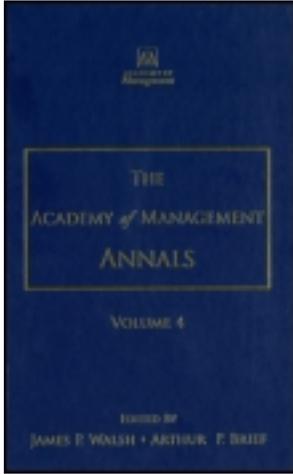


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Theories of the Firm – Market Boundary

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Abstract

A central role of the entrepreneur-manager is assembling a strategic bundle of complementary assets and activities, either existing or foreseen, which when combined create value for the firm. This process of creating value, however, requires managers to assess which activities should be handled by the market and which should be handled within hierarchy. Indeed, for more than 40 years, economists, sociologists and organizational scholars have extensively examined the theory of the firm's central question: what determines the boundaries of the firm? Many alternative theories have emerged and are frequently positioned as competing explanations, often with no shortage of critique for one another. In this paper, we review these theories and suggest that the core theories that have emerged to explain the boundary of the firm commonly address distinctly different directional forces on the firm boundary—forces that are tightly interrelated. We specifically address these divergent, directional forces—as they relate to

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organizational boundaries—by focusing on four central questions. First, what are the virtues of markets in organizing assets and activities? Second, what factors drive markets to fail? Third, what are the virtues of integration in organizing assets and activities? Fourth, what factors drive organizations to fail? We argue that a complete theory of the firm must address these four questions and we review the relevant literature regarding each of these questions and discuss extant debates and the associated implications for future research.

Introduction

Since Coase's famous treatise in 1937, the question of firm boundaries has emerged as the defining question within the "theory of the firm." Coase posed the boundary question as one of deciding whether transactions are more effectively governed within firms or within markets. When should the manager internalize an activity rather than contract for its services or output? The past 40 years have witnessed a tremendous wealth of theoretical and empirical work targeting answers to this simple question. As one recent review explained, "the theory of the firm has become a big business" (Gibbons, 2005: 200), encompassing a range of theories including transactions cost economics (Coase, 1937; Williamson, 1985), the knowledge-based view (Kogut & Zander, 1992; Conner & Prahalad, 1996; Demsetz, 1997), property rights (Foss & Foss, 2005; Hart & Moore, 1990), agency theory and incentives (Grossman & Hart, 1983; Holmstrom & Milgrom, 1991), capabilities (Barney, 1991; Jacobides & Winter, 2005), and various theories relating to organization failure (Milgrom & Roberts, 1988; Nickerson & Zenger, 2008).

These alternative theories have frequently been positioned as competing explanations for the boundary choice, often with no shortage of critique for one another. In particular, given transactions cost economics' empirical success (see Shelanski & Klein, 1995), alternative theories have often been juxtaposed against it. Our contention, however, is that these types of comparative critiques are often misguided. Rather than competing, the core theories that have emerged to explain the boundary of the firm commonly address distinctly different directional forces on the firm boundary—forces that are tightly interrelated. Thus we have theories explaining how markets work, other theories explaining why they fail, yet others explaining why organizations are effective, and finally those explaining why organizations fail. Suggestive of these competing directional forces, one such theoretical juxtaposition claims their preferred theory focuses on "creating positives," while the alternative focuses on "avoiding negatives" (Conner, 1991: 139–140; also see Donaldson, 1990; Ghoshal & Moran, 1995). However, we argue that a full understanding of the comparative institutional choice between integration and outsourcing or market and hierarchy requires a thorough understanding of both these

competing institutions, including their virtues and their failings, as well as the competing directional influences that shape organizational boundaries (cf. Madhok, 2002). After all, the boundary of the firm is the outcome of these competing influences—some driving toward the expansion of the firm boundary and others driving toward the retraction of that boundary.

A clear understanding of these directional forces is critical to our capacity to think comprehensively about the boundaries of the firm as well as the governance choice for any given asset or activity. The analogy of a group of scientists attempting to explain the water level of a glass standing in the open air is useful here. Some may see the glass as half empty and point to evaporation as a theoretical cause of the reduced water level. Others may see the glass as half full and point to weather patterns of rainfall as the cause. If our objective is to explain the water level in a glass, essentially the boundary between water and air, we need a full understanding of the competing states of liquid and gas and a full understanding of the factors that cause shifts between these states. Neither a theory of condensation, nor a theory of evaporation—alone—proxies for a theory of the water level. Both are needed. Yet, it is precisely this type of isolated logic of one form or another that often characterizes our competing theories of the firm.

An Organizing Framework

Within theories of the firm, the boundary choice reflects a process of discriminating alignment. In this sense, theories of the firm are not unlike other contingency theories in their fundamental focus on fit (cf. Lawrence & Lorsch, 1967)—a fit in this case between governance choices and the parameters of that which one seeks to govern. More specifically, the manager decides whether governance of a particular activity is best performed within firm boundaries or across firm boundaries through a market or contractual form of governance. Choosing among alternatives therefore involves an assessment of the costs and benefits of each alternative, as well as the identification of parameters that shape and influence these costs and benefits.

Our contention is that a robust theory of the firm—a theory that can persuasively define firm boundaries—must address four related theoretical domains. First, a theory of the firm must clearly articulate why and when markets work, highlighting the market's potential advantages as an institution of governance. Second, a theory of the firm must articulate the circumstances that lead markets to fail, highlighting the shortcomings of markets as a form of governance. Third, a theory of the firm must articulate the virtues of hierarchy or internal governance—the mechanisms that enable its effectiveness, and articulate why and when internal organization succeeds. Fourth and finally, a theory of the firm must articulate why and when organizations fail, documenting the reasons which cause organizations to fail as mechanisms of governance (see Figure 1).

Failure to address any one of these theoretical domains leaves the theory of the firm rather incomplete, limited in its capacity to unfold the discriminating alignment that is its essence. Thus, as Coase (1937) and Williamson (1985) have highlighted, a theory that only defines market failure and the virtues of hierarchy fails to define the limits and boundaries of the firm. Similarly, a theory of the firm that only defines organizational failure and market virtues fails to provide any justification for integration. Thus, consistent with the metaphor of explaining the water level in a glass, it is only in fully fleshing out both the benefits and costs or liabilities of markets and the benefits and costs of integration that the boundary choice can be more reliably predicted. Yet, existing work has largely focused on highlighting only one of these theoretical domains. In some cases this limitation is duly noted. In other cases, broad claims of articulating a theory of the firm are made.

In this review, we adopt this basic four-question framework to examine what the existing theoretical literature reveals concerning the determinants of firm boundaries. We will make no attempt to exhaustively review, categorize, and contrast the vast set of competing theories. Moreover, we will provide very little in the way of a review of extant empirical work. Instead, our agenda is to provide a broad framework that highlights the theoretical virtues and limitations of each theory. More importantly, we seek to demonstrate the fundamentally complementary nature of these theories and the vital role of each in explaining firm boundaries. In the process, we highlight the broad set of questions that must be answered in order to develop a complete theory of the firm.

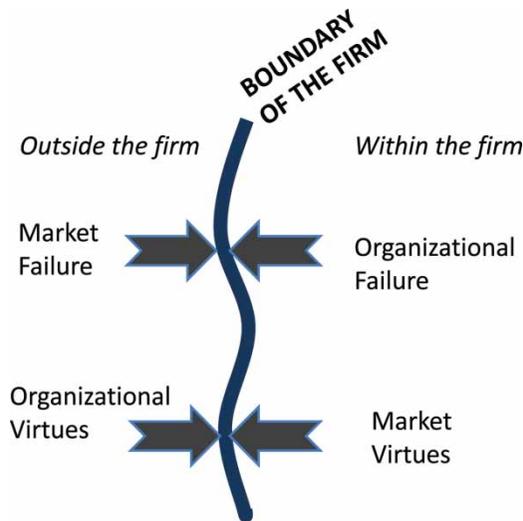


Figure 1

Our review differs sharply from reviews of the empirical literature surrounding the theory of the firm (Carter & Hodgson, 2006; David & Han, 2004; Macher & Richman, 2008; Rindfleisch & Heide, 1997; Shelanski & Klein, 1995). Unlike these reviews, our focus is more expansive and not restricted primarily to a discussion of transaction costs or capabilities logic. Others have also more broadly reviewed extant conceptions of organizational boundaries by, for example, dividing the literature into efficiency, power, competency and identity-based explanations (Santos & Eisenhardt, 2005). However, our focus is primarily on reviewing and synthesizing theory as it pertains to our four questions of interest: why (and when) markets work versus fail? And, why (and when) organizations work versus fail? In its focus on market and organizational failure, our review parallels Gibbons' (2005) review of "four formal(izable) theories of the firm." However, Gibbons' review consciously ignores "informal" theories (or those not deemed formalizable at present), including those theories focused on resources, routines, and knowledge, as he notes largely because of their focus on internal organization and their informal construction. Our effort here is to place some structure around a much broader scope of literature focused on explaining the boundary of the firm, inclusive of these more informal theories.

Boundary Choices and the Objective of the Entrepreneur-Manager

Implicit or explicit in most articulations of the theory of the firm is a central decision maker—an entrepreneur or manager whose task it is to choose the boundaries of the firm and essentially determine that which the firm will own or operate and that which the firm will access through the market (Williamson, 1998). However, prior to (or at least contemporaneous with) any decision about firm boundaries is a decision about what assets, activities or resources to access or combine whether within or without the firm. While the choice of this set of activities commonly falls outside the scope of the theory of the firm, this absence creates much confusion in the literature. Indeed, this absence has prompted scholars to make this connection more explicit, highlighting the important connection between value creation and boundary choice (Zajac & Olsen, 1993; Teece, 1986; Jacobides et al., 2006; Argyres & Zenger, 2010). Hence, before discussing the boundary choice, it is important to have a clear understanding of how the entrepreneur-manager seeks to create value by first identifying what to combine, bundle, or organize.

