



# Faculty & Research Working Paper

**How Do Resource Attributes  
Affect Firm Boundaries?  
Examining the Differential Impact of  
Asset Specificity and Firm Specificity on  
Activity Governance**

## **How Do Resource Attributes Affect Firm Boundaries?**

### **Examining the Differential Impact of Asset Specificity and Firm Specificity on Activity Governance<sup>1</sup>**

by

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#### **Abstract**

We develop a theory of firm boundaries that considers: (i) the asset specificity of the resources that enable an activity; (ii) their firm specificity; and (iii) the firm's endowment with these resources. Our theoretical framework, which synthesizes and bridges transaction-cost and resource-based perspectives, leads to new predictions about activities that should be outsourced (market governance) versus those that should be undertaken within firm boundaries (hierarchical governance). For example, in the case where a firm is endowed with firm-specific resources and asset specificity is low, our theory suggests that a hierarchical form of governance is preferred. In another case where the firm is not endowed with the activity-enabling resources, asset specificity is high, and firm specificity is low, our theory suggests that a market form of governance is more likely when the ex-ante opportunity costs of the resources are high.

## **How Do Resource Attributes Affect Firm Boundaries?**

### **Examining the Differential Impact of Asset Specificity and Firm Specificity on Activity Governance**

Boundary decisions of firms continue to receive substantial attention in organization and management theory (e.g., Jacobides and Hitt 2005; Santos and Eisenhardt 2005; Schilling and Steensma 2002). Transaction attributes, such as the asset specificity of an exchange, are among the constructs considered most relevant for boundary choice (Gulati, Lawrence and Puranam 2005; Williamson 1985). However, an increasing number of scholars acknowledge that factors beyond transaction-specific characteristics could matter, notably the attributes of the resources, such as firm specificity, of the exchange partners (e.g., Langlois and Foss 1999; Leiblein 2003; Madhok 2002; Williamson 1999). Yet, how is a firm's boundary-setting precisely affected by its endowment with resources, and by the firm specificity of these resources? The resource-based view of the firm does not answer this question directly because it does not address explicitly the issue of governance (Priem and Butler, 2001). Nonetheless, that theoretical perspective can inform the choice of firm boundaries through its emphasis on rent creation (Santos and Eisenhardt, 2005; Silverman, 2002; Zajac and Olsen 1993). This insight has spurred the emergence of a research stream in which scholars have attempted to integrate the transaction cost and resource-based perspectives on boundary choice.

This literature generally views the main attributes relevant for governance choice suggested by the two theoretical perspectives – asset specificity and firm specificity – as interchangeable, yielding very similar, indeed highly indistinguishable implications for a firm's boundary choice. Scholars argue that firm-specific resources are characterized by, or

give rise to, high asset specificity and hence are associated with high transaction costs. The commonly held assumption, as identified by Silverman (1999: 1110), is that “rent-generating resources are necessarily too asset specific to allow contracting.” The gist of the argument is that the circumstances that render resources difficult to imitate also create the conditions for asset specificity. Langlois and Foss (1999: 214) note, “Capabilities would certainly seem to qualify as specific assets – they are specialized to firms; they have low (or no) value in alternative uses; managers/owners can hinder others in working with them, etc.” And Poppo and Zenger (1998: 866) define firm-specific assets as “human assets, physical assets, and company-specific routines and knowledge that [are] not redeployable to alternative uses (Williamson 1985).”

The failure to distinguish between firm and asset specificity, however, can be problematic. First, it constrains theory development by excluding cases that could be theoretically interesting. By assuming that firm specificity necessarily translates into asset specificity, for example, the case of high firm specificity and low asset specificity is precluded from consideration. We show in this paper, however, that this case exists and is theoretically relevant, because here the transaction cost and resource-based perspectives on boundary choice are at odds with each other. Second, it may also give rise to measurement error in empirical research. Measures for firm specificity could be taken as measures for asset specificity (or vice versa), and this, in turn, may lead researchers to premature conclusions about the validity of resource-based or transaction cost explanations of boundary choice.<sup>1</sup> Third, the failure to distinguish between firm and asset specificity may entail misguided managerial decision-making. Given the increasing importance of boundary choice for managers and entrepreneurs (Business Week 2006), this could impose significant monetary costs on businesses.

In this paper, we address these problems by relaxing the aforementioned assumption and by suggesting that there are important differences between asset and firm specificity. These, in turn, can affect a firm's boundary decisions. Although both constructs can be viewed as resource attributes, the former denotes the specialization of resources to an activity, whereas the latter denotes the specialization of resources to a particular firm context. Based on this subtle, yet important distinction, and considering the level of a firm's endowment with resources, we pose the following question: How do these attributes – independently as well as jointly - affect the choice of firm boundaries?

As explained below, this question reflects an important gap in the emerging organizational literature on firm boundaries that combines transaction cost and resource-based perspectives. This literature can be broadly classified into two streams: The first considers *interdependencies* between resource and transaction characteristics. Resources are often viewed as an antecedent of transaction costs, which in turn affect the choice of governance form. Madhok (1996) hypothesizes that resources that are difficult to isolate and emulate--and hence difficult to observe, verify, and price--increase the costs of opportunism when they are exchanged in a transaction because of the high ambiguity involved in the exchange. In a similar vein, Chi (1994) has explained how the imperfect imitability of traded resources may be due to such causes as complexity and resource co-specialization. He has related those causes to different types of transaction costs, such as cheating and hold-up, which in turn determine the optimal form of exchange governance.

Scholars working in the second stream of this literature consider a wider range of resource characteristics and argue that these may exert *independent* influences on boundary choice. Leiblein and Miller (2003), for example, develop independent theoretical explanations of vertical integration, identifying asset specificity and demand uncertainty as

key variables suggested by the transaction cost perspective and experience-based constructs as key variables suggested by the resource-based perspective. Schilling and Steensma (2002) extend the scope of the analysis by including the antecedents of such constructs in their model, such as commercial uncertainty and technological dynamism, which appear to be particularly relevant in highly dynamic markets. Other studies in this research stream have addressed the relative impact of resource and transaction characteristics on firm boundaries. Argyres (1996) concluded that the choice of the desired governance form requires careful, case-by-case examination of each firm's capabilities and cost differentials. Jacobides (2004) broadens this view by arguing that firms' production costs have a greater impact than do transaction costs.

The collective works of scholars who have sought to consider both transaction cost and resource-based perspectives yields important insights about firm boundaries. Yet, there is a need to bridge the two research streams mentioned above by considering independent effects and interdependencies in one model. Our study addresses this conceptual gap by disentangling the notion of asset specificity from that of firm specificity, and by highlighting the intriguing possibility that these constructs may not be as highly correlated as is often assumed. Indeed, we argue that they are distinct, and can thus independently influence firms' boundary choices. Moreover, in this study we explain that both constructs can be conceptualized as resource properties that interact in important ways. We show that they differentially impact – independently as well as jointly – the boundary decisions of firms. Our theory thus takes into account concurrently the independent as well as interdependent effects of asset and firm specificity on the choice of firm boundaries. It thereby constitutes a step toward resolving the tension between transaction cost and resource-based perspectives about boundary choice. Shifting the focus from the transaction to the activity in the analysis of firm

boundaries facilitates our theory development because it emphasizes the importance of resources, while preserving the importance of transaction cost arguments.

