

**THE BIRTH OF CAPABILITIES: MARKET ENTRY AND THE
IMPORTANCE OF PRE-HISTORY**

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Abstract

We analyze the birth of capabilities and resources within organizations and within industries, and their historical antecedents, at the time of market entry. We find a consistent theme: the greater the similarity between pre-entry firm resources and the required resources in an industry, the greater the likelihood that a firm will enter that particular industry, and the greater the likelihood that the firm will survive and prosper. In addition, resource gaps affect the likelihood, speed, and mode of entry.

INTRODUCTION

Where do organizational capabilities and resources come from? We require answers to this fundamental question if we are to understand the evolution of firms. Evolutionary economics tells us that firms have ways of doing things that persist strongly over time (Dosi, Nelson, and Winter, 2000; Nelson and Winter, 1982; Nelson, 1991). But before ways of doing things can persist, they must be born. In this article, we analyze the birth of capabilities and resources within organizations and within industries, at the time of market entry. Surprisingly little is known about this topic, despite its centrality to the understanding of firm evolution, success, and failure. Recent research, however, has advanced to the point where we can begin to develop a structure for thinking about the relationship between resources and capabilities and market entry, and to ask refined questions about this relationship.

For purposes of this analysis, following Amit and Schoemaker (1993, p. 35), we define resources as stocks of available factors that are owned or controlled by the firm, and capabilities as the firm's capacity to deploy resources for a desired end result. Similarly, evolutionary economics refers to the capabilities of an organization as "the repertoires of organization members" that are "associated with the possession of particular collections" of resources, including the ability to utilize those resources productively (Nelson and Winter, 1982, p. 103). As these quotes indicate, the *deployment* of capabilities has an important element of routine. In contrast, the *development* of capabilities entails intent and deliberation (Dosi, Nelson, and Winter, 2000, p. 12). Thus, capabilities act upon resources in routine fashion, but the development of capability at least partially entails the intent to do so. As Dosi, Nelson, and Winter (2000) note, this element of intent brings together the study of evolutionary economics and strategic management.

Although an understanding of the birth of resources and capabilities is critical to an understanding of firm evolution, research on capabilities and resources in the tradition of evolutionary economics frequently examines firm capabilities and resources mid-stream. Analysis then focuses on subsequent history-dependent evolution, conditional on the mid-stream starting point. In an effort to understand more precisely where the mid-stream capabilities come from, we

start with a bifurcation mark in the development of capabilities and resources: that of entry into a market. When new or existing firms enter a market in which they do not currently participate, almost by definition they must develop new capabilities or alter existing ones.

In analyzing the relationship between market entry and organizational resources and capabilities, we build upon a diverse and still somewhat sparse collection of research. Building on this research, we ask a series of interrelated questions:

1. What are the types of potential entrants to a market?
2. How does the nature of resources and capabilities vary by type of entrant?
3. How do the pre-entry resources and capabilities of different types of entrants affect:
 - a) which markets firms enter?
 - b) the mode of market entry?
 - c) the timing of market entry?
4. How do all of the above affect the success of entry?

To answer the foregoing questions, we develop several taxonomies to aid our understanding of the relationship between entry and firm resources. In our analysis, market entry refers to initial production of a product or provision of a service, as distinct from “technological entry” that refers to innovation or patenting in new areas (e.g., Malerba and Orsenigo, 1999). We first introduce a taxonomy of “markets,” as well as a taxonomy of resources relevant to market entry. We also introduce a taxonomy of entrant types that distinguishes between diversifying, parent-company venture, and de novo entrants. Then we analyze the impact on market entry of resources and capabilities that firms possess prior to entry. As we explain, different types of potential entrants have different types of resources and capabilities. These in turn affect the choice of markets entered (if entry occurs), as well as the mode, timing, and success of entry.

We base our analysis upon prior studies of market entry and the resources and capabilities of individual firms. We exclude work on portfolios of businesses within firms and expansion in a market subsequent to initial entry. Much of the research that relates pre-entry firm resources and capabilities to market entry is relatively recent. It provides a basis for some tentative conclusions,

but also raises many questions for future research. In what follows, we first introduce taxonomies of markets, resources and capabilities, and entrants. Then we analyze the relationship between the firm's pre-entry resources and its choice of markets, mode of entry, timing of entry, and success of entry. Based on this analysis, we propose some working hypotheses regarding resources, capabilities and entry that enable us to ask a number of more nuanced questions.

Perhaps one of the most important conclusions from our analysis is that, consistent with evolutionary economic theory, historical antecedents in the form of pre-entry firm resources and capabilities affect the likelihood and success of entry, even for de novo firms. It is not the resources and capabilities alone that affect the market type, mode, timing, and success of entry; rather, it is the match between the market entered and the firm's pre-entry resources and capabilities that matters. The greater the similarity between pre-entry firm resources and the required resources in an industry, the greater the likelihood that a firm will enter that particular industry, and the greater the likelihood that the firm will survive and prosper. In addition, the extent of resource dissimilarity, in the form of resource gaps, affects entry. As we explain, these gaps affect the mode of entry in particular. We find that the timing of entry is influenced by the match between a firm's pre-entry resources and the resources required post-entry.

Our conclusions imply that a stylized model of entry and learning of the sort proposed by Jovanovic (1982) is incomplete in a fundamental way. In Jovanovic's (1982) model, firms learn about their cost efficiency subsequent to entry, but have no information about their pre-entry costs (and hence, resources and capabilities) other than the distribution of costs for all possible entrants. Our analysis, however, strongly suggests that firms possess pre-entry knowledge about their resources and capabilities that in turn affects both entry decisions and subsequent success of entry.

MARKET DEFINITION

Before we begin our analysis of resources and market entry, we need to define what it is that we mean by a "market." For purposes of this analysis, it is helpful to define a market narrowly in terms of a specific type of product or service, at a particular level of technological

development or state of the art in business practice. Much of the literature on market entry tends to presume that entry occurs at the start of a new industry (although the definition of an industry varies from study to study). But in fact, firms make entry decisions at many points during the life-cycle of an industry. Every time the technology or state of business practice shifts, firms must decide whether to participate in this next phase of the industry. Furthermore, it is not necessarily clear ex ante whether entry into a new technology or state of business practice, for example, will turn out after the fact to be a new “product generation,” a new customer or product segment of the market, or a new industry. What firms do need to decide is whether to offer a product or service that differs in some way from their current product or service offering. It is this phenomenon that we analyze.

What, then, defines the birth of a new market? Several typologies, commonly applied by researchers, reflect multiple entry points into an industry over time. We often observe the development of a new niche or market segment. When this arises as the result of technological progress it is often termed a new “product generation.” The new generation may replace the old one, or generations may coexist for long periods of time. Viewed in retrospect, the size and importance of these new niches and product generations, and the extent to which they displace the old, are typically clear. But great uncertainty often exists at earlier points in time when most entry decisions are made.

Less ambiguous, perhaps, is the development of new geographic markets for products or services that have already been introduced in other locations. While the potential for new geographic markets may be easy to identify, there may still be considerable uncertainty about size and market growth, as well as the types of firms that will ultimately prevail.

As an illustration of these points, consider the example of Wal-Mart, the discount retailer, which has aggressively entered many new markets during its history. When Wal-Mart first began operations, discount retailing was well established in many U.S. urban areas, but Wal-Mart pioneered in new geographic markets (small towns in the South). Wal-Mart has since expanded into numerous other geographic markets in the discount retailing industry, some well established

(e.g., California) and others quite new (China). Similarly, Wal-Mart has entered several successive “product generations” of discount retailing. These include warehouse clubs (where Wal-Mart entered shortly after the pioneer, Price Club), supercenters (combination of discount store and supermarket, adapted from the larger-scale hypermarkets introduced earlier in France by Carrefour), and Internet retailing. These new product generations currently coexist with Wal-Mart’s original discount retailing format (although earlier formats, as embodied by Kresge and Woolworth stores, have essentially disappeared).

When a new product or service makes a large discontinuity from what has existed before, it constitutes a new industry. For example, the discovery of the transistor in the late 1950s gave rise to the semiconductor industry. But births of new industries in this fashion are rare. More common is the evolution of new industries through the development of niches that become sufficiently large and distinct to be classified as industries in their own right. Today, within the broadly-defined semiconductor industry, we observe numerous sub-industries of this sort: microprocessors, memories, ASICs, analog IC’s, power transistors, etc. Many of these began as niche products whose ultimate potential was unclear.

The Wal-Mart and semiconductor examples point to the fact that industry evolution tends to create opportunities for entry at various points in time. The standard industry or product life-cycle is usually thought to consist of the phases of initial ferment, growth, maturity, and decline, where there is frequently a shakeout of firms prior to maturity. In this scenario, most surviving firms grow larger and dominate the market. Most entry occurs in the initial and growth stages of the market. But as the Wal-Mart example shows, industries often undergo new growth phases associated with shifts in business practices or technological development, and these shifts may provide the basis for the creation of new market segments (e.g., warehouse stores).

