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Experience Spillovers across Corporate Development Activities

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Experience Spillovers across Corporate Development Activities

This study develops a theoretical explanation for the existence of positive, as well as negative, experience spillovers across organizational activities. We suggest that the perceived similarity in two activities influences both the sign and magnitude of experience spillovers. The argument is then used to understand whether and how alliance experience influences acquisition performance. The empirical evidence indicates that the spillover effect is a function of the decisions made in the post-acquisition phase regarding the level of integration and the degree of relational quality among the two firms. Implications of these findings are drawn for our understanding of organizational learning and evolutionary processes in a multi-task context.

INTRODUCTION

The problem of understanding how organizations develop competence has taken a center-stage position in the discourse among organizational theorists and strategic management scholars on the evolution and performance of organizations. In the former field, this research builds on a long-standing tradition interested in the study of cognitive barriers to individual and collective learning (Cyert & March, 1963; Levitt & March, 1988, Weick, 1979 and 1995; Argyris & Schon, 1978). In the strategic management literature, the study of collective learning has a more recent history and offers explanations for the creation and protection of competitive advantage, building on prior market positioning and resource-based arguments (Henderson & Clark, 1990; Kogut & Zander, 1992; Grant, 1996; Teece, Pisano, & Shuen, 1997). These streams of literature have seen some convergence in evolutionary economics (Nelson & Winter, 1982), which draws upon both behavioral and economic traditions to explain the development of organizational competence through the creation and evolution of routines.

One common underlying assumption in this research is that learning processes in one specific type of organizational activity operate independently from learning processes in other domains. The literature on the learning curve phenomenon provides a case in point in that learning and incremental performance improvements are explained by the accumulation of experience in a focal activity (Yelle, 1979; Dutton & Thomas, 1984; Epple, Argote, & Devadas, 1991). More recent and refined versions of this argument have been applied to product development and quality improvement processes (Clark & Fujimoto, 1991; Mukherjee, Lapre, & Van Wassenhove, 1998). This work has identified some important contingencies influencing organizational learning processes, including the degree of cognitive effort expended by teams to uncover causal linkages between action and performance (Weick, 1995). However, whether the explanatory mechanism is based on experience accumulation, process routinization, or retrospective sense-making, the primary locus of learning is closely connected to the processes related to a single activity, which is typically studied in isolation from other ongoing activities in the same organization and their underlying learning processes.

Whereas this simplifying assumption may be appropriate for initial theory building purposes, this paper intends to contribute to our current understanding of how organizations learn and evolve by challenging the assumption of separable and independent learning processes and by submitting a set of propositions on the nature, and possible determinants, of experience spillovers between one activity and another. Organizational activities are not learned in a vacuum, and the experience gained in related activities may have either negative or positive effects on the performance of the focal one. For instance, in their work on the myopia of learning, March and Levinthal (1993) describe the hazards of increasing specialization in a particular knowledge domain. In such circumstances, the experience gained in one organizational activity may inhibit learning in another. By contrast, Cohen and Levinthal's (1990) theory of absorptive capacity may be read from a multi-activity perspective, suggesting that organizations having developed superior knowledge in a specific area may be more capable of expanding the span of their competence into related domains. This view allows for the existence of positive learning externalities across activities.

Two fundamental questions emerge from these preliminary observations. First, does experiential learning in one organizational activity positively or negatively affect the performance of other activities? Second, and even more importantly, under what conditions are experience spillovers across organizational activities likely to be positive or negative? In the present paper, we develop theory attempting an initial study of these questions and test its predictions in the context of two types of activities of economic significance – corporate acquisitions and strategic alliances.

In the next sections of the paper, we first introduce the notion of experience spillovers and develop a theoretical argument to explain both their sign and their magnitude. We then apply these concepts to the context of external corporate development and identify two common dimensions in the management of both processes – the level of integration and the quality of the relationship among the two organizations – which might shape the effects of prior alliance experience on the performance of the focal acquisition. Subsequent sections discuss the research design and the results of an analysis of acquisitions and alliances in the U.S. commercial banking industry. A distinctive feature of the analysis is that we construct

models for both long-term accounting and financial performance. The results reveal that alliance experience indeed affects acquisition performance and that the impact of alliance experience on acquisition performance is contingent upon the way the focal acquisition is managed during the integration phase. A section on the study's implications for research on collective learning processes concludes.

LEARNING ACROSS ORGANIZATIONAL ACTIVITIES

Experience spillovers can be defined simply as the impact of the experience accumulated in the execution of activity j on the performance of activity i (i.e., S_{ij}). More formally, they can be modeled as the partial derivative of performance of the focal activity i with respect to the experience accumulated in activity j. The starting point of our analysis is the observation that experience spillovers can assume both a positive as well as a negative sign. The case of positive experience spillovers is typically more intuitive and follows from the general applicability of basic skills to different activities. The case of negative spillovers might be less obvious, however, yet examples can be found in prior research. For instance, negative spillovers have been studied in cognitive psychology under the label of negative transfer effects at the individual level (see Gick & Holyoak, 1987 for a review). It is an established result that many cognitive activities can produce negative transfers of prior learning to new tasks. In their study of organizational routines, Cohen and Bacdayan (1994) for instance show that individuals who accumulate experience in a card game played with a given set of rules will be at a disadvantage vis-à-vis novices when the rules are slightly altered. This suggests that individuals replicate skilled actions in new contexts that are mistakenly taken to be similar to the ones in which the procedures were initially developed.

At the organizational level of analysis, while there is anecdotal evidence of the negative (Leonard-Barton, 1992) or positive (Brown & Eisenhardt, 1997) consequences of routinized behavior in organizations facing rapidly changing environments, only recently has the problem been approached from a learning standpoint based on research in cognitive science. Haleblian and Finkelstein (1999), for example, show that the relationship between prior acquisition experience and acquisition performance is U-shaped, which they attribute to

the presence of negative *intra-activity* transfer effects at low levels of experience due to the high heterogeneity of acquisition processes and the hazards of erroneous generalizations. Only after a threshold level of experience is reached does performance improve with experience.

The identification of negative transfer effects within a single organizational activity (e.g., corporate acquisitions in Haleblian and Finkelstein's work) is important, but not immediately applicable to the broader problem of understanding the interdependencies of learning processes across distinct activities.[1] Studies such as Cohen and Bacdayan (1994) and Haleblian and Finkelstein (1999) offer important early indications, but they are also limited to "local" conditions, or to a single task with limited variations in the definition of its specifications. We will therefore start from a brief review of the literature in cognitive psychology on the transfer of learning at the individual level of analysis, and we will then develop the key insight that will drive the theory development in the corporate development context.

