THE UNIT OF ANALYSIS IN ENTREPRENEURSHIP RESEARCH: OPPORTUNITIES OR INVESTMENTS?

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ABSTRACT

The entrepeneurship literature in management focuses increasingly on *opportunities* — their creation or discovery, evaluation, and exploitation — as the unit of analysis. We argue first, that the opportunity perspective emerged from the "functional" literature in the economics of entrepreneurship (mainly the works of Israel Kirzner), a literature that emphasizes not the individual entrepreneur *per se,* but the functions (e.g., market clearing) that entrepreneurs undertake in a market economy; second, that most notions of entrepreneurship in economics and management are not easily integrated into the theory of the firm; third, that the popular emphasis on opportunity discovery tends to direct attention from opportunity exploitation; and fourth, that the Cantillon-Mises-Knight view of entrepreneurship as judgment links more naturally with the economic theory of the firm.

KEYWORDS: Theories of entrepreneurship, judgment, opportunity discovery.

INTRODUCTION

Scientific fields and disciplines are usually defined by the key questions they ask and the answers they provide. But clarity on these questions and answers may arrive late (Leijonhufvud, 1976). New fields may emerge and even flourish despite ambiguity about units of analysis, acceptable methods and techniques, phenomena to be explained, and how problems should be dimensionalized. The strategic management field, for example, continues to thrive without agreeing on the unit of analysis (resources, capabilities, competences, configurations, value chains, rents, or something else?). By contrast, the field of transaction cost economics seems to have progressed as the unit of analysis was defined (as the transaction) and this unit was appropriately dimensionalized (Williamson, 1999).

Historically, the entrepreneurship field has been like the strategic management field in that it lacks consensus on key issues such as the unit of analysis. Recently, however, the field has made an attempt to become more like transaction cost economics. Specifically, many contributors have argued that entrepreneurship studies should embrace the *opportunity* as the main phenomenon of interest, defining the field in terms of the emergence, discovery, and development of opportunities (Shane, 2000; Shane and Venkatamaran, 2000; McMullen and Shepherd, 2006; McMullen, Plummer and Acs, 2007). Shane (2003: 4–5) provides a clear statement of this approach:

> Entrepreneurship is an activity that involves the discovery, evaluation, and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, process, and raw materials through organizing efforts that previously had not existed (Venkataraman, 1997; Shane and Venkataraman, 2000). Given this definition, the academic field of entrepreneurship incorporates, in its domain, explanations for why, when and how entrepreneurial opportunities exist; the sources of those opportunities and the forms that they take; the processes of opportunity discovery and evaluation; the acquisition of resources for the exploitation of these opportunities; the act of opportunity exploitation; why, when, and how some individuals and not others discover, evaluate, gather resources for and exploit opportunities; the strategies used to pursue opportunities; and the organizing efforts to exploit them (Shane and Venkataraman, 2000).

The large body of research embracing this perspective suggests an emerging consensus on the view that opportunities and their discovery, evaluation, and exploitation should be the main focus of entrepreneurship studies. This possible "hardening of the core" (Leijonhufvud, 1976) comes at a time when entrepreneurship is becoming one of the fastest-growing subfields in management research. Entrepreneurship became a Division (specialized interest group) within the Academy of Management in 1987, is becoming one of the most popular subjects at U.S. colleges and universi-

ties (Gartner and Vesper, 2001; Solomon, Duffy, and Tarabishy, 2002). While the field remains a minority specialization among business school faculty (Katz, 2003), during the 1990s the number of entrepreneurship positions increased by over 250% and the number of candidates nearly doubled (Finkle and Deeds, 2001).

This growing importance of entrepreneurship as a field makes the selection of a unit of analysis even more important. Here we review and critique the opportunity-discovery approach, suggesting that the focus on opportunities has limitations that have not been adequately addressed in the entrepreneurship literature. We argue that the management literature emphasizing opportunity discovery tends to misunderstand Kirzner's (1973, 1979, 1985, 1992) model of the entrepreneurial market process, the main source for the opportunity-discovery approach. Moreover, and more important, the opportunity-discovery emphasis has made it difficult to link the entrepreneur to the firm, the *locus* of most entrepreneurial activity (Foss and Klein, 2005).

We agree with the opportunity-discovery literature that Austrian economics provides a natural foundation for entrepreneurship research (e.g., Shane, 2000; MacMullen, Plummer and Acs, 2007). However, we do not stress the well-known Austrian concepts of distributed, tacit knowledge and entrepreneurial discovery (Hayek, 1945, 1968; Kirzner, 1973, 1979, 1985, 1992). Rather, we maintain that entrepreneurship can be more thoroughly grounded by adopting the Cantillon-Knight-Mises understanding of entrepreneurship as *judgment.* Not only does the Knightian (Knight, 1921) notion of judgment go beyond opportunity discovery by also including the *evaluation* and *exploitation* of opportunities, it also provides a natural link to the theory of the firm and strategic management — natural allies of entrepreneurship research — that is not provided by the notion of opportunity discovery.

Our overall approach below is to ask if, and how, the entrepreneur needs a firm. The answers are not obvious. Some approaches to entrepreneurship—Schumpeter's concept of the entrepreneur as innovator, for instance—treat the entrepreneur as an uncaused cause, a pure genius who operates outside the usual constraints imposed by resource owners and other market participants and is thus unaffected by the firm.[1] Others, with whom we side, see the firm as the *locus* of entrepreneurship and indeed argue that the firm and entrepreneurship cannot be separated. We state and update this view, and show how it leads to an alternative approach in which investment is the unit of analysis.

[1] On the history of the entrepreneurship concept in economic theory, see Elkjaer (1991) and Ibrahim and Vyakarnam (2003).