Within the strategy literature a rather coherent logic has emerged of a manager who—to create value—searches for uniquely valuable combinations of resources, activities, and assets (Penrose, 1959: 31; Lippman & Rumelt, 2003). As Lippman and Rumelt articulate, value is created through "the creation, evaluation, manipulation, administration, and deployment of unpriced specialized scarce resource combinations" (2003: 1069). In determining the

composition of this value-creating bundle of activities, assets, and resources, the manager searches for complementarity or fit among assets or activities (Porter, 1996; Siggelkow, 2002), where complementarity can be defined as the “property that doing more of any subgroup of activities raises the marginal return to the other activities” (Milgrom & Roberts, 1990: 514). In other words, a manager searches to discover or to create through investment uniquely valuable matches among assets and activities. Strategy scholars use varied language to define the desired relationships among the elements in this targeted “bundle of unique resources and relationships” (Rumelt, 1984), “superadditive productivity” (Montgomery & Wernerfelt, 1988), resource complementarity (Amit & Schoemaker, 1993), “interconnectedness” (Dierickx & Cool, 1989), or simply an “integrated set of choices about activities” (Ghemawat, 2005).¹

Therefore, the logical first step in defining the boundaries of the firm involves the cognitive exercise of identifying a complementary bundle of assets, activities, and resources. In some cases, the envisioned bundle of complements involves combining existing assets and activities in their present form. In other cases, creating the perceived value necessitates fundamental modifications to assets and activities. However, in all cases, value is only created if the underlying resources, activities, and assets are acquired at prices below their actual value in their future use (Barney, 1986). Because value creation requires acquiring bargains in the strategic factor markets where such assets, activities, and resources are purchased, some form of either luck or foresight regarding the structure of complementarity among assets or activities is required. In other words, value creation beyond luck necessitates a manager who understands the value created through distinct asset and activity combinations, and who particularly recognizes value in combinations that others do not see.

This initial phase in selecting the boundaries of the firm thus involves a cognitive process of sorting through a vast array of possible asset and activities combinations. Some have likened this initial phase to cognitively navigating a complex landscape in search of valuable peaks in which the height of peaks is defined as the value created by alternative combinations of available assets, resources, and activities (Ghemawat, 2005; Rivkin & Siggelkow, 2007; Nickerson & Zenger, 2004). Of course, the value of these combinations is largely unknowable *a priori*. However, managers and entrepreneurs essentially imagine and construct theories and models that cognitively define the terrain of these unknown strategic landscapes that depict the value of alternative combinations of assets and activities (Felin & Zenger, 2009). These strategic theories become a form of “forward-looking search” that guide the selection of valuable bundles of assets, activities, and resources, and the structuring of relationships among the bundled elements (Gavetti & Levinthal, 2000). Processes such as analogy and association may also play a role in the cognitive efforts to create novel strategies (Gavetti, Levinthal, & Rivkin, 2005; Gavetti,

in press). Entrepreneurial and managerial theories of value creation (Felin & Zenger, 2009) can also guide processes associated with recombination and distant search (Ahuja & Lampert, 2001; Fleming & Sorensen, 2004; Rosenkopf & Nerkar, 2001).

In all, a critical element of this phase in the boundary selection process involves crafting a theory to select a bundle of complementary assets and activities (cf. Dierickx & Cool, 1989), ideally one unseen and inimitable (Barney, 1991) by other managers or one inaccessible to other managers due to their lack of access to key assets or resources. By identifying a unique bundle in this way, the focal manager can assemble the disparate elements at prices that enable value creation (Barney, 1986). With the envisioned strategic bundle defined, the manager must then determine the optimal means by which to form and organize these complementary assets and activities, create the accompanying value, and then find ways to appropriate some (significant) portion of this value (Coff, 1999, 2010). The decision concerning which assets, activities and resources to “own” and which to access through the market, then defines the firm boundary. The failure of much of the prior theory of the firm literature to recognize this initial strategic phase of identifying complementary assets and activities to combine (whether within the firm or through the market) has led to a rather artificial separation of the capabilities and theory of the firm literatures (see Argyres & Zenger, 2010). We encourage work going forward to more explicitly recognize that efficient boundary choices are not merely designed to economize on exchange costs, but rather to create and capture value, while minimizing these costs.

We now turn to a review of what current theory says about how the boundary decision is to be made. As noted above, we will separately focus on theoretical discussions of why markets work and why they fail, as well as theories of why hierarchies succeed and why they fail. In our review, we adopt the simplifying assumption that the manager has only the interests of the owners or principal in mind, which are to maximize the value of the enterprise. We thus set aside the possibility of managers possessing personal interests and incentives to shape the scale and scope of the firm in ways unrelated to value maximizing for the principal (Jensen & Meckling, 1976). We turn first to a review of why and when markets work.

Why (and When) Do Markets Work?

The intensive study of markets as a distinct subdiscipline of economics has by one account only emerged in the past 15 years (Milgrom, 2010). Prior to much of this recent work, Coase (1988) remarked that “although economists claim to study the market, in modern economic theory the market itself has an even more shadowy existence than the firm” (1988: 7). While the past 15 years

have yielded a substantial body of research focused on understanding the emergence of markets (Kimbrough, Smith, & Wilson, 2008) and their efficient design and engineering² (Milgrom, 2010), little of this work has migrated into the theory of the firm literature. Much like the broader theory of the firm literature, the market design literature seeks to match exchange objectives with a growing array of market types. We will not attempt to review this literature, but instead will highlight three key attributes of markets that support the efficient governance of exchange: high-powered incentives, efficient information aggregation, and effective matching or sorting.

High-powered Incentives in Markets

Prices are the centerpiece of markets (Hayek, 1945). Prices guide buyers and sellers as they use institutionally supported market mechanisms ranging from contractually negotiated agreements to double-blind auctions. In markets, sellers receive in value the difference between agreed-upon prices and costs incurred, while buyers receive the difference between value received and prices paid. Using prices to facilitate exchange invokes high-powered incentives that intensively reward self-interested efforts and actions (Williamson, 1991). Thus, the key to the effective use of markets is discovering settings where the self-interested efforts of market actors elicit behaviors that are aligned with the interests of the entrepreneur or manager who seeks to procure goods and services. Thus, in response to the promise of revenues from agreed-upon exchanges, sellers seek to uncover lower cost means of production and delivery, or higher-value offerings, that elevate buyers' willingness to pay.

Competition among sellers or potential sellers is the underlying engine behind the market's incentive intensity. As sellers interact with other market actors, they receive information about how their respective offerings compare (cf. Walker & Weber, 1984, 1987). The threat of losing business, or the possibility of gaining customers, provides market actors with strong incentives to innovate, improve their products, work harder, enhance skills, and thereby either lower prices or enhance the value they provide to buyers. If such efforts prove unsuccessful, suppliers are selected out. Ultimate responsibility for the performance and viability of the market actor, then, rests solely on the market actors themselves. Using prices as the basis for exchange provides powerful motivation for these important behaviors, which are of clear interest to the manager who seeks to secure high-value, low-cost inputs. While markets may promote a host of unwanted behaviors, as we discuss later, consistent with theory, empirical evidence confirms higher levels of effort in response to higher-powered incentives (Lazear, 2000; Zenger & Lazzarini, 2004).

The choice to use the market not only provides high-powered incentives to market actors, but also motivates new entry and the migration of talent into

addressing relevant market needs. Thus, effective markets provide high-powered incentives to a host of latent market participants who continually evaluate whether their ideas and skills, in the context of the evolving needs of the buyer, warrant their participation. Choosing to access the market in securing resources and activities ensures a process of constant updating of the talent and skills critical to the low-cost production and high-quality provision of goods and services. High-powered incentives lure the necessary and desired new talent. A wide range of literature on entrepreneurial entry (e.g., Agarwal, Ganco, & Ziedonis, 2009; Wu & Knott, 2006) and the migration of talent in response to high-powered incentives (e.g., Hamilton, 2000; Zenger, 1994; also see Agarwal, Campbell, Franco, & Ganco, 2011; Elfenbein, Hamilton, & Zenger, 2010) speak to this phenomenon empirically.

Information Aggregation in Markets

Entrepreneur-managers frequently operate in highly dynamic and uncertain environments in which information is typically the most critical and scarce resource essential for strategic decision making (cf. Arrow, 1974; Stinchcombe, 1990). As noted previously, the most critical decision for value creation is the decision of what activities and assets to combine. Choosing to access resources through the market engages scores of dispersed actors—encouraged by the high-powered incentives just discussed—in an effort to guide the entrepreneur-manager’s choices in this regard. This feature of markets, the ability to efficiently assemble and aggregate information, has been relatively neglected in the theory of the firm (Felin & Zenger, 2011).

While internal organization renders important advantages in combining and manipulating information, markets are (as Hayek [1945] notes) “a marvel” in how efficiently they aggregate dispersed information and distill information into an actionable choice. Market-based decision making is a form of collective choice, where information is aggregated and the aggregation of multiple agents results in better judgments than decisions made by singular experts (cf. Hong & Page, 2001).

Given that information is highly heterogeneous and dispersed, and thus unlikely to fully exist within the confines of a given firm, this capacity to aggregate information broadly from the environment is a critical tool and benefit of markets. The central mechanism through which the market aggregates information for the entrepreneur-manager is, again, price (Hayek, 1945)—price attached to a proposed good or service. Dispersed market actors—with idiosyncratic information, expectations, skills, costs, and preferences—make decisions about which activities to engage in, which to purchase, and the aggregated information, perceptions and actions of market actors are communicated through and essentially embedded in prices.

As noted by Hayek (1945), planning by definition is exceedingly difficult in changing and uncertain economic environments. Decisions about who and how to undertake a particular activity require the acquisition and processing of vast amounts of information about the future availability of resources, underlying production technologies, the distribution of skills, demand for products, and a host of other factors. Furthermore, unanticipated changes—for example, actions by competitors or new entrants—also need dynamic evaluation. Thus, again, the “marvel” of the market is that prices embody the aggregate information of dispersed actors in relation to precisely this information (cf. Malmgren, 1961). Markets thus provide managers with idiosyncratic information about the value of opportunities and resources, and the aggregate actions of these dispersed actors through prices. In choosing market governance, managers access this valuable, informational resource.

