



# Knowledge Combination and the Potential Advantages of Family Firms in Searching for Opportunities

Pankaj C. Patel  
James O. Fiet

**This study examines differences in knowledge structures and combinative capabilities that provide family firms with distinct advantages over nonfamily firms in identifying opportunities. Drawing on constrained, systematic search, we explore how noneconomic goals and family relations enhance searching for opportunities. Unique human capital conditions create specific knowledge and economies of scope in knowledge combination. Differences in knowledge stocks, knowledge combination, and the long-term orientation of family firm managers explain differences in finding opportunities between family and nonfamily firms. Furthermore, we propose that family firms are more likely to improve their search routines over time. Fewer endgame scenarios in family firms allow the refinement of search routines.**

## Introduction

What all the successful entrepreneurs I have met have in common is not a certain kind of personality but a commitment to the systematic practice of innovation. (Drucker, 1998, p. 3)

How do firms engage in the systematic practice of innovation? Do some firms have an advantage over others? Are some firms more likely to become better over time at the systematic practice of innovation than others? Organizational research has addressed these questions from perspectives such as organizational learning (Brown & Duguid, 1991), corporate entrepreneurship (Zahra, 1996), technology management (Gopalakrishnan, 1997), exploration- and exploitation-based search for innovations (Raisch & Birkinshaw, 2008), and entrepreneurial orientation (Covin & Slevin, 1989). These perspectives utilize internal routines and capabilities, which appear to help firms scan, identify, develop, and exploit innovations related to the systematic practice of innovation.

---

Please send correspondence to: Pankaj C. Patel, tel.: (765) 285-3194; e-mail: [pcpatel@bsu.edu](mailto:pcpatel@bsu.edu), and to James O. Fiet at [jamesofiet@me.com](mailto:jamesofiet@me.com).

The authors contributed equally to this research.

Governance mechanisms have received less attention than routines and capabilities when it comes to understanding innovation practices. Managers use governance mechanisms to control and monitor the use of their authority (Williamson, 1996). Governance mechanisms operate by promoting or inhibiting managerial behavior, which can be related to the systematic practice of innovation. When these governance practices are oriented toward short-term performance, they promote the identification of entrepreneurial opportunities that favor incremental innovation because managers are less inclined to engage in radical innovations that primarily benefit their successors. Similarly, governance mechanisms that lead to entrenchment constrain searching to low-risk opportunities related to incremental innovation. Alternatively, governance practices, which are more oriented toward the long term, create incentives for developing and sustaining innovation routines and practices to enhance overall firm value. Although managerial incentives tend to promote a short-term orientation, unique factors related to family firm governance lead to an increased long-term orientation.

An area of increasing interest in the field is comparing differences in governance practices between family and nonfamily firms. *Family firms* are those in which ownership and control are combined to a varying extent (Chen, Chen, Cheng, & Shevlin, 2010). Driven by noneconomic motives, *family*, as an organizing principle, provides unique advantages in searching for, identifying, and exploiting opportunities. It also leads to unique organizational, sociocognitive, and cultural conditions that position family firms in rich yet parsimonious knowledge networks. Our purpose in this research is to demonstrate that the unique positioning of a family firm allows it to engage in a more systematic practice of innovation than can be accomplished by a nonfamily firm.

Compared with managers in nonfamily firms, family firm managers are driven by noneconomic motives. For example, the governance mechanisms used by family managers generate “dominant propensities” such as personalism, parsimony, and particularism (Carney, 2005, p. 254). *Personalism* centers authority in an owner-manager or a family. As a result, family firms are free to engage in longer-term innovation practices and in building internal knowledge structures conducive to finding opportunities. *Parsimony* refers to family managers managing firm resources frugally to protect their ownership stake. In addition, they are likely to consider opportunities more carefully and to search for opportunities more efficiently. *Particularism* refers to a family manager’s ability to include idiosyncratic criteria and goals that are not always driven by economic motives. Thus, we often view them as seeking opportunities that also pursue the noneconomic goals of a family such as a firm’s long-term sustainability.

Combining Drucker’s (1998) concept of systematic innovation with the propensities resulting from the known governance practices of family firms, we posit that family firms have unique advantages in seeking, identifying, and exploiting opportunities.<sup>1</sup> A gap in Drucker’s framework is the process through which firms find opportunities, which he views as an incongruity in what we know.

Constrained, systematic search<sup>2</sup> complements Drucker’s framework by suggesting that opportunity identification requires (1) specific knowledge that helps firms leverage existing resources and (2) the ability to search in external information channels in order to combine external knowledge (Fiet, 2002, 2007). *Specific knowledge* is the capacity to recall information about people, places, timing, technology, and special circumstances,

---

1. We thank editor Lloyd Steier for suggesting Drucker’s framework.

2. For brevity, we often refer to constrained, systematic search as systematic search.

whereas *information channels* are low-cost sources of frequent signals about specific information. *Information* consists of facts communicated about a particular person, place, or thing, which may or may not lead to the creation of new wealth (Fiet, 2007). Specific information can be organized into *knowledge structures*, which are slow-to-change sources of new information, which tend to influence how knowledge is organized in firms. *Signals* change our expectations about the future or provide us with a better understanding of an observed relationship.

First, by developing a highly firm-specific knowledge base, firms are more likely to access knowledge structures that are adept at identifying market incongruities related to their resource bases. This identification will most likely occur while searching systematically. Specific knowledge structures developed in conjunction with internal resources and capabilities help to exploit the identified incongruities. The propensities for personalism, parsimony, and particularism enable managers of family firms to develop their unique and idiosyncratic knowledge structures to leverage internal resources. In nonfamily firms, managers are less likely to develop specific investments in knowledge routines (Carney, 2005). Due to their short-term orientation and apprehension about developing firm-specific human capital, nonfamily managers are apt to see less value in developing joint knowledge routines. Reducing the scope of a nonfamily manager's specific knowledge and capabilities leads to the identification of less valuable opportunities and to less effective exploitation of the opportunities identified.

Second, firms must seek new knowledge to combine with existing knowledge to develop opportunities that enhance the competitive advantage of a firm (Drucker, 1998). *Knowledge combinability* refers to the routines and processes used to combine knowledge situated in knowledge structures (Kogut & Zander, 1992). The influences on knowledge combinability are important because they affect how firms can sort through and select the most feasible opportunities to exploit (Ardichvili, Cardozo, & Ray, 2003). Also, family firms survive by finding opportunities, while taking into account that some of them could (1) lose their value or (2) be illusory. This dual imperative to identify feasible opportunities while averting risk may mean that leveraging knowledge and resources requires fundamentally different mechanisms for family firms and nonfamily firms.