We begin by critically surveying various notions of entrepreneurship and the firm in economics and various management fields. We argue first, that the opportunity perspective emerged from the "functional" literature in the economics of entrepreneurship (mainly Kirzner), a literature that emphasizes not the individual entrepreneur *per se,* but the functions (e.g., market clearing) that entrepreneurs undertake in a market economy; second, that most notions of entrepreneurship in economics and management are not easily integrated into the theory of the firm; third, that the popular emphasis on opportunity discovery tends to direct attention from opportunity exploitation; and fourth, that the Cantillon-Mises-Knight view of entrepreneurship as judgment links more naturally with the economic theory of the firm. We thus review the economics and management literatures on entrepreneurship, critique the dominant opportunity-discovery approach, and outline a new synthesis of entrepreneurship and theory of the firm, one that highlights the entrepreneur's investment behavior as the key unit of analysis.

CONCEPTS OF ENTREPRENEURSHIP

Entrepreneurship: Occupational, Structural, and Functional perspectives

We begin by organizing the various strands of entrepreneurship literature, distinguishing among occupational, structural, and functional perspectives (for a more extensive treatment, see Klein, 2008). Note that these are concepts that are designed to capture the main characteristics of a given theory of entrepreneurship, and that theories may contain elements of more than one perspective. For example, a theory that stresses the peculiar personality characteristics that may characterize entrepreneurs, pointing out that entrepreneurs may not thrive within corporate hierarchies, contain elements of what we call "occupational" as well as "structural" theories of entrepreneurship.

Occupational theories define entrepreneurship as self-employment and treat the individual as the unit of analysis, describing the characteristics of individuals who start their own businesses and explaining the choice between employment and self-employment (Kihlstrom and Laffont, 1979; Shaver and Scott, 1991; Parker, 2004). The labor economics literature on occupational choice (surveyed in Parker, 2004), along with the psychology-based literature on the personal characteristics of self-employed individuals, fits in this category. For example, McGrath and MacMillan (2000) argue that particular individuals have an "entrepreneurial mindset" that enables and encourages them to find opportunities overlooked or ignored by others (and that this mindset is developed through experience, rather than formal instruction).

What are here called *structural* approaches focus on various structures that influence (e.g., facilitate) entrepreneurship, such as the firm or the industry. Indeed, the idea that one firm, industry, or economy can be more "entrepreneurial" than another suggests that entrepreneurship is associated with a particular structure (e.g., lots of small or young firms). The unit of analysis in such work is often the structure — rather than the entrepreneur or the opportunity —, and the "entrepreneurial firm" is usually seen as a new or small firm. The literatures on industry dynamics, firm growth, clusters, and networks have in mind a structural concept of entrepreneurship (Aldrich, 1990; Acs and Audretsch, 1990; Audretsch, Keilbach, and Lehmann, 2005). A particular instance of the structural approach is the recent literature of spawning (e.g., Gompers, Lerner, and Scharfstein, 2005). An even more particular instance is a recent paper by Benz and Frey (2008) which argues that the reason is that hierarchies may negatively influence entrepreneurship is because they impact "procedural utility": Employees who value independence *per se* has a strong incentive to become self-employed. Our argument, which we describe later in this paper, that entrepreneurship should be conceptualized as inseparable from firms has elements of the structural view.

By contrast, the classic contributions to the economic theory of entrepreneurship from Schumpeter, Knight, Mises, Kirzner, and others model entrepreneurship as a *function,* activity, or process, not an employment category or structure. The entrepreneurial function has been characterized in various ways: judgment (Cantillon, 1755; Knight, 1921; Casson, 1982; Langlois and Cosgel, 1993; Foss and Klein, 2005), innovation (Schumpeter, 1911), adaptation (Schultz, 1975, 1982), or alertness (Kirzner, 1973, 1979, 1992). In each case, these functional concepts of entrepreneurship are largely independent of occupational and structural concepts (the Cantillon-Knight-Mises judgment view of entrepreneurship, however, insists on linking entrepreneurship to the firm). The entrepreneurial function can be manifested in large and small firms, in old and new firms, by individuals or teams, across a variety of occupational categories, it can be very mundane or it can have the heroic quality highlighted by Schumpeter; and so on. In fact, many of those who adopt a functionalist approach to entrepreneurship tend to see entrepreneurship as almost ubiquitous (the exception is obviously Schumpeter). Thus, to Mises entrepreneurship is simply human action under uncertainty (Mises, 1949). To Kirzner any human being is capable of exercising "alertness" (Kirzner, 1973). These views emerge from the highly functionalist view of these writers: the aim is not to characterize specific entrepreneurs, or the psychological make-up that characterize entrepreneurs, but to explain the function that entrepreneurship partakes of in a market economy; in the case of Mises and Kirzner, that of equilibrating markets.

A possible import of these broad functionalist views is that, by focusing too narrowly on self-employment and start-up companies, the contemporary entrepreneurship literature (e.g., Baumol, 1993; Shane, 2003) may be understating the role of entrepreneurship in the economy and in business organization. What, then, are the entrepreneurial functions? Consider these possibilities: management, imagination or creativity, innovation, alertness, the ability to adjust, charismatic leadership, and judgment, all functions highlighted in key contributions to the entrepreneurship literature.