Matching or Sorting in Markets

A final advantage of market control is the market’s capacity to efficiently match or sort. While classical markets in economics distribute homogeneous products to heterogeneous buyers, in fact most markets are composed of both heterogeneous buyers and sellers. In these markets, the complex exercise is finding an efficient way to match buyer and seller in a value-maximizing manner. Labor markets are a prototypical example of matching markets under the assumption that specific forms of talent and skill are uniquely valuable to particular employers. This matching feature has become increasingly recognized as a critical dimension of the market’s efficiency, as reflected in the awarding of the 2010 Nobel Prize in economics to scholars who developed pioneering work in understanding precisely this matching feature of the market (Diamond, 1982; Mortensen & Pissarides, 1999). More explicitly recognizing and integrating this feature of markets is critical to the advancement of the theory of the firm, as implicit in much of the theory of the firm is the assumption that assets begin in a homogenous state and are then transformed after appropriate governance is established.

Our introduction highlighted that the discovery of complementary asset or activity matches is the primary driver of value creation. Hence, finding an efficient vehicle to facilitate matching and sorting is critical to the entrepreneur’s efforts in creating value. This search for efficient (or maximally complementary) matches can encompass matching human capital to firms (Pissarides, 2000; Zenger, 1992), matching activities, resources and assets with other activities, resources, and assets (Barney, 1986; Lippman & Rumelt, 2003; Argyres & Zenger, 2010), matching problems with solutions (Jeppeson & Lakhani, 2010; Nickerson & Zenger, 2004), or matching like-minded entrepreneurs and market actors with each other (Felin & Zenger, 2009). Asset or activity matches occur as managers issue requests for proposal or asset and activity

owners sell or market their services. Unlike markets in which sellers are homogenous and prices provide sufficient information, matching requires that market buyers evaluate prices in conjunction with assessing heterogeneous goods, services, and reputations that sellers offer. Once the entrepreneur-manager identifies a match, firms enter into contracts to effectuate the proposed exchanges. These exchanges are seldom arms length, spot market exchanges, but rather are characterized by long-term interaction and the development of trust (Jones, Hesterly, & Borgatti, 1997; Uzzi, 1996).

Given the inherent heterogeneity of assets, activities, and talent, the entrepreneur manager in many circumstances may have limited capacity to articulate the good or service that the firm seeks to procure. Instead, the entrepreneur-manager may only have the capacity to define particular problems or subproblems and invite proposed solutions for purchase (Nickerson & Zenger, 2004). The market, then, as a source of heterogeneous solutions, offers up different options for how the problem might be solved. The notion of problem-solving through markets is readily apparent in specific practices such as “crowd-sourcing” (Felin & Zenger, 2011; Jeppesen & Lakhani, 2010) in which managers post problems, often with third-party services, and offer prizes for solutions (Bingham & Spradlin, 2011; for additional examples, see Croxson, 2010).

A final, matching-related feature of markets is its ability to link like-minded entrepreneurs and economic actors with each other (Felin & Zenger, 2009). Organizations inherently are variety reducing—in terms of beliefs, expectations, information and so forth—and thus entrepreneurial activity tends to occur outside the bounds of extant organizations. Markets are a governance form where like-minded individuals seek each other out to engage in collective action (cf. Vissa, 2011). The matching function of markets, then, presumes an underlying social process where heterogeneous individuals interact with each other and, over time, self-select to interact with self-similar others. The literature on homophily is instructive here and highlights the propensity of individuals to self-select to interact with others based on similar values, beliefs, expectations, information and so forth (McPherson, Smith-Lovin, & Cook, 2001).

Why (and When) Do Markets Fail?

Scholars actively disagree as to whether modern economies are predominantly defined by markets or by hierarchies. Robertson (1923) famously characterized firms and markets in an economy as consisting of “islands of conscious power in this ocean of unconscious cooperation; like lumps of butter coagulating in a pail of buttermilk” (quoted in Coase, 1937). In a similar vein, Williamson (1991: 279) views hierarchy as the governance form of last resort. However, others observe the “ubiquity of organizations” in economies and society (see

Simon, 1991: 27–28; also see Coleman, 1991). Yet others have highlighted the market's relational embeddedness and more generally the networked and socially interwoven nature of markets and organizations (Granovetter, 1985; Powell, 1990). But regardless of how one perceives the market–firm boundary, the central question involves defining why and when markets fail and hierarchies arise as a replacement. We discuss two interrelated reasons for market failure: the failure of markets to support specialized investments, and the failure of markets to support complex coordination.

Co-Specialized Exchange and the Failure of Markets

At the most basic level, market failure occurs when the “cost of using the price mechanism” (Coase, 1937: 390) becomes excessive. For certain exchanges, arriving at prices requires an extensive process of contracting in which terms of exchange are established, including incentives for performance. Not only is the process of crafting contracts costly, but enforcement is costly as well. Moreover, negotiating and enforcing such contracts is complicated by limits to rationality (Simon, 1955; Williamson, 1985). Parties to an exchange are simply unable to predict all future contingencies, rendering contracts necessarily incomplete or incompletely specified (Tirole, 1999). As a consequence of this contractual incompleteness, the occurrence of unforeseen circumstances invites efforts to renegotiate or otherwise take advantage of the “vulnerabilities of their trading partners” (Macher & Richman, 2008). This propensity of some to behave opportunistically (Williamson, 1996; cf. Ghoshal & Moran, 1996) elevates transactions costs, i.e. the costs of using the price mechanism.

Certain circumstances render the use of contracts or the price mechanism particularly costly. Perhaps not entirely surprisingly, managing exchanges that involve the novel asset and activity combinations that are central to the entrepreneur's efforts to create value are particularly costly to manage. Thus, as exchanges become more novel, unique or specific, market contracting becomes most costly (e.g., Williamson, 1985, 1991). When separately owned assets or activities are uniquely co-specialized in valuable ways, appropriable quasi-rents emerge—rents that are available for appropriation by either party in an exchange (Klein, Crawford, & Alchian, 1978; Williamson, 1985; Monteverde & Teece, 1982). Even if both parties agree to some distribution of these quasi-rents in a contract *ex ante*, the complete dependence of each (or one) party on the other in generating these rents invites costly *ex post* haggling or renegotiation (Klein et al., 1978; Hart & Moore, 1988). For example, while the procurement of a piece of widely available, standalone (i.e. generic) software is simply and efficiently resolved through classical market exchange, as soon as the transaction becomes more specific, or more enmeshed with other assets, capabilities or transactions—in short, more specific to the entrepreneur's needs—the less the ability of contracts to efficiently govern the

exchange. Under these conditions, the alignment of incentives between exchange partners becomes distorted and markets are likely to exacerbate rather than remedy the distortion generated by appropriable quasi-rents. Thus, “market governance is the main governance structure for *non-specific* transactions of both occasional and recurrent contracting” (Williamson, 1979: 248; original emphasis), but specific exchange promotes market failure and invites integration.

Note that co-specialization among assets and activities can occur both with and without active investment (Argyres & Zenger, 2010; Lippman & Rumelt, 2003). While the literature generally describes assets as being rather generic in the beginning, and then post-contractually (or post integration) being transformed into a co-specialized state, this need not be the temporal sequence. Indeed, as we discussed earlier, the entrepreneur-manager’s task is to search for unique complementarities among existing assets. In an environment of heterogeneous assets, many assets and activities may be uniquely co-specialized prior to any post-contractual investment. The nature of this co-specialization or specificity among assets and activities may take many forms, including any of the following six types: physical, human capital, temporal, dedicated investments, brand equity capital, and site specific (Williamson, 1996). While comprehensive reviews of the extensive empirical work examining asset specificity’s role in predicting market failure are found elsewhere (Macher & Richman, 2008; Shelanski & Klein, 1995), key studies have linked integration decisions to physical asset specificity (e.g. Monteverde & Teece, 1982; Walker & Weber, 1984), site specificity (e.g. Joskow, 1985), knowledge or human capital specificity (Poppo & Zenger, 1998; Sampson, 2004), and temporal specificity (Gonzalez-Diaz, Arrunada, & Fernandez, 2000).

Complex Coordination and Interdependence

Hayek (1945: 524–527) argues that “the economic problem of society is mainly one of rapid adaptation,” and thus he underscores the market’s remarkable capacity to assimilate information and induce necessary change (also see Williamson, 1991). However, as Williamson (1991) notes, economic adaptation is of two distinct forms. One form—the form highlighted by Hayek—is where prices are sufficient to induce market actors to make appropriate adaptations—adaptations that are reflected in supply or demand. For assets and activities of this variety, there is no need for deliberate coordination. Indeed, as Hayek argues, “the most significant fact about this system [the market] is the economy of knowledge in which it operates, or how little the individual participants need to know [about other actors] in order to be able to take the right action” (1945: 527).

However, a second form of adaptation requires complex coordination due to the interdependence of choices that market actors may make. In these

settings, even if market actors have incentives to cooperate, unless choices are coordinated, “the individual parts operate at cross-purposes or otherwise sub-optimize” (Williamson, 1994: 365). The underlying problem may be as simple as “noncovergent expectations” (Malmgren, 1961) in which economic actors consistently fail in their efforts to play a repeated coordination game requiring consistent adaptation. As Gibbons contends, this adaptation logic provides “*a coherent elemental theory of the firm without specific investments*” (2005: 19; our emphasis). As we discuss below, when environments demand this type of complex coordination in response to a changing environment, markets are likely to fail.