## **Using the Activity Concept as a Lens to Study Firm Boundaries**

### **Shifting Focus from the Transaction to the Activity**

Coase's (1937) point of departure for analyzing the nature of the firm was the market system, which comprises transactions coordinated by the price mechanism. Since then, a frequently used unit of analysis for studying firm boundaries has been the transaction. According to Williamson (1983: 104), "a transaction occurs when a good or service is transferred across a technologically separable interface. One stage of processing or assembly activity terminates, and another begins." A focus on the transaction, and hence on the interface between separable activities, has several advantages: (1) It facilitates a focus on the attributes that determine the costs of the exchange and thus ensures parsimony of the explanation of transaction governance (Williamson 1975, 1985); (2) the interface can be considered as given, and there is little need to consider how it emerged (Santos 2006), which helps to avoid the conceptual difficulty of delineating the activities that are separated by the interface; and (3) the transaction can be considered in isolation (Riordan and Williamson 1985), which further increases the simplicity and elegance of a theory of transaction governance that focuses on exchange efficiency. All of these further the central objective of transaction-cost theory, which is to make the case that "the possible joinder of separable stages is not driven by technology but needs to be derived" (Williamson 1999: 1089).

When managers and entrepreneurs make decisions on firm boundaries, however, they do not only consider the exchange along with its various attributes, but also (and perhaps foremost) a particular *activity* X that is (to be) linked by the exchange. They ask: How should our firm, "which has pre-existing strengths and weaknesses (core competencies and

disabilities), organize X?” (Williamson 1999: 1103). What concerns managers is, hence, the governance of an activity: Should X be governed within or outside their firm’s boundaries? This is evident in part from the managerial literature on outsourcing (e.g., Burdon and Bhalla 2005, Quinn and Hilmer 1994).

In the academic literature on firm boundaries, “transactions” and “activities” are often used as interchangeable terms. Little distinction is made between the questions of how to best govern a transaction and how to best govern an activity. A focus on the activity, however, brings with it a subtle, yet important, shift in perspective on firm boundaries. First, it no longer necessitates a symmetric treatment of the potential exchange partners and the dyad of activities that are linked in an exchange. Instead, it shifts the focus to the focal firm that must make the decision about how to govern a specific activity, i.e., how to link that activity to its current activity system, thereby framing that decision as a strategic one.<sup>2</sup> Second, and flowing as a direct implication from that first premise, focusing on “activity” rather than “transaction” stresses the need to include an analysis of firm attributes in the focal firm’s governance decision (without negating or diminishing the importance of transaction-cost reasoning). Consequently, in addition to considering the firm’s resources insofar as they may influence the level of transaction costs, an “activity” perspective suggests the consideration of all the resources that enable the activity, as well as their relation to the firm’s existing resource endowment, with respect to their potential for rent creation. In this paper we posit that the activity lens can serve as a bridge between various theoretical perspectives that elucidate boundary choice decisions, namely transaction cost economics and resource-based view of the firm.

What is an organizational activity? Simply speaking, an activity describes what the organization does. Porter (1985) defines activities as the building blocks by which a firm

creates a product. He contends that “every firm is a collection of activities that are performed to design, produce, market, deliver, and support its product” (1985:36), such as calling on customers, assembling final products, and training employees. Since potentially valuable differentiation arises from the choice of activities and how they are performed, and cost is generated by performing activities, some scholars view activities as the basic units of competitive advantage (Porter 1996). Building on these early concepts, we define an organizational activity as a cluster of interlinked workflows and tasks that are performed and enabled by the organization’s resources. Activities could be based on routines (Nelson and Winter 1982), but they could also involve creative tasks and some degree of improvisation (Miner, Bassoff and Moorman 2001). They could be performed within the boundaries of a focal firm, or they could be linked to the activity system of the focal firm through a transaction with another organization that performs the activity within its own boundaries.<sup>3</sup>

Identifying activities that are technologically and/or strategically distinct can be conceptually challenging because the number of potential activities is often quite large (Porter 1985). Many seemingly inseparable activities can be further broken down (Santos 2006). One way to deal with this issue is to define activities at different levels of aggregation.<sup>4</sup> In this paper, we accept as a given the level of aggregation at which an activity is described. We do not ask *where* to draw the boundary around an activity (i.e., which level of aggregation to adopt). We ask instead *which* organizational boundary to draw given the activity.<sup>5</sup> This emphasis is also different from the property-rights approach of Grossman and Hart (1986) and Hart and Moore (1990), which focuses on the question of who should own the assets, taking as a given who conducts the activity.

To summarize, we adopt the activity as the unit of analysis in this paper. We build on Williamson’s original insight that transactions link activities, and we draw on the perspective

of the organization as a system of activities (e.g., Porter 1985, 1996; Siggelkow 2002). We define “hierarchical” activity governance as the conduct of the activity within firm boundaries and “market” activity governance as the conduct of the activity outside firm boundaries. In between these extremes lie other activity governance modes such as joint ventures or strategic alliances. Figure 1 illustrates our approach.

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Insert Figure 1 about here  
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### **Organizational Resources and Activities**

Resources are needed to enable and perform the activities that produce the goods and services that may be exchanged across firm boundaries (Penrose 1959). Resources include (a) all factors that can be owned or controlled by a firm, for example, physical assets, know-how (e.g., in the form of patents and licenses), financial assets, and human capital, and (b) information-based organizational processes that are based on developing, carrying, and exchanging information through the firm’s human capital (Amit and Schoemaker 1993: 35). These processes, which encompass the capacity to deploy resources, are sometimes referred to as capabilities. To give an illustration, call-center operation and customer service delivery activities may be facilitated by the availability and skillful deployment of resources that include human capital, a database of existing and potential customers, service processes, IT and telecommunications hardware and software, call center facilities, training programs for employees, and financial capital.

A focal firm is said to be endowed with resources when it controls resources either through direct ownership (i.e., legal title) or through exclusive access to them (i.e.,

operational control), for example, through long-term contracts (Conner 1991; Montgomery and Wernerfelt 1988).<sup>6</sup>

Indeed, the rationale for the decision to conduct an activity within or outside firm boundaries can be largely resource-driven, as in the case of a firm that desires to tap into the resources of an exchange partner that enjoys lower production costs (e.g., Argyres 1996). In other cases, a firm simply may not be endowed with the resources it needs and also may find it too difficult and costly to acquire or build them (Barney 1999). A “fabless” semiconductor firm, for example, may exploit the low transaction costs of market-based activity governance by outsourcing the manufacturing function to a dedicated “foundry.” Other interpretations of that same decision, however, may be that the company was seeking to gain access to the unique production skills that the foundry had amassed or that the company wanted to avoid the high capital costs of acquiring the manufacturing skills and assembling the required assets.