Several classes of explanations have been advanced in cognitive psychology to study transfer effects in individual learning processes. Chief among them is the notion of similarity between the learned activity and the one to which learning is applied.[2] At the simplest level, one can observe that the higher the similarity among two tasks, the higher the expected success in transferring prior knowledge from one task to the other (Thorndike, 1903; Tversky, 1977). The problem is that this simple relationship cannot easily explain the presence of negative spillovers. Since similarity cannot assume negative values, spillovers

[1] It is also worth noting that the experience spillover problem under study is theoretically distinct from the knowledge transfer process either across organizations in partnerships (Hamel, 1991; Mowery, Oxley & Silverman, 1998) or in acquisitions (Capron, 1999; Ahuja & Katila, 2000), as well as the within the same organization (Szulanski, 1996). In this work, there is one specific task that needs to be transferred either across organizational boundaries or across internal divisional boundaries and geographies. We are concerned, instead, with the transfer of learning from one task to another.

[2] Other important elements that are beyond the scope of the paper include the type of knowledge being transferred (e.g., motor or cognitive skills, declarative or procedural memory, etc.); the existence and strength of rules identifying the task (Holland, Holyoak, Nisbett, & Thagard, 1986); the existence, number, order, and type of cues or examples to refer to in the learning (Gick & Holyoak, 1983; Cheng *et. al*, 1986) and transfer processes (Reed, Erst, & Banerji, 1974; Hayes & Simon, 1977); and the learner's background knowledge (Bransford & Franks, 1976; Larkin, McDermott, Simon, & Simon, 1980).

will be a declining, but always positive, function of the differences between the two activities.

In order to account for the presence of negative spillovers, the notion of a representational error, defined as the difference between the cognitive perception and the actual degree of applicability of prior experience in different tasks to the focal one, needs to be introduced (Holyoak, 1985). The key question then becomes how similarity influences decision makers' representational errors. This is a derivation of the so-called "analogy" problem (Holland et al. 1986), the study of how individuals perceive and assign levels of similarity among different tasks in their cognitive space. For our purposes, we will simply suggest that the relationship between the cognitive representation of similarity and the probability of a representational error might be non-linear (see Figure 1).

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Insert Figure 1 about here

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In cases of very high or very low levels of perceived similarity between two tasks, decision-makers will find it relatively easy to decide whether or not to transfer their accumulated experience in one task to another one. They will transfer at low levels and avoid doing so at high levels. By contrast, at medium levels of similarity, such judgments are likely to be more difficult, and the likelihood of making an error in applying past experience to the focal activity reaches its maximum.

If the non-linear relationship between task similarity and the probability of representational errors holds true, then it is possible that, not only does the magnitude of the spillover effect declines as perceived similarity decreases, but at intermediate levels of similarity the probability of erroneous generalizations from the past might cause the spillover effect to switch sign and turn negative. In other words, prior learning in other tasks becomes a liability, rather than an asset.

This argument rests on the combined effect of two cognitive processes. The first concerns the identification of the decisional dimensions common to the two tasks. The

second concerns the discrimination between those decisions, along the overlapping dimension, requiring a similar response to the one normally adopted in the learned task, and those for which a different response is needed.

At low levels of dissimilarity, experience spillovers are apt to be positive. When the activities under consideration are very similar, experiences accumulated in one activity can be effectively transferred and applied to manage the other. Also, the transfer requires lower cognitive efforts by the decision-makers since the need for abstraction to identify generally applicable principles and for discrimination among potentially transferable lessons is likely to fall well within the limits of their cognitive processing capacities (Cyert & March, 1963; Halford *et al.*, 1993).

As dissimilarity increases, however, experience spillovers are likely to decline and eventually become negative. Erroneous generalizations and negative transfer effects are frequent because at intermediate level of similarity it becomes much harder to correctly identify the lessons from past experiences that are applicable to the context at hand. The challenges surrounding both cognitive abstraction and discrimination therefore increase. As Cohen and Bacdayan (1994) argue, the fact that procedural memory lasts longer than declarative memory (where contextual information is stored) leads to the application of established procedures in the learned task to activities posing apparently similar but inherently different execution requirements. The adverse effects of path dependence also become more likely as firms replicate past, routinized, behaviors to activities sharing some similarities (Leonard-Barton, 1992; Winter & Szulanski, 2000). The rate at which experience spillovers decline and the degree of dissimilarity at which they become negative might depend on many factors, including the discriminatory skills of managers (Lyles, 1988) and the investments of managerial attention to the transfer challenge (Ocasio, 1997), which reduce generalization errors.

Finally, at the highest levels of dissimilarity, the activities can be considered to be so distant in cognitive terms that the low applicability of the learned task to the new one is quite evident to the decision-makers. Thus, cognitive efforts to abstract and discriminate are not

needed and are likely to be avoided by actors concerned about the allocation of their limited cognitive assets (Ocasio, 1997).

One important note at this point is required to clarify the role of intentionality in the theoretical arguments above. Whereas it might appear from the extensive use of arguments borrowed from cognitive psychology that we assume a generally high level of intentionality in the decision to apply prior learning to the novel task. That is not a direct implication of the discourse reported above. In fact, it might very well be that much of the application of past experience to the focal task happens not only tacitly, but also virtually unintentionally.

EXPERIENCE SPILLOVERS AND CORPORATE DEVELOPMENT

We now wish to apply the general theoretical ideas developed above to the context of firms' external corporate development activities. In particular, we will study the effect of alliance experience on acquisition performance and test whether and how the way the focal acquisition is managed influences the sign and magnitude of the spillover effect. The existence of experience spillovers across these activities is made possible by the fact that the two activities have a large number of commonalities, and that they are often carried forward by the same people, including senior managers in the business development function at the corporate level. Table 1 compares and contrasts acquisitions and alliances along both content and process dimensions.

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Insert Table 1 about here

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Along the content dimension, the two activities share several common features. Both acquisitions and alliances are instruments for the execution of multiple corporate strategies, including product-market diversification and the expansion into new geographic markets (Kogut & Singh, 1988; Pennings, Barkema, & Douma, 1994; Chang & Singh, 1999). Similarly, research over the years has emphasized that both modes of external corporate development may allow a firm to access, and at least partially control, the resources upon

which the firm depends (e.g., Pfeffer & Nowak, 1976; Pfeffer & Salancik, 1978; Davis & Stout, 1992). More recently, scholars have argued that acquisitions and alliances can also allow firms to explore new knowledge domains as well as exploit existing capabilities and resources (e.g., Koza & Lewin, 1998; Capron, 1999; Bower, 2001).

These similarities notwithstanding, acquisitions and alliances also exhibit several noteworthy differences. They represent alternative governance mechanisms affording different levels of control and coordination. Many studies have suggested that firms use acquisitions as well as various forms of alliances in a selective fashion based on information asymmetries, *ex post* transaction costs, and firm resources (e.g., Balakrishnan & Koza, 1993; Eisenhardt & Schoonhoven, 1996; Hennart & Reddy, 1997). Similarly, applications of real option theory to the corporate development setting have suggested that alliances allow firms to expand sequentially, whereas acquisitions require more extensive up-front commitments (Kogut, 1991). The transitional nature of alliances also follows from their narrower scope and time horizon relative to acquisitions (e.g., Borys & Jemison, 1989).