The Functions of Entrepreneurs

Managing a small firm. In the entrepreneurship curriculum of many business schools, the phenomenon under investigation has often been "small-business management." Entrepreneurs are pictured as the managers of small, family-owned businesses or start-up companies. Entrepreneurship consists of routine management tasks, relationships with venture capitalists and other sources of external finance, product development, marketing, and so on. The theory of entrepreneurship in this approach is the theory of how small business owners organize and manage their assets. Unfortunately, this notion of entrepreneurship is sufficiently elastic to be practically meaningless. It appears to include virtually all aspects of small or new business management, while excluding the identical tasks when performed within a large or established business. Put differently, if entrepreneurship is simply a set of management activities, or any management activity that takes place within a particular type of firm, then it is unclear why we should bother to add this label to those activities.

Exercising imagination or creativity. It is common, particularly within the management literature, to associate entrepreneurship with boldness, daring, imagination, or creativity (Begley and Boyd, 1987; Chandler and Jansen, 1992; Aldrich and Wiedenmayer, 1993; Hood and Young, 1993; Lumpkin and Dess, 1996). These accounts emphasize the personal, psychological characteristics of the entrepreneur. Entrepreneurship, in this conception, is not a necessary component of all human decision-making, but a specialized activity that some individuals are particularly well equipped to perform.[2] Note that such personal characteristics can presumably be acquired by contract on the market by purchasing consulting services, project management, and the like. A "non-entrepreneurial" owner or manager, in other words, can manage the day-to-day operations of the

[2] As Gartner (1988: 21) argues, however, this literature employs a host of different (and frequently) contradictory notions of entrepreneurship. A "startling number of traits and characteristics have been attributed to the entrepreneur, and a 'psychological profile' of the entrepreneur assembled from these studies would portray someone larger than life, full of contradictions, and, conversely, someone so full of traits that (s)he would have to be a sort of generic 'Everyman.'"

firm, purchasing "entrepreneurship" on the market as needed. Moreover, the literature does not explain clearly whether imagination and creativity are necessary, sufficient, or incidental conditions for entrepreneurship. Clearly the founders of many firms are imaginative and creative. If not, are they not entrepreneurs?

Innovating. The arguably most influential concept of entrepreneurship in economics is Joseph Schumpeter's idea of the entrepreneur as innovator. Schumpeter's entrepreneur introduces "new combinations"—new products, production methods, markets, sources of supply, or industrial combinations—shaking the economy out of its previous equilibrium through a process Schumpeter termed "creative destruction" (Schumpeter, 1911, 1939). His emphasis on the entrepreneur grows out of his simultaneous admiration for the the general equilibrium system of Walras and his desire to explain economic change; in Schumpeter's theory the entrepreneur is the agent of economic change:[3]

> [I]n capitalist reality as distinguished from its textbook picture, it is not [price] competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization . . . competition which commands a decisive cost or quality advantage and which strikes not at the margins of profits and the outputs of existing firms but at their foundations and their very lives (Schumpeter, 1942: 84).

Schumpeter carefully distinguished the entrepreneur from the capitalist (and strongly criticized the neoclassical economists for confusing the two). His entrepreneur need not own capital, or even work within the confines of a business firm at all. While the entrepreneur could be a manager or owner of a firm, he is more likely to be an independent contractor or craftsman. In Schumpeter's conception, "… people act as entrepreneurs only when they actually carry out new combinations, and lose the character of entrepreneurs as soon as they have built up their business, after which they settle down to running it as other people run their businesses" (Ekelund and Hébert, 1990: 569).

This suggests a rather tenuous relationship between the entrepreneur and the firm he owns, works for, or contracts with. Entrepreneurship is exercised within the firm when it introduces new products, processes, or strategies, but not otherwise. The day-to-day operations of the firm need not involve entrepreneurship at all. Moreover, because Schumpeterian entrepreneurship is largely independent of its environment, the nature and structure of the firm does not affect the level of entrepreneurship. Corporate R&D budgets, along with organizational structures that encourage managerial

[3] This could include, but is not limited to, the formation of new business ventures.

commitment to innovation (Hoskisson and Hitt, 1994), have little to do with Schumpeterian entrepreneurship *per se*.[4]

Being alert to profit opportunities. Another highly influential understanding of entrepreneurship is that it consists of being "alert" to hitherto undiscovered profit opportunities. While present in Cantillon's and J. B. Clark's notions of entrepreneurship, this concept has been elaborated most fully by Israel Kirzner (1973, 1979, 1992), a student of Ludwig von Mises. Kirzner's formulation emphasizes the nature of competition as a discovery process (Hayek, 1968): the source of entrepreneurial profit is superior insight — the discovery of something (new products, cost-saving technology) unknown to other market participants. The simplest case is that of the arbitrageur, who discovers a discrepancy in present prices that can be exploited for financial gain. In a more typical case, the entrepreneur is alert to a new product or a superior production process and steps in to fill this market gap before others. Success, in this view, comes not from following a well-specified maximization problem, but from having some knowledge or insight that no one else has—that is, from something beyond the given means-end framework.[5]

Kirzner's entrepreneurs do not own capital; they need only be alert to profit opportunities. Because they own no assets, they bear no uncertainty. Critics have seized on this point as a defect in Kirzner's conception. According to this criticism, mere alertness to a profit opportunity is not sufficient for earning profits. To reap financial gain, the entrepreneur must invest resources to realize the

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[4] Other writers influenced by Schumpeter, however, such as Baumol (1993a), do view public and private R&D, the scale and scope of patent protection, and basic science education as important determinants of the level of entrepreneurial activity. Moreover, it has often been argued that Schumpeter strongly revised his views on entrepreneurship from the 1911 book to the 1942 book, in which, allegedly, he argued that the emergence of the large modern corporation with its routinized innovation machine in the form of R&D labs had spelled the obsolescence of the entrepreneur. For a critical reading of this view, see Langlois (2002). See also Knudsen and Becker (2003) for the case that Schumpeter's functional concept of the innovator-entrepreneur is largely absent from the 1911 book, which emphasizes leadership, emerging only later in a 1928 essay.