We suggest that unique knowledge structures, knowledge combinability, and long-term time horizons for family firms provide them with predictable advantages in finding opportunities. While searching, family firms experience greater economies of scope in knowledge combination because of their reported use of noneconomic goals (Chrisman, Kellermanns, Chan, & Liano, 2010) and sociocognitive bonds developed through family interactions (Chrisman, Chua, & Steier, 2005). Noneconomic goals and sociocognitive bonds could also lead to improvement in opportunity identification routines over time. Drawing on game theory, we propose that nonfamily managers face endgame scenarios more frequently and are less likely to invest in and develop human and social capital. Also, nonfamily managers are more likely to identify short-term, and probably, less profitable opportunities. Therefore, nonfamily managers have less incentive to maintain and refine search routines that benefit a firm in the long term. In view of these expectations, we pose two research questions: (1) do family firms identify more valuable opportunities than nonfamily firms, and (2) can they sustain a competitive advantage in identifying valuable opportunities over time?

By addressing these questions, we make several contributions. First, we suggest how to leverage social capital, which Arregle, Hitt, Sirmon, and Very (2007) explore in connection with family firms. We extend their work by focusing on how constrained, systematic search adds to our understanding of how family firms can leverage their

social capital. Second, much of the entrepreneurship literature has taken an atomistic view of how individuals find opportunities. Similarly, corporate entrepreneurship has focused on the role of individual entrepreneurs within organizational settings. Yet, much that occurs within a firm results from team efforts. Third, by extending corporate entrepreneurship, we suggest that the actions of entrepreneurs are likely to be affected by a firm's incentive mechanisms. We show how governance systems affect group efforts in the identification, combination, and deployment of resources. Fourth, we extend constrained, systematic search from an individual level to a firm level of analysis. As we make this extension, we note that a family firm's team has greater scope and efficiency than a nonfamily firm in combining its specific knowledge about opportunities (Fiet & Patel, 2008). Finally we show that endgame scenarios at least partially explain why strategic actions and propensities vary for family and nonfamily managers within and across firms.

### **Opportunity, Governance Devices, and the Advantages of Human and Social Capital**

An *opportunity*, when exploited, generates above-normal economic returns (Kirzner, 1997). Incongruities are the drivers of opportunities (Drucker, 1985). Incongruities exist (1) at the economy level, (2) at the industry level, (3) in customer demand, and (4) in industry processes used to convert raw materials into finished goods. To generate above-normal economic returns, firms must be able to identify incongruities.

Research on opportunity at the individual level clarifies the function of many factors, including individual human capital (Ucbasaran, Westhead, & Wright, 2008), social capital (Davidsson & Honig, 2003), cognition (Gaglio & Katz, 2001), effectual versus causal reasoning (Sarasvathy, 2001), learning (Corbett, 2007), social cognition (De Carolis & Saporito, 2006), and positive affect (Baron, 2008). Opportunity research has paid very little attention to governance mechanisms despite their importance in creating incentives for seeking, identifying, and exploiting certain types of opportunities. For example, drawing on the concept of socioemotional wealth, Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, and Moyano-Fuentes (2007) suggest that risk-averse family firms are more likely to pursue risky opportunities when their existence is threatened; otherwise, these firms pursue less risky opportunities. Thus, not only do governance mechanisms circumscribe the nature of the opportunities that family firms pursue, but they also manifest themselves as different opportunity discovery and exploitation mechanisms. Drucker (1985) does not explain why some firms are more effective in identifying incongruities than others.

Research on family firms during the last decade has shown that they have unique advantages over nonfamily firms due to differences in capital structure (Chrisman et al., 2010). Sirmon and Hitt (2003) note that family firms have more and different human capital, social capital, patient financial capital, and survivability capital than nonfamily firms. The distinctness of their capital endowments exerts noticeably different effects on opportunity discovery and exploitation. For example, the distribution of human and social capital affects the availability of knowledge within a firm because these resources are repositories of a firm's knowledge and are required for both discovery and exploitation (Bertrand & Schoar, 2006). In a similar way, social embeddedness among family members affects how knowledge is combined to discover opportunities. To the extent that cost is a constraint, their lower cost of capital enables family firms to access more opportunities than nonfamily firms.

## Discovering Opportunities in Family and Nonfamily Firms

Opportunity research discusses three ways to notice opportunity: (1) discovery, (2) creation, and (3) stumbling upon one through serendipity (Denrell, Fang, & Winter, 2003). We adopt a discovery approach for three reasons. First, the dominant Austrian perspective supports the notion of discovery (Kirzner, 1997). Second, despite opportunity creation being a valid approach, it does not offer a systematic framework for creating an opportunity. Comparing alertness and discovery through research on constrained, systematic search provides richer descriptions of opportunity recognition. Plus, its theoretical basis provides stronger linkages with other literature streams. Third, the strategic management literature has implicitly used the discovery approach over the years by basing much of its theorizing on an industrial organization economics framework (Denrell et al.).

### The Basics of Constrained, Systematic Search

Entrepreneurs have a choice when it comes to discovering opportunities: (1) they can wait to stumble upon one that fits what they know and that has economic potential (also known as alertness); (2) they can try to create one; or (3) they can search systematically to find one. In each of these cases, opportunity identification requires information (Fiet, 1996; Kaish & Gilad, 1991). Informational economics postulates a maximal combination of the quantity and specificity of information upon which the discovery of an opportunity depends (Stigler, 1961). Information itself consists of signals. The complex and unpredictable nature of information markets, endogenous knowledge structures, and limited resources dictate that successful entrepreneurs focus on specific information channels.

Fiet (2007) suggested that aspiring entrepreneurs could organize their most promising information channels into a consideration set. A *consideration set* is a group of information channels constituted on the basis of one's specific knowledge (Fiet, Norton, & Clouse, 2007). To constitute such a set, an entrepreneur would first examine the areas where he or she possesses specific knowledge and then select potential information channels for searching, which fit what they already know. The chosen channels would have the greatest potential for discovering an opportunity based on an entrepreneur's specific knowledge of an area of commerce. During the search of these information channels, it would be possible that an entrepreneur switches particular channels in or out of the initial consideration set, based on what is found. The effect of this updating process is that although searching is constrained to occur within an entrepreneur's consideration set, the consideration set itself stays connected to those potential opportunities that can best match what an entrepreneur already knows.