On the process dimension, many of the initial steps characterizing acquisitions and alliances share a number of similarities. For both acquisitions and alliances, strategic planning processes may stimulate a search for transaction partners. Both acquisitions and alliances involve negotiations and evaluation processes, and both activities are supported by corporate functions such as corporate development, human resources, information technology, and communications. Indeed, our initial fieldwork reported below indicated that both acquisitions and alliances are coordinated by the same people in the commercial banks we studied. The personnel coordinating acquisitions and alliances tended to be corporate development staff, but in the smallest institutions the CEO or CFO was directly responsible for overseeing external growth initiatives. Thus, although knowledge about the management of acquisitions and alliances can accumulate in individual managers as well as in other groups throughout the organization, it is at the corporate level where organizational routines related to these processes are most likely to form and develop.

On the other hand, these process similarities coexist with several important differences. For example, the deal-making process for acquisitions tends to be characterized

by a formal due diligence phase, which is often absent in the alliance setting. This is a consequence of not only the greater resource commitments inherent in M&A activity, but also of the up-front specification of the integration approach. By contrast, alliance structures tend to be more fluid in nature, reflecting partners' ability to re-evaluate and adapt their cooperative arrangement over time (Doz, 1996; Ariño and De La Torre, 1998; Doz & Hamel, 1998). The post-agreement phase provides perhaps the most interesting basis for comparing the two activities in that it highlights at least two overlapping decisional dimensions on which we propose to focus attention for the purposes of this paper: the level of integration and the quality of the relationship between the two organizations.

The Level of Integration

The first dimension captures the extent to which the two organizations integrate their structures, align their activities and attempt to converge their cultures. The decision on the level of integration is well identified in the literature on acquisitions (Datta & Grant, 1990; Haspeslagh & Jemison, 1991; Larsson & Finkelstein, 1999), but is less often considered in the research on alliances. This is perhaps surprising given the amount of attention dedicated to the fundamental issue of managing the ongoing interactions between the two partnering entities. The character of the collaboration is, in fact, fundamentally determined by the degree to which the two firms decide to jointly organize and execute the activities related to their partnership agreement. In joint ventures, this is particularly evident: the two partners need to agree on how to organize the newly formed entity, and the degree to which each partner contributes to each activity. Highly integrated JVs, for example, will see both partners contribute roughly equally to all the activities of the new entity. In less integrated ones, the division of labor between the two partners will be much higher, each being responsible for a specific set of activities, often strongly tied to the mother company's functions. While integration is obviously an issue in joint ventures, it is also quite important in other partnership types (Borys & Jemison, 1989; Wiliamson, 1991). A collaborative agreement between two similar biotech firms that specialize in similar areas (a "horizontal" partnership) will be managed to a higher level of integration compared to a collaborative

arrangement between a pharmaceutical company and a biotech firm (a "vertical" partnership). To be sure, acquisitions can vary to a much larger extent along the integration dimension, as they can be managed throughout the entire spectrum from complete absorption to preservation of the acquired entity's structure, operations and cultural identity (Haspeslagh & Jemison, 1991).

The Quality of the Relationship

A second key dimension of the post-agreement phase is the degree to which the two organizations invest resources, time and managerial attention in the development and continuation of the quality of the relationship between them. The quality of the relationship can be a function of the degree to which decision-making processes are handled in an inclusive way, with open and frank discussion of expectations, responsibilities and outcome measures. A particularly challenging test on this dimension for both acquisitions and partnerships is the set of decisions regarding what to do with the resources that may become redundant as a consequent of the agreement (to acquire or to partner).

Relational quality has long been recognized as a fundamental antecedent to success in partnerships (e.g., Ariño & de la Torre, 1998; Doz & Hamel, 1998) but has less often been discussed as an important issue in the management of acquisitions. Part of the explanation for this goes back to the observation that the post-agreement problem in acquisitions is typically constrained to the transition period, after which the "acquired" personnel are supposed to be thinking and acting like all the other members of the acquiring organization. Some other explanations, though, might relate to cognitive biases in viewing absorption as "the way" to handle the typical post-acquisition challenge (Haspeslagh & Jemison, 1991). Whereas it might be true that in at least some of the cases where absorption approaches afford the possibility to downplay the importance of the quality of the relationship with the acquired counterpart, in many others that is certainly not the case. Examples include acquisitions driven by cross-selling or innovation purposes as well as mergers between equally sized organizations.

In conclusion, the use of both acquisitions and alliances can produce significant potential for erroneous generalization from prior experience because the managerial requirements in both tasks vary along common dimensions in the post-agreement phase (see Figure 2).

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Insert Figure 2 about here
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In the figure above, alliances are characterized by a narrower feasibility space in terms of managerial decisions during the post-agreement phase, clustered around the low-medium level of integration and the medium-high level of relational quality. Acquisitions, in contrast, are characterized by a relatively wider decision space, since the managerial approaches to the post-transaction period can vary substantially more along the two dimensions. Depending on how the focal activity (e.g. a freshly completed acquisition) differs from the stock of prior experiences (e.g. all the partnerships completed by the acquiring company prior to the acquisition under consideration), therefore, one could expect the probability of representational error to vary from very low (because of high similarity) to very high (in the intermediate similarity levels). Of particular interest for the theory developed above is that in this range of cognitive distance between the two tasks the experience spillover can vary not only in its magnitude, but could eventually switch sign from positive to negative.[3]

RESEARCH HYPOTHESES

Intra-Activity Experience Effects

The first direct experience effect that is of relevance to acquisition performance is the standard intra-activity learning process, whereby the accumulation of prior experience has a

[3] Note that these two tasks are unlikely to differ so much as to fall in the third range of the curve described in Figure 1 in which decision-makes face no abstraction or generalization difficulties because the activities are so different from one another. In this paper, therefore, we will not consider empirically the case of experience spillovers under such high levels of cognitive distance.

positive impact on the performance of the focal activity. The literature on the learning curve phenomenon (Yelle, 1979; Dutton & Thomas, 1984; Epple, Argote, & Devadas, 1991; Mukherjee, Lapre, & Van Wassenhove, 1998) builds on the basic intuition that organizations improve the performance of their production activities through repetition. The evolutionary economics approach (Nelson & Winter, 1982; Nelson, 1995) suggests that it is not repetition alone, but also marginal adjustments to pre-existing routines that cause performance improvements. Based on these arguments, we specify the following hypothesis for the sake of completeness and comparison:

> **Hypothesis 1:** The greater the firm's prior acquisition experience, the better the performance of the focal acquisition.

Although this prediction is intuitively appealing, testing for the presence of experience effects in the acquisition context is interesting because several factors may be in operation that mitigate the potential benefits of prior experience. Acquisitions are infrequent, heterogeneous, and causally ambiguous activities and, therefore, positive experience effects cannot be taken for granted and ultimately are an empirical matter. In fact, while the empirical evidence for experiential learning in the manufacturing domain is overwhelming, in the corporate development context this is hardly so. Experience effects in acquisitions have been subject to few empirical tests, with inconsistent results overall. Some findings are consistent with learning curve theory (Fowler & Schmidt, 1989; Bruton, Oviatt, & White, 1994), while others reveal complex non-linearities (Haleblian & Finkelstein, 1999; Hayward, 2002) or no effect at all (Baum & Ginsberg, 1997).