[5] It is important to distinguish Kirzner's view of superior foresight from Stigler's search model in which the value of new knowledge is known in advance, available to anyone willing to pay the relevant search costs. "Stigler's searcher decides how much time it is worth spending rummaging through dusty attics and untidy drawers looking for a sketch which (the family recalls) Aunt Enid thought might be by Lautrec. Kirzner's entrepreneur enters a house and glances lazily at the pictures which have been hanging in the same place for years. 'Isn't that a Lautrec on the wall?'" (Ricketts, 1987: 58).

discovered profit opportunity. "Entrepreneurial ideas without money are mere parlor games until the money is obtained and committed to the projects" (Rothbard, 1985: 283). Moreover, excepting the few cases where buying low and selling high are nearly instantaneous (say, electronic trading of currencies or commodity futures), even arbitrage transactions require some time to complete. The selling price may fall before the arbitrageur has made his sale, and thus even the pure arbitrageur faces some probability of loss. In Kirzner's formulation, the worst that can happen to an entrepreneur is the failure to discover an existing profit opportunity. Entrepreneurs either earn profits or break even, but it is unclear how they suffer losses.

For these reasons, the connection between Kirznerian entrepreneurship and the theory of the firm is uncertain. Owners, managers, employees, and independent contractors can all be alert to new profit opportunities. Kirzner's entrepreneur does not need a firm to exercise his function in the economy. For these reasons, the link between Kirznerian entrepreneurship and other branches of economic analysis, such as industrial organization, innovation, and the theory of the firm, is weak. Hence Kirzner's concept has not generated a large body of applications in economics,[6] although it has been foundational to the recent opportunity-discovery literature in management.

Adjusting to the environment. Schultz (1975, 1979, 1982), like Schumpeter, works in the Walrasian tradition. However, unlike Walras and Schumpeter, Schultz recognizes that markets do not automatically and instantaneously regain equilibrium following an exogenous shock. "[R]egaining equilibrium takes time, and how people proceed over time depends on their efficiency in responding to any given disequilibrium and on the costs and returns of the sequence of adjustments available to them" (Schultz 1975: 829). Surprisingly, economists have devoted little attention to this problem. Even Schumpeter, who saw economic progress as the result of disruptions to existing equilibrium states, assumed that equilibrium is quickly regained following such a disruption. Schultz, by contrast, took innovation as given, and focused how economic agents adjust to exogenous shocks.[7]

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[6] Exceptions include Ekelund and Saurman (1988), Holcombe (1992), Harper (1995), and Sautet (2001).

[7] An example is farmers in a developing economy. Such people must "deal with a sequence of changes in economic conditions, which are in general not of their own making because they originate mainly out of the activities of people other than farm people. For this reason Schumpeter's theory of economic development is far from sufficient to explain most of these changes" (Schultz 1975: 832). Moreover, the atomistic nature of agriculture and the unique aspects of farm production generate problems of collective action and by–product behavior (Olson, 1965), making such adjustments lengthier.

In Schultz's formulation, entrepreneurship is the ability to adjust, or reallocate one's resources, in response to changing circumstances. As such, entrepreneurship is an aspect of all human behavior, not a unique function performed by a class of specialists. "No matter what part of the economy is being investigated, we observe that people are consciously reallocating their resources in response to changes in economic conditions" (Schultz 1979:2). Businessmen, farmers, housewives, students, and even university presidents, deans, and research directors make Schultz's (1979) list of entrepreneurs.

Somewhat paradoxically, the degree to which entrepreneurship is manifested in a society is itself determined by supply and demand. The demand for entrepreneurial services is given by the expected gains from adjusting one's resources in the face of the disequilibrium, itself a function of some characteristics of that disequilibrium. The supply of entrepreneurial capacities is given by agents' abilities to perceive and exploit opportunities. Like any economic good, entrepreneurship is valuable and scarce (Schultz 1979, p. 6). Knight and Kirzner treat entrepreneurship as "extra–economic," meaning that it is the driving force behind the pricing process, but is not itself traded and priced on the market. Schultz (1979) insists that entrepreneurial ability, like other services available for hire, is a resource with a market price and quantity, though he did not develop this insight into a fully specified theory of the supply of and demand for entrepreneurship.

Schultz conceives entrepreneurial ability as a form of human capital. Like other forms of human capital, this ability can be increased through education, training, experience, health care, and so on. While education and other human–capital investments also lead to improvements in technical and allocative efficiency, Schultz argues that efficiency improvements cannot account for all of the effects of education on economic performance, particularly in agricultural communities during periods of modernization. At least part of the returns to education are the returns to improved abilities to adjust to change, for instance by adopting new technology and organizational practices. Moreover, an economy's aggregate stock of entrepreneurial ability can also be increased by the immigration of people with particular entrepreneurial experiences and skills (presumably in response to increased opportunities for entrepreneurial gain).

Being a charismatic leader. In the view of entrepreneurs as charismatic leaders, entrepreneurs specialize in communication — the ability to articulate a plan, a set of rules, or a broader vision,

and impose it on others (e.g., Casson, 2000). The successful entrepreneur excels at communicating these models to others, who come to share the entrepreneur's vision (and become his followers). Such entrepreneurs are also typically optimistic, self-confident, and enthusiastic (though it is not clear whether these are necessary conditions). Witt (1998a, 1998b) describes entrepreneurship similarly as "cognitive leadership." He outlines an entrepreneurial theory of the firm that combines recent literature on cognitive psychology with Kirzner's concept of alertness. Entrepreneurs require complementary factors of production, he argues, which are coordinated within the firm. For the firm to be successful, the entrepreneur must establish a tacit, shared framework of goals, which governs the relationships among members of the entrepreneur's team. As Langlois (1998) points out, it is often easier (less costly) for individuals to commit to a specific individual, the leader, rather than an abstract set of complex rules governing the firm's operations. The appropriate exercise of charismatic authority, then, reduces coordination costs within organizations.