Our purpose here is not to resolve what constitutes a new industry or market, but rather to make the general point that any shift in technology, customer needs, or the state of business practice can lead to new segments, where firms must decide whether or not to enter. In addition, firms always have the option of entering established markets.

Based on the foregoing discussion, as shown in Table 1, we categorize market entry opportunities into four types (subject to the caveat that the true category is more easily discerned after the fact): new-to-the-world industry, new product-market niche, different geographic location, and established product-market.

***** **Table 1 about here** *****

TYPES OF POTENTIAL ENTRANTS

In addition to the foregoing taxonomy of market entry opportunities, it is useful to have a taxonomy of potential entrants, as well as information about the resources and capabilities of these entrants. We next categorize entrants according to their heritage, particularly with regard to the strength of their ties to existing firms, before turning a discussion of the types of resources that each sort of potential entrant possesses.

Our basic taxonomy of entrants, shown in Table 2, distinguishes between diversifying, parent-company venture and de novo entrants. Diversifying entrants are established firms entering new or established markets, generally by internal growth or acquisition.¹ As an alternative to diversification, established firms may choose to enter markets by setting up legally separate companies, which we term parent-company ventures. Within this category, we distinguish between joint ventures, franchises, and parent spin-offs (Ito, 1995). Joint ventures are set up by more than one established firm, each of which generally has a financial interest and board membership. Franchises are set up by established firms in concert with partners as well, namely, the franchisees. Franchisees typically pay the franchisors a royalty based on franchisee sales. In a parent spin-off, the parent firm often retains a financial interest and representation on the board of directors (Block and MacMillan, 1993).² These spin-offs are distinct from divestitures of pre-

¹ Technically, firms that diversify internationally must set up legally separate organizations in foreign countries. For all practical purposes, however, the parent companies treat their wholly-owned foreign subsidiaries as part of their organizations, and we analyze foreign subsidiaries as such.

² See Chesbrough (2001) for more detailed discussion of various types of parent spin-offs, which differ according to their sources of financing and strategic objectives.

existing divisions of diversified companies, which do not constitute new entry into markets.³ In a sense, parent-company ventures are hybrids between diversifying and de novo entrants. The ventures are set-up and sometimes controlled by established firms, but at the same time, the ventures are new companies.

In the last major category, de novo entrants, we distinguish between start-ups and entrepreneurial spin-offs. Start-ups are the classic entrepreneurial companies whose founders have no previous employment ties to other firms in the industry. Entrepreneurial spin-offs are stand-alone companies founded by employees of incumbent firms in the same industry (Klepper, 2001). We exclude franchises of established firms from this category, which are included under parent-company ventures.

Many industries spawn entrepreneurial spin-offs into both established market segments and new market segments. We sometimes observe the latter when products are in an early phase of their life-cycle, as in the early semiconductor industry where a spin-off from Shockley Semiconductor Laboratories produced Fairchild Semiconductor, which in turn produced Intel as well as numerous other spin-offs. In addition, spin-offs occur in less technologically advanced industries and at later stages of the product life-cycle. For example, prior to founding Wal-Mart, Sam Walton worked as a manager for a regional chain of variety stores, as did other early Wal-Mart executives.

***** **Table 2 about here** *****

The three major categories of entrants vary according to their legal relationship with established firms. As shown in Table 2, diversifying entrants are established firms, parent-company ventures are new firms founded and often partially controlled by established firms, and de novo firms have no legal relationship with established firms in the industry.

The taxonomy in Table 2 implies that established firms can choose among alternative modes of market entry, as shown in Table 3. Retaining full ownership and control, diversifying

³ In fact, from the perspective of the divesting companies, these financial spin-offs are exits from industries in which the firms previously operated.

firms can enter via internal growth (including internal corporate ventures) or acquisition. Although entry by acquisition does not change the number of firms in a market, it does bring a new resource base to the industry. Moreover, from the point of view of the diversifying firm, an acquisition constitutes market entry. Sacrificing some degree of ownership and control, established firms may enter via parent-company ventures (spin-offs, franchises, or joint ventures). Established firms also may enter markets via strategic alliances, but since such arrangements are often short-lived, we do not analyze them here.

***** **Table 3 about here** *****

RESOURCES AND CAPABILITIES OF ENTRANTS

Resources and capabilities often vary by type of entrant. Prior research has employed various classifications of resources and capabilities, particularly within the resource-based view in strategic management. In a foundational article, Barney (1991) divides resources and capabilities into three broad categories: physical, human, and organizational. Subsequent research has distinguished more finely between resources and capabilities (Amit and Schoemaker, 1993). In our analysis of market entry, it proves helpful to organize these general sorts of resources and capabilities along two dimensions, as summarized in Table 4: 1) core vs. complementary, and 2) specialized vs. generalized. Table 4 contains examples (a non-exhaustive list) of different resources and capabilities that studies of market entry have analyzed, organized according to these two taxonomies.

The first taxonomy relies on Teece's (1986a) distinction between core and complementary assets (or resources and capabilities). Core resources refer to knowledge that fundamentally underlies and is required to create a product or service, including core technological knowledge (Teece, 1986a) and knowledge of customer needs (Helfat and Raubitschek, 2000). Complementary resources and capabilities are those required to profit from core knowledge, including finance, manufacturing, marketing, sales, and distribution.

The second taxonomy distinguishes between specialized and generalized resources and capabilities (Teece, 1980 and 1982). Specialized firm resources and capabilities are specific to particular settings, and therefore are useful in only a limited range of environments. In contrast, generalized resources and capabilities can be applied more broadly in many environmental settings. Individual resources and capabilities of course may fall somewhere on a continuum between those that are very narrowly specialized to particular settings and those that are broadly applicable in virtually any setting. In analyzing market entry, however, it is helpful to distinguish conceptually between relatively more specialized and relatively more generalized resources and capabilities (Chatterjee and Wernerfelt, 1991).

Specialized capabilities include functional activities such as R&D, marketing, and distribution that tend to be tailored in important ways to the technologies, operations, and products of the businesses in which a firm participates. Organizational knowledge also may be specialized to certain types of technologies or industries or market contexts more generally (e.g., national or regional markets). Other specialized resources include patents (technology-specific), brand names (often specific to certain categories of products), mineral deposits, and relationships with buyers and suppliers.

Generalized resources and capabilities, which can be applied more broadly, include general organizational capabilities, such as skills for organizing multiple business units within a firm, and for transferring knowledge between business units. Some functional area resources and capabilities also are generalized in nature and can be applied in most markets (e.g., financial skills and capital). Another sort of generalized capability may involve the ability to successfully enter new markets using particular modes of entry, such as acquisitions or joint ventures. Because generalized resources and capabilities are useful in a much larger range of markets than are specialized resources and capabilities, generalized resources provide a broader platform for market entry than do specialized resources (Chatterjee and Wernerfelt, 1991).⁴

⁴ Dynamic capabilities, which are collections of routines for change (Zollo and Winter, forthcoming), also are relevant to market entry. Dynamic capabilities may be either specialized (e.g., process R&D on a particular technology) or generalized (e.g., the ability to execute acquisitions).

The two taxonomies of resources and capabilities that we employ overlap somewhat. Core resources tend to be specialized to particular technologies, products, or services. Complementary assets, however, may be either specialized or generalized. Complementary resources and capabilities that are tailored to particular kinds of businesses, such as marketing (e.g., of processed food products) or customer service (e.g., for personal computers), are more specialized in nature. Complementary resources that are more fungible, such as financial capital, are generalized in nature. Although the core/complementary and the specialized/generalized classifications capture somewhat different attributes of resources and capabilities, both distinctions are useful in analyzing market entry.

Resources and Capabilities of Different Types of Entrants

These types of resources and capabilities potentially may form the basis for market entry by any and all of the various types of potential entrants to a market. Diversifying, parent-company venture and de novo entrants, however, vary in the breadth and depth of their pre-entry resources and capabilities. Relative to new enterprises, established firms often possess a wider array of resources and capabilities that they can leverage in additional markets. By virtue of size and longevity, established firms may hold larger and more developed stocks of individual resources and capabilities. New enterprises in the form of parent-company ventures and de novo entrants also arrive with initial resources and capabilities that derive from their historical antecedents, as next explained.

The initial resources and capabilities of parent-company ventures depend in part on the extent to which the parent firms transfer personnel, organizational systems, physical assets and brand names to the new entities at the time of founding. Even if new ventures receive no assets other than initial financing from the parent companies, the ventures frequently have access to parent-firm resources such as infusions of capital, and management advice (e.g., from board members who are executives in the parent firms).

Parent-company ventures also may differ from one another in the breadth of their initial resources and capabilities, depending on whether they have one or more parents.