While much of the literature on the knowledge-based theory of the firm is not explicitly comparative in its approach, implicitly the theory relies on coordination logic to explain market failure and the emergence of firms. In this literature, the objective of the enterprise is the creation or generation of valuable knowledge or capability through processes of recombination and knowledge transfer (Kogut & Zander, 1992; Conner & Prahalad, 1996; Grant, 1996; Nickerson & Zenger, 2004). Value creation in this sense is a coordination exercise in which valuable new combinations of economic actors’ existing knowledge and choices are sought (Fleming & Sorenson, 2004; Henderson & Clark, 1990), often in response to defined problems or identified opportunities (Nickerson & Zenger, 2004). Some have used the landscape metaphor to essentially define the scope of the coordination problem involved in value creation (Rivkin & Siggelkow, 2007; Siggelkow & Rivkin, 2006). In this sense, rugged landscapes depict environments in which extensive coordination among knowledge and choices is essential to discovering valuable combinations. Smooth landscapes represent settings in which limited coordination among knowledge and choices is necessary.

In environments where extensive coordination is critical to value creation, markets are likely to exacerbate the coordination problem. In general, creating market incentives for the types of knowledge sharing essential for value creation is problematic. The fundamental challenge with information sharing in markets is that the value of or “price for” information cannot be established without sharing the information, but once the information is shared, there is no need to pay for it (Arrow, 1974: 171). As a consequence, economic actors’ incentives are to hoard information unless it can be embedded in products and services that can be sold. Moreover, affixing high-powered incentives to market actors does nothing but encourage less knowledge sharing and more hoarding.

Effective coordination also requires a shared language, and markets perform poorly in facilitating this. Again, implicit in Kogut and Zander’s (1992) work is the argument that markets provide a poor forum for the development of language necessary to transfer knowledge (also see Cremer, Garicano, & Prat, 2007). Monteverde (1995) also addresses the market’s relative inability

to form efficient language as contributing to market failure. Common language is particularly important to coordination in markets because economic actors must essentially be convinced that taking coordinating actions proposed by another actor will benefit them personally (Conner & Prahalad, 1996; Demsetz, 1988). Such convincing can be costly and time consuming.

Moving Forward

While theories of the firm are ostensibly about the firm – market boundary, theories of the firm have focused much greater attention on explaining the origins of the firm than the origins of markets. We therefore see an opportunity for further work on the (1) contextual conditions suitable for and (2) origins of the market form of governance. We briefly discuss each in turn.

First, the origins and suitable context for market governance deserve careful attention. Market forms of governance require a well-functioning set of institutions to support social exchange (North, 1990). Entrepreneurs and managers are more likely to initiate economic activities (hiring, contracting and so forth) in these settings. Thus, the power of markets can only be harnessed where there are supportive environmental conditions—political, social, and economic institutions that enable free exchange, the enforcement of contracts, and so forth. Entrepreneurial activity indeed flourishes in contexts where market-supporting institutions are present (cf. Romer, 1994). Transactions can then be governed by the market form when institutions reduce uncertainties associated with economic exchange, and entrepreneurs and managers can focus their efforts on value-generating asset combinations that utilize both markets and hierarchies in novel ways. When market-supporting institutions are weak, firms will more frequently exist as substitutes (cf. Khanna & Palepu, 2000). However, in most developed economies, the trend toward greater market governance via outsourcing and novel practices such as “crowdsourcing” seems apparent. This trend toward increased use of the market form, and associated hybrids forms of governance, deserves careful attention in future work (cf. Zenger & Hesterly, 1997).

Second, the origins of markets deserve further attention. Specifically, beyond the contextual issues discussed above, markets require economic actors with ideas for novel asset combinations as potential sources of value. Furthermore, much novelty in markets seemingly emerges from, for example, “users,” and thus there is an opportunity is to incorporate “demand”-side considerations into our understanding of the nature of markets and the boundaries of the firm (cf. Adner & Zemsky, 2006). How do users and product market competition shape the entrepreneurs’ efforts to create novel resource and asset combinations? Where does value appropriation fit in with this type of market innovation? And what are the specific implications of these novel forms for markets and organizational boundaries?

Finally, market activity of course does not happen in a vacuum, and thus has many “social” characteristics. Economic sociology indeed focuses on the role that various social structures (friendship and other social ties) play in enabling entrepreneurial activity and the generation of markets. Extant sociological work has indeed focused on the organization of entrepreneurship (cf. Thornton & Ocasio, 1999), for example by looking at the backgrounds and relations of entrepreneurs who engage in novel market activities (cf. Baron, Hannan, & Burton, 1999). Furthermore, categories of market activity have received some attention (Zuckerman, 1999). However, the origins and evolution of these market categories deserve more careful attention. In short, while there is much work in economic sociology that is relevant to markets, the implications of this research on the organization – market boundary are far from clear. Thus we think that the joint efforts of both more sociological and economic reasoning can help provide us with a more holistic picture of markets. Indeed, we agree with Granovetter that “a unified theory should build on what both [economics and sociology] have accomplished” (2001: 2). Furthermore, a far better understanding of markets and organizational boundaries will result through “a richer dialogue between economists and sociologists” (Williamson, 1994: 159). In all, while we know some basics behind the advantages and disadvantages of markets as a governance form, nonetheless the origins and associated enabling structures of markets, and their boundary considerations, deserve further attention.

Why Do Organizations Work?

While theoretical contributions to the study of markets and market failure have primarily been the purview of economists, organizations scholars have widely contributed to the articulation of the virtues of hierarchy as well as its reasons for failure. At the most basic level, integration is preferred when integration permits valuable coordinated actions that markets are unable to generate or unable to do so efficiently. The contrast between markets and hierarchy is one of “spontaneous” versus more “intentional governance” and coordination (Williamson, 1996: 145–151; cf. Coase, 1937). As discussed, coordination via the market mechanism is relatively more “automatic”, while coordination within firms involves a more active, deliberate, and centrally controlled effort to orchestrate value from particular combinations of assets and activities. In providing this enhanced coordination, hierarchies as a governance form have several distinct benefits including (1) access to authority, control and ownership, (2) an enhanced capacity to shape social identity and informal organization, and (3) an enhanced capacity to shape knowledge exchange and complex coordination.

Authority, Control, and Ownership

The most distinct and obvious advantage of extending the boundary of the firm is access to authority. As noted by Coase, within the boundaries of the firm, an

employee does not act “because of a change in relative prices, but *because he is ordered to do so*” (Coase, 1937: 387). While this characterization is admittedly a rather narrow view of that which motivates action in organizations (and we address other motivations below), the capacity to provide direction is clearly a central advantage in an entrepreneur-manager’s efforts to orchestrate complex coordination or induce the types of co-specialized investments that markets undermine. Thus, within the boundaries of the firm, managers can direct or motivate employees to take specific actions and thereby coordinate efforts within the firm.

The structure of the employment relationship plays the central role in this provision of authority. As Ouchi notes, hierarchy and authority capitalize on “the employment relation, which is an incomplete contract” (1980: 134). The employment relationship allows managers to more loosely direct the activities of an employee on an ongoing basis, without having to deal with the potential costs and interruptions associated with the continual renegotiation of activities and deliverables in the market. Furthermore, within firm boundaries employee activity can be monitored and directions and incentives can be dynamically adapted and redirected based on unforeseen circumstances. Simon (1947) and Barnard (1938) describe employees as essentially granting their employers a “zone of acceptance” or “zone of indifference” within which employees will essentially accept directives. Williamson (1991: 279–281) draws on this same logic to conclude that while markets provide an enhanced capacity for autonomous adaptation, hierarchy provides distinct advantages in the type of coordinated adaptation that Barnard (1938) references. For example, if there are disagreements about a course of action between different parties that are bilaterally dependent (cf. Malmgren, 1961), authority can play a role in directing cooperation and avoiding costs associated with bargaining and hold-up. The fact that the courts are generally unwilling to intervene in internal disputes also plays a key role in reinforcing authority, essentially by not undermining it (Williamson, 1985, 1991).

The ability to “intentionally” direct the efforts of employees centralizes decision making and allows managers to direct behaviors in ways that create the value they foresee. Moreover, this capacity to direct permits highly adaptive course-correction as environments shift and the value of current directions are revealed. A wide range of organizational and economic literature highlights various approaches to the efficient design of direction, and is beyond the scope of this review. For instance, principal-agent models offer advice on how to align the interests and incentives of actors within the firm (Holmstrom & Milgrom, 1991, 1994; Prendergast, 2000; also see Eisenhardt, 1989). Organization theory provides an even more expansive discussion of organization design concepts.

Social Identity and Informal Organization

A somewhat contrasting articulation of integration’s virtue often begins by critiquing both the behavioral assumption of opportunism that underpins

economists' explanation for hierarchy as well as economists' emphasis on authority (Kogut & Zander, 1992; Ghoshal & Moran, 1995). This competing argument builds on a long tradition in sociology that highlights the important role that informal organization plays in shaping behavior (Blau & Scott, 1962; Dalton, 1959). As these scholars argue "the formally instituted and the informal emerging patterns are inextricably intertwined" (Blau & Scott, 1962: 6) with the "formal largely order[ing] the direction the informal takes" (Dalton, 1959: 237). The implicit argument is that integration's fundamental advantage stems from not merely the shift in the formal organization (i.e. the change in firm boundary), but rather how that formal change precipitates a different pattern or form of sociality not available outside the firm. Thus, Kogut and Zander (1992: 384) essentially claim that organizations are "social communities" supported by "higher-order organizing principles."

Some have rightfully critiqued the suggestion that this more sociological explanation can be made without reference to opportunism or self-interest (cf. Foss, 1996; Williamson, 1996). While no reference to opportunistic behavior is required to articulate why organizations work, answering the comparative question—the firm boundary question—requires articulating why markets cannot achieve the same enhanced social community with equal efficiency, if actors are in fact not self-interested. Absent opportunism, this explanation is problematic. Here, the important role of the shift in formal boundary comes into play—a shift that enables the creation of a distinctly different sociality within the firm, including a reshaping of incentives that discourage the opportunistically generated behaviors that deter the creation of a similar outcome in markets. Indeed, it is this argument that Gibbons (2005) makes in his relational contracting theory of the firm when suggesting that "the integration decision is chosen to facilitate the parties' relationship[s]" (Baker, Gibbons, & Murphy, 1999: 209). Again, the point is that integration facilitates productive relationships that provide for necessary coordination—coordination that markets composed of self-interested, opportunistically behaving actors could not efficiently generate.