The practical advantage of using consideration sets is that they can combine specific knowledge from previous experience with new information about the external environment, which they can find while searching. We do not claim that all entrepreneurs use consideration sets. Instead, we observe that many new firms fail, and that finding consideration-set-sourced opportunities is one way to reduce the failure rate. Consideration sets are useful theoretically because entrepreneurs can substitute *the systematic search of the channels within a consideration set* for the *searching for a specific opportunity* (cf. Fiet et al., 2007; Kirzner, 1997). To use Kogut and Zander's (1992) analysis, they can also serve as a mechanism for enhancing the combinative capability of a firm related to discovering new opportunities.

To understand the basis for constrained, systematic search in the context of a firm, we must first consider a person's knowledge structure. There are two primary knowledge structures based on general and specific information. On the one hand, *general information*

is widely available in public domains and can be very easily assimilated. Because general information is widely available, entrepreneurs cannot use it to create a competitive advantage. On the other hand, *specific information* is sequence and time dependent, and hence more difficult for others to appropriate than general information, which means that such information can be used to create a temporary monopoly in time and space.

Firms can assimilate specific information into their knowledge structures and use it to search related information domains. By focusing on search domains that correspond to an entrepreneur's specific knowledge, it may be possible to reduce the number of competing economic agents and increase the possibility of finding a valuable venture idea. Hayek (1945) argued that knowledge of specific information is the most useful for identifying opportunities because it indicates situations that entrepreneurs can monopolize in time and space.

## **Differences in Knowledge Structures Between Family Firms and Nonfamily Firms**

Scaling individual knowledge structures to the collective knowledge structures used by a firm's entrepreneurial team relies on the codified and tacit knowledge found in their routines and processes. Kogut and Zander (1992) and Nonaka (1994) proposed frameworks for understanding the evolution of combined knowledge structures. Knowledge-based routines facilitate causally ambiguous processes that help firms identify and exploit opportunities (Szulanski, Cappetta, & Jensen, 2004). Internal learning routines and external knowledge absorption mechanisms may lead to the creation of proprietary knowledge conditions that help firms to exploit existing resources and to develop new capabilities. Opportunity is the object of exploration (search) and the focus of its exploitation, both of which are essential for the preservation of a firm. Central to the continuity and preservation of its knowledge-based routines and processes are its (1) knowledge structures resulting from personalism, parsimony, and particularism and (2) noneconomic goals that limit turnover and promote stewardship behavior from team members.

Individual knowledge structures can aggregate, so that the managers of a family or nonfamily firm can utilize and share their combined human and social capital through a firm's existing routines and processes. Nevertheless, there are differences in knowledge structures between these two types of capital for family and nonfamily firms, which are driven by personalism, particularism, and parsimony (Carney, 2005). Drawing on Arregle et al. (2007), a family firm's social capital helps it to identify, acquire, and deploy internal and external knowledge to enhance its competitive advantage. Based on personalism, external stakeholders are more likely to develop relational and cognitive ties than "arm's-length" ties. Increased personalism helps family members develop stronger ties to exchange tacit knowledge with network participants. Based on particularism, with limited oversight from external stakeholders, family managers can develop highly idiosyncratic knowledge structures to leverage firm resources. Increased overlap between resource deployment loci and knowledge structure loci helps identify and exploit incongruities that can be most favorably exploited by a firm.

## **The Knowledge Structure of Family Firms**

Drawing on the knowledge-based view of firms, sociocognitive bonds among family members, noneconomic goals, reciprocal altruism, and familiness all facilitate the development of a family firm's sociocognitive ties, which otherwise would not be feasible in nonfamily firms. However, these same factors could also facilitate the development of two

important knowledge attributes: (1) codifiability, and (2) complexity (Agrawal, 2006). *Codifiability* refers to a firm's capacity to structure knowledge according to rules that can be communicated. Typically, these rules suggest how a family member will react to stimuli based on cognitive frameworks shared by family members. *Complexity* refers to the number of cognitive operations that are required to complete a task (Pringle, 1951). Due to their long-term orientation and shared codifiability, family members can develop complex cognitive frameworks that are causally ambiguous and more adept at aligning internal resources with external incongruities.

These attributes affect the development of the knowledge structures required by constrained, systematic search. Codifiability enables firms to index and utilize the signals accessible through a firm's consideration set. However, on the one hand, codifiability is subject to imitation. On the other hand, complex noneconomic goals limit imitation. Moreover, it is quite possible that noneconomic goals also transform social and cognitive inputs, which makes them less decipherable by outsiders (Chrisman et al., 2010). In contrast, economic goals typically drive individuals in nonfamily firms so that they tend to limit their investment in codified and complex knowledge that poses a future holdup problem (Anand & Galetovic, 2000). These tendencies are noteworthy because family members with long-term commitments are more willing to invest in codified and complex knowledge.

The most important competitive implication of these knowledge structures is their advantage in constituting a common stock of knowledge (Kogut & Zander, 1992). Arrow (1984) views one of the advantages of organization as its capacity to economize on the cost of communication using a common language code, which emerges as tasks become embedded in a social structure. In their examination of internal labor markets, Doeringer and Piore (1985) suggest that knowledge of production processes results in a common language for workers. With a greater likelihood that family members will be able to create a common language, they can combine their personal knowledge with that from the groups with which they share close social ties (Katz & Kahn, 1978).

It is not enough for firms to know more than their competitors. They must also have the capacity to combine new (external) information with their existing stock of common knowledge in order to leverage new procedural and declarative knowledge into economic activities that cannot be duplicated at the same cost by competitors. *Procedural knowledge* is knowledge of how to do things, such as internal routines whereas *declarative knowledge* is knowledge of things. Tacit knowledge is especially useful in knowing how to do things that one learns through practice. Moreover, the embedded social knowledge, which is available in family firms using a common language code, facilitates knowledge sharing of how to do things. Refer to Table 1 for a summary of this logic.

**Proposition 1:** Managers in family firms will be able to combine their tacit, procedural knowledge with that of others more effectively than will managers of nonfamily firms.