Activity-enabling resources are those that constitute the core of the resource bundle deployed in an activity. They are necessary for conducting the activity in question; removing any of them from the bundle of resources deployed in the activity could crucially affect the ability of the focal firm to conduct the activity. For example, answering customer calls in a call center relies on phone operators, but it does not require a fleet of company cars; the employees are activity-enabling, the cars are not. Activity-enabling resources can be conceptualized as the component input factors to the production function that captures the output from the activity; they have more than marginal impact on the output level. The value creation potential of the activity (i.e., its associated quality, cost, and time) is determined both through the selection of resources combined to enable the activity and through the properties of these resources, namely their asset specificity and their firm specificity.

## **Asset Specificity and Firm Specificity of Resources**

### **Asset Specificity**

Assets refer to durable resources and include sites, physical assets, and human assets (Williamson 1985: 95-96). In transaction cost theory asset specificity refers to the degree to which such resources are specialized to an exchange. Since assets are part of the firm's resource position, however, asset specificity can be viewed not only as an exchange attribute but also as a resource property, one that explains the resource's potential for affecting transaction costs. Transaction cost theory asserts that asset specificity is important in conjunction with bounded rationality, opportunism, and uncertainty; it suggests that when asset specificity increases, the re-deployability of the assets decreases, and the contracting hazards (notably, the hazard of opportunism) as well as the bilateral dependency between the parties involved in an exchange, increase (Williamson 1985). Consequently, the likelihood of hierarchical forms of transaction governance increases (Williamson 1991). Asset specificity can not only cause hold-up problems and their associated monitoring and contract-enforcement costs, but it also affects other exchange attributes, such as uncertainty and frequency (Williamson 1975, 1985; David and Han 2004). Indeed, Williamson asserts (1999: 1089) that "much of the explanatory power of the transaction cost perspective turns on transaction-specific assets."

A precise understanding of asset specificity is important in order to assess its role in a firm's decision how to govern an activity. Asset specificity refers to the degree to which investments in assets that have to be made before a particular activity can take place are worth less if deployed *in another use or with another user* (Klein et al. 1978: 298). This definition establishes two conditions that are necessary (as well as sufficient) for asset specificity to hold. The first condition (*worth less if deployed in another use*) stipulates that

the salvage value of the asset (i.e., resource) when deployed in another use (i.e., activity) within or outside firm boundaries is smaller than the difference between revenues and operating costs of the asset when deployed in the activity in question. In other words, there exists a positive quasi rent from the asset. (The quasi rent is obtained when subtracting operating cost and salvage value from revenues; see Klein et al. 1978: 298). If the quasi rent were zero, then – in the case of market activity governance – the asset would not be specialized to the bilateral exchange; it could be deployed in its alternative use without loss of value, and none of the exchange partners would be subject to hold-up.

The second condition (*worth less if deployed with another user*) refers to the existence of an alternative exchange partner for the firm (in case the focal firm opts for market governance of the activity), offering a lower willingness-to-pay (at the extreme, zero) than the original exchange partner. This condition is also needed for the presence of non-negligible asset specificity, because only then can part of a positive quasi rent be appropriated by an exchange partner. If an alternative exchange partner existed with the same willingness to pay as the original exchange partner, then the scope for ex-post appropriation (and, consequently, asset specificity) would be zero.

### **Firm Specificity**

When making choices that affect the boundaries of their organization, managers often seek to preserve or strengthen their firm's competitive advantage. There is increasing consensus among strategy and organization scholars that the attributes of a firm's resources may affect the firm's competitive advantage (Amit and Schoemaker 1993; Barney 1991; Silverman 2002). At the core of the resource-based perspective rests the idea of heterogeneity--of both resources across firms and in the ability of firms to deploy their resources (Mahoney and Pandian 1992; Penrose 1959; Priem and Butler 2001). In particular,

the subset of resources owned or controlled by the firm that are firm-specific (i.e., specialized to the firm) can be positively related to rent creation (Peteraf 1993; Collis and Montgomery 1997; Conner 1991). Although such rent-generating resources are often thought to be associated with high degrees of asset specificity (Silverman 1999), we suggest that firm and asset specificity are in fact distinct, independent concepts.

Although firm specificity often denotes resource idiosyncrasies among firms, there is no commonly agreed upon definition. Different definitions stress the specificity of resources with respect to fields of application (e.g., Collis and Montgomery 1997: 37), specificity with respect to a firm's needs (e.g., Chi 1994: 273), or specificity with respect to the firm's other resources (Conner 1991). In this paper, we build on the idea that firm specificity refers to the value dependence of resources on their use within a particular firm (e.g., Conner 1991). (Note the variance with the definition of asset specificity, which refers to the value dependence of resources on their use in a particular activity). We consider activity-enabling resources to be *firm-specific* if their deployment in activities within the focal firm's boundaries yields greater value to the resource holder than if another firm were to deploy this same bundle of resources in the same activities; the greater the difference in value, the higher the degree of firm specificity. Our notion of firm specificity of activity-enabling resources, therefore, centers on the organizational context of the resource bundle.<sup>7</sup> (This definition holds whether the firm is already endowed with the resources or not; resources with which a firm is not yet endowed could still be firm-specific in the sense that their *potential* to generate value is greater for the firm than for any other firm that could conduct the activity.) Firm specificity of activity-enabling resources is also often associated with how difficult it is to imitate and substitute this resource bundle (Rumelt 1984), as well as with the value-enhancing linkages

(complementarities) among these resources and the firm's overall resource position (Conner 1991).<sup>8</sup>

The greater the degree of a resource's specificity to a firm, the greater that resource's rent potential to that firm, given favorable conditions of demand, public policy and competitor action (Conner 1991). In this circumstance, the resource can be considered a strategic asset (Amit and Schoemaker 1993). In particular, resources "that cannot be purchased, such as ... organizational culture are, on average, likely to be more specific to the firm than purchasable inputs and hence have the potential to be more significant rent-generators" (Conner 1991: 137). Isolating mechanisms (Rumelt 1984) can enhance the longevity of these rents. Firm-specific resources are indeed often associated with increased efficiency. In analytical or numerical models, they can be conceptualized as production costs that are lower than those of competitors (e.g., Jacobides, 2004).<sup>9</sup>

### **Distinctions between Asset and Firm Specificity**

It follows from the above discussion that firm-specific resources are distinguished from transaction-specific resources in several ways. First, firm specificity of resources does not automatically translate into asset specificity. Firm specificity refers to resources that lose in value when deployed in the same activity within another firm, but that may have multiple uses (i.e., could be deployed in multiple activities) of equal value within the focal firm. Asset specificity, by contrast, arises when there are no other value-preserving uses of the asset within the focal firm or within other firms, and when there are no other value-preserving exchange partners (in the case of market governance of an activity). Second, a resource that fulfills the condition of asset specificity is not necessarily firm-specific. An example is a printing press that a printer tailors to a publisher's specifications. Klein et al. (1978) have shown that its asset specificity is high: The salvage value of the press is smaller than its

amortized fixed cost (perhaps because the press can only be used for printing a certain type of format that is unique to the publisher), and other publishers are willing to pay less for that printer's services than the original publisher (because the printer has tailored his operation to that one publisher's needs). In other words, the printing press can give rise to serious transaction hazards. However, while the press may be specialized to the exchange between the printer and the publisher, it is not necessarily specialized to a focal firm. Consider, for example, the publisher as the focal firm needing to decide whether to print a certain product (for which the printing press is needed) within or outside its own boundaries. The resource in question (printing press) could be deployed by any other firm (supplier) for conducting the same activity, thereby delivering the same service to the publisher without any loss in value (compared with the publisher's choice to conduct printing within its own boundaries). In other words, according to our definition, the press is not firm-specific. Hence, asset specificity does not automatically translate into firm specificity.