Scholars have also highlighted the boundaries of the firm as shaping individuals' identity. Individuals identify with the organizations that employ them (Pratt, 1998; Ashforth & Mael, 1989) and in the process partially assume the norms and goals of the collection of individuals within these firms (Ouchi, 1980; Kogut & Zander, 1996). Humans have a "longing to belong" and may contribute to collective efforts solely because they identify with those around them (cf. Gottschalg & Zollo, 2007; Kogut & Zander, 1996: 502; Osterloh & Frey, 2000). Thus, specific firms may have well-developed norms for cooperation, innovation, hard work, or fairness. The boundaries of the firm and the identification it provokes can thus be an efficient vehicle for shaping behavior. In developing their argument for the virtues of the firm, this work draws on Durkheim's notion of "organic solidarity" (Durkheim, 1933) in which mutual dependence

generates a degree of goal congruence among employees, often through extensive socialization efforts (Etzioni, 1965; Ouchi, 1980).

What remains rather poorly articulated in this literature is the role that the firm's boundary precisely plays on patterns of identity formation. In other words, do we observe that people who work closely together, whether within or without a firm, identify with one another? Or, do we observe that independent of the degree of socialization or collaborative work, the boundary indeed shapes the concept of individual identity? And, is the collective and socialization responsible for processes of individual identification, or do self-selection and matching play a more important role? And importantly, how exactly does identity help explain the boundaries of the firm?

Knowledge Exchange and Complex Coordination

As noted previously, knowledge flows and knowledge recombination play vital roles in the process of value creation. Not surprisingly, considerable attention has focused on hierarchy's distinct advantages in regard to shaping the flow of knowledge. The advantages are of two forms and directly reflect our discussion above. Somewhat paradoxically, however, they are at first blush rather contradictory in form (Nickerson & Zenger, 2004). On the one hand, hierarchy facilitates the rapid and efficient transfer of knowledge (Arrow, 1974; Monteverde, 1995; Kogut & Zander, 1992). On the other hand, hierarchy economizes on or simply enables the firm to avoid costly knowledge transfer (Arrow, 1974; Demsetz, 1988; Conner & Prahalad, 1996). Clearly, the literature requires some reconciliation of these two distinct arguments. As we discuss below, the hierarchy's first advantage in knowledge exchange stems directly from the richer sociality within firm boundaries, while the second stems directly from the greater access to authority within firm boundaries.

However, before turning to a discussion of how these knowledge exchange advantages are generated, it is useful to understand the advantage of a manager's access to both. Suppose value creation necessitates complex coordination among a diverse array of actors, activities, and assets. Crafting the architectural flow of knowledge to ensure efficient coordination is arguably the manager's most essential task. In this effort, efficient knowledge governance (Foss, 2003) is generated as the firm economizes on the costs of knowledge exchange. This governance efficiency is achieved in one of two ways: avoiding unnecessary knowledge transfers altogether, and efficiently enabling those that are essential. The literature suggests that hierarchy enjoys distinct advantages on both of these dimensions.

Arrow (1974: 69) has astutely observed that "authority, the centralization of decision making, serves to economize on the transmission and handling of knowledge" (Arrow, 1974: 69). Thus, within markets, coordinated action requires an extensive process of knowledge transfer in an effort to convince

another party to essentially act in concert with your actions. By contrast, within the boundary of the firm, rather than explain the logic of a particular desired action, a central authority can simply direct behavior (Conner & Prahalad, 1996). In this manner, as Demsetz (1988: 172) persuasively argues: “[d]irection substitutes for education (that is for the transfer of knowledge itself).” Thus, a key task of the manager is essentially crafting the optimal use of authority to orchestrate coordination while avoiding unnecessary knowledge flows.

On the other hand, in many settings the entrepreneur-manager has no idea how to coordinate or what specific actions to delegate. The manager simply lacks the requisite knowledge to direct. Instead, the relevant knowledge needed to establish patterns of coordination is highly distributed and the organization’s challenge is assembling and combining that knowledge in order to determine how to coordinate and act (Nickerson & Zenger, 2004). Value creation in this setting requires extensive and efficient knowledge transfer. Here, hierarchy’s capacity to form relations of trust, goal congruence, and solidarity performs a vital role in facilitating efficient knowledge transfer. Arrow (1974: 69–70) comments that the presence of “a sufficiently overriding commonly valued purpose” and “shared identities” within firms (1974: 55–56) facilitate the process of knowledge transfer. Kogut and Zander (1996) similarly argue that the “higher order organizing principles” mentioned above create the basis for efficient “discourse and coordination” among diverse actors with diverse knowledge. They also heavily emphasize the role of organizational identity in facilitating knowledge flows and coordination. Finally, within the boundaries of the firm a common language is more likely to form than among exchanging actors within a market (Monteverde, 1995; Arrow, 1974).

Again, a key task of the manager is therefore determining the best approach to structuring value creation by efficiently governing the flow of knowledge (cf. Foss, 2003). One suggested approach in guiding this effort is to begin by identifying the attributes of the underlying problem(s) the organization seeks to solve (Nickerson & Zenger, 2004). As Nickerson and Zenger (2004) suggest, with the problem identified, the manager must then design the organization including its use of authority and informal sociality to match the problem. In particular, complex, non-decomposable problems (Simon, 1969) are difficult to manage through direction or authority and mandate greater sociality and the development of common language (Monteverde, 1995). Less complex problems are well matched to the use of authority and/or structured delegation in which individuals are allowed to make defined decisions based on their own judgment and expertise (Knudsen & Levinthal, 2007; Sah & Stiglitz, 1986).

Why Do Organizations Fail?

While considerable theoretical work focuses on the efficiency and failings of markets and the virtues of hierarchy, much less explores the causes of

organizational failure and the costs of integration. Yet, as both Coase (1937) and Williamson (1985) have noted, a complete theory of the firm must answer, “Why is not all production carried out by one big firm?” (Coase, 1937: 394). After all, if integration overcomes market failures and provides important virtues as we have previously articulated, why don’t firms simply integrate all activities?

Scholars have for years commented on the lack of sound theoretical answers to this question. Thus, as early as 1921, Frank Knight remarked that there is a “dearth of scientific discussion” explaining “diminishing returns to management” (1921: 286). Fifty years later, Williamson commented that “as compared with the study of market failures, the analysis of the sources and consequences of internal organizational failures is at a very primitive stage of development” (1973: 316). Now, another near 40 years later, this theoretical gulf still remains substantial.

Early explanations for organizational failure focused on essentially cognitive or capacity limits of the central manager. Thus, Knight emphasized the cognitive limits of a centralized manager, suggesting that such a manager simply cannot manage a “business enterprise of indefinite size and complexity” (1921: 286–287). Williamson’s (1967) earliest efforts to explain limits to the firm focused on communication problems and distortions that occur as organizations increase in size. However, the obvious critique of these complexity, cognition, and span of control arguments is that they assume away the possibility of significant delegation. As Williamson notes, by decentralizing and using market incentives firms should in theory be able to achieve “the best of both worlds... everything that the two autonomous firms could do previously *and more*” (1985: 133; our emphasis). If this best of both worlds can be achieved, then firms need face no limits, as they can enjoy the virtues of integration when necessary, but otherwise access the virtues of markets through granting extreme autonomy to internal subunits.

At the most basic level, therefore, organizations fail and necessitate the adoption of market governance because firms cannot selectively replicate internally that which markets do, nor can they selectively infuse that which hierarchies do. All forms of organizational failure are directly linked to this inability to selectively infuse markets or selectively infuse authority into organizations. In our review, we focus on three key behavioral causes: politics and influence activities (Milgrom & Roberts, 1990), social attachments and overembeddedness (Uzzi, 1997; Guler, 2007; Leonard-Barton, 1992), and social comparison (Nickerson & Zenger, 2008). As discussed below, the three impediments generate internal governance costs that we (and others) label as influence costs, attachment costs, and social comparison costs. We address the foundations of each of these theoretical arguments in our discussion below.

Influence Activities and Political Costs

Politics and political costs are the most obvious unwanted complement to the integration decision. While, as noted, the “marvel” of the market is its capacity to induce “individuals do the desirable things without anyone having to tell them what to do,” (Hayek, 1945: 527), the virtue of hierarchy is its capacity to induce economic actors to do the desirable things when in the absence of integration they won’t do them. However, an important limitation to hierarchy is that the presence of a central authority unleashes political behavior (Milgrom & Roberts, 1988; 1990). As Milgrom and Roberts (1990: 87) note: “any centralization of authority, whether in the public or private sector, creates the potential for intervention and so gives rise to costly influence activities and to excessive intervention by the central authority.” The topic of politics in organization has, of course, been widely researched (Pfeffer, 1981). Indeed, effective political behavior is something actively taught by organizational behavior scholars in business schools.

Thus, when an activity is placed within the boundaries of the firm, incentives now exist for economic actors within the firm to induce the central manager to intervene in ways that are favorable to them. Whether effective or not in inducing the desired intervention, these efforts impose political or influence costs—costs not directly absorbed by those creating them. Managers may actively seek to selectively pre-commit to non-intervention (i.e. to ignore political behavior) in certain forms of internal disputes, but the presence of a central manager with the authority to violate this pre-commitment renders such commitments less than fully effective. Indeed, extensive literature across the range of social sciences examines the difficulty that central authorities, (i.e. kings, rulers) face in credibly committing to non-intervention, for instance not confiscating wealth from citizens, even when it is their interest to make and keep such commitments (Miller, 1993; North & Weingast, 1989).

By contrast, when an activity is contractually managed, there is simply no one central authority to politick regarding the assignment of rewards or decision making. Instead, the parties must rely on contracts and courts to remedy disagreements. On the other hand, the courts are largely unwilling to intervene in settling disputes within firm boundaries. As Williamson notes: “permitting internal disputes to be appealed to the court would undermine the efficacy and integrity of hierarchy” (1991: 276).