While formulating a business plan, communicating a "corporate culture," and the like are clearly important dimensions of business leadership, are they attributes of the successful manager or the successful entrepreneur? Even if top-level managerial skill were the same as entrepreneurship, it is unclear why charismatic leadership should be regarded as more "entrepreneurial" than other, comparatively mundane managerial tasks such as structuring incentives, limiting opportunism, administering rewards, and so on.

Exercising judgment. An alternative to the foregoing accounts is that entrepreneurship consists of judgmental decision-making under conditions of uncertainty. Judgment refers primarily to business decision-making when the range of possible future outcomes, let alone the likelihood of individual outcomes, is generally unknown (what Knight [1921] terms uncertainty, rather than mere probabilistic risk). This view finds expression in the earliest known discussion of entrepreneurship, namely Cantillon (1755). Cantillon argues that all market participants, with the exception of landowners and the nobility, can be classified as either entrepreneurs or wage earners:

> Entrepreneurs work for uncertain wages, so to speak, and all others for certain wages until they have them, although their functions and their rank are very disproportionate. The General who has a salary, the Courtier who has a pension, and the Domestic who has wages, are in the latter class. All the others are Entrepreneurs, whether they establish themselves with a capital to carry on their enterprise, or are Entrepreneurs of their own work without any capital, and they may be considered as living subject to uncertainty; even Beggars and Robbers are Entrepreneurs of this class (Cantillon, 1755: 54).

In other words, bearing risk — that is, making decisions under conditions of uncertainty and bearing the consequences of those decisions oneself — is the entrepreneur's *raison d'être*.

Judgment is distinct from boldness, innovation, alertness, and leadership. Judgment must be exercised in mundane circumstances, for ongoing operations as well as new ventures. While alertness tends to be passive (perhaps even hard to distinguish from luck, Demsetz 1983), judgment is active. Alertness is the ability to react to *existing* opportunities while judgment refers to the creation of *new* opportunities.[8] Entrepreneurs "… are those who seek to profit by actively promoting adjustment to change. They are not content to passively adjust their . . . activities to readily foreseeable changes or changes that have already occurred in their circumstances; rather, they regard change itself as an opportunity to meliorate their own conditions and aggressively attempt to anticipate and exploit it" (Salerno, 1993: 123). Those who specialize in judgmental decision-making may be dynamic, charismatic leaders, but they need not possess these traits. Decision making under uncertainty is entrepreneurial, whether it involves imagination, creativity, leadership, and related factors or not.

Knight introduces judgment to link profit, primarily, and the existence of the firm, secondarily, to uncertainty. Entrepreneurship represents judgment that cannot be assessed in terms of its marginal product and which cannot, accordingly, be paid a wage (Knight, 1921: 311). In other words, there is no market for the judgment that entrepreneurs rely on, and therefore exercising judgment requires the person with judgment to start a firm. Judgment thus implies asset ownership, for judgmental decision making is ultimately decision making about the employment of resources. An entrepreneur without capital goods is, in Knight's sense, no entrepreneur (Foss and Klein, 2005).

Entrepreneurship as uncertainty bearing is also important for Mises's theory of profit and loss, a cornerstone of his well–known critique of economic planning under socialism. Mises begins with the marginal productivity theory of distribution developed by his Austrian predecessors. In the marginal productivity theory, laborers earn wages, capitalists earn interest, and owners of specific factors earn rents. Any excess (deficit) of a firm's realized receipts over these factor payments constitutes profit (loss). Profit and loss, therefore, are returns to entrepreneurship. In a hypothetical equilibrium without uncertainty (what Mises calls the "evenly rotating economy"), capitalists would still earn interest, as a reward for lending, but there would be no profit or loss.

[8] In Kirzner's treatment, entrepreneurship is characterized as "a responding agency. I view the entrepreneur not as a source of innovative ideas *ex nihilo*, but as being alert to the opportunities that exist already and are waiting to be noticed" (Kirzner, 1973: 74).

Entrepreneurs, in Mises's understanding of the market, make their production plans based on the current prices of factors of production and the anticipated future prices of consumer goods. What Mises calls "economic calculation" is the comparison of these anticipated future receipts with present outlays, all expressed in common monetary units. Under socialism, the absence of factor markets, and the consequent lack of factor prices, renders economic calculation—and hence rational economic planning—impossible. Mises's point is that a socialist economy may employ workers, managers, technicians, inventors, and the like, but it cannot, by definition, employ entrepreneurs, because there are no money profits and losses. Entrepreneurship, and not labor or management or technological expertise, is the crucial element of the market economy. As Mises puts it: managers of socialist enterprises may be allowed to "play market," to act as if they were managers of private firms with their own interests at stake, but entrepreneurs cannot be asked to "play speculation and investment" (Mises, 1949: 705). Absent entrepreneurship a complex, dynamic economy cannot allocate resources to their highest valued use.[9]