A spin-off of just one company may have a narrower resource base on which to draw than a franchise or joint venture that can draw on the resources of multiple parents. Franchises, for example, combine parent-company resources such as brand name and operational routines with the financial capital and prior management experience of franchisees. Joint venture partners also frequently bring different resources and capabilities to the venture. In fact, as discussed in detail later, one of the primary motivations for firms to form joint ventures is often to gain access to the resources and capabilities of their partners (Kogut, 1988; Dyer and Singh, 1998).

In contrast to both parent-company ventures and diversifying entrants, *de novo* entrants are generally thought to have very few resources, simply because the firms are new to the world. Such a characterization is misleading, however, particularly in the case of entrepreneurial spin-offs from established companies. This characterization is not entirely accurate for start-ups either, as all company founders carry traits that shape their firms.

It is important to recognize that people who form new firms have histories (Aldrich, 1999; Freeman, 1986). As Nelson and Winter (1982) have observed, the memory of a newly formed firm lies within its organizational actors. Thus, some empirical studies in organizational ecology have identified a “founder effect.” For example, Kimberly (1979) found that the personalities of the founders had lasting effects on the organization and structure of sheltered workshops. Boeker (1989) and Burton, Sorensen, and Beckman (2001) found that in semiconductor firms and in Silicon Valley firms respectively, the characteristics of founding members influenced the development of initial strategy. Whether or not a person becomes an entrepreneur also may depend on the person’s prior experience, and on his or her human and social capital. Shane and Khurana (2001) have shown that greater prior experience founding a firm and obtaining financing increased the likelihood of new firm formation by patent holders at MIT. Burton, Sorensen, and Beckman (2001) also found that entrepreneurs in Silicon Valley were more likely to obtain

external financing when they had greater social capital, because they came from prestigious firms in the area, and had greater human capital in the form of senior management experience.

Although the resources and capabilities of new enterprises can be classified along the same lines as those of established firms, the level of development and mix of these resources and capabilities tend to differ. For example, the sources of financing (a generalized resource) for de novo entrants and parent-company ventures may differ from established firms. De novo entrants in particular may have higher proportions of venture capital funding than do other firms. Both de novo entrants and franchises may be highly leveraged with loans from banks (or credit cards) or from family and friends, or may be funded largely with equity investments by the founders.

In addition, for better or worse, de novo entrants have little experience functioning as an organization that produces a product or service in a competitive environment. The same may be true of some parent-company ventures as well. By definition, the organizational structures and routines of new firms are less developed than those of established firms. Although joint ventures and parent spin-offs may be able to draw on the structures and routines of their parents, the structures and processes of established firms may not always be appropriate for younger and typically smaller firms. Franchises are somewhat different in that they are specifically designed to utilize the organizational routines of their franchisor parents (Knott, 1998).

As we next explain, the mix and level of development of pre-entry resources and capabilities for each type of entrant affects which markets firms choose to enter, as well as the mode, timing, and success of entry.

WHICH MARKETS DO FIRMS ENTER?

Our analysis of which markets firms enter as a function of their pre-entry resources and capabilities starts with diversifying entrants, since relatively more research has dealt with these firms. We organize our discussion of diversifying entry according to the types of markets identified in Table 1. Then we examine evidence regarding parent-firm ventures and de novo entrants, about which we have less information. Innumerable studies have dealt with the topic of

market entry and with related topics such as diversification, foreign direct investment, innovation, joint ventures, and entrepreneurship. Our interest here is in the small subset of studies that link firm-level data on pre-entry resources and capabilities to instances of market entry. As background, we note that in most industries the rate of de novo entry substantially exceeds that of diversified firm entry. Nonetheless, the influence of diversifying entrants is often greater than their numbers, as they tend to enter at a larger scale than de novo firms, and have higher rates of survival. (See Dunne, Roberts, and Samuelson, 1988; Geroski, 1995; and Caves, 1998.)

Diversifying Entrants

Diversifying entrants may enter a range of different types of markets, including established product-markets, different geographic locations (often for products or services that the firm already sells in other locations), new market niches (i.e., new product generations, or new product or customer segments), and new industries. We begin with entry into established product-markets, where studies have distinguished between entry into related and unrelated markets.

Related vs. Unrelated Product-Market Entry

Much of the theory that links resources and capabilities to diversification stems from Penrose (1995, first published in 1959), who observed that as firms learn over time, they become more efficient at using their resources. The resulting excess resources provide a basis for diversified expansion into markets in which the firm can redeploy its resources (Teece, Rumelt, Dosi, and Winter, 1994).

Penrose (1995) proposed that the nature of firms' pre-entry capabilities determines the direction of expansion as firms grow, an approach also taken by evolutionary economic theory (Nelson and Winter, 1982). Thus, diversifying entrants tend to enter industries that have resource requirements similar to the firms' pre-entry resource and capability profiles. Studies of large manufacturing companies have found that the greater the similarity of firms' pre-entry technological, marketing and human resources to the resource requirements of individual

industries, the greater is the likelihood of entry (Montgomery and Hariharan, 1991; Chatterjee and Wernerfelt, 1991; Chang, 1997; Merino and Rodriguez, 1997; Silverman, 1999). In these studies, specialized pre-entry technological, marketing, and human resources led to entry into related markets in which the resources had greater applicability.

In addition to the effect of specialized resources, more generalized pre-entry resources and capabilities are likely to affect the market choices of diversifying entrants. Chatterjee and Wernerfelt (1991) found that firms with greater financial liquidity tended to undertake diversified entry farther from their main businesses, consistent with the proposition that more generalized resources provide the basis for entry into a broader range of industries. Other sorts of generalized resources and capabilities include the ability to manage a diversified firm, as well as the ability to manage diversified entry. As a proxy for these capabilities, Montgomery and Hariharan (1991) found that the breadth of a firm's resource base had a positive effect on the scope of diversified expansion.

These studies suggest that diversifying entrants match their pre-entry resources and capabilities to the required resource profile of industries when making entry choices. According to this logic, entrants strive to redeploy (share or transfer) both specialized and generalized pre-entry resources and capabilities to the markets of entry, in an effort to obtain economies of scope (Panzar and Willig, 1981). Subsequent to entry, firms may accumulate additional resources and capabilities tailored to the new products and markets, that in turn form the basis for market entry in the future (Helfat and Raubitschek, 2000). Consistent with such "learning trajectories," Chang (1997) found that firms were more likely to enter industries with human resource profiles closer to those of the industries that the firms had entered in the previous two-year period.

Geographic Expansion

Related diversification may include entry not only into different product-markets, but also into different geographic markets. Perhaps the most related form of geographic expansion consists of entry into a different geographic location with very similar market characteristics and resource

profile requirements to those of the firm's current geographic markets. In what follows, we term this sort of expansion a "replication strategy." A less related form of geographic expansion involves entry into locations with somewhat different resource requirements. The prototypic example of this form of expansion is entry into a foreign country. We first analyze replication strategies, and then foreign market entry.

A common replication strategy is that of geographic expansion by chain organizations — such as retail stores, banks (Winter and Szulanski, 2001), and nursing homes (Baum, Li, and Usher, 2000) — via internal growth or acquisition. The strategy frequently entails replicating operating procedures, organizational structures and processes, configuration of the physical plant, and accounting and incentive systems in the new geographic location (Winter, 1995). When Wal-Mart enters a new geographic area in the United States, for example, the company replicates its local distribution network, store operating routines, information systems, and personnel policies. Firms in other types of businesses employ replication strategies as well. Berry (1992) found that airlines with pre-entry operations in one or both of the cities of a city-pair market, indicative of local market knowledge and resources, had a greater likelihood of entry into the city-pair market.

Knowledge of the local environment is an important consideration for geographic expansion into foreign countries. The literature on foreign direct investment suggests that firms will undertake overseas operations when they have resources (especially intangible assets such as technology) whose services are valuable in the foreign market, but are not easily transferred using an arms-length transaction (Dunning, 1981; Rugman, 1981; Teece, 1986b). Because firms that seek to benefit from such foreign expansion face the problem that they have less knowledge of local markets, it follows that firm-specific resources must be especially valuable overseas in order to justify foreign market entry (Buckley and Casson, 1976; Caves, 1982; Hennart, 1982).⁵

Consistent with foreign direct investment as a means to transfer technology abroad, studies have found that greater firm R&D intensity increased the likelihood of investment in the United

⁵ Studies of foreign direct investment that pertain to pre-existing firm resources and capabilities generally do not confine their samples to first-time entrants into geographic markets. Nevertheless, some studies do control for prior entry into a market. We include the results of such studies here.