## **Exploring the Joint Implications of Asset and Firm Specificity on Firm**

### **Boundaries**

We posit that firms seeking to set their boundaries jointly analyze asset specificity, firm specificity, and endowment with activity-enabling resources. To illustrate the usefulness and relevance of our three-legged framework to determine the most desirable form of activity governance (i.e., that which maximizes value for the focal firm), we apply it to several situations where these variables take on different values (i.e., are either high or low). In each case, we ask, given the focal firm's resource endowment: (1) How does the degree of asset specificity, which determines the costs engendered by the hazards of opportunism, affect the focal firm's choice of boundary? (2) How does the firm specificity of the activity-enabling resources, which determine the rent-creation potential of the activity, affect the focal firm's

choice of boundary? And, (3) what is the joint effect of asset specificity and firm specificity on the focal firm's choice of boundary?<sup>10</sup>

Although, for the sake of parsimony, we focus our exposition on whether an activity should be linked through a market transaction or performed within the boundaries of the focal firm, our analysis does not preclude other forms of activity governance such as joint ventures or alliances. These additional choices can be viewed as permutations of the polar cases we consider. Conner and Prahalad (1996) argue that the study of the polar cases can inform an understanding of all permutations.

### **The Case of Low Asset Specificity and High Firm Specificity**

We begin by examining the case where asset specificity is low, and the focal firm is endowed with the required resources for the activity, and these are firm-specific. This is an interesting case, because it represents a departure from the assumption commonly made in the literature that firm-specific resources necessarily imply asset specificity (e.g., see Langlois and Foss 1999, Silverman 1999). It is also a situation in which the transaction cost and resource-based perspectives, as explained below, yield different predictions about the desired governance form. Thus this case clearly points to the need for new theory development. How plausible is it? Consider a manufacturer who in addition to producing products also conducts a flexible and efficiently organized product development activity, which is enabled by a bundle of firm-specific resources, such as the tacit knowledge of organization members and organization-level routines (e.g., information and communication routines linking different units of the firm with customers). Organizing the product development activity outside firm boundaries requires an ex-ante investment by the exchange partner to learn and implement the activity and by the firm to educate the exchange partner. However, neither of the parties is subject to substantial hold-up, because the focal firm (i.e., the manufacturer) can rely on its

own proven way to conduct the activity, and the exchange partner can conduct the activity for other clients. In other words, the second condition for asset specificity as identified earlier (*worth less if deployed with another user*) is violated in this example. Hence, all other things being equal, the firm specificity of the product development activity is high, yet its asset specificity is low.

Low asset specificity refers to ex-ante investments that can be deployed in multiple uses or with multiple users without loss of value (Klein et al. 1978). This, in turn, implies reduced hazards of opportunism. Hence, the associated costs of market governance are often lower than those that would arise from hierarchical governance (i.e., internal coordination costs and the costs of information processing through the hierarchy). Thus, the transaction cost perspective points towards market governance of the activity (Williamson, 1975, 1985).

The resource-based perspective does not explicitly address whether an activity enabled by firm-specific resources should be conducted within or outside firm boundaries. However, it suggests that ownership of firm-specific resources, or exclusive access to such resources, can bestow a firm with a competitive advantage, i.e., create positive economic rents (Collis and Montgomery 1997; Conner 1991; Montgomery and Wernerfelt 1988; Peteraf 1993). Scholars have also suggested that firms should focus on their core strengths and pursue relevant activities in-house only when they have greater experience or skills than potential suppliers (Argyres, 1996; Quinn and Hilmer, 1994). Several distinct arguments support these broad assertions.

First, as Conner (1991) and Peteraf (1993) indicate, ownership or control of firm-specific resources used for in-house activities can help the focal firm generate and appropriate rent. Unique factors are often associated with lower production costs, i.e., higher efficiency and productivity (e.g., Argyres, 1996; Jacobides, 2004), and can generate

Ricardian rents (Montgomery and Wernerfelt 1988). Meanwhile, the focal firm might find it difficult to identify an exchange partner that can perform such activities with similar quality and/or at similar cost. And even if such a partner were to be found, a focal firm may not be able to extract similar rents. When activities enabled by firm-specific resources are internalized, a focal firm can exert more direct influence over how these resources are managed and used, thereby limiting their dissipation in the market and making imitation and substitution more difficult.

Second, many firm-specific resources are knowledge-based, and hierarchical governance of the activities that they enable provides for efficient and effective coordination of knowledge and information flows. A firm can use to its advantage its common language and routines (Langlois and Foss 1999; Silverman 2002) as well as its managerial authority and organizational learning (Conner and Prahalad 1996; Gulati et al. 2005). These factors may also increase opportunities for innovation and facilitate more rapid, flexible recombination of resources (Santos & Eisenhardt, 2005). The rent-creation potential achieved through recombination of firm-specific resources may be higher than that which results from recombination of generic resources, because such (firm-specific) bundles are difficult to imitate, presumably even more than their component (firm-specific) resources.

Third, hierarchical governance ensures direction and control for the future development of an organization's firm-specific resources (Leonard-Barton 1995). The activities that resources enable provide timely feedback about how a firm's resource position could be improved.

Collectively, these arguments suggest that firm-specific resources can be an important source of competitive advantage and of economic rents, and that the benefits of hierarchical governance might more than offset the disadvantages (Leiblein 2003). Indeed, they also

suggest important disadvantages of market governance in these cases, because a firm already endowed with activity-enabling firm-specific resources would have to maintain these resources as slack, redeploy them in another use, or sell them to another firm, potentially realizing less than full value (e.g., Quinn and Hilmer 1994). All of these alternatives can destroy value.

These resource-based arguments, then, suggest that an activity enabled by firm-specific resources is usually best conducted within firm boundaries, a conclusion at odds with the prediction gleaned from the transaction-cost perspective. Thus, when considered *independently*, the transaction costs and the resource based perspectives point to different governance forms for conducting the same activity.

To resolve this tension between the two perspectives, we need to consider the *potential interaction* between low asset specificity and high firm specificity of the activity-enabling resource bundle. In other words, does low asset specificity affect the hypothesized positive association between high firm specificity and the likelihood that the activity will be governed within firm boundaries and if so, how?