On one level these political or influence costs are analogous to haggling or transaction costs that arise in markets. Indeed, Gibbons suggests that “politicking within firms seems to be the inescapable internal-organization analog of haggling between firms” (2005: 222). Similarly, Klein, Crawford, and Alchian, in their explanation of vertical integration, also note that integration involves a “complex nonmarket contractual network” and that “very similar forces are present” in both markets and hierarchy (1978: 299). In this sense,

opportunistic or rent-seeking behavior leads to the failure of both markets and hierarchies, though the form of these costs emerge differently due to the differing nature of the legal institutions within which economic actors behave. Within hierarchies politicking and influence activities impose “influence costs” that are avoided when exchanges migrate to the market. Markets, of course, are subject to their own costs—transactions costs due to such rent seeking behavior, and thus the manager’s task is to comparatively evaluate these (and other costs discussed below) in determining the firm boundary. Importantly, though, the presence of a central authority within hierarchy is not something that can be easily turned on and off, and thus influence costs are largely unavoidable (Williamson, 1985).

Social Attachments and Social Attachment Costs

A second category of organizational costs relates to the enhanced levels of social relations within firms and to the distortions from efficiency that these relations potentially cause. As noted previously, an important distinction between market and hierarchical governance involves the pattern of informal relationships that arise as a companion to formal organization. Thus, the formal organization shapes or “orders the direction of the informal” (Dalton, 1959: 237). This logic, of course, applies both within the boundaries of the firm and within markets or contracts. Within markets, contracts and their detailed structure may contribute to and enable the formation of trust in interorganizational relations (Baker et al., 1999; Poppo & Zenger, 1998). However, the decision to integrate is often taken to facilitate the formation of specific relationships among actors within the firm (cf. Kogut & Zander, 1996; see also Gibbons, 2005). Moreover, within the boundaries of the firm, interpersonal relationships are likely to become particularly embedded, often characterized by social attachment and trust. Within the boundaries of the firm, managers create the potential for forming specific valuable relationships (Gibbons, 2005) or simply valuable patterns of cooperative behavior (Miller, 1993: chapter 11).

While scholars commonly highlight the advantages of exchanges deeply embedded in social relations where trust and cooperation thrive (Granovetter, 1985; Uzzi, 1997), scholars also highlight a dark side to these embedded exchange relations (Uzzi, 1996). For instance, personal relations create social attachments that often hinder firms engaged in interorganizational exchanges from switching to new exchange relations when exchange efficiency warrants it (Uzzi, 1997; Portes & Sensenbrenner, 1993; Lazzarini, Miller, & Zenger, 2008). Within the boundaries of the firm, where these social connections may be even more abundant and substantial, distortions to efficient decision making are likely more considerable. For instance, within the boundaries of the firm, there may be a particularly heightened propensity to escalate commitment to existing courses of action, regardless of whether they are optimal or

suboptimal (Staw, 1981). Managers may become excessively committed to existing relationships or to existing configurations of assets, activities, and resources. For instance, in an effort to honor or preserve relationships, managers may sustain investments in R&D projects beyond what is economically efficient (Guler, 2007). Thus, social attachments that exist with greater abundance within the firm may create organizational costs that accompany integration.

Again, the limitation that triggers heightened organizational costs is the inability to selectively intervene—in this case, to selectively discard or ignore relationships when they are no longer useful. In particular, the impediment to selective intervention here is that any propensity to discard relationships hinders the capacity to form them in the future, when desired. Selectively ignoring these relations damages expectations of continuous exchange that are useful to the formation and maintenance of other relations.

The key question, however, is whether anything is truly different about this phenomenon inside versus outside the firm, as overembeddedness is a problem that clearly arises in both. First, as noted earlier, the greater sociality within the boundaries of the firm is likely to lead to more committed relationships within firm boundaries and a corresponding heightened risk of overembeddedness. Secondly, the costs of damaging unnecessarily strong ties are greater within the firm than without. Outside the firm, the manager may suffer a reputation loss that may damage the credibility of future commitments to cooperate or trust. Within the firm, these same costs arise, but in addition, those whose relationships are severed or compromised have the capacity to contaminate the functioning of the remaining relationships within the firm. Thus, due to the increased propensity for strong forms of trust and social attachment within the firm, managers have particular difficulty matching the tremendous flexibility that market governance affords to simply jettison activities, assets, and resources when they cease to generate complementary value.

Social Comparison Processes and Comparison Costs

A final category of organizational costs stems from a behavioral and cognitive assumption that economic actors engage in social comparison of prices and rewards and dislike receiving prices or rewards they perceive as inequitable based on relative comparisons. Discussions of social comparison and its effects on individuals pervade the social sciences. A common argument in this literature is essentially that economic actors' utility is partly a function of the perceived fairness of rewards received (Homans, 1961; Festinger, 1954; Adams, 1963; Martin, 1981). Thus, individuals compare their rewards to others' rewards and react negatively to perceived inequities. As discussed below, this tendency to socially compare leads to social comparison costs that are particularly high within the boundary of the firm (see Zenger, 1992, 1994; Nickerson & Zenger, 2008).

As economic actors compare rewards, perceptions of inequity are particularly likely for several reasons. First, individuals upwardly compare to those who receive greater rewards (or better prices) rather than downward to those who earn less. Second, and complicating our first point, individuals have a propensity to greatly exaggerate assessments of personal contribution or performance (Meyer, 1975; Zenger, 1994). Third, in any setting involving team production (Alchian & Demsetz, 1972) with complementarity among assets and activities, the assignment of relative contribution to any given economic actor is necessarily subjective. The sum of individually assessed contributions (measured as the value with them relative to the value without them) will necessarily exceed the total value created. Hence, the assignment of rewards to any actor depends on an entirely subjective allocation of these jointly-produced gains. Consequently, economic actors have some basis for disputing almost any assignment of rewards connected to a team production technology.³

The resulting feelings of envy or inequity motivate several behaviors to reduce or eliminate them. First, individuals may alter their own efforts, adjusting downward their effort to match the rewards they receive (Adams, 1963). Second, individuals may seek to adjust downward the rewards that others receive. For instance, they may sabotage others' efforts to perform or, consistent with the influence activities literature (Milgrom & Roberts, 1988), directly politicize those managers who assign their compensation (Nickerson & Zenger, 2008). Finally, individuals may simply choose to depart from the group or firm that prompts these perceptions of inequity (Festinger, 1954). While each of these behaviors seeks to reduce perceived inequity, each imposes costs on the firm, costs that are usefully labeled as social comparison costs (Zenger, 1992, 1994; Nickerson & Zenger, 2008).

Markets possess a clear advantage in establishing perceptions of fairness. Markets "objectify" prices, rendering a sense of fairness or at least independence to reward allocations. In rather simple markets, prices are based purely on simple supply and demand. The presence of uniqueness, heterogeneity and matching complicate markets and may lead to market failure, but even negotiated exchanges generate prices that are mutually agreed to by both parties, and thus perceived as fair, at least at the outset.

Two factors however are distinctly different about social comparison within firms than across a market interface. First, as we have noted, within firms there is a central actor who allocates rewards. Second, within firms there is an enhanced degree of relationship, sociality, and identity. These two factors, unique or elevated within the boundaries of the firm, heighten social comparison costs and dampen the firm's capacity to selectively infuse market-like incentives.

The presence of a common central manager with authority to redistribute rewards alters the cost-benefit analysis that each individual faces in response to perceived inequity. Thus, if an employee envies the rewards received by a

fellow employee, there is a common manager or hierarchical chain of managers to lobby and politick. The employee may also pursue subtle forms of retribution or seek to constrain a fellow employee's rewards through sabotage. If the envied individual is not an employee of the focal firm, these behaviors are both less effective and hence less likely. Perceived inequity across firm boundaries imposes significantly fewer costs. Managers are unlikely to respond to external comparisons that provoke envy, except as it becomes necessary to competitively retain employees. Moreover, employees have more limited access to external employees and thus more limited capacity to engage in any form of sabotage, at least without provoking legal action. Consequently, individuals outside the firm can receive high-powered incentives at high pay and not provoke behaviors that impose social comparison costs. Housing similar activities within the boundaries of the firm with accompanying market-like incentives triggers an abundance of social comparison costs.

Scholars suggest that social comparisons are limited to a social reference group. Because the boundary of the firm strongly shapes this reference group, firm boundaries appear to shape patterns of social comparison altogether (Nickerson & Zenger, 2008). Thus, while employees do compare their rewards to those outside the firm, these comparisons are much less salient. A variety of arguments may explain this greater salience of within-firm comparisons. Within the boundaries of the firm, individuals are likely more proximate physically and more likely engaged in intense social interaction. Finally, the hierarchical structure used to allocate rewards throughout the organization creates a form of *de facto* comparison across geographic or structural gaps in the organization. Thus, while an employee may be unable to directly compare pay to all others within the organization, managers in one part of the organization are very aware of any latitude granted elsewhere in the organization to differentially assign rewards. The tendency for managers to socially compare thus generates social comparison dynamics among all those within the boundaries of the firm. Consequently, strong pressures pervade to standardize pay practices and compress pay distributions even across geographically disparate units (Beer, Spector, Lawrence, Quinn-Mills, & Walton, 1984). Thus, again, activities housed within the boundaries of the firm are subject to heightened levels of social comparison costs that encourage a weakened link between pay and performance, encourage the activity to be outsourced, or encourage the modification of the activity altogether.