## The Continuity of Knowledge Structures

Maintaining the continuity of knowledge structures is key to identifying opportunities. Family culture and stewardship behavior assist in this identification process by supporting the continuing development of knowledge-transfer mechanisms. Greater reciprocal altruism in family firms results in an "unselfish concern and devotion to others without expected return . . . whose primary effect is a strong sense of identification and a high value commitment towards [a] firm" (Corbetta & Salvato, 2004, p. 358). Compared

Table 1

## Proposed Theoretical Framework

| Systematic search   | Proposition   | Family firms  | Nonfamily firms   | Related family firm literature  |
|---|---|---|---|---|
| Knowledge structure   | <p>1: Managers of family firms will be able to combine their tacit, procedural knowledge with others more effectively than will managers of nonfamily firms.</p> <p>2: Family firms will maintain the continuity of knowledge structures longer than nonfamily firms.</p> <p>3: Family firms identify more valuable opportunities than nonfamily firms due to greater economies of scope in combining diverse consideration sets.</p> | <p>Personalism, parsimony, and particularism lead to increased tacit knowledge, which enhances socio-emotional wealth and firm continuity</p> <p>Social, institutional, and organizational norms reinforce knowledge sharing</p> <p>A long-term orientation toward knowledge development</p> <p>Combinative capabilities: higher social embeddedness leads to greater economies of scope</p> <p>Noneconomic goals</p> | <p>More explicit knowledge to facilitate continuity across employee cohorts</p> <p>Organizational norms reinforce knowledge sharing</p> <p>A short-term orientation toward knowledge development</p> <p>Combinative capabilities: Lower social embeddedness leads to fewer economies of scope</p> <p>Economic goals</p> | <p><b>Knowledge Transformation:</b> Knowledge-based view and RBV (Cabrera-Suárez, Saez-Pérez, &amp; García-Almeida, 2001; Habbershon &amp; Williams, 1999; Habbershon, Williams, &amp; MacMillan, 2003).</p> <p><b>Noneconomic goals:</b> (Cabrera-Suárez et al., 2001; Carney, 2005; Gómez-Mejía, Núñez-Nickel, &amp; Gutierrez, 2001; Gómez-Mejía et al., 2007; Sharma, 2008)</p> <p><b>Social embeddedness:</b> (Aldrich &amp; Cliff, 2003; Arregle et al., 2007) and knowledge-based view (Cabrera-Suárez et al., 2001; Kogut &amp; Zander, 1996)</p> |
| Search process: <ul style="list-style-type: none"> <li>• Select information channels</li> <li>• Specify consideration set</li> <li>• Search for signals in consideration set</li> </ul> | <p>4: Family firms respond faster to shorter windows of opportunity than nonfamily firms.</p> <p>5: Family firm entrepreneurs will be less constrained by a structural imperative to act to maximize their short-term profits when faced with an endgame scenario, whereas nonfamily firm entrepreneurs will be more constrained.</p>   | <p>Relational capital among family members helps identify opportunities at a faster rate</p> <p>Low- to medium-risk opportunities to maximize long-term payoffs</p> <p>Greater incentive to invest in fit to exploit opportunities because resulting human capital is likely to be more valuable in the long term</p>   | <p>Arm's-length transactions among managers lead to limited capabilities for rapid response</p> <p>High-risk opportunities to maximize short-term payoffs</p> <p>Less incentive to invest in opportunities because resulting human capital is likely to be less valuable with an endgame in sight</p>                   | <p><b>Noneconomic goals:</b> (Cabrera-Suárez et al., 2001; Carney, 2005; Gómez-Mejía et al., 2001, 2007; Zahra &amp; Sharma, 2004) and RBV (Sirmon &amp; Hitt, 2003)</p> <p><b>Endgame scenarios:</b> Governance mechanism (Jensen &amp; Meckling, 1976; Sharma 2008), parsimony, personalism, and particularism (Carney, 2005), noneconomic goals (James, 1999; Sirmon &amp; Hitt, 2003)</p>   |
| Managing windows of opportunity   |   |   |   |   |
| Improving opportunity identification over time  |   |   |   |   |

RBV, resource-based view.

with managers in nonfamily firms driven by economic motives, altruism increases interdependence among family members and encourages them to sacrifice for the greater good of a firm (Zahra, Hayton, & Salvato, 2004). Also, altruism contributes to greater interdependence and reciprocal behavior (Stamper & Masterson, 2002). Clearly, increased interdependence and a preference for a firm's goals over individual goals help reinforce a family firm's knowledge structure. Refer to Table 1.

**Proposition 2:** Family firms will maintain the continuity of knowledge structures longer than nonfamily firms.

So far, we have discussed some factors that contribute to the greater development and continuity of knowledge structures in family firms compared with those in nonfamily firms. In the next section, *ceteris paribus*, we explain how family firms have a comparative advantage in identifying opportunities. Family firms may enjoy an advantage by effectively combining knowledge into a single capability that can guide constrained systematic searching. This identification process may not only connect family firms with external opportunities, but it may also show how they survive and prosper in the face of competition from nonfamily firms.

## Constrained Systematic Search and Family Firms

We argue in this section that the more effective combinative capabilities of family firms enhance their capacity to utilize constrained systematic search. They also provide them with information so that they can more quickly take advantage of windows of opportunity. In addition, we argue that finding new opportunities occurs as a consequence of being able to generate new ways of using combinative capabilities.

### Combinative Capabilities

Schumpeter (1934) was the first to notice that new combinations of existing knowledge are what are necessary to create innovations.

To produce other things, or the same things by a different method, means to combine these materials and forces differently . . . Development in our sense is then defined by the carrying out of new combinations. (pp. 65–66)

A *joint consideration set*, which is used to constrain searching, is the union of the individual consideration sets of the entrepreneurs within a firm who are searching systematically. In a mathematical sense, a *union* of the knowledge in more than one consideration set is the set consisting of elements (of specific knowledge), each of which resides in at least one of the individuals within a firm. Such a shared knowledge structure enables the combining of noncumulative search results from individual consideration sets. Without a shared knowledge structure to guide searching, the opportunities found by individual members would tend to be ignored or accumulate in separate parts of an organization's hierarchy rather than cumulating in a way that supports and informs a unified view of organizational objectives. While jointly searching for an opportunity, family managers use what they already know as a starting point to acquire new information from the channels in their consideration sets.

Information derived from individuals is more easily combinable under family firm governance than under nonfamily firm governance because collective search efforts are

more effective when members share a common knowledge structure. Arregle et al. (2007) discussed the advantages of embedded social capital in family firms. Family firms can benefit from combining embedded knowledge from diverse consideration sets in such a way that they generate additional benefits from sharing seemingly separate economies of scope. Economies of scope in searching for and combining new information using a common knowledge structure have found support in research on transactive memory systems (Moreland, Argote, & Krishnan, 1996), social network cliques (Roth, 2006), and alliance-based learning (Kale & Singh, 2007). Thus, family firms have greater economies of scope in combining diverse consideration sets.

Once combined, a firm's entrepreneurs can more effectively reconfigure their joint consideration set to focus on searches that best fit a firm's collective distinctive competences. Also, their sharing can increase the number of information channels a firm is fit to search. We also know that firms that find opportunities through systematic searching are more successful in actually launching a new venture (Patel & Fiet, 2009). Overall, family firms with economies of scope in combining diverse consideration sets identify and exploit more opportunities as they move away from individual, noncombinative searches.