States by a broad sample of Japanese manufacturers (Hennart and Park, 1994) and by Japanese electronics firms more specifically (Chang, 1995). In these studies, the advertising intensity of Japanese firms did not affect expansion, consistent with the supposition that the reputation of a firm in Japan was not a resource that transferred well to the U.S. market. Additionally, previous U.S. market experience (Hennart and Park, 1994) and the number of previous investments in the United States by each firm (Chang, 1995) predicted the likelihood of additional investment, suggesting the importance of local (U.S.) market knowledge. Furthermore, Chang (1995) found that as firms gained local market knowledge from prior investments, the firms entered U.S. product-markets that had less similarity of R&D and advertising intensity to that of their Japanese operations. These studies highlight the importance of learning about conditions in a specific geographic locale, and the concept of learning trajectories for diversifying entry.

Like the evidence on product-market diversification, research on geographic replication and foreign market entry supports the proposition that established firms enter markets where they have pre-entry resources and capabilities that are similar to the resource requirements of the markets of entry. The choice of geographic markets is most strongly influenced by specialized resources and capabilities, including knowledge of the local market and tacit technological skills. Similar to diversifying entry into related product-markets, firms seek to redeploy their pre-entry resources and capabilities in different geographic markets, which can yield economies of scope (Madhok, 1997).

New Market Niches

Yet another form of related market entry involves new market niches. As noted earlier, at the time that a firm contemplates entry, it is not always clear whether the product or service in question will end up as a new generation of an existing product, a new product niche, or a new customer segment. Regardless of these distinctions, both core and complementary resources have an impact on entry. It is not surprising that pre-entry core technological knowledge affects the decision to enter new product generations or technical subfields. For example, in a study of new

product introductions in 20 different product classes within the laser printer industry, De Figueiredo and Kyle (2001) found that more innovative firms (those having more patents) were more likely to introduce new products. Kim and Kogut (1996) also found that semiconductor firms with previous experience in industry segments that utilized “platform technologies” were more likely to enter into new subfields that grew out of the platform technologies. Similarly, Helfat’s (1997) study of U.S. oil companies showed that firms with greater experience in refining R&D were more likely to undertake R&D in synthetic fuels, which utilized the same technological properties as did refining. In a study of new generic pharmaceutical markets, Scott Morton (1999) also found that potential entrants were more likely to enter a market when they had greater prior experience with the same type of therapy or drug ingredients, indicative of knowledge gained from prior R&D.

Complementary assets affect entry into new technical subfields and product generations as well (Teece, Rumelt, Dosi, and Winter, 1994).. Mitchell’s (1989) study of entry into five emerging technical subfields of the U.S. diagnostic imaging industry showed that firms with specialized complementary assets in the form of direct distribution systems were more likely to enter the new markets. Additionally, firms with higher market share (a proxy for other specialized assets such manufacturing systems) had a greater likelihood of market entry. King and Tucci (2001) observed similar patterns in the disk drive industry, where firms that had greater prior disk drive sales (a proxy for production and sales experience) were more likely to enter the next generation of disk drives. In the oil industry, Helfat (1997) found that firms with greater pre-entry complementary assets in the form of coal reserves also undertook greater amounts of R&D in synthetic fuels derived from coal. Finally, in generic pharmaceuticals, Scott Morton (1999) found that firms were more likely to enter markets where they had greater similarity of prior experience in manufacturing, distribution, and marketing.

Case studies provide further evidence of the importance of both core and complementary resources for entry into new product niches. For example, Tripsas (2001) has noted that when computer technology began to take on a key role in typesetters, a large majority of the new

entrants were established computer companies. Helfat and Raubitschek's (2000) analyses of three Japanese electronics firms showed that firms repeatedly built on their pre-entry core technological knowledge and complementary assets to introduce products in new subfields (which the firms sometimes pioneered), as well as to introduce new generations of existing products. Again we see the importance of learning trajectories in market entry.

As these studies indicate, the similarity of core technological resources and complementary assets to those of value in the market of entry appears to be an important predictor of entry into new product niches, just as it was for more broad-based diversified product-market entry and geographic market entry. Nevertheless, a large literature suggests that incumbents have trouble adapting to radical technological changes in an industry. Incumbents frequently enter the next phase of an industry, even if they do not fare well. For example, Henderson (1993) documented the entry of established firms when new waves of innovation occurred in the photolithographic alignment equipment industry, and Tripsas (1997) documented this phenomenon in the typesetting industry. Whether incumbents that enter a new innovative product category do so early enough, and whether they ultimately succeed, will be analyzed later.

New Industries

Sometimes technological and other changes lead not simply to new waves of products and business practices within an established industry, but instead result in what becomes an entirely new industry. Here again, evidence suggests that the similarity between the pre-entry resources of established firms in other industries and the required resource profile of the new industry affects the choice of market. For example, in a study of the U.S. television receiver industry, Klepper and Simons (2000) analyzed entry by radio producers. They found that potential radio entrants with the greatest financial resources, experience producing home radios (indicative of production-oriented R&D, distribution, and marketing experience most relevant to televisions), and greater cumulative experience producing radios of all kinds were significantly more likely to enter the television industry. In the U.S. automated teller machine (ATM) manufacturing market, Lane

(1988) also found that producers of computers and safes, who possessed the most relevant pre-entry technological and manufacturing expertise, as well as established relationships and reputations with bank customers, were much more likely to enter the market than other potential entrants.

Summary of the Evidence with Regard to Diversifying Entrants

The evidence that we have presented with regard to diversifying entry, while limited, suggests that established firms are more likely to enter all types of markets where their pre-entry resources and capabilities match the required resource profiles in those markets. Entry choices depend not only on the relevance of pre-entry resources and capabilities, but also on the degree of similarity between the pre-entry resources of firms and the required resource profiles of markets. These results apply to both core and complementary assets, and to specialized as well as generalized resources and capabilities. Evidence suggests that path-dependent learning trajectories subsequent to entry lead to the accumulation of additional resources and capabilities, upon which firms then base their subsequent choices of markets. Finally, the similarity of pre-entry resources and capabilities to the required resource profiles of markets suggests that firms seek to redeploy (share or transfer) their pre-entry resources and capabilities when entering markets. The studies of geographic expansion also lead to the conclusion that while firms may have some resources and capabilities that match the required resource profiles of the markets they enter, firms also may need to fill gaps in their pre-entry resources and capabilities. When these gaps are large enough, established firms may choose to enter markets via parent-company ventures rather than by diversifying entry.

Parent-Company Ventures

In all three types of parent-company ventures — parent spin-offs, franchises, and joint ventures — the entrant has less direct ties to the parent organization than occurs with diversifying entry. Parents may use spin-offs when they seek to leverage some parent-firm resources, such as

technology or financial capital, but view other parent-company resources as detrimental. Parent spin-offs may avoid potential biases of the parent company in perceiving the true nature of new technologies and customer needs. They may also be able to offer incentives, such as stock options, that attract, motivate, and retain employees whose talents are well-suited for the new venture. Thus, spin-offs may benefit from parent company resources, while limiting the impact of other parent resources that could harm the success of entry (Ito, 1995). Moreover, spin-offs may operate under names quite different from that of the parent, to avoid damaging the latter's reputation and brand capital should the new venture fail.

The foregoing rationale suggests that established firms employ spin-offs when the resources and capabilities likely to be needed for success in the new venture are farther afield from the parent companies' pre-entry resources and capabilities. In a study of technological innovations originated at Xerox, Chesbrough (2001) found that Xerox spun off ventures that relied on technologies that were more distant from Xerox's and that would not be able to use Xerox's sales force. This evidence suggests that market entry by parent spin-offs depends at least in part on the extent to which both core technological and complementary marketing and sales resources lack similarity to the anticipated required resource profiles in the markets of entry.

Like spin-offs, joint ventures and franchises may enable established firms to limit the influence on the ventures of potentially harmful parent-firm resources. In the NUMMI joint venture between General Motors (GM) and Toyota, for example, GM separated the venture from existing operations in order to limit the impact of GM's established routines. Similarly, franchises have a degree of autonomy that buffers them from drawbacks of operating within a large, bureaucratic organization.

Unlike spin-offs, however, joint ventures and franchises also have access to the resources and capabilities of multiple parents. One motivation for an entrepreneur to obtain a franchise is to gain access to the operational routines and brand name of the parent, which the franchisee would otherwise have to try to establish on his or her own. Franchisors, particularly of retail outlets, often use franchising as a means of geographic market entry, where the local market knowledge,

financial capital, and human capital of franchisees supplement the franchisors' brand names and routines.

Similarly, firms may enter into joint ventures in order to obtain access to resources they lack, especially tacit knowledge that is difficult to transfer using markets (Kogut, 1988). For example, joint ventures between foreign and domestic firms are common. The foreign firm often brings resources and capabilities such as technology and marketing to the venture, while the local firm supplies knowledge of local conditions and access to local resources (Caves, 1982). The joint venture enables the foreign firm to apply its resources to a geographic market where they have value, while also supplying the local resources that the foreign entrant lacks. Thus, joint ventures are vehicles for sharing complementary but distinct pre-entry resources and capabilities of the venture partners (Kogut and Singh, 1988). In addition, joint ventures may enable firms to gain additional scale in resources that they already possess, which may be required for market entry (Hennart, 1988). Joint ventures may facilitate organizational learning (Kogut, 1988), particularly when partners bring complementary rather than similar pre-entry resources and capabilities to the ventures (Dussauge, Garrette, and Mitchell, 2000). Over time, by participating in joint ventures, firms may learn enough from their partners to enable the firms to enter similar markets via internal growth.