Inter-Activity Experience Spillovers

Based on the theory developed earlier, the sign of the spillover effect of alliance experience on acquisition performance in general may be either positive or negative. Due to the many similarities between alliance and acquisition processes, learning how to manage the former might help managing the latter. Importantly, empirical support for this prediction would offer evidence in support of a strong absorptive capacity effect (Cohen & Levinthal, 1990), and for the existence of a general corporate development capability, as opposed to localized competencies rooted in specific corporate development activities. However, we

have also suggested that some of the dissimilarities between alliances and acquisitions can be significant, in which case myopic effects (March & Levinthal, 1993) might overwhelm absorptive capacity ones and result in negative net spillovers. Given these contrasting arguments, predictions regarding the direct effect of alliance experience on acquisition performance are stated using the following alternative hypotheses:

> **Hypothesis 2a:** The greater the firm's prior alliance experience, the *better* the performance of the focal acquisition.
>
> **Hypothesis 2b:** The greater the firm's prior alliance experience, the *worse* the performance of the focal acquisition.

Although these general hypotheses consider the overall effect of alliance experience on acquisition performance, the theory developed above indicates that the spillover effect can be positive or negative under certain conditions. Our primary interest therefore lies in understanding the determinants of positive and negative spillovers from alliances to acquisitions, as discussed below.

Predictors of Experience Spillovers

If acquisition performance is modeled as a function of alliance experience (i.e., Performance = β_0 + β_1Alliance experience + other covariates), the experience spillover, defined to be β_1, can in turn be specified to be a function of other variables based on the theory developed earlier. For instance, if the experience spillover is stated to be a function of integration (e.g., $\beta_1 = \gamma_0 + \gamma_1$Integration), then integration can be viewed as a moderating variable in the first performance model (e.g., Performance = β_0 + (γ_0 + γ_1Integration)∗Alliance experience + other covariates = β_0 + γ_0 Alliance experience + γ_1Integration*Alliance experience + other covariates). The same approach can be used to model relational quality as a factor moderating the alliance experience – acquisition performance relationship.

Level of integration. Whereas alliances tend to involve low to modest levels of integration, acquisitions are more heterogeneous. For instance, the centralization of shared functions in alliances is problematic because the collaborators maintain separate legal status and interests, engendering problems of *ex post* hold-up and moral hazard (Williamson, 1991).

By contrast, integration levels in acquisitions can run the full gamut from very low levels to very high levels. Thus, using Haspeslagh and Jemison's (1991) typology of post-acquisition approaches, "preservation" approaches will generally tend to resemble alliances more so than "absorption" ones will. We expect, therefore, that the accumulation of alliance experience will be less helpful, and may even be harmful, if the focal acquisition is to be managed using a high integration approach, whereas alliance experience will be more beneficial for acquisitions involving lower levels of integration. As such, the experience spillover effect is predicted to be negatively related to the integration of the focal acquisition:

> **Hypothesis 3:** The lower the level of integration for the focal acquisition, the greater the effect of prior alliance experience on the performance of the focal acquisition.

Degree of relational quality. The second dimension of the post-agreement phase that we take into consideration is the degree of commitment to high relational quality between the two firms. In the alliance context, relational quality is expected to be higher than in the average acquisition, all else being equal, because of the centrality of this dimension for the success of partnerships (Ariño & de la Torre, 1998; Doz & Hamel, 1998). Thus, based on a logic similar to the arguments underlying H3, alliance experience will tend to be more useful for focal acquisitions in which the acquirer seeks to establish high relational quality with its counterpart by engaging in a whole variety of possible initiatives. These initiatives can include, but are by no means limited to, retaining the top management of the acquired firm, engaging them in the development of future strategic plans for the combined organization, preserving and further investing in the key brands of the acquired company as well as in other assets or competences they bring to the table. Conversely, alliance experience that reflects consensus or managing under conditions of responsibility without authority may be less useful or even be counterproductive for acquisitions managed in a more aggressive mode with respect to the quality of the relationship with the acquired unit.

> **Hypothesis 4:** The lower the degree of relational quality the acquirer pursues with its counterpart, the greater the effect of prior alliance experience on the performance of the focal acquisition.

METHODS

Sample and Data Collection

The hypotheses developed above were tested by investigating acquisitions and alliances taking place in the U.S. commercial banking industry. The research design involved three phases. In the first phase, fieldwork was conducted at twelve banks that were active acquirers in order to develop a greater understanding of acquisition practices in the commercial banking industry. Based on interviews of 45 decision-makers during this first stage, a questionnaire-based survey was developed and fine-tuned to ensure measurability and clarity. The survey was conducted on the 250 largest bank holding companies in the U.S., which collectively represent over 95 percent of the industry's assets. The smallest institution in the target population had total assets of approximately $400 million, implying that its acquisitions are apt to be rare and small in size, and that further extensions of the survey frame to even smaller banks would have likely garnered sparse and less comparable observations. The final phase of the research design involved augmenting the dataset containing primary information with archival data on alliance participation, accounting performance, and financial performance.

The survey consisted of two main parts – an acquisition history profile and an acquiring bank questionnaire. The first portion of the survey listed all of the acquisitions conducted by the bank. Basic information about each acquisition was also gathered in the acquisition history profile, such as asset size, the degree of market relatedness, pre-acquisition profitability, level of integration, and top management team replacement. The acquiring bank questionnaire provided information on characteristics of the acquisition process, including information on decision support tools such as integration manuals, systems conversion manuals, product mapping models, and training packages.

Of the 250 bank holding companies contacted, 70 did not experience an acquisition after 1985 and 16 were acquired. Of the remaining 164 banks, responses were obtained from 51 banks, corresponding to a 31.7 percent response rate. This response rate was considered satisfactory given the seniority of respondents and the complexity of the survey, and was

achieved due to the salience of the topic to industry participants as well as the in-depth pre-testing of the survey tool (Fowler, 1993; Groves, Cialdini, & Couper, 1992). The survey was sent to the best possible respondent identified through a round of phone calls that preceded the mailing. Specifically, the respondents included the manager responsible for corporate development or for the M&A group (25 cases), the coordinator of post-acquisition integration processes (this figure existed in 14 of the institutions surveyed), the CFO (9 cases), or the CEO (3 cases). The fieldwork indicated that these individuals were responsible for coordinating both acquisition and alliance activities of strategic importance. Respondents were motivated to complete the questionnaire by the opportunity to benchmark their acquisition practices with those of other firms in the industry, and were assured that their individual responses would be kept strictly confidential.