Moving Forward

Organization scholars have a particularly valuable role to play in advancing the theory of the firm, most notably in more fully articulating when and why

organizations both succeed and fail. Organization scholars should possess a comparative advantage over economists in understanding how the sociology and social psychology of organizations influence economic efficiency and failure. However, real progress here will require developing a common and realistic understanding of human motivations, arguably setting aside an obsession with critiquing economists' assumptions of self-interest, and deeply exploring how, when and why organizations enjoy efficiency advantages in governance. We highlight three areas meriting particular attention. First, we encourage scholars to more carefully examine precisely why (and perhaps whether) the legal boundary of the firm differentially shapes organizational identity and social relations. Careful empirical efforts to tease apart the separate influences of formal boundaries, physical proximity, and patterns of communication would be particularly useful. Second, we encourage scholars to be more explicitly comparative in their efforts to contribute theoretically. To explain the boundaries of the firm, it is not enough to articulate when and why organizations work. Rather, the arguments must explain why markets cannot achieve similar outcomes with equal efficiency. Third and finally, we encourage empirical work that tests theories of organizational failure in explaining firm boundaries. While the literature is now rife with studies that draw from the market failures literature to empirically explain boundaries (cf. Macher & Richman, 2008), empirical studies of organizational failure are quite uncommon (for exceptions see Rawley & Simcoe, 2010; Dushnitsky & Shapira, 2010).

Market – Hierarchy Hybrids

While our focus has been on identifying factors that shape the boundary of the firm, essentially the firm's legal boundary, managers certainly actively seek to enjoy the "best of both worlds" (Williamson, 1985: 133) by crafting market – hierarchy hybrids. Indeed, there is considerable debate as to whether the bulk of economic exchange fits comfortably within the tails as pure markets or traditional hierarchy, or falls within an intermediate range or "swollen middle" (Hennart, 1993; MacNeil, 1985: 485; Williamson, 1985: 83). Such intermediate or hybrid forms are direct attempts at the type of selective intervention claimed as so difficult, in the prior section (Williamson, 1985). Though hybrids are commonly framed as "intermediate" forms, manager's real objective is not crafting governance that is intermediate to markets and hierarchies, but rather crafting governance that enjoys the virtues of *both* markets and hierarchies. Of course, attempts to craft hybrids come in two obvious forms: "internal" market – hierarchy hybrids that attempt to selectively infuse market features and mechanisms into organizations, and "external" hybrids that seek to infuse elements of hierarchy into markets (Foss, 2003; Zenger & Hesterly, 1997; Zenger, 2002).

Internal Hybrids: Infusing Markets into Hierarchy

As discussed, the primary disadvantage of integration is the loss of the markets' high-powered incentives to motivate effort and action and the need for costly centralized direction. In attempting to infuse market elements within hierarchy, the entrepreneur-manager has several levers at her disposal.

First, through decentralization or disaggregation managers clearly seek to partially access market features. The multidivisional form, for instance, provides both autonomy and high-powered incentives to managers (Chandler, 1962; Rumelt, 1984; Williamson, 1975). Further disaggregation may allow for an even tighter match between individual or small group effort and reward (Zenger & Hesterly, 1997). Decentralization may allow for "in-house units to be governed like market suppliers" (Walker & Poppo, 1991: 67). While such disaggregation may partially attenuate hierarchy's fundamental liabilities in crafting high-powered incentives, measuring and imputing the efforts of individual employees or groups in large-scale, joint production remains problematic (cf. Alchian & Demsetz, 1972).

The issue of measurement (and associated costs) indeed is a central problem of hierarchy. Organizational boundaries tend to form where measurement and the assignment of prices can occur the best (Barzel, 1982), while integration occurs when measurement is poor (Zenger & Hesterly, 1997: 212; Foss, 2003). Disaggregation enhances measurement and thereby enables higher-powered incentives. Disaggregation may also alleviate social comparison costs by designing work in ways that create more visibly objective measures of performance.

Second, firms can delegate decision rights to employees to choose projects (Foss, 2003), design their work, and choose their co-workers. This delegation of decision rights better accesses the highly decentralized knowledge embedded within the firm. Of course, there is a close connection between organizational structure and the delegation of decision rights. In general, firms are able to infuse more of the market's entrepreneurial behavior when initiative and activities are undertaken in a far more decentralized way. Certain forms of organization, such as polyarchy, indeed encourage more entrepreneurial, decentralized, and market-like activity within firms (Knudsen & Levinthal, 2007; Stiglitz & Sah, 1988).

Third, firms have found ways to more directly access the market's price mechanism. This can be done in several ways. First, managers impose internal transfer prices, between internal subunits that generate some market-like internal exchanges (Holmstrom & Tirole, 1991). Second, firms have more recently begun to utilize practices such as internal prediction or information markets (Felin & Zenger, 2011; also see Croxson, 2010) in which employees of the firm essentially trade and thereby place bets on what they believe to be the optimal course of action for the firm, for instance the most successful

R&D project. Prediction markets tap into the vast, often idiosyncratic knowledge of people, and provide a mechanism through which proposals, strategies and other organizational activities can be evaluated on a highly decentralized basis. Prediction markets then are a powerful way to bring the market's price signal into the organization—creating a highly novel market–hierarchy hybrid.

External Hybrids: Infusing Hierarchy into Markets

The characterization of markets within the theory of the firm literature has long been criticized for being undersocialized (Granovetter, 1985). Simply put, not all market interactions are one-off, external exchanges guided by price (cf. Simon, 1991). Rather, market exchanges are commonly composed of long-term relations, social ties, and trust (Jones et al., 1997; Uzzi, 1997; Gulati, 1995). Indeed, the literature on the role of networks (Powell, 1990), social ties, alliances (Dyer, 1996), and trust (Zaheer, McEvily, and Perrone, 1998) in interorganizational relations is exceptionally vast and expansive. Reviewing this literature is well beyond the scope of this paper, but we highlight two key conclusions relevant to our broader agenda.

First, repeated exchange plays a defining role in replicating the trust and greater sociality often characteristic of hierarchy. Repeated exchange creates expectations of longevity that promote cooperation and trust (Parkhe, 1993). Repeated exchange also promotes social ties among individuals thereby embedding economic exchange in a broader social network that invites cooperation and trust (Uzzi, 1997; Granovetter, 1985). Finally, repeated exchange leads to the creation of norms that shape behaviors and support efficient economic exchange (Jones et al., 1997; Adler, 2001).

Second, formal control such as contracts, equity investments, or shared ownership appear to play an important complementary role in generating the sociality that leads to trust and repeated exchange (Baker et al., 1999; Klein, 1996; Poppo & Zenger, 2002). As a consequence, contracts and other formal mechanisms may serve to support the formation of effective hybrid structures. However, the role of contracts and formal control mechanisms is the subject of considerable empirical debate (see Lazzarini et al., 2004). Some suggest that “detailed negotiated contracts can get in the way of creating good exchange relations” (Macaulay, 1963: 64) and that “legalistic remedies can erode the interpersonal foundations of relationship[s]” (Sitkin & Roth, 1993: 376). By contrast, others argue that contracts and formal arrangements promote expectations of relationship duration and reduce gains from short-term defection, thereby promoting cooperative behavior (Baker et al., 1999; Klein, 1996). While empirical work has begun to tease apart when formal devices such as contracts complement the formation of trust and when they undermine trust (Lazzarini et al., 2004; Fehr and

Gachter, 2000; Gulati & Nickerson, 2008), there remains much research to be done in this domain.

The Problem with Market–Hierarchy Hybrids

While market–hierarchy hybrids seek to resolve the respective weaknesses that accompany pure forms of governance, hybrids are no panacea and can result in highly unstable solutions with their own, unique costs (cf. Poppo, 1995). Furthermore, again, “in their radical forms, [hybrids] are inherently hard to successfully design and implement” (Foss, 2003: 331). Market–hierarchy hybrids can represent efforts to unnaturally merge logics of governance that are—by definition—highly discordant and non-complementary (Williamson, 1996; Zenger, 2002). Hierarchy relies on authority, while markets rely on disaggregated decision making. Principals own assets in hierarchies, while agents own assets in markets. Furthermore, fiat guides activity in hierarchies, while price guides activity in markets. In short, inevitably market and hierarchical logics are in conflict, leading to specific costs that may outweigh the benefits of these hybrid forms of governance.

Efforts to selectively intervene—whether infusing markets into hierarchy or hierarchy into markets—can readily lead to escalating costs associated with politics and influence activities. While managers can radically delegate authority and decision rights in an organization, within firm boundaries decision rights are always only “loaned, not owned” (Baker et al., 1999: 56; also see Foss & Foss, 2005). Problems emerge when managers unnecessarily or politically intervene and meddle in employee activities and incentives, thus discrediting and negating the potential benefits that might arise from delegation in the first place.

Furthermore, hybrids also suffer from costs associated with factors such as social comparison and social attachment. For example, the effort to more tightly couple rewards with effort likely elevates variance in pay which leads to unintended costs associated with envy and social comparison (Nickerson & Zenger, 2008), or cause friction in relationships and joint production (cf. Pfeffer & Langton, 1993). Managers can of course try to design structural forms that mitigate these effects, for instance by spatially separating particular groups, but redesigning organizations to address these social factors inevitably compromises the efficient structure of work.

In the case of external hybrids, such as alliances and more networked governance, primary concerns arise because these close, trusting relationships are not universally beneficial to the firm. Instead, these trusting and networked relationships “at times facilitate and at times derail exchange,” creating what Uzzi defines as the “paradox of embeddedness” (Uzzi 1997, p. 35). Thus, well-established trusting relationships may preclude the firm from shifting to new, more optimal exchange partners when economic circumstances

warrant such a shift (Blau, 1964; Lazzarini et al., 2008). Consequently, firms may actively choose to sever or curtail close collaborative exchange relations and revert to more arms length market relations in an effort to optimize the value of exchange relations over time.

Dynamics, Capabilities, and Organizational Boundaries

There has been increased interest in extending our understanding of organizational boundaries by considering non-equilibrium conditions, environmental dynamics, and the role of evolving capabilities. For instance, research on the dynamics of firm boundaries has expanded considerably in recent years (e.g. Afuah, 2001; Argyres & Bigelow, 2010; Kim & Mahoney, 2010; Langlois, 1992). This research investigates how endogenous organizational factors and choices and environmental factors, such as the evolution of technological and broader institutions, interact and jointly affect organizational boundaries. Recall our analogy of measuring the water level of a glass presented in the introduction of this paper. While market failure (and functionality) and organizational failure (and functionality) represent distinct forces affecting the water level, environmental dynamics capture the shifting weather systems that may diminish or augment these effects over time.