As an example, Wal-Mart recently set up a separate company for its Internet sales. Walmart.com was funded by Wal-Mart and Accel Partners, a venture capital firm with experience financing Internet start-ups. Wal-Mart sought to leverage its brand name and knowledge of discount retailing using a new distribution channel, but lacked technological and market knowledge relevant to the new channel. By bringing in a partner with experience funding Internet start-ups, Wal-Mart gained access to some resources it lacked, including the new CEO of Walmart.com that Accel Partners recruited. By forming a separate company, Walmart.com also was able to install incentive and operating systems that were compatible with Internet operations, but were incompatible with Wal-Mart's traditional bricks-and-mortar retail business.

Although the Wal-Mart example is illustrative, few studies have analyzed the impact of the pre-entry resources and capabilities of joint venture partners on the choice of market to be entered. Much of the research dealing with pre-entry resources and capabilities in joint ventures instead analyzes established firms' choices between alternative modes of entry, which include joint ventures as one option. We will discuss these studies later in our analysis of mode of entry.

Despite the lack of empirical research, what we do know about parent-company ventures suggests a working hypothesis regarding the impact of pre-entry resources and capabilities on choice of markets: parent-company ventures enter markets where they seek to benefit from relevant resources of the parents, while providing access to resources that the parents lack and removing the impact of parent-company resources that would be detrimental. When firms lack critical pre-entry resources, they may use a parent-company venture to tap the resources and capabilities of partners. If we examine the pre-entry resources and capabilities of all partners to a venture, we would expect to find a high degree of similarity between pre-entry resources and capabilities dedicated to the venture and the required resource profile of the market.

De Novo Entrants

All entrepreneurs bring knowledge from their past business and educational activities that may be valuable in spotting new business opportunities (Shane, 2000) and in running firms once they are launched. Thus, all types of de novo entrants carry skills, embodied in their founding members, that are likely to influence the firm's choice of markets and its ultimate success.⁶ Entrepreneurial spin-offs begin with pre-entry experience that is particularly closely related to their new endeavor, since by definition, such spin-offs enter segments of the same industry in which the founders were previously employed.

Entrepreneurial Spin-Offs

⁶ Note that we are not analyzing all entrepreneurs and the firms they start. For example, some entrepreneurs are franchisees of established firms. A number of studies of entrepreneurial firms include companies other than the de novo entrants that we analyze here.

What relevant resources and capabilities do founders of entrepreneurial spin-offs bring with them? Since the founders come from markets that are closely related, it is reasonable to expect that the founders bring with them knowledge of customer demand, products, technologies, suppliers, and competitors. Such prior knowledge may include information about how to exploit a new technology, based on prior scientific or technical training (Roberts, 1991), and about unmet customer or supplier needs in an existing market (Shane, 2000).

For example, before he founded Wal-Mart, Sam Walton worked for the Ben Franklin chain of variety stores in the southern United States. Walton's pre-entry knowledge of chain store retailing, local market demand in small southern towns, sources of supply, and local competitors (Mom-and-Pop stores) were critical to his decision to enter the market. Before leaving the Ben Franklin stores to start Wal-Mart, Sam Walton tried to persuade his employers to undertake the entry themselves, with Walton as store manager, but they refused. As Klepper (2001) notes in a comprehensive review of the literature on spin-offs, these new firms may bring with them innovations that incumbents chose not to pursue.

In addition to case examples such as Wal-Mart, other evidence suggests that the knowledge of spin-off founders, based on their pre-entry industry experience, influences their choice of market. Dosi (1984) notes that in the early semiconductor industry, the founders of a significant number of new firms were scientists and managers previously employed by other semiconductor firms. Klepper and Sleeper (2000) reported that in the laser industry, most spin-offs initially performed contract research or produced a variant of the laser produced by the parent-company, suggesting that the spin-offs sought to exploit technological and other product-related knowledge gained from experience prior to founding in the same industry. In disk drives, Christensen (1993) found that of the start-up companies (mostly spin-offs) in his sample, approximately half entered a new segment different from their parents. These spin-offs, however, introduced innovations on which incumbent firms were already at work, again suggesting the importance of the industry-specific prior experience of founders to the choice of markets.

Entrepreneurial Start-Ups

Even when de novo entrants do not enter industries in which the founders were previously employed, their pre-entry experience may influence their choice of market. Knowledge of industry suppliers or customers may be potentially valuable resources that founders can employ by entering the upstream or downstream industry. For example, a small number of start-ups pioneered the use of new technology in the typesetter industry, and the founders of these firms previously were typesetter users (Tripsas, 2001). Their prior experience as users may have given these entrepreneurs a better understanding of emerging consumer preferences. Roberts (1991) has highlighted the importance of prior scientific and technical training. Shane (2000) found that eight teams of potential entrepreneurs who licensed a single MIT invention had technical and market experience specific to different industries, and planned to enter different markets based on their previous experience. While some of these licensees planned spin-offs within their industries of employment, other entrepreneurs aimed to supply upstream or downstream industries.

Although somewhat limited, the available evidence suggests that the pre-entry knowledge and experience of de novo entrants, especially spin-offs but also some start-ups, influences their choice of market. As for diversifying entrants, the evidence points to the importance of the similarity between pre-entry resources and the required resource profiles of the markets of entry. In particular, the specialized pre-entry technological and market-related knowledge of founders appear to affect the markets they enter.

Summary of the Evidence Regarding Choice of Markets

A preponderance of the evidence for all types of entrants — diversifying companies, parent-company ventures, and de novo firms — suggests that the match between pre-entry resources and capabilities and the required resource profile of markets affects which markets firms choose to enter. The greater the similarity of pre-entry resources and capabilities to the resources of value in the industry of entry, the greater the likelihood of entry. This finding appears to hold not only for entry into established industries, but also for entry into emerging niches and new

industries. In the latter cases, firms must forecast the degree to which their pre-entry resource base matches the requirements for success in the new domain. While these forecasts are not always correct, the evidence suggests that both established firms and founders of de novo entrants have some idea of which pre-entry resources and capabilities may be useful.

When making market entry choices, firms apparently seek to leverage a wide range of resources: core and complementary, specialized and generalized. In addition to redeploying pre-entry resources and capabilities in another market, firms may need to fill some resource gaps. These gaps may arise because some pre-entry resources and capabilities would be dysfunctional in the market of entry, and must be replaced with resources that better fit the market. The gaps may also arise because the firm's pre-entry experience has not equipped it with some required resources. If these gaps are substantial, and if the required resources cannot be acquired easily in factor markets or created quickly enough from scratch, firms may seek partners in order to enter markets. Established firms in this situation may use parent-company ventures as a means to fill such gaps, while simultaneously leveraging pre-entry resources and capabilities.

HOW DO FIRMS ENTER?

Our analysis of the impact of the pre-existing resources and capabilities of entrants on the choice of market implicitly touches on issues regarding mode of entry, particularly for established firms. De novo entrants of course enter as stand-alone entities. Established firms, however, face a number of entry-mode alternatives: internal expansion (including via internal corporate ventures housed in divisions separate from the rest of the company); acquisition of an established company; establishment of a joint venture with another company; establishment of a franchise; or creation of a spin-off. Next we ask whether and how the pre-entry resources and capabilities of established firms affect their mode of entry.⁷

⁷ Some research (e.g., Gatignon and Anderson, 1988) analyzes the sizes of partners' equity shares in joint ventures, an issue that we do not address.

As noted earlier, firms may undertake joint ventures or franchising when they possess some resources of value in another market, but lack other critical resources or possess potentially detrimental pre-entry resources and capabilities. In a related argument, Harrison, Hitt, and Ireland (1991) suggest that diversification by merger and acquisition may work best when the resources of the target firm are different from, but complementary to, the resources of the acquiring firm. Additionally, similar to a joint venture, an acquisition may provide a vehicle for the acquirer to gain access to the tacit organizational knowledge of another firm, including knowledge about the market in which the acquired firm participates.

In analyzing the choice of entry mode, it is important to keep in mind that established firms always retain the option of entering markets via internal growth. One way to approach the question of how pre-entry resources and capabilities may affect the mode of entry is to ask why firms would choose not to enter markets using internal expansion. Even when firms lack some critical resources required in the markets they plan to enter, the firms could always choose to create these resources internally. Possession of potentially detrimental pre-entry resources and capabilities need not prevent internal expansion either, since firms may limit the impact of detrimental resources by establishing organizationally separate internal corporate ventures. Like acquisitions and joint ventures, firms appear to undertake internal corporate ventures in order to develop competencies that they lack, as well as to utilize slack resources (Thornhill and Amit, 1999). Furthermore, acquisitions and joint ventures entail substantial costs of post-acquisition integration and joint venture management.