**Proposition 3:** Family firms identify more valuable opportunities than nonfamily firms due to greater economies of scope in combining diverse consideration sets.

### Managing Windows of Opportunity

In turbulent environments, pursuing ephemeral opportunities quickly within shrinking windows of opportunity is important for achieving competitive success. Windows of opportunity become structural constraints that limit strategic moves (Dunn, 1995). The speed of exploiting opportunities is contingent on how quickly a firm's managers can seek, combine, and exploit knowledge by leveraging resources. Propositions 1–3 constitute a static framework for combining knowledge from different sources. We now assess whether it is possible to speed up opportunity identification and exploitation in family firms compared with nonfamily firms.

Increased uncertainty resulting from shorter windows of opportunity makes it more costly for managers to gather information on future property rights because they must hedge their bets on what will be required in the future. Despite possessing limited information on future property rights, managers must respond quickly to opportunities (Demsetz, 2002). However, if a window has a longer duration, knowledge combiners have time to adjust their property rights to protect their shared interests while reducing uncertainty (Grossman & Hart, 1986; Libecap, 1994). During shorter windows, clear property rights cannot be established as efficiently, which effectively provides a disincentive to combine or share resources with others. Consequently, for a nonfamily firm facing shorter windows of opportunity, it may not be possible to determine property rights based on a manager's relative contribution of consideration set based knowledge. Because it is costly to differentiate between the contribution of an individual's knowledge and his or her luck, when evaluating the distribution of rents from exploiting an opportunity (Shane, 2003), an inability to determine property rights *ex ante* could severely limit the incentives for nonfamily firms to share what they know from their consideration sets. Determining property rights for family firms will be less problematic because in many cases they are inherited. Furthermore, noneconomic goals may limit the negative effects of undefined property rights.

Another factor promoting knowledge combination under uncertain property rights in family firms is reciprocal altruism. Reciprocal altruism in family firms is pivotal for

transforming short-term goals into long-term outcomes (Eddleston, Kellermanns, & Sarathy, 2008). In the near term, when there is less time to determine if there will be reciprocal exchange benefits, nonfamily firms with short windows of opportunity will have an incentive to act in a way that benefits them individually the most, which may be at odds with what is in the best interests of a nonfamily firm. However, in the case of family firms where there is an expectation of a continuing ownership interest, an accurate determination of future benefits for entrepreneurs in family firms may not be necessary to convince them to combine what they know. This occurs because they can forgo short-term gains from exchanges for long-term benefits to a firm and its family stakeholders.

Given short windows of opportunity, and even without reciprocal altruism, their stewardship behavior and noneconomic goals enable family members to be less concerned about which arrangements are the fairest in the allocation of property rights. With their fates intertwined with other family members, as well as the overall family firm, family members view the growth of their firm as a common family responsibility (Cabrera-Suárez et al., 2001). With these same motivations they work together to improve their firm's competitive advantage (Cabrera-Suárez et al.; Habbershon et al., 2003; Sirmon & Hitt, 2003). In comparison, nonfamily managers are less willing to commit their human capital and knowledge when there is uncertainty about future payoffs. Again, in comparison, family members are less concerned about the size of their payoff pool than they are that their firm continues to be a source of wealth creation for them. Therefore, family firms are more willing to respond quickly and efficiently to shorter windows of opportunity. This reasoning leads to the following proposition:

**Proposition 4:** Family firms respond faster to shorter windows of opportunity than nonfamily firms.

Our discussion so far has focused on the role of governance mechanisms in facilitating knowledge combination. We have shown that when searching for opportunities, family members find economies of scope in combining their consideration sets. The incentive to combine knowledge from distinct, and possibly diverse, consideration sets is driven by reciprocal altruism (Schulze, Lubatkin, & Dino, 2003), noneconomic goals (Chrisman et al., 2010), and sociocognitive bonds resulting from familiness (Eddleston et al., 2008).

### **Improving Opportunity Identification Over Time**

In a dynamic environment, firms must not only continue to update their knowledge structures, but also they must adapt their opportunity identification routines in response to varying levels of firm performance. They must also identify novel means to seek external knowledge, refresh their social capital, and develop new norms of behavior to leverage a changing resource base. When performance declines, firms must adapt opportunity search routines by seeking and exploiting high-risk/high-return opportunities. The behavioral theory of the firm suggests that under *problemistic* search (i.e., when performance is below expectations), firms engage in radical innovation (Cyert & March, 1963). When performance is above expectations, firms engage in experimentation to seek more radical innovations through different search processes. Alternatively, if novel routines and capabilities are required to maintain competitive parity, then firms must update their consideration sets over time to adapt to dynamically changing search routines.

We argue that nonfamily firms face a disadvantage in updating their consideration sets. Their more limited ability to adapt their search stems from differences between the

tenure of family and nonfamily managers, which create distinct endgame scenarios for managers in family firms versus managers in nonfamily firms. Impending endgame scenarios prevent managers in nonfamily firms from engaging in: (1) opportunities that may benefit a firm in the long term, and (2) in the development of firm-specific search routines that are not transferable.

## **Endgame Scenarios in Game Theory**

In the absence of convincing evidence about what will happen in the future, one way to proceed is to organize such a scenario into a game with players, strategies, and goals or payoffs (Rubinstein, 1991). These scenarios can be organized into a series of *rounds* or discrete games. The *players* represent the entrepreneurs in family and nonfamily firms (Camerer, 2003). The *strategies* represent how they can go about finding new opportunities for their firm (Rasmusen, 2007). And the *goals* or *payoffs* represent the expected value of the opportunities that will be discovered through searching. Given these constraints, the most important individual preference is to maximize the economic benefits that come as a result of the choices that can be made. Using game theory assumptions, the players cannot alter the available strategies or the circumstances in which they can be employed. In other words, the rules for each game are fixed and players can only make choices that are allowed by the game.

A game related to time is a scenario in which the players have no expectation of future knowledge exchanges with their associated payoffs. We refer to this scenario as being an *endgame* (Lawrence, Lawrence, Solow, & Wachter, 1985). In fact, the only opportunity to earn large profits from such an arrangement is to maximize the short-term payoff in the last round because there are no more rounds to play. Of course, maximizing one's short-term payoff in the last round at the expense of someone means no more knowledge combination at the end of the game.