Responding firms had completed 577 acquisitions, or 11.3 on average. 159 of the target firms were publicly traded, and 418 were privately held. Standard mean comparison tests for non-response bias indicated that responding organizations were not different from the original set of 250 bank holding companies in terms of return on assets, return on equity, or efficiency ratios, yet respondents tended to be larger in terms of total assets ($p<0.05$). Four of the 51 responding institutions had to be excluded from the analysis due to incomplete responses. The final sample was further reduced because accounting data were available on a consistent basis from 1985 onwards, and many of the banks were first listed in the late 1980s and early 1990s and thus did not have financial returns data available in the CRSP data files.

Measures

Acquisition performance. We calculated two measures of the acquiring bank's performance implications of an acquisition that serve as the dependent variables for the multivariate analyses, one based on accounting data and one based on financial data. Rhoades (1994) reviews forty bank merger studies and finds that roughly half used accounting or financial measures, and only one study used both. Thus, one of the strengths of the research design is the combined use of accounting and financial data to examine acquisitions and their performance drivers. Both measures offer unique strengths and

weaknesses, but their combined use provides an opportunity to examine the robustness of our findings and to consider different aspects of organizational performance.

Acquisition accounting performance was measured as the difference between the return on assets (ROA) of the acquiring bank three years after the acquisition relative to one year prior to the acquisition. Accounting data for acquired banks cannot be gathered directly as acquired bank performance is consolidated into the acquiring bank's financial statements. In order to control for market conditions, the acquiring bank's ROA is first adjusted based on the performance of its rivals in the same geographic market (e.g., New England, North Atlantic, South Atlantic, Midwest, South, Rocky Mountains, and Pacific). Performance changes for the acquiring bank were then measured as follows:

(1) Acquisition accounting performance $= (ROA_{i,t+3} - ROA_{m,t+3}) - (ROA_{i,t-1} - ROA_{m,t-1})$,

where $ROA_{i,t+3}$ and $ROA_{i,t-1}$ are the return on assets for acquiring firm i in years t+3 and t-1, respectively, where t=0 corresponds to the acquisition year, and $ROA_{m,t+3}$ and $ROA_{m,t-1}$ are the average return on assets for banks in the same geographic area of the acquiring bank in years t+3 and t-1, respectively. Accounting data were obtained from Compustat, Compact Disclosure, and Moody's from 1985 to 1997 as data coverage was reduced significantly for years prior to 1985. Given the construction of the dependent variable, the focus of the analysis is on acquisitions completed between 1986 and 1994. After accounting for this measure's construction and missing data for other variables, the sample size was reduced to 150 acquisitions.

Acquisition financial performance was measured as the acquiring firm's cumulative abnormal returns three years following the acquisition. Following Ikenberry, Lakonishok, and Vermaelen (1995), cumulative abnormal returns were calculated relative to a size and market-to-book (MTB) based benchmark. Acquisition financial performance is computed as the difference between the acquiring firm's stock return and the return in the equal-weighted size- and MTB-ranked portfolio to which the firm belongs. The use of the firm size and market-to-book criteria is based on recent asset pricing research by Fama and French (1992, 1993, 1996) that highlights the value of multi-factor asset pricing models that incorporate

these two criteria rather than just the market return variable appearing in the traditional capital asset pricing model. Every month this portfolio is rebalanced, and the classification of each bank in the (Size x MTB) matrix is re-evaluated each month. Specifically, using data on all companies that are traded on the New York Stock Exchange and the American Stock Exchange and that have accounting data available in Compustat, one hundred benchmark portfolios were constructed based on the cross-product of ten size deciles and ten MTB deciles. Stock returns data for this performance measure were obtained from the universe of firms in the Center for Research in Security Prices (CRSP) data files.

Explanatory variables. To determine each firm's experience levels with alternative corporate development activities at the time of the focal acquisition, we measured the firm's prior acquisitions and alliances with other banks. *Acquisition experience* was computed as the number of acquisitions completed by the acquiring firm before the focal acquisition. The acquisition history profile portion of the questionnaire provided a list of all of the acquisitions completed by the responding institution since its founding or since a merger of equals. The oldest acquisitions in the data set were completed in 1968 by Banc One and Crestar Bank.

In a parallel fashion, *alliance experience* was measured as the number of alliances completed by the acquiring firm prior to the focal acquisition. Data on alliances formed by responding firms were obtained from the Securities Data Corporation (SDC) data files. Alliances in this industry typically involve the cross-selling of products by accessing each other's client bases as well as the development of new products such as mutual funds or e-bills. There are also various alliances for back-office functions (e.g., commercial banking systems, check and lockbox processing services, stock transfer services, global custody services, cash management services, and invoice factoring). Our measure of alliance experience counts alliances from 1986 onwards since SDC data are not available in a reliable fashion for preceding years.[4]

[4] This implicit shortening of the time window is consistent with Benkard's (2000) notion of organizational forgetting, which suggests that the most recent alliances will be more relevant. Future studies in industries with more frequent alliance usage could investigate alternative time windows or weighting schemes to examine experiential learning and experience spillovers in the corporate development setting.

The hypotheses developed above also suggest that characteristics of the focal acquisition and the firm's corporate development experience levels with acquisitions and alliances interact to shape the performance of the focal acquisition. We examined two features of the focal transaction, integration and replacement of top management, in testing for these interaction effects. *Integration* was measured on a single scale from 0-3, where 0 corresponds to no integration; 1 to a minor degree of integration; 2 to a major degree of integration; and 3 to complete integration of the acquired firm within the acquiring bank (Datta & Grant, 1990). The scale was the answer to a question on the degree to which procedures were aligned, information systems were converted, and products were standardized. *Relational quality* was proxied based on a concrete decision related to the degree to which the management of the acquired bank was replaced after the acquisition. The higher the degree of top management replacement, the lower the likelihood that the acquiring company attempted to establish high relational quality between the two organizations, at least during the transition period. The variable is measured on a four-point scale: 0 corresponds to retention of the entire management team of the acquired bank, 1 to minor top management changes, 2 to many changes in top management personnel, and 3 to complete replacement of the acquired bank's top management team (Cannella & Hambrick, 1993; Krishnan, Miller, & Judge, 1997). Negative values were assigned for each of these four categories to interpret the variable in a manner consistent with the hypothesis concerning relationship quality.