Low asset specificity may result either from a violation of condition one of asset specificity, or of condition two, or of both. If the first condition (*worth less if deployed in another use*) is not met, then this implies that the ex-ante investments made to enable an activity can be redeployed without loss of value to another activity within the same firm. This ease of redeployment of firm-specific resources within the firm's boundaries points toward relatively low coordination costs of hierarchical activity governance. It can also be expected to interact positively with the extent to which the firm-specific resources create value for the focal firm: the investment by the firm in activity-enabling resources may be deployed, and/or bundled with other resources in other (potentially new) value-added activities. Hence, when

considering concurrently the value creation potential of deploying firm-specific resources in activities within firm boundaries, with the ability to redeploy the resources in other uses (i.e., activities) within the firm without loss of value, the joint effect of low asset specificity and high firm specificity points towards hierarchical activity governance.

If low asset specificity results from violation of condition two (*worth less if deployed with another user*), the implication is that the activity-enabling resources can be deployed without loss of value with another exchange partner, assuming market activity governance. Consider the example cited above of the manufacturer whose core competency is the ability to design and manufacture to order. Suppose that the manufacturer – the focal firm – considers organizing a certain product development activity outside its own boundaries. In order to do so, it needs to train and educate a supplier in its highly firm-specific way of doing things (because, by definition, substitutes for firm-specific resources are hard to find). Despite these efforts, there will be some loss of value (as implied by the value dependence of firm-specific resources on their use in the focal firm). For example, the supplier incurs slightly higher costs or produces lower quality output than the manufacturer. As well, the supplier gains access to valuable know-how and the condition of low asset specificity implies that the supplier could also serve some other potential exchange partner. The manufacturer no longer is the only firm that could benefit from its own firm-specific resources. This is a highly undesirable outcome for the focal firm, especially if the activity is its key differentiator. Thus, when asset specificity is low (and, more precisely, when the second condition of asset specificity is violated, i.e., there exists more than one exchange partner who values the activity as much as the focal firm), the likelihood is low that the focal firm would opt for market governance of the activity.

On balance, therefore, these arguments on the independent as well as joint effects of low asset specificity and high firm specificity point towards hierarchical rather than a market form of governance of activities. Hence we postulate:

**Proposition 1a:** If activity-enabling resources are characterized by **low asset specificity, high firm specificity**, and if the focal firm is **endowed with them**, then the activity is more likely to be conducted **within the boundaries of the focal firm**.

But, now consider the case where the focal firm is not endowed with the firm-specific resource bundle necessary for enabling the activity. That firm has three alternatives: (1) Acquire the necessary resources from another firm (e.g., through the purchase of another firm; see Chi 1994) so that it can internally perform the activities, (2) develop the resources internally and subsequently internalize the activities, or (3) find an exchange partner already endowed with the resources and have that firm conduct the activity. Barney (1999) points out that the acquisition of resources (in particular, firm-specific ones) through the purchase of another firm (option 1) or the development of said resources within the focal firm (option 2) can be prohibitively costly: Any acquisition process may result in inefficiencies, since, by their very nature, firm-specific resources can be difficult to copy and/or substitute. Resource development and/or acquisition costs are likely to be high for firm-specific resources.

The costs of establishing a bundle of firm-specific resources can be close or equal to their full value creation potential. Barney (1986) argues that firms can obtain rents from acquired resources only when they have superior information about the value of the resources, or when they are lucky. Otherwise, buyers will not be able to extract superior economic performance from any resource. Reflecting on this argument, Dierickx and Cool (1989) point out that it applies to those resources that can be traded, yet for those resources that need to be accumulated internally, different criteria must be considered, notably, time

compression diseconomies which denote a firm's difficulty (i.e., cost) of speeding up the development of firm-specific resources.

In the presence of time compression diseconomies, the greater the gap between actual and desired resources, the higher the cost of development, and thus the lower the chances of extracting rent from the resources (Pacheco-de-Almeida and Zemsky 2006). This point of view is echoed by Silverman (2002:476), who argues that decisions on the desired form of governance are sometimes taken "not in response to [certain] levels of asset specificity, but in response to (1) the gap between existing capabilities and desired capabilities, and (2) the time frame over which the gap must be closed." Argyres (1996: 135ff) interprets a case analysis in a similar way. The author describes a situation in which an industrial products firm, which needs many different molds for its products, decides to rely on external suppliers for mold-making, presumably because the firm is not endowed with the necessary firm-specific resources.<sup>11</sup> The firm neither develops these resources internally (e.g., by hiring a few master mold-makers and relying on a time-consuming apprenticeship process) nor acquires them (e.g., by purchasing an entire mold-making company). In addition to the significant monetary expenses of developing the firm-specific resources required to internalize mold-making, there were time pressures at play: The time required to build and absorb the new resources was considered long compared to the short life cycle of the products; in other words, time compression diseconomies were present.

When the costs of establishing a bundle of firm-specific resources are close or equal to their full value-creation potential (e.g., because the focal firm has no informational advantages in externally acquiring resources or faces serious time compression diseconomies in accumulating them internally), then the firm is less likely to realize a competitive advantage by establishing a resource endowment and undertaking the activities that the

resources enable within its boundaries. A market form of governance may be preferred. Hence, under these circumstances in the case of a lack of endowment with required firm-specific resources, a resource-based perspective predicts a market form of activity governance, same as that implied by the transaction-cost perspective given a situation of low asset specificity. As far as their independent effects are concerned, then, the apparent tension between these perspectives is resolved through the need to establish a resource endowment. But, as before, we also consider the interaction of low asset and high firm specificity.

When low asset specificity arises from the fact that there are multiple uses for the resources, there remains the possibility of redeploying the firm-specific resources, once they are acquired or developed, in any of the alternative activities within the focal firm's boundaries. For reasons mentioned earlier, this would normally present favorable conditions for the creation of rents. But if the focal firm is faced with time compression diseconomies or a lack of informational advantages in the development of the activity-enabling resources, their potential for rent-creation is diminished, and the focal firm's managers have a reduced incentive to acquire or develop them. Hence, the activity for which the resources are required is more likely to be conducted outside firm boundaries. Thus, under these conditions, the juxtaposition of lack of resource endowment, low asset specificity and high firm specificity – i.e., their joint effect – points toward market governance of the activity.

Time compression diseconomies and a lack of informational advantages play a similarly important role for determining the desired form of activity governance in the situation where low asset specificity is due to the fact that there would be multiple exchange partners if the activity were governed in the market. Consider the example mentioned earlier of the manufacturer (focal firm) that designs and manufactures to order. The firm is considering adding a new firm-specific product development activity to its activity system.

As we pointed out earlier, if it uses the market to do so, then the chosen supplier could turn around and offer the same service to other firms that value the activity (this follows from the assumption of low asset specificity). In the endowment case, this presented the focal firm with an incentive to conduct the activity within its own boundaries. Yet, in the case where the focal firm is not yet endowed with the firm-specific resources, if there are time compression diseconomies or the managers of the focal firm do not have special insights into the value creation potential of the activity-enabling resources, then, once again, they would have little incentive to buy or otherwise accumulate the resources themselves. Acquiring the resources and conducting the activity in-house would not bestow the focal firm with a competitive advantage. We therefore postulate:

**Proposition 1b:** If activity-enabling resources are characterized by **low asset specificity, high firm specificity**, and if the focal firm is **not endowed with them**, then the activity is more likely to be conducted **outside the boundaries of the focal firm** when (a) the managers of the focal firm do not possess superior information about the rent creation potential of the resources, or (b) there are time compression diseconomies in establishing a resource endowment.