## **Endgame Scenarios in Firms**

Endgame scenarios related to searching for opportunities have a greater influence on nonfamily than family firms. The entrepreneurs in a nonfamily firm are less likely to have ongoing business relations with others within their firm. At a minimum, those in a nonfamily firm can more easily sever their social ties than can those in family firms, which means that those in nonfamily firms will have more of a structural imperative to profit in a last round, perhaps before they leave a firm. Those in nonfamily firms would be less interested in sharing in mutual benefits from combining their knowledge because the benefits would be about to cease abruptly. In fact, their final payoff would not change even if they engage in malfeasance because they cannot be penalized in future rounds for doing so.

Compared with nonfamily firms, we expect that the entrepreneurs in family firms will consider themselves more tightly linked (or financially committed) to their firm than will the entrepreneurs in nonfamily firms. The linkages will occur in part as a result of the propensities that result from a firm's governance system. Again, these propensities are: (1) parsimony (family firms have a monetary stake in decision making), (2) personalism (autonomy in making decisions without external monitoring or control), and (3) particularism (idiosyncratic decision making) (Carney, 2005). These attributes, coupled with noneconomic goals, result in limited opportunism by family members to extract private benefits. Thus, in family firms, the scenarios rarely end. Instead, the scenery changes but

continues nevertheless. The entrepreneurs will be less inclined to make a short-term play because they realize that over the long-term, they will need to combine their knowledge to update their joint consideration set. This reasoning leads to the last proposition, which is summarized in Table 1.

**Proposition 5:** Family firm entrepreneurs will be less constrained by a structural imperative to act to maximize their short-term profits when faced with an endgame scenario.

## Discussion

This study began by questioning whether family firms have an advantage in discovering opportunities compared with nonfamily firms. We have argued that family firms have a comparative advantage in searching for opportunities over nonfamily firms. The comparative advantage stems from (1) enduring knowledge structures, (2) economies of scope in combining diverse consideration sets, (3) an ability to respond to shorter windows of opportunity, (4) an ability to adapt opportunity search routines, and (5) an inherent protection from endgame scenarios.

Our key propositions are that entrepreneurs in a family firm are more committed to combining what they know with others in their firm in order to enhance their firm's combinative capabilities, which generates economies of scope and enlarges their joint consideration set. They are more committed because they stand to benefit more than others over the long term. We have not argued that entrepreneurs in family firms search systematically. Instead, we have suggested that if they chose to utilize constrained, systematic search, they would benefit from structural advantages because it has been shown to be more effective than an alertness-based mode of finding discoveries (Patel & Fiet, 2010). Moreover, if nonfamily firms were to attempt to imitate the same search tactic, they would find that they were impeded by structural constraints. When their survival is threatened, family firms can use their discoveries, found while searching systematically, to position themselves more effectively compared with other firms that cannot search in the same way without spending more on the process.

Two structural constraints that also help family firms are windows of opportunity and endgame scenarios. They create an asymmetry in knowledge availability that favors family firms. We have seen that this asymmetry exists regardless of the selection environment. Of primary interest is the advantage that family firm entrepreneurs will have as they combine their procedural knowledge of how to search systematically.

Part of what enables firms to use what they know is being able to transform their tacit knowledge into explicit knowledge and later to transform their personal knowledge to social knowledge so that they can easily communicate it to others within a firm. Once transformed, it may be that they have an advantage in allocating resources to the commercialization of their procedural knowledge, and in fact that they are more successful in actually establishing new firms, based on the discoveries that have been found. This is consistent with the findings of Patel and Fiet (2009), who found that firms searching systematically were able to launch more firms than those who found their discoveries solely while being alert.

This study links to a rare set of studies that attempt to identify prescriptive guidelines for family firms with regard to enhancing their prospects for survival. It begins with prior research, which it uses to deduce these linkages, based on enduring structural differences

with nonfamily firms. It has argued that family firms are comparatively well positioned because of their long-term and continuing orientation to finding opportunities using constrained, systematic search.

## **Limitations**

Our framework is not universalistic as it pertains to family firms, but rather contextual. Family firms do not have distinct advantages over nonfamily firms; otherwise family firms would drive out nonfamily firms from the market. Several disadvantages for family firms are implicit in our arguments. For example, in highly uncertain environments, the tacit and causally ambiguous knowledge structures of family members may not provide a competitive advantage. Under high uncertainty, firms are likely to develop knowledge and mitigate uncertainty through alliances and stakeholder integration; therefore, unique knowledge structures may not be advantageous. Similarly, incentive mechanisms could help nonfamily firms overcome disadvantages from shorter tenure and frequent endgame scenarios. Finally, based on recent work on the importance of socioemotional wealth, due to risk aversion among family firms, nonfamily firms could be faster at undertaking riskier opportunities. Less constrained by managing noneconomic goals, nonfamily firms could seek, identify, and exploit opportunities strictly for their profit potential. As proposed by Morck, Shleifer, and Vishny (1988), entrenchment in family firms may lead them to identify and exploit less risky opportunities that could be less profitable in the long term. In summary, we do not argue that family firms have a universalistic advantage over nonfamily firms in identifying and exploiting opportunities.

To a large extent, our firm-level framework of opportunity search, based on combinative capabilities, skips over the problem of individual family-member motivation by focusing on structural factors in a firm. We do not emphasize motivation or any other individual difference because every contributing antecedent would then need to be evaluated as generating a contingent outcome. It would be much more complex to isolate the causes for a firm's survival and prosperity as well as their prescriptive implications. Although we do not take away agency from entrepreneurs, we do assume that they prefer to maximize the profitability of their firms, despite the well-recognized fact that many of them act upon noneconomic motivations.

A substantial literature in family firm research explains the negative effects of family governance. Alternative explanations suggest that under conditions such as entrenchment, family firms may not keep up with the changing environment. Such rigidity could make knowledge structures obsolete and combinative capabilities less relevant. In addition, social dynamics within family firms, such as sibling rivalry or an intergenerational mismatch in values, could negate several of the advantages related to opportunity discovery that we propose here. Nor have we explored the negative consequences of owner-owner agency problems, which also could affect how knowledge is shared and combined. A review of key works by Chrisman et al. (2010) has explored both the positive and negative facets of family governance. We have focused on positive aspects such as stewardship, the resource-based view, and positive noneconomic goals.

## **Implications for Theory and Practice**

Our research attempts to extend a theoretical interpretation of how family firms can find discoveries, which is a prescriptive approach. In comparison with much earlier work,

it does not attempt to describe how family firms actually find opportunities. Instead, it applies informational economics, which has been summarized by Fiet and Patel (2008), to provide a new lens for guiding constrained, systematic search at the firm level. Essentially, there are differences in the relevance of information to the discovery of an opportunity. These differences provide a mechanism (constrained, systematic search) by which firms can use their specific knowledge to search, albeit constrained by what they know. Because this searching can be directed toward information channels, at the firm level the consideration sets of those searching within a firm can be joined together to increase a firm's combinative capabilities, which not only can be used to direct searching, but also to lower its costs by creating economies of scope in searching.