Control variables. We included a number of key control variables that are likely to have some bearing on acquiring firms' performance levels and also may relate to the variables of primary interest. *Relative acquisition size* was measured as the size of the acquired firm relative to the size of the acquiring bank, stated as a percentage based on total assets (Datta, 1991). This variable was incorporated as a control since comparatively small acquisitions are easier to integrate yet are less likely to have a material affect on acquirers' accounting profits or market valuations. We also assessed the acquired firm's *resource quality*, which was measured as through respondents' assessments of target banks' performance prior to acquisition on a five-point scale: -2 (the target was in bankruptcy), -1 (it was a poor performer), 0 (it was an average performer), 1 (it was a good performer), and 2 (it

was an outstanding performer). The final control at the transaction level was the relatedness between the acquirer and target firm, which has been viewed as a key antecedent to acquisition performance, yet empirical evidence on the relatedness-performance relationship has been mixed (Chatterjee, 1986; Lubatkin, 1987; Barney, 1988; Singh & Montgomery, 1987; Seth, 1990). Given the importance of geographic location as a key competitive factor in this industry and given the rationalization of branch networks in the process of creating value through efficiency enhancement, it is important to control for the degree of geographic overlap as a proxy for resource relatedness (Healy, Palepu, & Ruback, 1992). The sample consists of acquisitions that are either perfectly horizontal (i.e., a bank buys a competitor located in the same geographic area, known as an "in-market" transaction in banking jargon) or market extension ("out-market") transactions. *Market relatedness* was thus measured as 1 for in-market transactions and 0 for out-market acquisitions.

We also sought to account for heterogeneity in firm characteristics that can influence the performance of acquisitions and might relate to the evolution of corporate development capabilities. To address the acquiring firm's resources and possible confounding effects of other acquisitions on accounting or financial returns, we introduced controls for the acquirer's size and the number of acquisitions surrounding the focal transaction. *Acquirer size* was measured as the acquirer's total assets in billions of dollars for the year before the acquisition. The variable *simultaneous acquisitions* was computed as the number of acquisitions completed during the same year as the focal acquisition.

Finally, since firms may develop acquisition capabilities not only through learning-by-doing, but also by codifying knowledge on different phases of the acquisition process in a more systematic manner (Kogut & Zander, 1992; Nonaka, 1994), we incorporated a control for the degree of codification of knowledge specific to the acquisition process. *Codification* was measured as the number of acquisition-specific tools existing at the time of the acquisition (e.g., documents and manuals including: due diligence checklist, due diligence manual, systems conversion manual, affiliation/integration manual, systems training manual, and products training manual; quantitative models including: financial evaluation, staffing models, product mapping, training/self-training packages, and project management).

Model Specification

The primary model specification used to test the hypotheses on experiential learning and experience spillovers is as follows:

(2) Performance = $\beta_0 + \beta_1$Integration + β_2Rel. quality + β_3Acquisition exp. + β_4Alliance exp. + β_5Acquisition exp.*Integration + β_6Alliance exp.*Integration + β_6Acquisition exp.*Rel. quality + β_7Alliance exp.*Rel. quality + controls + ε.

This model is estimated separately using accounting and financial performance data. Because corporate development experience levels and features of the focal acquisition (i.e., integration and relational quality) enter the model multiple times as direct effects and interaction terms, z-scores for these variables were used in an attempt to alleviate multicollinearity. The maximum variance inflation factor (VIF) for all of the variables for the models presented is 6.8, which is below the rule of thumb cutoff of ten used to indicate multicollinearity problems (Neter, Wasserman & Kutner, 1985).

RESULTS

Table 2 presents descriptive statistics and bivariate correlations for all the variables used in the model.

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Insert Table 2 about here

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The correlational evidence suggests several preliminary implications for the learning arguments discussed in this paper. Acquisition experience does not correlate with any of the performance variables, whereas alliance experience shows a positive correlation with the financial performance measure ($p<.05$). Relational quality shows strong positive correlations with both performance measures ($p<.001$ for the accounting, and $p<.05$ for the financial measure), whereas integration correlates significantly (and positively) only with the accounting specification of performance ($p<.01$). Also, firms codifying knowledge about acquisition processes tend to have greater acquisition and alliance experience levels (both

p<.001). It is worth noting that whereas firms with acquisition experience tend to integrate targets more closely (p<0.01), there is no evidence that firms with greater alliance experience integrate targets or replace top managers more or less than firms with less alliance experience.

Table 3 provides the results of the multiple regression analyses used to test the research hypotheses developed above. Models I-IV estimate the model against the accounting performance measure, whereas models V-VIII do so for the financial performance measure. All the models provide satisfactory explanatory power and are significant at the 0.001 level. Models I and V test the direct effects of acquisition and alliance experience on accounting and financial performance, respectively. Models II-IV and VI-VIII present tests of interaction effects between corporate development experience levels and the features of the focal acquisition for the accounting and performance measures, respectively. A comparison of Model IV with Model I suggests that the interaction terms are jointly significant in explaining the variance in accounting performance ($F=3.62$, $p<0.01$), and a comparison of Model VIII with Model V indicates that the interaction terms are jointly significant in explaining the variance in acquirers' financial returns ($F=6.01$, $p<0.001$).[5]

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Insert Table 3 about here

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The multivariate analyses offer mixed evidence with respect to the hypothesized direct effects of acquisition and alliance experience. Acquisition experience is not significantly influencing performance, and in four models (II, IV, VI and VIII) the coefficient is actually negative and significant (p<.05). The experience spillover discussed in H2 is partially supported in its positive formulation (H2a), in that all the models with financial performance show a positive and significant coefficient, but this is not confirmed in the

[5] In order to examine further how the determinants of accounting and financial performance for acquisitions are shaped by characteristics of post-acquisition processes, we conducted Chow tests using subsamples defined based on whether or not the integration was complete and whether or not there were many changes or a complete change in target top management. In the accounting models, the effects of the covariates varied based on the level of integration (p<0.05) and top management replacement (p<0.001), and the same interpretations held for the financial performance models (p<0.05 and p<0.001, respectively). The results for accounting and financial performance models seem to be consistent with each other and robust to different specifications.

accounting performance model. In order to probe further these results, we tested for quadratic effects of the two experience variables and found that they are both strongly significant with a negative first derivative and a positive second derivative. These results confirm the U-shaped experience effects found by Haleblian and Finkelstein (1999) and also suggest that they apply to the context of experience spillovers.

Consistent with predictions (H3), the interaction effect between alliance experience and integration is negative ($p<0.01$ in accounting performance Models II and IV, and $p<0.05$ in financial performance Models VI and VIII). Alliance experience is more beneficial to acquisitions that are managed on an autonomous basis, whereas the performance implications of alliance experience are worse when the focal acquisition is managed with higher levels of integration. Interestingly, the four models containing an interaction between acquisition experience and integration suggest exactly the opposite is true for acquisition experience ($p<0.01$ and $p<0.05$ in accounting performance Models II and IV, and $p<0.001$ in financial performance models VI and VIII). Such experience is increasingly helpful for acquisitions managed with higher levels of integration, suggesting that, although experience does not have a direct impact on performance, it does become increasingly useful as task complexity rises.

The multivariate results similarly indicate a positive interaction effect between alliance experience and relational quality in the focal acquisition ($p<0.10$ in accounting performance models III and IV, and $p<0.05$ in financial performance models VII and VIII). These results provide support for hypothesis 4. Alliance experience transfers positively to focal acquisitions in which the acquirer seeks to elicit high relational quality among the two groups by retaining the management team in the counterpart. Vice-versa, the spillover effect of alliance experience on acquisition performance is lower for acquisitions involving more aggressive replacement of target personnel.