With regard to the impact of pre-entry firm resources and capabilities on mode of entry, we suggest that there are at least two key factors to consider. The first is the time it takes to create any additional resources and capabilities required for entry. The second has to do with pre-entry capabilities associated with particular modes of entry. We consider each of these factors in turn.

When potential entrants lack key resources required for entry, they may face what Dierickx and Cool (1989) have termed time compression diseconomies. It may be difficult or impossible to quickly build resources that cumulate over time, such as tacit knowledge, reputation, and research

capabilities. For example, when firms seek to expand geographically but lack knowledge of local markets, building this knowledge internally may take too long to be practical. Entrants instead may be better off using acquisitions (Hennart and Reddy, 1997), joint ventures, or franchises to access such knowledge more quickly. More generally, when speed of entry is important, these modes may be preferred to internal growth. In a study of seven firms in the computing and communications industry, Puranam (2000) found that established firms acquired entrepreneurial firms in order to gain access to their streams of innovative activity. The acquirers felt that internal development toward the same end would have been too lengthy and risky, given the pace of competitive activity.

Another aspect of the resources and capabilities required for entry involves capabilities associated with the mode of entry itself. What we might term an “acquisition capability,” gained through prior acquisition experience in other markets, may influence the likelihood of entering a market using acquisition rather than another entry mode. Components of an acquisition capability include (Bruton, Oviatt, and White, 1994; Haleblian and Finkelstein, 1999): the ability to select an acquisition target (Hitt et. al, 1993); knowledge of when and how to obtain outside legal, financial, and other resources; the ability to negotiate a business combination; and the ability to perform post-acquisition integration (Jemison and Sitkin, 1986; Haspeslagh and Jemison, 1991). Similarly, prior joint venture experience may contribute to what might be termed a “joint venture capability.” Such a capability includes the ability to: identify potential venture partners (Dyer and Singh, 1998), negotiate joint venture agreements, manage relationships with venture partners (Dussauge, Garrette, and Mitchell, 2000), monitor information flows into and out of ventures (Hamel, Doz, and Prahalad, 1989), and learn from ventures (Dyer and Singh, 1998; Gulati, 1999). Firms also may possess mode-of-entry capabilities associated with franchising, spin-offs, or internal expansion, including capabilities specific to internal corporate ventures (Block and MacMillan, 1993).

As a general proposition, we expect that all else equal, the greater the capability that a firm has developed to expand its businesses using a particular mode, the more likely the firm is to enter

a market using that same mode of entry. According to this logic, which is a variant of the resource matching theme, a firm matches its pre-entry mode of entry capabilities to the entry mode that it employs.⁸

Thus far, we have suggested that choice of entry mode depends upon: the need to fill critical resource gaps, the speed and effectiveness with which these gaps can be filled via alternative modes, and the extent of firm capabilities specific to particular modes of entry. In order to assess the validity of these propositions, we require evidence that compares modes of entry into markets that are new to the entrants. Studies have found that firms with greater pre-entry experience relevant to the market of entry are less likely to enter via joint venture or acquisition. In a study of first-time entries by U.S. banks into domestic product-markets following deregulation of financial services, Ingham and Thompson (1994) analyzed the choice of entry via joint venture versus full ownership. Banks that had greater resources applicable in the markets of entry (all in related product areas), in the form of brand-name capital, larger management staffs, and greater assets (a proxy for financial and other firm-level resources), were less likely to enter via joint venture.

Chang and Rosenweig (2001) found that European and Japanese chemical and electronics companies were more likely to make their initial entry into the United States by internal expansion than by acquisition when they had a technological advantage (greater R&D intensity) over U.S. firms in the industry of entry. Firms also were more likely to enter by internal expansion than by either acquisition or joint venture when they had greater prior experience in other North American countries or in exporting to the United States. Presumably, when firms have greater international experience in a region, they have less need to use acquisitions or joint ventures to gain access to local knowledge. Moreover, Chang and Rosenweig found that for subsequent investments within the same product-market, firms tended to employ the identical mode used in their initial market

⁸ We note that a firm may not employ the same mode for subsequent expansion within an industry. As firms acquire tacit knowledge and other resources and capabilities from initial joint ventures or acquisitions, they may subsequently expand in the market via internal growth.

entry. Such observations suggest that firms develop mode-of-entry capabilities as they gain experience in foreign markets.

Other studies of foreign investment that control for prior local market experience have sometimes found similar results. Barkema and Vermeulen (1998) showed that Dutch firms with greater diversity of international experience (a proxy for the capability to manage in multiple countries) were less likely to expand their foreign operations via acquisition, relative to internal expansion or joint venture.⁹ Conversely, Kogut and Singh (1988) did not find a significant impact of previous multinational experience on the likelihood of foreign investment in the United States by acquisition, relative to internal expansion or joint venture. Both Kogut and Singh (1988) and Shaver (1999), however, did find that larger foreign firms, with greater financial and managerial resources available for internal expansion, were more likely to invest in the United States via internal growth than acquisition.

The foregoing studies suggest that the pre-entry resources and capabilities of entrants may be important predictors of their mode of entry into a market. Much of the evidence suggests that firms tend to enter by internal growth when their specialized pre-entry resources, such as marketing and technological resources as well as local market knowledge, have greater similarity to the required resource profiles in the markets of entry. Firms that possess greater amounts of generalized managerial and financial resources, which facilitate internal growth, also tend to use internal expansion. Evidence regarding the impact of mode-of-entry capabilities suggests that firms may favor entry modes that they have relied upon historically and have developed supporting routines.

WHEN DO FIRMS ENTER?

⁹ This study also found that firms with greater relatedness of pre-entry resources to the market of expansion (proxied by horizontal, vertical, or related product-market expansion) were less likely to expand via acquisition. The results, however, are hard to interpret because some of the expansions could have involved markets in which the firms had prior product-market as well as geographic experience.

As mentioned above, the choice of entry mode has implications for the timing of entry. If firms require new resources in order to enter markets, entry via acquisition and joint venture may enable firms to enter earlier. More generally, the timing of entry depends upon qualities of the firm's resource base (Lieberman and Montgomery, 1988, 1998). Below, we offer some generalizations, which should be regarded as weak tendencies. Empirical studies show some patterns of entry timing, but exceptions are widespread.

Entrepreneurial start-ups are frequently concentrated among the early entrants to a market. In the market's initial stages, there is often great uncertainty about the ultimate nature of technology and customer needs. At the same time, the demand for each variant of the product remains modest, so there are limited economies of scale in production or marketing to be exploited. Such an environment, with high uncertainty but low costs of entry, fits the limited resource base of start-ups: innovative ideas, perhaps some relevant technological or market knowledge, but a lack of capital and of a functioning organization. Some studies (e.g., Mascarenhas, 1992; Carroll et al, 1996) point to a later wave of independent entrants into new market niches that develop as the industry approaches maturity. Here again, limited demand in these niches may suit the less well-developed pre-entry resource base of start-ups.

In contrast to start-ups, entrepreneurial spin-offs may not cluster as strongly among the early entrants to a market. Klepper's (2000) survey on entrepreneurial spin-offs cites numerous theories that associate spin-offs with new sub-markets. Such a pattern is predicted by behavioral models (Garvin, 1983; Christensen, 1993) and by agency theory (Anton and Yao, 1995; Wiggins, 1995). Klepper and Sleeper (2000) give empirical evidence that the rate of spin-offs fell over time for types of lasers that were ultimately produced in large volume. Nevertheless, in a detailed study of the automotive industry, Klepper (2002) found that the proportion of entrants that were spin-offs increased substantially over time: spin-offs accounted for 6% of all entrants in the earliest period (1895-1904), rising to 14.5% in the second period (1905-1909) and 31% in the third period (1910-1966). One reason for this pattern is that most spin-offs, along with their pre-entry resources, came from firms that were already in the industry. As the industry population grew in

quantity and quality, the number of spin-offs increased as well. Taken together, these predictions and observations suggests that the *rate* of spin-off from established firms may fall over time, but the *number* of spin-offs, and their proportion among total entrants, is likely to rise (at least initially) as the industry population expands.