OPPORTUNITY IDENTIFICATIONAND OPPORTUNITY EXPLOITATION

As noted above, while Schumpeter, Kirzner, Cantillon, Knight, and Mises are frequently cited in the contemporary entrepreneurship literature in economics and management, much of this literature takes, implicitly, an occupational or structural approach to entrepreneurship. The most important exception is the rapidly growing literature in management research on opportunity discovery or identification —or what Shane (2003) calls the "individual–opportunity nexus." Opportunity identification involves not only technical skills like financial analysis and market research, but also less tangible forms of creativity, team building, problem solving, and leadership (Long and McMullan, 1984; Hills, Lumpkin, and Singh, 1997; Hindle, 2004). It can involve both the recognition of already existing opportunities and the creation, *ex nihilo,* of new opportunities (Alvarez and Barney,

[9] Mises and Kirzner are usually treated together as offering a unified Austrian account of the entrepreneur. Indeed, Kirzner, a leading member of the modern Austrian school, received his Ph.D. under Mises at New York University and has described his work as the working out of various parts of Mises's system. However, we see Mises in the Cantillon-Knight tradition of viewing entrepreneurship as judgment over the deployment of resources, not alertness per se. Kirzner (1973: 39-40) agrees that in a world of uncertainty, resource owners exercise entrepreneurial judgment in allocating their resources to particular uses. But he goes on (1973: 40-43) to introduce the analytical device of "pure entrepreneurship," the act of discovery or alertness to profit opportunities by those with no resources under their control, and claims that this function, rather than uncertainty-bearing, is the "driving force" behind the market economy. We do not find this argument convincing. For more on this see Klein (1999: 24-25).

2007).[10] Whatever that is, the overall conception is that opportunities is the unit of analysis for entrepreneurship research. However, it is potential problem that the opportunity-discovery approach has not been forthcoming concerning definitions of the key construct. Perhaps for this reason, it is not clear how opportunities should be dimensionalized and measured.

Opportunities: Objective or Subjective?

Shane and Venkataraman (2000: 220) define entrepreneurial opportunities as "those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production." These opportunities are treated as objective phenomena, though their existence is not known to all agents. Shane and Venkataraman also distinguish entrepreneurial opportunities from profit opportunities more generally. While the latter reflect opportunities to create value by enhancing the efficiency of producing existing goods, services, and processes, the former refer to value creation through "the discovery of new means-ends frameworks." Shane and Venkataraman seem to have in mind the distinction between activities that can be modeled as solutions to well-specified optimization problems — what Kirzner (1973) calls "Robbinsian maximizing" — and those for which no existing model, or decision rule, is available.

However, Shane and Venkataraman appear to misunderstand Kirzner (and the Austrians more generally) on this point. In a world of Knightian uncertainty, *all* profit opportunities involve decisions for which no well-specified maximization problem is available; therefore, there is no distinction between entrepreneurial and other opportunities. In Knightian terms, profit is never the result of bearing risk, but always the result of bearing uncertainty.

The opportunity-discovery literature in management seeks to build a positive research program by operationalizing the concept of alertness. As summarized by Gaglio and Katz (2001):

> Almost all of the initial empirical investigations of alertness have focused on the means by which an individual might literally "notice without search." For example, Kaish and Gilad (1991) interpret this as having an aptitude to position oneself in the flow of information so that the probability of encountering opportunities without a deliberate search for a specific opportunity is maximized. Therefore, in their operational measures of alertness, they asked founders to recall: (a) the amount of time and effort exerted in generating an information flow; (b) the selection of information

[10] While value can of course be created not only by starting new activities, but also by improving the operation of existing activities, research in opportunity identification tends to emphasize the launching of new ventures (firms, products, or services).

> sources for generating an information flow; and (c) the cues inherent in information that signal the presence of an opportunity. From this data the authors deduced: (d) the quantity of information in the flow and (e) the breadth and diversity of information in the flow.
>
> Their results conform to expectations in some ways but also reveal some unexpected patterns. Compared to the sample of corporate executives, the sample of new venture founders do appear to spend more time generating an information flow and do seem more likely to use unconventional sources of information. Interestingly, the founders do seem more attentive to risk cues rather than to market potential cues. However, the data also reveal that only inexperienced or unsuccessful founders engage in such intense information collection efforts. Successful founders actually behave more like the sample of corporate executives. Cooper et al. (1995) found a similar pattern of results in their survey of 1100 firms although Busenitz (1996), in an altered replication of Kaish and Gilad's survey, did not. Indeed Busenitz found few significant differences between corporate managers and new venture founders. In addition, validity checks of the survey measures yielded low reliability scores, which led the author to conclude that future research in alertness required improved theoretical and operational precision.

This positive research program may miss the point of Kirzner's notion of entrepreneurial alertness: namely, that it is an instrumental construct designed, not to characterize entrepreneurship *per se,* but to explain the tendency for markets to clear. Theoretical concepts may be invested with different degrees of "anonymity" or abstraction (Schütz, 1932). For example, understanding how firms adapt to changed circumstances requires a less anonymous/abstract theory of the firm (e.g., Cyert and March, 1963) relative to the theory of the firm in basic price theory in economics, which on the other hand is adequate for the purposes of price theoretic analysis (Machlup, 1967). By the same token understanding the entrepreneur's role in the overall market process requires a model of the entrepreneur that is less detailed (more anonymous) than if the purpose is to understand what makes a particular entrepreneur discovery particular types of opportunities (as in Shane, 2003).

Kirzner's fundamental aim is to provide the theory of market clearing (i.e., a situation with no unexploited profit opportunities), called for by Hayek (1937), by invoking the entrepreneur as the mechanism that drives the market towards equilibrium. In Kirzner's approach opportunities are (exogenous) arbitrage opportunities *and nothing more.* For this reason, Kirzner offers no theory of how opportunities come to be identified, who identifies them, and so on; identification itself is a black box. The claim is simply that outside the Arrow–Debreu world in which all knowledge is effectively parameterized, opportunities for disequilibrium profit exist and tend to be discovered and exploited. In putting forward this claim, Kirzner makes no specific claims regarding the motivation and cognition of entrepreneur other than that they are motivated by the lure of profit and that they

will tend to discover opportunities. This highly anonymous portrayal of the entrepreneur may be contrasted with the much richer models of entrepreneurs in the recent opportunity-discovery literature in management.