From the discussion we had in the second section on the joint effect of task similarity on both magnitude and sign, we are interested in exploring whether the influence of alliance experience is simply lower (but still positive) in the case of high integration and low relational quality, or whether we in fact observe a switch in the sign of the experience spillover effect. In order to explore this important empirical question, we compute the first

derivatives of the two performance models on alliance experience for each of the four combinations of high-low levels in the degree of integration and of relational quality. The results are shown in Table 4.

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Insert Table 4 about here
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Interestingly, the data show a switch in the sign of the experience spillover effect from large and positive in the "softest" combination of low integration and high relational quality to the "hardest" one (opposite decisions). In the off-diagonal combinations, including the one that maximizes acquisition performance (high integration and high relational quality), the spillover effects are lower but remain positive.

In order to examine the robustness of our results to alternative definitions of alliances and to assess the degree to which the effects vary across different types of alliances, additional analyses were performed concerning the banks' partners and the governance design of the collaborations. We developed separate alliance experience measures for alliances with other banks and for alliances with other non-banking firms. Hierarchical F-tests indicated that the effects of alliance experience are the same across these two classes of partners (i.e., $F=1.83$, n.s. for the model using accounting returns data; and $F=0.50$, n.s. for the model using financial returns data). We also considered whether the effects of inter-activity experience depend on whether the alliance was structured as an equity alliance or not, since the governance mechanisms of the former more closely resemble the governance mechanisms underlying acquisitions (Williamson, 1991). Hierarchical F-tests again indicated that the effects did not differ across these two classes of alliances (i.e., $F=0.55$, n.s. for the model using accounting returns data; and $F=2.00$, n.s. for the model using financial returns data). These tests suggest that it is appropriate to pool equity and non-equity alliances in studies of experience spillovers, at least in the context under study.

Finally, the control variables deserve some comment. Relative acquisition size, acquirer size, and simultaneous acquisitions do not appear to influence acquisition performance after accounting for other acquisition and firm attributes. Simultaneous

acquisitions have a negative effect on financial performance in Models VI and VIII, but the effects are not significant for the other specifications. The direct effect of relational quality, as measured by the inverse scale of top management replacement, is positive and robust to alternative model specifications (Cannella & Hambrick, 1993). Integration relates positively to acquisition performance, which likely reflects the need to rationalize operations to achieve scale economies and the desire to obtain revenue enhancements through cross-selling activities (Datta & Grant, 1990; Datta, 1991). Consistent with the view that acquiring firms may gain by redeploying resources to their acquired units rather than benefiting from the inverse flow of resources or learning (e.g., Capron, 1999), acquisition performance is negatively related to the quality of the target's resources. Market relatedness does not have an impact on acquisition performance except for one of the eight specifications ($p<0.05$ in Model VI). Finally, providing evidence that firms can develop acquisition capabilities through the codification of knowledge specific to the acquisition processes, the parameter for the codification variable is positive and significant, suggesting that deliberate forms of organizational learning are more effective than the simple accumulation of acquisition experience in the development of organizational capabilities specific to corporate development activities. This result is consistent with recent work on dynamic capabilities that explores the relative effectiveness of deliberate learning processes versus implicit, learning-by-doing mechanisms (Zollo & Winter, 2002). They suggest that knowledge articulation and codification processes can be particularly helpful for tasks that are infrequent, heterogeneous, and causally ambiguous, all of which are characteristic of the context under study in this paper.

DISCUSSION

The question that spurred the present study can be framed in terms of understanding organizational learning in a multi-activity setting: how do we conceive of interdependencies among learning processes in different activities? More specifically, how does experience accumulated in one activity influence the performance of another? And under what conditions does the experience spillover take on a positive or negative sign?

A key contribution of this study lies in developing and testing a contingent theory of learning across organizational activities. Our arguments suggest that both the sign and the magnitude of experience spillovers are influenced by the degree of similarity across two activities. In an application of the theory to the corporate development context, we argue that the development of organizational routines specific to the handling of alliance processes would be beneficial to the performance of the focal acquisition the more the latter is managed in ways that resemble the typical handling of alliances, *i.e.* low to modest integration and high relational quality. However, when acquisitions are managed with higher levels of integration and lower attention to the quality of the relationship with the acquired organization, alliance experience can cease to have such beneficial effects and can even adversely affect the performance of the focal acquisition. The (inconscious) application of alliance management routines to an aggressive integration plan might actually stand in the way of a more decisive integration process.

In contrast to prior studies on experiential learning in isolated activities, our findings illustrate the value of conceptualizing organizational learning as the product of interdependent experience accumulation processes. The present findings might also explain why the empirical results on intra-activity experience effects in the context of acquisitions (Fowler & Schmidt, 1989; Bruton, Oviatt & White, 1994; Pennings, Barkema & Douma, 1994) and alliances (Barkema, Shenkar, Vermeulen & Bell, 1997; Anand & Khanna, 2000) have provided mixed evidence, overall. Given the high levels of causal ambiguity that characterize these activities, prior experience in both the focal as well as of other related activities might have complex effects on the firm's ability to learn. Path dependencies might be strong, and representational and generalization errors might need to be viewed as the rule rather than the exception.

In addition to the obvious limitations in generalizing from the present findings, several opportunities exist for extensions to this study. For instance, we have focused on external modes of corporate development (i.e., acquisitions and alliances) rather than on internal, or organic, growth. Also, the direction of the learning spillover tested is only from alliance experience to acquisition performance. Future research might consider the spillover

effects of acquisition experience on alliance performance and the question of symmetry in experience spillover effects. It is also worth noting that we did not characterize individual alliances in terms of their post-formation management decisions and, therefore, we did not directly measure the degree of similarity between the focal transaction and the stock of prior alliances. Regarding the acquisition contexts studied, they are limited to horizontal acquisitions and to the banking industry. Relaxation of the former limitation might offer insights on learning processes with higher levels of task heterogeneity, and moving beyond the banking industry might allow future studies to probe our hypotheses for transactions with different value creation logics (e.g. new product innovation, instead of economies of scale).

There might also be a significant difference in the relative effectiveness of the mechanisms underlying the development of collective competence in the two activities. We argued, in fact, that both activities center on similar decisions related to the degree of integration and of relational quality aimed at during the post-transaction period. The sets of competences underlying the implementation of these decisions, termed integration and relational capabilities, might however develop through different mixes of learning mechanisms. One might conjecture, for example, that relational capabilities might develop relatively more effectively through tacit experience accumulation, whereas the management of integration processes might be understood and refined better through knowledge articulation and codification processes. Research is needed to examine the roles played by experience accumulation and knowledge codification across different types of corporate development activities.

Finally, other important extensions to the present study might apply a multi-activity learning perspective to different types of organizational phenomena. Most research on experiential learning has taken place in operational contexts, and opportunities exist to explore experience spillover effects in corporate level contexts such as business and geographic diversification, for example, or strategic planning and resource allocation activities.