Diversifying entrants often enter later in the evolution of a market, either because they fail to perceive opportunities as quickly as de novo entrants, or because they choose to wait until initial uncertainties are resolved. Lane (1988) showed that independent firms pioneered the ATM market but were followed (and soon displaced) by diversifying firms with skills in the manufacture of computers and safes, which had emerged as essential complements to the core ATM technology. These diversifying firms also had prior sales relationships with bank customers that they could exploit. Such shifts can be seen in the markets associated with the rise of Internet commerce. Abundant capital, made available to start-ups during the Internet “bubble” of the late 1990s, led to a remarkable wave of entrepreneurial entry. These start-ups are now being displaced by “bricks and mortar” (diversifying) firms. In retailing, for example, established catalog companies have been able to leverage their skills in merchandising, logistics, and inventory management through the addition of Internet-based order systems, which have become increasingly standardized (Lasry, 2002). Thus, in Internet commerce today, as in ATMs a generation earlier, complementary resources have proven to be more critical for entrants than the resources initially thought to be core.

Numerous studies have described perceptual problems that plague incumbents faced with new products or services that threaten the incumbent’s base. Such problems may delay the incumbent’s entry into the new market or inhibit its ability to compete effectively in the new domain, despite a commitment to enter early. Christensen (1997) argues that excessive focus on the needs of existing customers may prevent the incumbent from perceiving the value of related products that appeal initially to a different customer set. Based on evidence from the photolithographic alignment equipment industry, Henderson and Clark (1990) and Henderson

(1993) assert that if the shift to a new product generation is radical enough, incumbents will be hampered by their existing capabilities, i. e., they will be unable to adapt.

Delay may be a rational choice when the diversifying firm risks resources that could be lost or damaged by early entry. Recognizing that brand equity is a key resource for many established companies, Sullivan (1991) investigated the entry order of brand extensions. She found that brand extensions tend to enter later than new-name brands; furthermore, extensions of brands with large customer bases typically enter later than extensions of brands whose base is small. In addition to the potential loss of brand equity, investments in marketing campaigns and manufacturing facilities are at risk if the firm commits to a product before technology and customer needs are reasonably clear. A broad-based study by Robinson, Fornell, and Sullivan (1992) found that established firms with greater marketing and manufacturing skills tend to be market followers.

While perceptual problems and risk avoidance may delay entry by diversifying firms, some studies reveal early, preemptive entry by strong incumbents. Often, this occurs when the new market is relatively close to the old; hence, uncertainty is low and the ability of the incumbent to leverage existing resources is high. Thomas (1995, 1996) found that in the ready-to-eat cereal industry, where new product niches were incremental, the largest incumbents were the first to enter. Fuentelsaz, Gomez, and Polo (2002) also found that after deregulation, large Spanish banks were the earliest new entrants in geographic markets closest to their previous markets. Mitchell (1989) and Tripsas (1997) observed that early entry into a new product generation (or “technical subfield”) was more likely when the incumbent held assets that retained value in the new area. Interestingly, all of these studies suggested that complementary assets were key. Tushman and Anderson (1986) integrate perspectives by arguing that entry timing depends upon whether technological change enhances or destroys a firm’s capabilities: if competencies are enhanced, the firm will enter early; whereas if they are destroyed, it will enter late (if at all).

Diversifying firms almost always lack some of the resources needed to succeed in the new market; these gaps may prevent or slow the entry process. As mentioned earlier, though,

diversifying firms may be able to fill such gaps quickly through the use of alternative entry modes. Acquisitions, spin-offs and joint ventures enable diversifying firms to enter new markets earlier than they might otherwise be able. These modes can supply critical resources or buffer against detrimental routines.

Acquisitions may be particularly attractive for diversifying firms that hold complementary assets but lack the technological know-how possessed by start-ups. One strategy for diversifying firms is to wait until the market has become mature enough that good acquisition matches can be reasonably identified. Another strategy, increasingly common in the technology sector, is for large firms to link early with many start-ups by purchasing minority stakes, which become options for full acquisition later.

Parent spin-offs and joint ventures provide a means for diversifying firms to leverage existing resources and incubate new ones at arms length, thereby mitigating some of the problems described above. Many “bricks and mortar” firms, like Wal-Mart, have established such ventures to enter the uncertain new markets created by the Internet. If the venture proves successful, the parent retains an option to acquire the smaller firm and thus directly tap its novel resource base. Indeed, many of the Internet spin-offs that were created in the late 1990s have since been folded back into their parents.

In sum, the timing of market entry is often determined, in part, by the nature and magnitude of the firm’s pre-entry resource base. Entrepreneurial start-ups, which bring flexibility and novel ideas, appear early in the evolution of markets when uncertainty is high but resource requirements are low, and sometimes later as specialized niches emerge. By comparison, the rate of entry by entrepreneurial spin-offs is more likely to build over time as the experienced entrant population — the main source of such spin-offs — expands. The forces on diversifying firms are more complex. Such firms may choose to enter early, particularly if they hold strong complementary resources that are seen as relevant to the new market. There are often survival advantages to early entry, so excessive delay may be costly. But numerous resource-based factors often induce at least some delay: the risk of damage to brand equity, the need to fill resource gaps,

and the difficulty of overcoming perceptual problems and inappropriate routines arising from the firm's existing resource base. At the same time, diversifying firms can often speed the entry process by choosing among modes — acquisition, joint venture, and parent spin-off — with potential to fill resource gaps quickly and minimize the influence of deleterious resources. Not surprisingly, given the conflicting push and pull of these resource-based forces, the exact timing of entry by diversifying firms can be difficult to predict.

SUCCESS OF ENTRY

Given that the timing and mode of entry are endogenous to the resource and capabilities that entrants possess, it follows that the success or failure of entry is likely to have much to do with the fundamental nature of the firm's resources and capabilities. For example, we might expect that the generally weaker resource base of start-ups would lead to a higher failure rate. Consistent with this supposition, Dunne, Roberts, and Samuelson (1988) found that de novo entry in U.S. manufacturing industries was more common but less successful than entry by diversifying firms (particularly those that built new plants), who obtained larger market shares and had lower rates of exit. These findings provide a useful starting point, and subsequent studies are beginning to yield more specifics on how the success of diversifying entry depends upon pre-entry resources and capabilities. Insights are also emerging on how the success of de novo firms depends upon their resources and capabilities at founding.

A number of studies provide evidence that the same pre-entry resources and capabilities that increase the likelihood of entry into an industry tend to enhance performance subsequent to entry. These studies use a range of performance measures, including accounting return, market share, sales volume, and firm longevity. The findings also apply to several types of markets and types of entrants. One common finding is that diversifying entrants with relevant pre-entry experience tend to perform better than other entrants. For example, for diversifying entrants in U.S. manufacturing industries, Chatterjee and Wernerfelt (1986) found that subsequent firm performance (measured as ROA) was a function of the appropriateness of the diversification

strategy (related vs. unrelated) given the resource profile of the firm, rather than a function of the diversification strategy alone.

Many studies of entry into new market niches and industries have found similar results for diversifying entrants. In the U.S. digital imaging industry, Mitchell (1989) found that entrants into new technical subfields that had greater prior industry experience attained larger market shares and survived longer in the subfields they entered. In a study of new product generations in the U.S. disk drive industry, King and Tucci (2001) observed that entrants with greater production and sales experience in prior generations attained larger sales. Similarly, in the U.S. television receiver industry, Klepper and Simons (2000) found that diversifying entrants with the most relevant pre-entry experience had higher rates of innovation, gained larger market shares, and survived longer. Lane's (1988) study of the U.S. ATM manufacturing industry shows that entrants with the most relevant prior experience in related industries gained larger market shares. In addition, Carroll, Bigelow, Seidel and Tsai (1996) found that diversifying entrants into the U.S. automobile industry that had relevant pre-entry experience survived longer than other entrants.

Similar results apply to the pre-entry experience of the founders of de novo entrants. In a separate analysis of the automobile industry, Klepper (2002) shows that early entrepreneurial spin-offs and founders of start-ups with relevant pre-entry experience, as well as early diversifying entrants from related industries, survived longer than other entrants. Indeed, many auto brands in the U.S. market – e.g., Ford, Chrysler, Buick, Olds – carry the names of such founding entrepreneurs. In the U.S. laser industry, Sleeper (1998) found that entrepreneurial spin-offs survived longer than start-ups with less relevant experience, and survived as long as experienced (diversifying) entrants. Klepper (2001) has noted that entrepreneurial spin-offs with multiple founders appear to perform better — again, consistent with the importance of the pre-entry experience of founders.

The foregoing results leave open the question of how pre-entry experience enhances post-entry performance. In an intriguing study of the early U.S. iron and steel shipbuilding industry, Thompson (2002) found that pre-entry experience had a strong and long-lasting positive effect on

firm survival that went beyond scale economies and learning subsequent to entry. These results suggest that technological and market conditions in some industries are such that initial choices at the time of entry, which in turn are affected by pre-entry experience, are critical to survival.