### **High Asset Specificity, And Low Firm Specificity**

To illustrate the situation where asset specificity is high but the activity-enabling resources are generic, consider a customer service process that involves tailoring to the customer (consequently, asset specificity), but which otherwise can be based on fairly standard resources (e.g., off-the shelf software, call center, employees). In this case, a transaction-cost analysis that looks at asset specificity alone would recommend hierarchical activity governance to minimize the costs of opportunism. However, viewed from the perspective of the resource-based view (RBV), the benefits of hierarchical governance would be doubtful. Internalizing the activity does not protect or enhance the firm's resource-based competitive advantage due to the low firm specificity of the activity-enabling resources.

Moreover, if the resources deployed in the activity can be freed up by outsourcing, they might be redeployed to other activities with higher strategic value for the focal firm (Santos and Eisenhardt 2005). Also, due to the low firm-specificity of the resources, the focal firm is less likely to need to alter on an ongoing basis the duties and responsibilities of the parties involved in the activity—which would be done more effectively and efficiently within the firm’s boundaries (Conner and Prahalad 1996). That is, the resource-based perspective points toward market governance of the activity.

Thus, viewed independently, the transaction cost and resource-based perspectives point in different directions. Once again, in order to resolve the resulting tradeoff, we consider the *joint* effects of high asset and low firm specificity on the governance of the enabled activity. High asset specificity implies that the opportunity costs of the activity-enabling resources are low, since there is a loss of value when these generic resources are redeployed to another activity (this argument follows from transaction cost reasoning). This observation, in turn, decreases the desirability of conducting the activity in the market and redeploying the resources to other activities, because viewed from a resource-based perspective their value-creation potential in these alternative uses might be lower than if they were used to enable the activity in question. Hence, when considered jointly, high asset specificity and low firm specificity suggest that, on aggregate, there is little advantage of conducting the activity outside firm boundaries. In fact, a loss of value will be realized in that case. We postulate:

**Proposition 2a:** If activity-enabling resources are characterized by **high asset specificity, low firm specificity**, and the focal firm is **endowed with** them, then the activity is more likely to be conducted within the boundaries of the focal firm.

A lack of endowment with activity-enabling resources can affect the trade-off between transaction costs and the limited rent creation potential of generic resources.

Although the independent effects of high asset specificity and low firm specificity on activity governance (as discussed above) remain intact, their interaction is different under the condition of low resource endowment. As before, in order to analyze that interaction, we pay attention to the opportunity cost of resources. Lack of endowment implies that necessary investments to support the activity have not yet been made, and the high asset specificity of these investments suggests lower ex-post than ex-ante opportunity costs, which is consistent with Williamson's notion of a "fundamental transformation" (1985): Once the activity-enabling resources are obtained, through internal development or through acquisition, they must be dedicated to the particular activity, which will limit their ability to be redeployed without loss of value. Put differently, while their ex-post opportunity costs are low, their ex-ante opportunity costs could be high. If the focal firm is faced with resource constraints (as in the case of a new venture), then it must take into account the costs and the amount of time it takes to acquire or develop the non-specific resources. The higher these costs, and the more resource-constrained the firm is, the less likely it is that the firm will conduct the related activity within its own boundaries. These arguments are particularly important for rapidly growing entrepreneurial firms that need to preserve precious resources and use them strategically and selectively. Such firms might embrace a scalability rationale (Santos, 2006) for transacting through the market *despite* high asset specificity.

Hence, in the absence of an endowment with activity-enabling resources, the juxtaposition of high asset specificity and low firm specificity points toward conducting the activity outside of the focal firm's boundaries when the (ex-ante) opportunity costs of the resources are high. Thus, we propose:

**Proposition 2b:** If activity-enabling resources are characterized by **high asset specificity, low firm specificity**, and the focal firm is **not endowed with** them, then the higher the ex-ante opportunity costs of these resources the activity is more likely to be governed **outside firm boundaries**.

(See the Appendix for a brief discussion of the more straightforward cases of high [low] asset specificity and high [low] firm specificity.)

## **Discussion and Conclusion**

Disentangling explanations of the choice of firm boundaries can be challenging (Conner and Prahalad 1996; Schilling and Steensma 2002), yet we find that distinguishing between the asset specificity and firm specificity of an activity-enabling resource bundle offers a means to do so. In this paper, we explain the differences between these concepts, and we show how they affect firms' boundary decisions. We conceptualize transactions as linkages between the resource-enabled activities of the exchange partners. Focusing on the "activity" allows us to synthesize the resource attributes into a theoretical framework that considers both the transaction-cost and resource-based perspectives. We can then draw inferences about the governance of an activity.

Building on Conner (1991), we define "firm specificity" as the condition of resources that are worth more when deployed in activities in a focal firm rather than in other firms. This marks the resources in question as a potential source of rent creation. Firm-specific resources need not be specific to a particular activity but could be redeployed within the firm to other potentially value-preserving activities. This sets firm specificity apart from asset specificity, which refers to the extent to which the resources in question lose value in another activity or with another exchange partner (Klein et al. 1978).

The theory we have developed in this paper also takes into account the focal firm's endowment with activity-enabling resources. We argue that considering the aggregate implications of resource attributes (i.e., asset specificity, firm specificity, and endowment) jointly as well as independently allows one to predict when activities will take place within

firm boundaries (i.e., a hierarchical form of activity governance) and when those activities will be undertaken outside firm boundaries (i.e., a market form of activity governance).

Our theory not only clarifies and sharpens the implications of using a resource-based perspective for this analysis, but it also helps resolve the tension between resource-based and transaction cost economics (TCE)-based explanations of boundary choice. Our theory thereby leads to predictions about activity governance that differ from the ones made by any of these main organizational perspectives on boundary choice alone. For example, in the case where a firm is endowed with firm-specific resources and asset specificity is low, while TCE alone predicts market governance, our theory suggests that a hierarchical form of governance is preferred. In another case, when the firm is not endowed with the activity-enabling resources, asset specificity is high, and firm specificity is low, although TCE predicts hierarchical governance, our theory suggests that a market form of governance may be more likely, especially when the opportunity costs of the resources are high.

This study, then, makes several distinct contributions to the literature. First, we delineate the subtle yet important differences between the concepts of firm- and asset-specificity. Not only have these distinctions received little attention in the literature on firm boundaries, but these concepts have also often been viewed as interchangeable. This assumption has presented constraints to theory development, and it may also have led to premature inferences from empirical analyses. We are able to avoid these problems by disentangling the concepts of firm and asset specificity.