Our hope is that this paper has signaled not only the importance, but the attractiveness, of conducting research on organizational learning in multi-task settings. The

area seems to be wide open for significant contributions. The returns to scholarly investments in understanding how firms evolve through multiple, simultaneous, learning processes, therefore, appear to be correspondingly high.

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TABLE 1
Content and Process Comparisons of Acquisitions and Alliances

	Similarities	Differences
Content	• Both are tools for implementing product or geographic diversification strategies • Both are responses to resource dependence challenges • Both may be used to explore new knowledge domains • Both may be used to exploit existing resources and capabilities	• Acquisitions represent hierarchical governance, whereas alliances are hybrid governance structures • Acquisitions require more extensive up-front commitments, whereas alliances confer options to expand sequentially • Alliances are more focused in terms of firms' objectives, time horizons, and resource requirements
Process	• Both processes originate in firms' strategic planning efforts as well as in more opportunistic actions • Both involve external search processes for transaction partners • Both entail negotiations and evaluation processes • Both processes are supported by corporate functions (e.g., Corporate Development, HR, IT, Communications, etc.) • Both involve significant investments in the post-agreement transition phase	• Acquisitions involve more far-reaching due diligence and negotiations processes than alliances • Post-formation phases in alliances are more likely to involve re-evaluation and adaptation • The scope for structural and cultural integration tends to be greater in acquisitions than alliances • The scope for resource redundancies and replacement tends to be greater for acquisitions than alliances

TABLE 2
Descriptive Statistics and Correlation Matrix[a]

Variable	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Acquisition accounting performance	-.005	.37	---										
2. Acquisition financial performance	.03	.28	.36***	---									
3. Relative acquisition size	6.07	11.41	-.01	-.00	---								
4. Resource quality	-.01	1.06	-.09	-.17*	.05	---							
5. Market relatedness	.62	.48	.07	.20**	-.08	-.20***	---						
6. Acquirer's size	23.12	23.01	.12*	-.00	-.08	-.07	.18***	---					
7. Simultaneous acquisitions	3.58	2.83	.21***	.04*	-.22***	.05	.14**	.48***	---				
8. Codification	4.88	3.66	.14*	.11	-.05	.17***	.03	.43***	.36***	---			
9. Integration	2.63	.70	.16**	.11	-.09	-.22***	.40***	.10†	.17***	.08†	---		
10. Relational quality	-1.75	1.28	.22***	.14*	-.02	.31***	-.35***	.06	.21***	.11*	-.42***	---	
11. Acquisition experience	11.27	10.16	.03	.11	-.09†	.03	.17***	.50***	.51***	.45***	.12**	.05	---
12. Alliance experience	.31	.66	.02	.19*	-.01	.06	.12*	.35***	.35***	.31***	.05	-.09	.26***

[a] † p<0.10; * p<0.05; ** p<0.01; *** p<0.001.

TABLE 3
Experience Spillovers Across Corporate Development Activities[b]

Variable	Accounting Performance				Financial Performance			
	I	II	III	IV	V	VI	VII	VIII
Intercept	-.20*	-.21*	-.26*	-.23*	-.06	-.10	-.04	-.08
	(.10)	(.10)	(.10)	(.11)	(.09)	(.09)	(.09)	(.10)
Relative acquisition size	.00	.01	.00	.01	.00	-.00	.00	-.00
	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
Resource quality	-.08*	-.06*	-.08*	-.06*	-.09***	-.09**	-.09**	.09**
	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)
Market relatedness	.12	.04	.09	.03	.09	.11*	.03	.09
	(.08)	(.08)	(.08)	(.08)	(.07)	(.06)	(.06)	(.06)
Acquirer's size	-.00	.00	-.00	.00	-.00*	-.00	-.00	-.00
	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
Simultaneous acquisitions	.00	-.01	-.00	-.02	.00	-.03*	-.00	-.04**
	(.01)	(.01)	(.01)	(.02)	(.01)	(.01)	(.01)	(.02)
Codification	.03*	.03**	.03**	.03**	.01	.03**	.01	.04***
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Integration	.11*	.16**	.13**	.16**	.16***	.07*	.17***	.07†
	(.04)	(.05)	(.04)	(.05)	(.05)	(.04)	(.04)	(.04)
Relational quality	.18***	.20***	.20***	.22***	.17***	.23***	.20***	.25***
	(.04)	(.04)	(.04)	(.04)	(.03)	(.03)	(.03)	(.04)
Acquisition experience	-.03	-.07*	-.05	-.08*	-.03	-.06*	-.03	-.07*
	(.04)	(.04)	(.03)	(.04)	(.03)	(.03)	(.03)	(.03)
Alliance experience	.00	.03	-.01	.01	.05*	.11*	.04*	.11**
	(.03)	(.03)	(.03)	(.03)	(.03)	(.04)	(.02)	(.04)
Acquisition experience* Integration	---	.17**	---	.17*	---	.19***	---	.24***
		(.06)		(.07)		(.05)		(.06)
Alliance experience* Integration	---	-.12**	---	-.11**	---	-.14*	---	-.18*
		(.04)		(.04)		(.07)		(.07)
Acquisition experience* Rel. quality	---	---	-.05	-.01	---	---	-.04*	.02
			(.03)	(.03)			(.02)	(.03)
Alliance experience* Rel. quality	---	---	.06†	.06†	---	---	.05*	.07*
			(.03)	(.03)			(.03)	(.03)
Model F	4.89***	4.42***	4.53***	4.0***	6.98***	6.93***	7.01***	6.76***
R-squared	.26	.28	.29	.29	.43	.48	.49	.52
N	150	150	150	150	101	101	101	101

[b] Standard errors appear in parentheses. † p<0.10; * p<0.05; ** p<0.01; *** p<0.001.

TABLE 4
Alliance Experience Spillovers and Post-Acquisition Management[c]

		Level of Integration: Low	Level of Integration: High
Relational Quality	High	0.19 0.42	0.02 0.10
	Low	0.11 0.30	-0.06 -0.02

[c] Cell values represent marginal effects of alliance experience for different levels of integration and relational quality. The first value is for the accounting performance specification (Model IV in Table 3), and the second value is for the financial performance model (Model VIII in Table 3).

FIGURE 1
Errors in Cognitive Representation

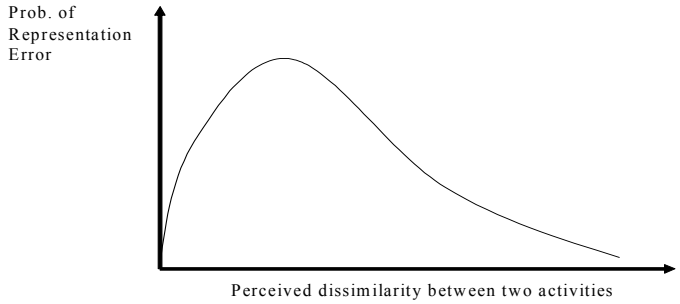

FIGURE 2
Post-Agreement Management of Acquisitions and Alliances: Overlapping Feasibility Spaces