored by other companies in their industry, managers simultaneously compete in internal and external labor markets (Coff, 1997; Lazear & Oyer, 2004) and therefore are subject to competition from both internal and external sources.

An important theoretical lens that has been used to study competitive behavior is the awareness–motivation–capability (AMC) framework (Chen, 1996). The AMC framework proposes that awareness, motivation and capability are three key antecedents that can affect competitive behavior. Numerous studies have built on the AMC framework to examine rivalry among firms (e.g., Mariadoss, Johnson, & Martin, 2014; Nair & Selover, 2012; Yu & Cannella, 2013). The many studies already building on the AMC perspective that provide important insights about inter-firm competition suggest that it may also be a useful framework for examining how different types of competition affect managerial decisions about innovations. In the next section I build on the AMC framework to develop theory about how internal and external competition shape product managers' decisions to increase the breadth of their innovation.

I build on the AMC framework to argue that the increased awareness and motivation that results from competition from innovations developed by product managers at other companies and those developed by other product managers in the focal firm will both increase the extent to which managers incorporate new elements when developing their innovations. Competition can cause knowledge-based resources to become less unique (Barney, 1991; Peteraf, 1993), which complicates efforts to profit from them (Teece, 1986; Tripsas, 1997). Prior literature shows that innovations often face competition from similar and substitute innovations (Nelson & Winter, 1982). Competition from similar innovations can prompt companies to make changes and refinements to their innovations (Anderson & Tushman, 1990).

Prior research shows that managers face competitive pressures emanating from both external and internal sources (Birkinshaw, 2001; Taylor, 2010). Managers possess a combination of firm-specific and general knowledge (Becker, 1964) and prior research shows that managers can derive value internally, by progressing within their organization (Althauser, 1989), or externally, by moving to a new organization (Coff, 1999; O'Mahony & Bechky, 2006). Consequently, compensation and opportunities for career advancement may be influenced both by competition with managers in other firms and other managers in the same organization. In their managerial rents model, Castanias and Helfat (1991, 2001) argue that ‘skill differentials’ that result in the development of scarce and valuable human capital can enable an organization and its managers to earn above average returns. Similarly, Coff (1999) proposes that managers with rare skills are able to appropriate more value from the firms that they work for, due to their increased ability to move to another organization. In support of these arguments, studies show that firms led by managers with rare international experience performed better than firms led by managers lacking this experience, at the same time that those same managers earned higher compensation (Carpenter, Sanders, & Gregersen, 2001). This research shows that possessing unique skills and expertise is critical to managers' ability to profit from their knowledge.

Since competition from a greater number of other managers who possess similar expertise required to develop innovations will threaten the uniqueness of product managers' knowledge, managers will be more aware and more motivated to respond to increased competition by incorporating new knowledge components in an effort to differentiate their knowledge from rivals. Therefore, the greater the number of similar innovations from other firms, the more intense the external labor market competition that a product manager will face since it implies that there are more external rivals that possess the knowledge required to develop that type of innovation. Similarly, the greater the number of similar innovations from the same firm, the more intense the internal labor market competition that a product manager will face since it implies that there are more internal rivals that possess the knowledge required to develop that type of innovation. Since a greater

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