Contemporary entrepreneurship scholars, considering whether opportunities are objective or subjective (McMullen and Shepherd, 2006; Companys and McMullen, 2007), note that Kirzner tends to treat them as objective. Again, this is true, but misses the point. Kirzner is not making an ontological claim about the nature of profit opportunities per se — not claiming, in other words, that opportunities *are,* in some fundamental sense, objective — but merely using the concept of objective, exogenously given, but not-yet-discovered opportunities as a device for explaining the tendency of markets to clear.

The Knightian perspective also treats entrepreneurship as an instrumental construct, used here to decompose business income into two constituent elements, interest and profit. Interest is a reward for forgoing present consumption, is determined by the relative time preferences of borrowers and lenders, and would exist even in a world of certainty. Profit, by contrast, is a reward for correctly anticipating the uncertain future (e.g., purchasing factors of production at prices below the eventual selling price of the product), and exists only in a world of "true" uncertainty. In such a world, given that production takes time, entrepreneurs will earn either profits or losses based on the differences between factor prices paid and product prices received.

For Knight, in other words, opportunities do not exist, waiting to be discovered (and hence, by definition, exploited). Rather, entrepreneurs invest resources based on their expectations of future consumer demands and market conditions, investments that may or may not yield positive return. Here the focus is not on opportunities, but on investment and uncertainty. Expectations about the future are inherently subjective and, under conditions of uncertainty rather than risk, constitute judgments that are not themselves modelable. Put differently, subjectivism implies that opportunities are neither "discovered" nor "created" (Alvarez and Barney, 2007), but *perceived.* They may or may not exist, in an objective sense. Hence a research program based on formalizing and studying empirically the processes leading individuals to discover opportunities, whether based on economics or psychology, seems dangerously close to being misguided. Opportunities for entrepreneurial gain are inherently subjective, in the sense that they do not exist until profits are realized. As a minimum empirical research on opportunity discovery must take this into account.

Opportunities as a Black Box

Confusion over the nature of opportunities is increasingly recognized. As noted by McMullen, Plummer, and Acs (2007: 273),

> a good portion of the research to date has focused on the discovery, exploitation, and consequences thereof without much attention to the nature and source of opportunity itself. Although some researchers argue that the subjective or socially constructed nature of opportunity makes it impossible to separate opportunity from the individual, others contend that opportunity is as an objective construct visible to or created by the knowledgeable or attuned entrepreneur. Either way, a set of weakly held assumptions about the nature and sources of opportunity appear to dominate much of the discussion in the literature.

Do we need a precise definition of opportunities to move forward? Can one do entrepreneurship research without specifying what, exactly, entrepreneurial opportunities "are"? Can we treat opportunities as a "black box," much as other concepts in management such as culture, leadership, routines, capabilities, and the like are treated (Abell, Felin, and Foss, 2007)?

One approach is to focus not on what opportunities are, but what opportunities do. Opportunities, in this sense, are treated as a latent construct that is manifested in entrepreneurial *action*—investment, creating new organizations, bringing products to market, and so on. A direct analogy can be drawn to the economist's notion of preferences. Economic theory (with the exception of behavioral economics, discussed below) takes agents' preferences as given and derives implications for choice. The economist does not care what preferences "are," ontologically, but simply postulates their existence and draws inferences about their characteristics as needed to explain particular kinds of economic behavior. Empirically, this approach can be operationalized by treating entrepreneurship as a latent variable in a structural-equations framework (Xue and Klein, 2007).

By treating opportunities as a latent construct, this approach sidesteps the problem of defining opportunities as objective or subjective, real or imagined, and so on. The formation of entrepreneurial beliefs is treated as a potentially interesting psychological problem, but not part of the economic analysis of entrepreneurship. It also avoids thorny questions about whether alertness or judgment is simply luck (Demsetz, 1983), a kind of intuition (Dane and Pratt, 2007), or something else entirely.

The Unit of Analysis: From Opportunities to Investments

If opportunities are inherently subjective, and if we may be best off by treating them as a black box, then the unit of analysis should not be opportunities, but rather some *action* — in Knightian terms, the assembly of resources in the present in anticipation of (uncertain) receipts in the future, in

other words, investments. Again, the analogy with preferences in microeconomic theory is clear: the unit of analysis in consumer theory is not preferences but consumption. In neoclassical production theory the unit of analysis is not the production function but some decision variable.

One way to capture the Knightian concept of entrepreneurial action is Casson's notion of "projects" (Casson, 2007; Casson and Wadeson, 2007). A project is a stock of resources committed to particular activities for a specified period of time. (Opportunities are defined as potential, but currently inactive, projects). Focusing on projects, rather than opportunities, implies an emphasis not on opportunity identification, but on opportunity *exploitation*, not identification. More generally, this perspective suggests that entrepreneurship research should focus on the execution of business plans.[11]

Making investment the unit of analysis suggests links to the real-options approach to the firm (Reuer and Tong, 2007) and an older literature (summarized by Klein, 1999: 32-33) on firms as investments. These literatures treat capital as not simply another factor that the entrepreneur can purchase at a price representing its marginal productivity, but as the ultimate, decision-making or controlling factor. Investment resources are allocated not to maximize the level of profit in a given project, but to maximize the (expected) rate of return across projects (just as divisionalized firms allocate internal resources across profit centers). If the entrepreneur-investors ability to exercise control is limited, then she will not pursue all positive-NPV projects, only those she can supervise effectively. Hence individuals who create or discover opportunities, however defined, may be unable to pursue them without close ties to people willing to commit funds to projects.