Second, by building on this conceptual insight, we show how and why firm-related resource attributes (firm specificity, endowment) matter for the choice of governance form alongside exchange-related resource attributes (asset specificity). In developing our theory, we consider concurrently the independent as well as the joint effects of these attributes. To

date such a simultaneous consideration has been absent from the literature. It could foster an increased integration of the resource-based and transaction cost perspectives, which scholars have called for (e.g., Langlois and Foss 1999; Leiblein 2003; Madhok 2002; Silverman 2002; Williamson 1999). We have responded to their call by providing an integrative framework for examining governance choice. Our framework can be particularly useful to researchers seeking to develop more refined and nuanced theory on firm boundaries, as well as to survey researchers attempting to empirically test joint TCE and RBV predictions. It can also be useful for managers and entrepreneurs who must make important boundary decisions (Santos 2006).

We agree with Santos and Eisenhardt (2005) who wrote that, “Many intriguing insights are likely to come from studies that explore the relationships among [RBV and TCE] boundary conceptions, rather than from forcing them into competition.” One insight that follows directly from our main argument is that firms with different resource positions may arrive at different conclusions about the desired governance choice for an activity. Using the language of the transaction-cost perspective, given the same transaction along with its associated attributes, we expect a differential impact of different resource positions on the desired form of governance. This is because transaction characteristics and resource characteristics co-determine the firm’s boundary choice. By including a resource-based perspective on activity governance that complements the transaction-cost perspective, our theory shifts the level of analysis from the transaction to the resource portfolio of the organization (Santos and Eisenhardt 2005).

While our analysis both suggests ways to expand TCE, which usually focuses exclusively on transaction attributes, and ways to extend the RBV, which usually does not seek to explain activity governance, our theory development is only a partial integration of

these two theories; much more work remains to be done. Our work points to three promising directions for future research: examination of transaction-enabling resources, analysis of interdependencies among activities and resources, and the development of more comprehensive frameworks for studying firm boundaries.

In terms of the first direction for future research, we emphasize that our focus in this paper is on activity-enabling resources. We distinguish these from transaction-enabling resources, which include trust between exchange partners (Gulati and Nickerson 2004) or experience in managing market-based transactions (Leiblein and Miller 2003). We believe this distinction holds theoretical promise. For example, in contrast with firm-specific activity-enabling resources, which are associated with a higher likelihood of hierarchical forms of activity governance, firm-specific resources that facilitate market-based exchanges may be associated with a higher likelihood of market forms of activity governance. A firm with managers very skilled in writing and monitoring contracts may wish to conduct fewer activities inside firm boundaries than other firms, all other things being equal (Delios and Henisz 2000; Leiblein 2003). Furthermore, a focal firm's endowment with such resources may matter, too. For example, a lack of inter-firm coordination routines, of inter-cultural skills, or of the knowledge needed to properly assess exchange partners may constitute important barriers to firms' outsourcing of activities (Quinn and Hilmer, 1994).

More research is also needed to explicitly address interdependencies among activities. Argyres and Liebeskind (1999), for example, have begun the effort, arguing that the governance of a new activity may be determined by how a firm already governs its other activities ("governance inseparability"). This implies that as long as firms have different activity systems with different extant governance arrangements, they may wish to govern otherwise identical new activities in different ways. Interdependencies among activities can

also motivate strategic decisions to incur the cost associated with developing or acquiring costly firm-specific resources (Nickerson 1997; Nickerson and Silverman 2003). Consider, for example, the design of a new product. A focal firm's managers may make a conscious strategic choice to incur the cost (e.g., delayed time-to-market) of developing the necessary firm-specific design capabilities in-house, and not to outsource product design, in the hope of later getting feedback from customers about other products that the firm offers. In this case, the desired governance of the activity cannot be determined in isolation; it is affected by its strategic interdependence with the firm's other activities. Consideration of interdependencies among activities raises the level of analysis from the individual activity to the system level (Brusoni, Prencipe and Pavitt 2001), or to the business model level (Amit and Zott 2001), which is beyond the scope of this paper. Future research could increase our understanding of how a focal firm's activities—whether conducted in-house or outsourced—are interlinked, spatially patterned, and temporally sequenced. Jacobides and Winter (2005) have laid a strong foundation for examining how the co-evolution of capabilities and transactions costs shapes firm boundaries.

Lastly, there can be other factors besides asset specificity, firm specificity, and resource endowment that affect the desired governance of an activity. Our research suggests that further analysis of firm specificity could consider the impact of additional, perhaps more fine-grained, resource attributes on firm boundaries. Foss and Foss (2005), for example, propose to conceptualize resources as bundles of attributes for which property rights may be held. Future theory development may also seek to include relationship-specific factors (Dyer and Singh 1998) or look at the capacity to adapt to changes in transaction and task environments (Gulati et al. 2005). Research is also needed to understand better boundary setting where there exists other forms of activity governance, such as strategic alliances and

joint ventures. We believe that the theoretical development in this paper can constitute a stepping stone towards investigating these promising issues, and stimulate further integrative research on firm boundaries.

## ENDNOTES

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- <sup>1</sup> Poppo and Zenger (1998), for example, find empirical support for transaction-based predictions of lower performance of market forms of activity governance when asset specificity is high. Yet they fail to find support for resource-based predictions of higher performance of hierarchical forms of activity governance when firm specificity is high. The authors interpret the latter finding as indicating “the need for refinement in knowledge-based explanations of boundary choice” (Poppo and Zenger 1998: 872). An alternative interpretation of the same finding, however, could be that the authors treated asset and firm specificity as identical constructs, and although they label their main independent measure “firm-specific assets,” the measure captures asset specificity as defined by Williamson (1985) and Klein et al. (1978). Thus, its usefulness for testing implications from the resource-based perspective on boundary choice is limited.
- <sup>2</sup> This conceptualization eliminates some activities from consideration. Consider, for example, the buying of consulting services from a consulting firm. This and similar activities are not considered here because from the consulting firm’s perspective, there is no boundary decision to be made about whether to conduct the activity in the market or within its own boundaries.
- <sup>3</sup> Activities are often confounded with capabilities. When a firm performs an activity, or a set of activities, in a superior way relative to its competitors, the firm can be said to possess a capability. Capabilities have been defined as information-based, tangible or intangible processes that enhance the productivity of the firm’s factors of production. Examples of capabilities include highly reliable service, repeated process and product innovations, manufacturing flexibility, and responsiveness to market trends (Amit and Schoemaker 1993: 35).

- <sup>4</sup> Davenport (2005), for example, mentions the Supply Chain Operations Reference model, which lays out top level activities (plan, source, make, deliver, and return), but also specifies sub-activities that can be delineated at second, third, and fourth levels. At high levels of aggregation, activities could comprise whole business functions, such as accounting, or human resource management. At low levels of aggregation (i.e., high levels of decomposition), activities could be as specific as the processing of customer e-mails as a function of their content, or the translation of product manuals into a foreign language. However, in this paper, we are not concerned with the questions: What is the right level of aggregation? What are the relevant sub-activities?
- <sup>5</sup> We also assume that managers can articulate and measure the key performance parameters of the activity. We note that activities can be substitutable in the sense that similar outcomes (e.g., activity performance metrics) could be achieved with different (sub-) clusters of workflows and tasks.
- <sup>6</sup> Note that the received organizational literature on firm boundaries that attempts to integrate the transaction cost and resource-based perspectives includes studies in which the firm is assumed to either be endowed with resources (e.g., Madhok 1996) or lacks such an endowment (e.g., Barney 1999; Chi 1994), but rarely considers both possibilities within a unified framework.
- <sup>7</sup> Analyzing situations where several firms may be competing for the same type of input, Conner (1991) refers to firm-specificity as the value dependence of resources on their deployment in a firm compared with their deployment in a competitor. The objective of her analysis – to explain competitive advantage – justifies this approach, but adopting exactly the same definition would not be suitable for our purpose. In this paper, we want to explain activity governance, not competitive advantage, hence we refer to firm-

specificity as the value dependence of resources on their deployment in a firm compared with their deployment in a competitor.