We have extended the informational economics interpretation by examining structural constraints that further target searching, as well as create advantages for family firms in searching. These constraints may assist scholars to further define the boundary conditions of constrained, systematic search and to examine and refine its underlying assumptions.

This study should provide some assurance to the managers of family firms that if they will remain focused on their common goals, they can enhance their combinative capabilities to discover opportunities. In the future, it is likely that research will highlight other advantages that can come to them, simply by acting as a family in the management of their business.

## Conclusion

The discovery literature has been limited traditionally to the individual level of analysis. However, in many entrepreneurial endeavors several individuals participate jointly in opportunity seeking, identification, and discovery at different points in time and to different degrees. Pooling and aggregating knowledge resources and networks could uniquely position individuals to engage more systematically in innovation. By exploring how family firms can discover opportunities using constrained, systematic search, we have considered the influence of differences in governance mechanisms among family and nonfamily firms. Using these as constraints, we have proposed a model explaining (1) why family firms are more likely to discover more opportunities and (2) why they can sustain a competitive advantage in identifying valuable opportunities over time. Unique conditions resulting from sociocognitive bonds among family members result in unique knowledge structures and promote the speedy combinability of diverse consideration sets. The long-term orientation of family entrepreneurs helps them to identify opportunities resulting in long-term survivability. Constrained, systematic search provides an interpretable framework for the proposed model.

## REFERENCES

- Agrawal, A. (2006). Engaging the inventor: Exploring licensing strategies for university inventions and the role of latent knowledge. *Strategic Management Journal*, 27(1), 63–79.
- Aldrich, H.E. & Cliff, J.E. (2003). The pervasive effects of family on entrepreneurship: Toward a family embeddedness perspective. *Journal of Business Venturing*, 18(5), 573–596.
- Anand, B.N. & Galetovic, A. (2000). Weak property rights and holdup in R&D. *Journal of Economics & Management Strategy*, 9(4), 615–642.

- Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*, 18(1), 105–123.
- Arregle, J.L., Hitt, M.A., Sirmon, D.G., & Very, P. (2007). The development of organizational social capital: Attributes of family firms. *Journal of Management Studies*, 44(1), 73–95.
- Arrow, K.J. (1984). *Individual choice under certainty and uncertainty*. Cambridge, MA: Belknap Press.
- Baron, R.A. (2008). The role of affect in the entrepreneurial process. *The Academy of Management Review* (AMR), 33(2), 328–340.
- Bertrand, M. & Schoar, A. (2006). The role of family in family firms. *The Journal of Economic Perspectives*, 20(2), 73–96.
- Brown, J.S. & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organization Science*, 2(1), 40–57.
- Cabrera-Suárez, K., Saá-Pérez, P., & García-Almeida, D. (2001). The succession process from a resource-and knowledge-based view of the family firm. *Family Business Review*, 14(1), 37–46.
- Camerer, C. (2003). *Behavioral game theory: Experiments in strategic interaction*. Princeton, NJ: Princeton University Press.
- Carney, M. (2005). Corporate governance and competitive advantage in family-controlled firms. *Entrepreneurship Theory and Practice*, 29(3), 249–265.
- Chen, S., Chen, X., Cheng, Q., & Shevlin, T. (2010). Are family firms more tax aggressive than non-family firms? *Journal of Financial Economics*, 95(1), 41–61.
- Chrisman, J., Chua, J., & Steier, L. (2005). Sources and consequences of distinctive familiness: An introduction. *Entrepreneurship Theory and Practice*, 29(3), 237–247.
- Chrisman, J., Kellermanns, F.W., Chan, K.C., & Liano, K. (2010). Intellectual foundations of current research in family business: An identification and review of 25 influential articles. *Family Business Review*, 23, 9–26.
- Corbett, A.C. (2007). Learning asymmetries and the discovery of entrepreneurial opportunities. *Journal of Business Venturing*, 22(1), 97–118.
- Corbetta, G. & Salvato, C. (2004). Self-serving or self-actualizing? Models of man and agency costs in different types of family firms: A commentary on “Comparing the agency costs of family and non-family firms: Conceptual issues and exploratory evidence.” *Entrepreneurship Theory and Practice*, 28(4), 355–362.
- Covin, J.G. & Slevin, D.P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10(1), 75–87.
- Cyert, R.M. & March, J.G. (1963). *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice Hall.
- Davidsson, P. & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301–331.
- De Carolis, D.M. & Saporito, P. (2006). Social capital, cognition, and entrepreneurial opportunities: A theoretical framework. *Entrepreneurship Theory and Practice*, 30(1), 41–56.
- Demsetz, H. (2002). Toward a theory of property rights II: The competition between private and collective ownership. *The Journal of Legal Studies*, 31, 653–672.
- Denrell, J., Fang, C., & Winter, S.G. (2003). The economics of strategic opportunity. *Strategic Management Journal*, 24(10), 977–990.