Entrepreneurial Judgment as a Natural Complement to the Theory of the Firm

Because most entrepreneurial ventures somehow involve a firm, entrepreneurship would seem to be a central subject in the economic theory of the firm.. However, one seeks in vain for references to the entrepreneur in the leading textbooks and research articles on the theory of the firm. Similarly, the strategic-management literature has not had a strong role for the entrepreneur. (Within the Academy of Management, the Entrepreneurship interest group is separate from the Business Policy and Strategy and Organization Theory groups.) And yet, entrepreneurship is ultimately the main source of value creation at the firm level. Indeed, the firm's key strategic decisions—strategy formulation, market

[11] See Salerno (2007) for the case that the Austrian economists, prior to Kirzner (1973), uniformly emphasized property ownership as inextricably linked to entrepreneurship.

analysis, industry positioning, diversification, vertical integration and outsourcing, organizational design—are ultimately entrepreneurial decisions (Foss and Klein, 2002; Yu, 2005; Matthews, 2006) But it is only very recently that the strategic management field has realized the need for a closer relationship with entrepreneurship, resulting in the 2008 start-up of the *Strategic Entrepreneurship Journal*. The fields of organizational behavior and human-resource management may follow suit.

While the view of entrepreneurship as judgment appears in many writers, it is most often associated with Knight (1921). For Knight, firm organization, profit, and the entrepreneur are closely related. In his view, these arise as an embodiment, a result, and a cause, respectively, of commercial experimentation (Demsetz, 1988).[12]

Knight introduces the notion of judgment to link profit and the firm to the existence of uncertainty. Judgment primarily refers to the process of businessmen forming estimates of future events in situations in which there is no agreement or idea at all on probabilities of occurrence. It may be defined as a service that enhances the quality of decisions in novel situations that require an urgent decision, a service that is learned and has a large tacit component. Entrepreneurship represents judgment that cannot be assessed in terms of its marginal product and which cannot, accordingly, be paid a wage.[13] This is because entrepreneurship is judgment in relation to the most uncertain events, such as starting a new firm, defining a new market, and the like.

In other words, there is no market for the judgment that entrepreneurs rely on, and utilizing judgment therefore requires the person with judgment to start a firm. Moreover, judgment implies asset ownership. Judgmental decision-making is ultimately decision-making *about the employment of resources.* An entrepreneur without capital goods is, in Knight's sense, no entrepreneur.[14] This

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[12] Knight explains that "[w]ith uncertainty entirely absent, every individual being in possession of perfect knowledge, there would be no occasion for anything of the nature of responsible management or control of productive activities . . . Its existence in the world is a direct result of the fact of uncertainty" (1921: 267, 271).

[13] "The receipt of profit in a particular case may be argued to be the result of superior judgment. But it is judgment of judgment, especially one's own judgment, and in an individual case there is no way of telling good judgment from good luck and a succession of cases sufficient to evaluate the judgment or determine its probable value transforms the profit into a wage. . . . If . . . capacities were known, the compensation for exercising them can be competitively imputed and is a wage; only, in so far as they are unknown or known only to the possessor himself, do they give rise to a profit" (Knight, 1921: 311).

[14] Carl Menger's (1871) treatment of production gives the entrepreneur a similar role. Production requires an "act of will" and "supervision of the execution of the production plan." These functions "entail property ownership and, there-

implies an obvious link with the theory of the firm, particularly those (transaction cost and property rights theories) that define asset ownership as a crucial ingredient of firm organization (Williamson, 1996; Hart, 1995). The firm, in this sense, is the entrepreneur and the assets he owns, and therefore ultimately controls. The theory of the firm is essentially a theory of how the entrepreneur exercises his judgmental decision-making—what combinations of assets will he seek to acquire, what (proximate) decisions will he delegate to subordinates, how will he provide incentives and employ monitoring to see that his assets are used consistently with his judgments, and so on.

CONCLUSION

This paper has revealed a substantial variety in how economists and management theorists have conceived the entrepreneurial function. Our argument suggests that the heavy emphasis in contemporary entrepreneurship research on the antecedents and nature of entrepreneurial opportunities may have hampered the integration of entrepreneurship into economics and strategic management, including the theory of the firm. Rather than focusing on opportunities *per se*, researchers might do better by treating opportunities as a latent construct that is manifested in entrepreneurial action, namely the exercise of judgment over the arrangement of heterogeneous capital assets. The Austrian theory of capital, interpreted in the "attributes" framework described above, provides a useful framework for conducting such analysis, linking the Knightian theory of entrepreneurship and the theory of economic organization (see further, Foss, Foss, Klein and Klein, 2007). The result is a theory that organically integrates notions of heterogeneous resources, organization, and entrepreneurship. Such a theory, we submit, is richer in predictive content and ultimately more satisfactory than the contemporary concern with opportunity discovery.

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fore, mark the Mengerian entrepreneur as a capitalist–entrepreneur" (Salerno, 1998: 30). Menger describes "command of the services of capital" as a "necessary prerequisite" for economic activity. Even in large firms, although he may employ "several helpers," the entrepreneur himself continues to bear uncertainty, perform economic calculation, and supervise production, even if these functions "are ultimately confined . . . to determining the allocation of portions of wealth to particular productive purposes only by general categories, and to selection and control of persons" (Menger, 1871: 160–61).

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