Several different considerations can be lumped under the label of dynamics. The first is a recognition that organizational boundaries—indeed, any transactions—are affected by the bundle of activities in which firms are already engaged. Transaction cost economics has specifically come under attack for its lack of consideration of “dynamics,” in the sense that the interrelationships between the nature of transactions and extant organizational capabilities are not taken into account (Langlois, 1992; Langlois & Robertson, 1995; also see Jacobides and Winter, 2005; Madhok, 2002). Second, intertemporal factors and environmental co-evolution also play an important role in the structure of production. Third and finally, boundary issues are also implicated by organization-level dynamics associated with learning and capability development. We discuss each consideration in turn.

First, boundary decisions have been seen as static, as their operationalization tends to focus on isolated boundary choices about particular components, activities, or transactions. Firms thus, implicitly, are viewed as homogeneous. Yet, clearly they are not. Therefore, scholars argue that firm boundary decisions must also take into consideration the extant capabilities of the firm—organizational heterogeneity—and the bundle of activities with which the firm is already engaged (Madhok, 2002; Jacobides & Hitt, 2005; also Langlois & Robertson, 1995). Thus, Barney (1999: 138) notes that “some firms are simply better than others at doing some things,” arguing that these differences should significantly affect boundary choices. Coase also recognized this dynamic and argued that “the costs of organizing an activity within any

given firm depends on what other activities it is engaged in. A given set of activities will facilitate the carrying out of some activities but hinder the performance of others. It is these relationships which undermine the actual organization of production” (1972: 64).

Thus the appropriate decision for the integration of a given activity varies from firm to firm and depends on its history and the idiosyncratic activities in which it is already engaged and the extant resources that it possesses. Indeed, Madhok (2002) has called for a need to study a “triangular alignment” between resource, transaction and governance-related particulars. More generally, scholars have called for a more “systematic” and “dynamic, co-evolutionary view” where “transaction costs and capabilities are fundamentally intertwined in the determination of vertical scope” (Jacobides & Winter, 2005: 395–396). Thus, Jacobides and Winter (2005: 398) argue that understanding boundary choices requires an examination of “the distribution of productive capabilities,” while arguing that this distribution of capabilities, including the capabilities of upstream and downstream participants, is constantly changing thereby prompting updates in governance choices (our emphasis).

One of the challenges of this call for greater attention to capability is that logically separating capability from governance choices is difficult—arguably impossible (Argyres & Zenger, 2010). Thus, governance theories argue that integration drives capability formation rather than the reverse. It is therefore not clear whether a firm remains integrated into an activity because it performs it well or rather performs it well because it chooses to integrate it. Even more problematic is the logic that capability in an activity alone promotes its ongoing integration. In other words, why can’t the firm monetize the value of the capability by selling to another firm? Argyres and Zenger (2010) suggest that understanding the role of capability in boundary choice requires first recognizing that capability is fundamentally a firm-specific concept. In other words, capability can only be assessed through the lens of the other assets and activities with which it will be bundled. From this perspective, capable assets and activities merit integration when integration better enables value-creating coordination, or promotes or protects valuable or value-creating asset matches or co-specialization.

Second, perhaps the greatest empirical progress has been made in understanding the intertemporal dynamics associated with capability development and its ancillary impact on organizational boundaries. For example, there is an extensive body of empirical work that examines the development of capabilities driven by firm-level, path-dependent decisions over time and the associated effect on entry-timing (e.g. Lee, 2008), R&D (e.g. Nerkar & Paruchuri, 2005), new knowledge generation (e.g. Fleming, 2001), alliance management (e.g. Anand, Oriani, & Vassolo 2010; Kale & Singh, 2007) and technological network management (e.g. Ethiraj, 2007). The development

of capabilities often co-evolves with the governance decisions of the firm, even if governance choices are not the focus of this work. For example in their study of alliances as a dynamic capability, Anand et al. (2010) find that when pharmaceutical firms face a technological discontinuity, those with related technological capabilities are more likely to enter a new market segment. They also find that possessing the requisite technical capabilities elevates the likelihood of entering new markets through internal development, but a lack of requisite technological capabilities has no effect on the firm's entry mode decision (i.e. whether or not to use alliance or internal development). Thus, the co-evolution of governance and capabilities may play out in unexpected ways. As firms develop capabilities, these capabilities shift governance costs, but firms may also incur governance costs in order to develop technical capabilities. Viewed in a cross-section, these decisions may appear suboptimal—from either a transaction cost economizing or capabilities deployment perspective. But observed longitudinally, novel strategic responses to enduring strategic questions (e.g. market entry decisions) can be detected.

Third, scholars have also begun to study the generation of firm-specific capabilities to transact and contract (Argyres & Mayer, 2007; Mayer & Argyres, 2004). That is, firms over time may develop skills in effectively interacting or contracting with suppliers. These learning-related dynamics suggest an important extension into our understanding of organizational boundaries. Transactions cost theory includes an assumption that selection pressures weed out inefficient governance, as reflected in Williamson's comment that misalignments "invite their own demise" (1996). This theoretical premise has been used to test the performance effects of governance over time (e.g. Argyres & Bigelow, 2007; Nickerson & Silverman, 2003). In all, while the market failure logic tends to focus on the nature of transactions themselves, and environmental selection, nonetheless the reciprocal and heterogeneous choices and skills of managers and firms also deserve attention as they materially affect organizational boundary decisions.

Stepping back, the literature on dynamics, broadly defined, essentially can be seen as an effort to understand the multilevel and multiprocess nature of organizational boundaries: the role of individuals, social interaction, temporal considerations, organizational factors, technological evolution, transaction particulars, and market or industry dynamics. Thus, "the institutional structure of production comes into being under the influence of forces determining the inter-relationships between the costs of transacting and the costs of organizing" (Coase, 1988: 47). While teasing out the microanalytics of decision making can be onerous due to all the interrelationships and moving parts between transactions, organizations and institutions, nonetheless it is at the intersection of these factors that we envision significant potential for novel theoretical development.

Moving Forward

The topics discussed above in regard to capabilities, dynamics and firm boundaries all merit further theoretical and empirical attention. Thus, we encourage further work that either more persuasively teases apart or more powerfully integrates the roles of capabilities and firm boundaries in shaping the evolution of the firm. If the theory of the firm succeeds in this effort of integrating dynamics, capabilities, and boundaries, then it promises to have more extensive application in addressing topics such as the evolution of industries, the diffusion of innovation, and the adoption of new technologies. The recognition of heterogeneity in productive capabilities (e.g. Hoetker, 2005; Leiblein & Miller, 2003) and in governance capabilities (e.g. Argyres, 1996; Argyres & Mayer, 2007) is an important first step in exploring dynamics, but we still know little empirically about the true comparative costs of developing either productive or governance capabilities within markets and hierarchies. The question of how to measure and quantify the costs of relying on markets or organizations is an enduring problem. To date, only a handful of studies have been able to quantify such costs (e.g. Masten, Meehan, & Snyder, 1991) and indeed these have largely focused on transactions costs in the market. With a deeper appreciation for the co-evolution of capabilities and governance (Argyres & Zenger, 2010) comes the recognition that methods for evaluating and measuring costs remain to be developed. As we describe in the section on organizational failure, the costs of internal influence activities may be analogous to the costs of haggling over contracts in a market setting; but, as yet, we lack the means to quantitatively evaluate and compares these costs directly.

Conclusion

As we have presented, the question of organizational boundaries is multifaceted and multilevel, encompassing a wide range of subtheories and theoretical perspectives. While these theories generally adopt the broad comparative institutional perspective that is the hallmark of the theory of the firm, there is by no means a singular, unified articulation of factors to examine in completing the institutional comparison that normatively drives the boundary choice. Our review has highlighted several key questions that have motivated theoretical work and provided a framework for our review. First, what are the virtues of markets in organizing assets and activities? Second, what factors drive markets to fail? Third, what are the virtues of integration in organizing assets and activities? Fourth, what factors drive organizations to fail?

While some theoretical efforts have certainly taken up more than one of these questions, much theory work has focused and specialized, for instance, either on the virtues of organization or the causes of market failure. But while such focus is perhaps necessary in advancing theory, our goal in part is to push for a more systematic, integrative and comparative approach that recognizes the unique

virtues that exist with both forms of governance—organizations and markets—and more fully recognizes the multiple factors that play a central role in our understanding of organizational boundaries. Our hope is that this will lead to more integrative and comparative theories that both advance our understanding and also are practically relevant. We see some promise in recent efforts to, for example, incorporate identity-related arguments into economics (Akerlof & Kranton, 2005). Furthermore, scholars are beginning to understand the evolving capability–boundary nexus, as both the result of initial heterogeneity, but also the path-dependent boundary choices of managers and entrepreneurs (Argyres & Zenger, 2010; Jacobides & Winter, 2005). While the theory of firm boundaries has witnessed significant progress over the past three decades, nonetheless we argue that many important questions remain and thus there is much work yet to be done to understand the firm – market nexus and the more general structure of production in society.

Endnotes

1. Alchian and Demsetz' (1972) notion of team production develops a similar logic.
2. Economists have in recent years been actively involved in designing real markets such as the National Resident Matching Program and auctions for radio spectrum, electricity, kidneys, and Internet advertising (see Edelman & Ostrovsky, 2007; McMillan, 1994; Varian, 2007).
3. Interestingly, in an early translation of transaction cost economics for the organizations literature, Ouchi argued that “transactions costs arise from equity considerations” and redefined transactions costs as “any activity which is engaged in to satisfy each party to an exchange that the value given and received is in accord with his or her expectations” (1980: 130). In this sense, transactions costs involve both ensuring the performance of actors in meeting expectations and convincing others of the fairness of the distribution received. Thus, the relevant analysis becomes an institutional comparison of the costs associated with establishing perceptions of fairness or equity through market or firm governance.

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