- Doeringer, P.B. & Piore, M.J. (1985). *Internal labor markets and manpower analysis*. Lexington, MA: ME Sharpe Inc.
- Drucker, P.F. (1985). *Innovation and entrepreneurship*. New York: HarperCollins.
- Drucker, P.F. (1998). The discipline of innovation. *Harvard Business Review*, 80, 95–104.
- Dunn, B. (1995). Success themes in Scottish family enterprises: Philosophies and practices through the generations. *Family Business Review*, 8(1), 17–28.
- Eddleston, K.A., Kellermanns, F.W., & Sarathy, R. (2008). Resource configuration in family firms: Linking resources, strategic planning and technological opportunities to performance. *Journal of Management Studies*, 45(1), 26–50.
- Fiet, J.O. (1996). The informational basis of entrepreneurial discovery. *Small Business Economics*, 8(6), 419–430.
- Fiet, J.O. (2002). *The systematic search for entrepreneurial discoveries*. Westport, CT: Praeger.
- Fiet, J.O. (2007). A prescriptive analysis of search and discovery. *Journal of Management Studies*, 44(4), 592–611.
- Fiet, J.O., Norton, W.I., Jr., & Clouse, V.G.H. (2007). Systematic search as a source of technical innovation: An empirical test. *Journal of Engineering and Technology Management*, 24(4), 329–346.
- Fiet, J.O. & Patel, P.C. (2008). *Prescriptive entrepreneurship*. Cheltenham, UK: Edward Elgar.
- Gaglio, C.M. & Katz, J.A. (2001). The psychological basis of opportunity identification: Entrepreneurial alertness. *Small Business Economics*, 16(2), 95–111.
- Gómez-Mejía, L.R., Haynes, T., Núñez-Nickel, M., Jacobson, K.J.L., & Moyano-Fuentes, J. (2007). Socio-emotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly*, 52, 106–137.
- Gómez-Mejía, L.R., Núñez-Nickel, M., & Gutierrez, I. (2001). The role of family ties in agency contracts. *Academy of Management Journal*, 44(1), 81–95.
- Gopalakrishnan, F. (1997). A review of innovation research in economics, sociology and technology management. *Omega*, 25(1), 15–28.
- Grossman, S.J. & Hart, O.D. (1986). The costs and benefits of ownership: A theory of vertical and lateral integration. *The Journal of Political Economy*, 94(4), 691–719.
- Habbershon, T.G., Williams, M., & MacMillan, I.C. (2003). A unified systems perspective of family firm performance. *Journal of Business Venturing*, 18(4), 451–465.
- Habbershon, T.G. & Williams, M.L. (1999). A resource-based framework for assessing the strategic advantages of family firms. *Family Business Review*, 12(1), 1–22.
- Hayek, F.A. (1945). The use of knowledge in society. *The American Economic Review*, 35(4), 519–530.
- James, H.S. (1999). Owner as manager, extended horizons and the family firm. *International Journal of the Economics of Business*, 6(1), 41–55.
- Jensen, M.C. & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Kaish, S. & Gilad, B. (1991). Characteristics of opportunities search of entrepreneurs versus executives: Sources, interests, general alertness. *Journal of Business Venturing*, 6(1), 45–61.

- Kale, P. & Singh, H. (2007). Building firm capabilities through learning: The role of the alliance learning process in alliance capability and firm-level alliance success. *Strategic Management Journal*, 28(10), 981–1000.
- Katz, D. & Kahn, R.L. (1978). The social psychology of organizations.
- Kirzner, I.M. (1997). Entrepreneurial discovery and the competitive market process: An Austrian approach. *Journal of Economic Literature*, 35(1), 60–85.
- Kogut, B. & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3(3), 383–397.
- Kogut, B. & Zander, U. (1996). What firms do? Coordination, identity, and learning. *Organization Science*, 7(5), 502–518.
- Lawrence, C., Lawrence, R.Z., Solow, R.M., & Wachter, M.L. (1985). Manufacturing wage dispersion: An end game interpretation. *Brookings Papers on Economic Activity*, 1, 47–116.
- Libecap, G.D. (1994). *Contracting for property rights*. Cambridge, UK: Cambridge University Press.
- Morck, R., Shleifer, A., & Vishny, R.W. (1988). Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics*, 20, 293–315.
- Moreland, R.L., Argote, L., & Krishnan, R. (1996). Socially shared cognition at work: Transactive memory and group performance. In J.L. Nye & A.M. Brower (Eds.), *What's social about social cognition? Research on socially shared cognition in small groups* (pp. 57–84). Thousand Oaks, CA: Sage.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14–37.
- Patel, P.C. & Fiet, J.O. (2009). Systematic search and its relationship to firm founding. *Entrepreneurship Theory and Practice*, 33(2), 501–526.
- Patel, P.C. & Fiet, J.O. (2010). Enhancing the internal validity of entrepreneurship experiments by assessing treatment effects at multiple levels across multiple trials. *Journal of Economic Behavior and Organization*, 76(1), 127–140.
- Pringle, J.W.S. (1951). On the parallel between learning and evolution. *Behaviour*, 3(3), 174–215.
- Raisch, S. & Birkinshaw, J. (2008). Organizational ambidexterity: Antecedents, outcomes, and moderators. *Journal of Management*, 34(3), 375–409.
- Rasmusen, E. (2007). *Games and information: An introduction to game theory*. Malden, MA: Wiley-Blackwell.
- Roth, C. (2006). Co-evolution in epistemic networks—Reconstructing social complex systems. *Structure and Dynamics*, 1(3), Art. 2.
- Rubinstein, A. (1991). Comments on the interpretation of game theory. *Econometrica: Journal of the Econometric Society*, 59(4), 909–924.
- Sarasvathy, S.D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243–263.
- Schulze, W.S., Lubatkin, M.H., & Dino, R.N. (2003). Toward a theory of agency and altruism in family firms. *Journal of Business Venturing*, 18(4), 473–490.
- Schumpeter, J. (1934). The theory of economic development. *Joseph Alois Schumpeter*, 61–116.

- Shane, S.A. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus*. Northampton, MA: Edward Elgar.
- Sharma, P. (2008). Commentary: Familiness: Capital stocks and flows between family and business. *Entrepreneurship Theory and Practice*, 32(6), 971–977.
- Sirmon, D.G. & Hitt, M.A. (2003). Managing resources: Linking unique resources, management, and wealth creation in family firms. *Entrepreneurship Theory and Practice*, 27(4), 339–358.
- Stamper, C.L. & Masterson, S.S. (2002). Insider or outsider? How employee perceptions of insider status affect their work behavior. *Journal of Organizational Behavior*, 23(8), 875–894.
- Stigler, G.J. (1961). The economics of information. *The Journal of Political Economy*, 69(3), 213–225.
- Zsulanski, G., Cappetta, R., & Jensen, R.J. (2004). When and how trustworthiness matters: Knowledge transfer and the moderating effect of casual ambiguity. *Organization Science*, 15(5), 600–613.
- Ucbasaran, D., Westhead, P., & Wright, M. (2008). Opportunity identification and pursuit: Does an entrepreneur's human capital matter? *Small Business Economics*, 30(2), 153–173.
- Williamson, O.E. (1996). *The mechanisms of governance*. New York: Oxford University Press.
- Zahra, S.A. (1996). Governance, ownership, and corporate entrepreneurship: The moderating impact of industry technological opportunities. *Academy of Management Journal*, 39(6), 1713–1735.
- Zahra, S.A. & Sharma, P. (2004). Family business research: A strategic reflection. *Family Business Review*, 17(4), 331–346.
- Zahra, S.A., Hayton, J.C., & Salvato, C. (2004). Entrepreneurship in family vs. non-family firms: A resource-based analysis of the effect of organizational culture. *Entrepreneurship Theory and Practice*, 28(4), 363–381.
- 

Pankaj C. Patel is assistant professor of Management, Miller College of Business, Ball State University.

James O. Fiet is Brown Forman Chair in Entrepreneurship, College of Business, University of Louisville, Louisville, Kentucky.