- <sup>8</sup> Firm-specific resources are user-specific; however, they may or may not be usage-specific (which is a distinction made by Ghemawat and del Sol (1998)). Usage-specific resources are resources that are specialized to an application (however narrowly that is defined), and they lose value when the domain of their application changes (see also Montgomery and Wernerfelt 1988).
- <sup>9</sup> Some activities could be enabled by firm-specific resources *or* by generic resources, and a focal firm's managers need to determine whether they both can and want to deploy firm-specific resources in the activity in question. Consider, for example, the activity of operating a call center which requires the use of human resource (HR) management processes. The activity could be facilitated by leveraging the firm-specific HR management resources of the focal firm, *or* it could be enabled by its fairly standard HR resources.
- <sup>10</sup> In this paper we do not explicitly consider arguments centered on economies of scale because scale economies cannot be a determinant of activity governance. Any scale economies of a supplier should also be available to each of the buyers who could capture them by producing to their own needs and additionally supplying outside customers. In this situation, however, the firm that supplies its own competitors may have an incentive to behave opportunistically, and therefore activity governance is determined by factors that are addressed by the transaction cost perspective (Argyres 1996; Riordan and Williamson 1985).
- <sup>11</sup> According to Argyres (1996), mold-making is a highly specialized activity that depends on mold-makers' experience, tacit knowledge, and their unstructured, informal interaction

during the design process – indicators of a highly firm-specific process. The specificity of the assets involved in that process is also high (each mold is completely customized to a transaction), which according to TCE reasoning favors internalizing the activity.



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## **APPENDIX: Other Cases: Low (High) Asset Specificity and Low (High) Firm Specificity**

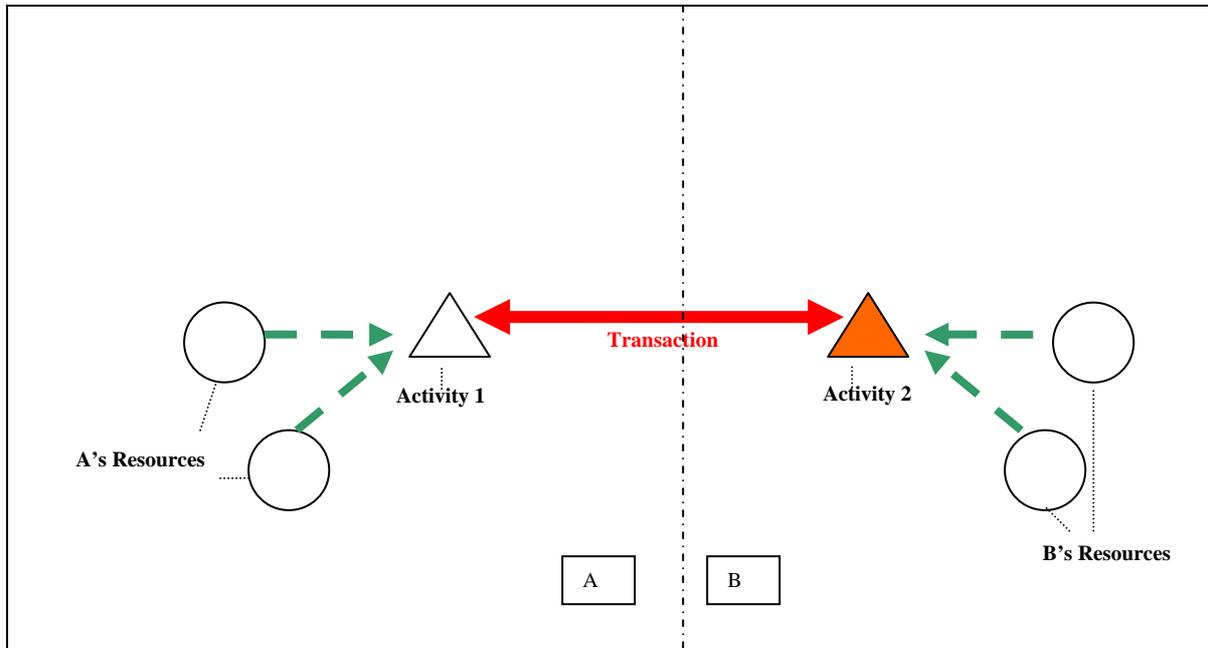
These situations are more straightforward than the ones we analyze in the main body of this paper. We briefly discuss them in this appendix, mainly in order to demonstrate that our theoretical reasoning also applies to these baseline cases. Consider first the case of low asset and low firm specificity. Argyres (1996) provides an illustration. He observed that a large industrial products firm outsourced component fabrication and processing for the manufacturing of a cable connector, and he argued that this was a logical choice because (1) these activities involved low degrees of physical and human asset specificity, (2) “there are no proprietary aspects to [the] manufacturing process” (Argyres, 1996:134), and (3) “the technologies are simple, requiring no special team production or management skills, and could be acquired quickly” (1996:135). In other words, the firm specificity of the required resources was low. In situations where low asset and firm specificity hold simultaneously, the relevant theoretical perspectives point towards organizing the activity in question outside firm boundaries. This reasoning holds regardless of whether the firm is endowed with the required resources or not. A firm already endowed with required resources may choose to outsource the activity in question and redeploy or shed those resources.

A second baseline case to look at is the situation in which both firm and asset specificity are high. When the costs of opportunism are significant due to high asset specificity, according to the transaction-cost perspective, hierarchical governance will win out over market governance (Williamson, 1975, 1985). Moreover, when the focal firm is endowed with firm-specific resources that have a high rent creation potential, a number of theoretical arguments mentioned in this paper point toward the benefits of organizing the

activity in question within firm boundaries. Thus, the relevant theoretical perspectives make a consistent prediction about the organization of the activity.

However, if firm-specific resources are required to conduct an activity, yet the firm is not yet endowed with them, our aforementioned arguments show that the costs (including the time) required to modify a resource position are factors that can push the desired transaction governance to the market, even under conditions of high asset and firm specificity.

**FIGURE 1**  
**Activities, Transactions and Resources**



Consider a focal firm who conducts Activity 1. The managers of that firm seek to link Activity 2 to the firm's activity system, and can either achieve that through a hierarchical form of activity governance (in which A and B are different units of the same organization), or through market activity governance (in which case, A and B are different organizations who conduct a market exchange that links their activities; the dotted vertical line in this case indicates an organizational boundary). Resources enable the activities of the exchange partners.

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