Although the foregoing evidence suggests the value of prior experience when it is transferable to new markets, much research shows that leading firms in industries lose their dominant position to new entrants when faced with radical innovation. Given their past success, leading firms may be blind to critical gaps in their resource profile for the new product or service. Not all incumbents fail in the face of radical change, of course. Tripsas (1997) demonstrated that in the typesetting industry, even when new product generations were competence-destroying for incumbents in the technological sense, incumbents were able to prevail as long as their specialized complementary assets retained value. But many studies have documented the difficulty that radical innovation poses for incumbents.

For example, Henderson and Clark (1990) document changes in market leadership in the photolithographic alignment imaging industry; Majumdar (1982) documents similar leadership changes in calculators. These studies show that established firms that “diversify” into a new product generation often lack the resources necessary to succeed. A second important finding is sometimes overlooked: the winning firms often are diversifying entrants from another industry that bring resources and capabilities relevant to the new product generation. Successful entrants in new generations of photolithographic alignment equipment included Canon and Nikon, which used their experience in optoelectronics as a basis for diversification. In calculators, the pioneering entrant and most successful firm in desktop (and later, handheld) electronic calculators, Sharp, was a diversifying entrant that initially built upon its knowledge of computers. Thus, even in situations of radical technological change, pre-entry resources and capabilities may have a great deal to do with not only the failure of leading incumbents, but also the success of new entrants.

The examples of Canon, Nikon and Sharp suggest that core technological knowledge can be a source of value for diversifying entrants. But in addition, many of the aforementioned studies suggest that complementary assets in the form of production experience, distribution networks,

sales experience, and customer-specific relationships affected both the choice of market and the success of entry. Although Carroll et. al. (1996) express puzzlement that entrants in the U.S. automobile industry with engine expertise did not fare as well as bicycle and carriage firm entrants, they suggest that this may have been an instance where complementary assets in the form of production (assembly) experience proved especially important to success.

Carroll et. al. (1996) raise the point that it may be difficult for entrants to predict which of the set of relevant pre-entry resources will ultimately prove most useful in the new market. The problem is most acute in new industries, such as autos, where a great deal of entry takes place when the industry is young. It may be easier to predict precisely which pre-entry resources and capabilities will lead to post-entry success in established industries, for which the key success factors are much clearer. Nevertheless, even in new industries, entrants with relevant pre-entry experience meet with greater success.

Thus, pre-entry resources and capabilities affect not only the initial success of entry, but also long-run survival rates and market shares. An open question is the mechanism by which this occurs. A standard response of population ecology is that because firms are largely inert, those that enter with resources better suited to their environment are more likely to succeed.

Evolutionary economics suggests another possibility: the firm's initial resources and capabilities may affect its ability to adapt to subsequent change, and therefore to survive and prosper.

Investigation of this possibility would be a fruitful avenue for future research.

CONCLUSION

As predicted by evolutionary economic theory, when it comes to the relationship between market entry and organizational resources and capabilities, historical antecedents matter. We find that the pre-entry resources and capabilities of firms have an important impact on the markets they choose to enter, as well as on the mode, timing and success of entry. In particular, the greater the similarity between the required resource profile of the industry of entry and the pre-entry resources and capabilities of an entrant, the more likely a firm is to enter the market. Moreover, firms

appear to take account not only of the resources they have (and seek to leverage via market entry), but also of gaps between their pre-entry resources and those required for entry. Thus, established firms with critical resource gaps are more likely to enter markets using modes of entry such as acquisition, joint venture, or parent spin-offs.

The timing of entry is endogenous to the nature of pre-entry resources and capabilities: firms enter markets when they perceive that their pre-entry resources and capabilities match the required resource profiles in those markets. Within an industry, firms with different sorts of pre-entry resources enter at different points in time. Research also suggests that the extent of similarity between firms' pre-entry resources and the required resource profile of the industry affects the long-term success of entry.

These facts are inconsistent with models wherein entrants can only learn about their capabilities by entering markets (e.g., Jovanovic, 1982). The success of an entrant is determined, in part, by its observable pre-entry resources, as well as by characteristics that are revealed or developed after entry. The empirical studies that we have surveyed suggest that the firm's initial, observable resources play a large, if not dominant, role.

From the perspective of evolutionary economics, these findings are not surprising. But they do suggest that if we are to understand market entry, we need to understand the organizational capabilities and resources that preceded and precipitated entry. Otherwise, we may draw incorrect inferences. For example, if we assume that success of entry depends primarily upon learning subsequent to entry, we might advise managers to concentrate on learning, when in fact the matching between resources and market needs may be more fundamental. We have speculated that effective learning and the ability to adapt may depend upon the match between pre-entry resources and the required resource profile of an industry. If this is so, the matching process becomes even more critical.

Throughout this article, we have assumed that prospective entrants objectively assess characteristics of the new market relative to their existing resource base. They make decisions on whether or not to enter, and the timing and mode of entry, in a manner that seeks to maximize

expected profit in an uncertain environment. While rational behavior of this sort may be a reasonable first approximation, numerous studies suggest that entrants often suffer from cognitive biases (Dosi and Lovallo, 1997; Kahneman and Lovallo, 1993). In particular, entrants may be overly optimistic about their own capabilities, or they may fail to recognize the level of skill in the group of firms with which they will ultimately be competing. Such biases would contribute to “excessive” entry as well as deviations from the patterns of resource matching described in this article. If such perceptual biases are especially prevalent among de novo entrants, they could account for the fact that these firms often have high entry rates, despite weak resources and low survival odds.

Our analysis points to many areas where our knowledge is limited. For example, we know less about the pre-entry resources and capabilities of de novo entrants and parent-company ventures than we do about established firms. We need to know more about mode-of-entry capabilities, and how they affect the success of entry. Moreover, we often observe great heterogeneity in the types of pre-entry resources and capabilities that entrants into a market possess, as well as in their mode and timing of entry. Evolutionary economics suggests that such diversity ought to result in better performance of the economy overall, but we lack direct evidence.

At the beginning of this paper, we noted that in order to understand the evolution of organizational capabilities, we need to understand conditions surrounding the birth of capabilities. Our analysis leads to the conclusion that in the context of market entry, important aspects of the birth of capabilities depend on parentage. Unlike children when they are born, firms have some choice about where to enter, when to enter, and how to enter. But like children, firms do not easily escape their heritage, either in their actions with regard to entry, or their subsequent performance. The impact of pre-entry resources and capabilities on subsequent firm performance does not imply that performance is completely predetermined, since firms adapt and change in response to their environment. But firms, and the markets in which they participate, are strongly influenced by their resources and capabilities at the point of market entry.

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Table 1

MARKET ENTRY OPPORTUNITIES

New-to-the-world industry

- fundamentally new product or service

New product-market niche

- new product generation (modification to an existing product or service)
- new product or customer segment (of an established market)

Different geographic location

- for product or service already established in another location

Established product-market

- established product-market in which the firm does not currently participate

Table 2

TYPES OF ENTRANTS

<u>Entrant Type</u>	<u>Legal Relationship of Entrant to Established Firm</u>
Diversifying entrant	Same legal entity
Parent-company venture <ul style="list-style-type: none">- joint venture- franchise- parent spin-off	Separate legal entity <ul style="list-style-type: none">- founded by multiple established firms- founded by established firm and franchisee- founded by established firm
De novo entrant <ul style="list-style-type: none">- entrepreneurial spin-off- start-up	Separate legal entity <ul style="list-style-type: none">- founder(s) previously employed by an established firm in the industry- no prior employment or financial relationship to established firms in the industry

Table 3

ENTRANT TYPE AND MODE OF ENTRY

<u>Entrant Type</u>	<u>Modes of Entry</u>	<u>Parent Company Ownership</u>
Diversifying entrant	Internal growth	Full
	Acquisition	Full
Parent-company venture	Joint Venture	Partial
	Franchise	Partial (royalty share)
	Parent spin-off	Partial
De novo entrant	New entrepreneurial spin-off	None
	New start-up	None

Table 4

PRE-ENTRY RESOURCES AND CAPABILITIES

Core vs. Complementary Resources and Capabilities

Core Resources and Capabilities

Knowledge required to create a product or service

Examples:

- technological knowledge
- knowledge of customer needs

Complementary Resources and Capabilities

Resources and capabilities needed to profit from core resources and capabilities

Examples:

- finance
- marketing and sales
- distribution and logistics
- customer service

Specialized vs. Generalized Resources and Capabilities

Specialized Resources and Capabilities

Resources and capabilities that are more specialized to particular settings

Functional area resources

Examples:

- marketing
- research and development
- distribution

Intangible resources

Examples:

- relationships w/buyers, suppliers
- brand name
- patents and trademarks

Market-specific knowledge

Examples:

- industry conditions
- country or regional conditions

Generalized Resources and Capabilities

Resources and capabilities that can be applied in a broad range of settings

Functional area resources

Examples:

- financial capital

General organizational capabilities

Examples:

- transfer of knowledge
- management of multiple businesses
 - single location
 - geographically dispersed

Mode of entry capability

Examples:

- acquisition
- joint venture