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Strategies or Routines ? Knowledge Codification, Path-Dependence and the Evolution of Post-Acquisition Integration Practices in the U.S. Banking Industry

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97-10-C

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The Working Paper Series is made possible by a generous grant from the Alfred P. Sloan Foundation

Strategies or Routines ? Knowledge Codification, Path-Dependence and the Evolution of Post-Acquisition Integration Practices in the U.S. Banking Industry [1]

Revised: August 7, 1998

Abstract: In a study of post-acquisition management practices in the U.S. commercial banking industry, we examine how firms codify their knowledge from previous acquisition experiences and routinize their post-acquisition decisions. We find that firms with higher levels of knowledge codification tend to integrate their acquired units more and to replace the existing top management team with higher probability. Also, acquirers tend to replicate their integration and resource replacement decisions irrespective of variations in the resource characteristics of their targets, suggesting strong tacit routinization effects.

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Generous funding and support from the Sloan Foundation, the Wharton Financial Institutions Center and the R&D department at INSEAD is gratefully acknowledged. I would like to thank Harbir Singh for his guidance throughout the dissertation process, Dave Jemison, John Kimberly, Dan Levinthal, Gabriel Szulanski, Sid Winter for their advice and encouragement, Mark Shanley, Anju Seth and Sejan Chatterjee for their helpful comments. All remaining errors and omissions are mine.

Corporate acquisitions have been phenomena of considerable interest to scholars in strategic management, finance and economics for a long time. Despite the impressive amount of research devoted to the performance consequences of acquisitions, the strategic decisions adopted during the post-acquisition integration phase have received significantly less attention. As Haspeslagh and Jemison (1991) argue, the preponderance of prior research has focused on product and market characteristics of acquisitions and their performance implications. However, we are currently still missing a crucial piece of the explanation of acquisition performance, in that we do not have an explicit understanding of the behavior of the two organizations involved in the post-acquisition integration process. This paper intends to provide an initial exploration of the antecedents of the strategies put in place by the acquiring firm after the consummation of the transaction, and prepares the way towards a more complete analysis of acquisition performance which will include both pre- and post-acquisition determinants.

One intuitive category of explanations of post-acquisition strategies is provided by the characteristics of the resource endowments of the two firms before the acquisition takes place. Haspeslagh and Jemison (1991) provide an important insight on this question by defining different post-acquisition integration approaches dependent on the degree of strategic (product-market based) and organizational fit between the two firms. Another important consideration from a post-acquisition decision-making standpoint is the relative quality of the resources of the firms, particularly the quality of the acquired firm's. Pablo (1994), for example, shows, with the help of scenario-based questionnaires, that the target's pre-acquisition profitability does impact the level of integration decided by the acquirer.

However, both field work and a larger scale study show that post-acquisition practices vary quite widely between firms, even when we consider acquisitions within a single industry -- U.S. commercial banking – and when we restrict the sample to horizontal and market extension acquisitions -- i.e. banks buying other banks either in the same market or in different locations. Not only do bank acquirers manage their bank acquisitions quite differently from one another (e.g. different levels of integration and different degrees of comfort in replacing key resources), but they also have dramatically changed their integration strategies during the last decade. Looking at pre-acquisition resource characteristics, then, does not seem to provide a sufficient explanation for this cross-sectional and longitudinal variation of integration approaches.

In this paper, it will be argued that post-acquisition integration decisions are influenced not only by the pre-acquisition resource endowments of the two firms, but also by the knowledge accumulated and the routines developed by the acquiring firm based on its experience in prior acquisitions. Considerable insight, then, might be gained into the practices used by firms to integrate acquisitions by examining how knowledge accumulates within the acquiring firms. Two mechanisms will be used to capture this effect: the degree of explicit codification of past experiences in ad-hoc manuals, check-lists and other project management tools, and the tacit routinization process evident in path-dependent behaviors of acquirers.

Two dimensions of the integration process that have been touched upon in the literature -- the level of integration and the degree of replacement of management teams -- - are here addressed. Using case-based exploratory work followed by a large-sample survey, we find that the variation in post-acquisition practices, although high, can be explained by the degree to which the acquiring firms codify their knowledge of post-

acquisition management, and by the idiosyncratic paths of accumulated acquisition experience.

In more general terms, the findings of this study can illuminate how experiential learning mechanisms influence the evolution of managerial practices, in a context where the organizational task is both highly heterogeneous and relatively infrequent. In that sense, the theory developed follows Haspeslagh and Jemison's (1991) call for more research to uncover the processes through which firms learn to manage acquisitions effectively.

The paper is organized in the following way: a review of the relevant literature will be followed by the introduction of a knowledge-based perspective on post-acquisition integration processes, developed with the help of direct observations from the field. Section 3 discusses the decision models and the formal hypotheses, whereas section 4 provides information on the data used and on the measurement of the key constructs. Next, the analysis is presented and the results are discussed in section 5, while section 6 concludes the work and suggests a research agenda for further exploration of the impact of knowledge accumulation mechanisms in other areas of management research.

1. PRIOR RESEARCH

The purpose of this section is to briefly summarize the general results of the various strands of research which have studied the phenomenon of mergers and acquisitions, in order to position the much smaller literature on post-acquisition integration management and our potential contribution to it.

1.1 Understanding M&A Performance

There has been extensive research on the economic performance implications of acquisitions. Research in the economics and corporate finance areas has primarily focused on the question of the ability of acquisitions to create value *on average*. Studies using event study methodologies in order to proxy acquisition performance report some level of consensus on significant value creation for the target firm's shareholders while acquirers' shareholders have neither abnormal gains nor losses (Jensen & Ruback, 1983; Weston & Chung, 1983; Jarrell, Brickley & Netter, 1988; Franks, Harris & Titman, 1991). Scholars using primarily accounting data have reached generally less optimistic conclusions on the chance of both acquirers and targets to enhance their performance after the acquisition (Goldberg, 1983; Ravenscraft & Scherer, 1987).

The subset of this literature which specializes in bank mergers, traditionally at the intersection of the finance and the economics fields, have produced the same kind of mixed results. In his review of forty empirical studies (using an almost even split between event study and accounting methodologies), Rhoades finds no evidence of either value creation or value destruction *on average* from bank mergers (Rhoades, 1994), and the field is reaching the conclusion that there is a need for a more in-depth investigation of the conditions under which these transactions create and destroy value (Pilloff & Santomero, 1997). It might be possible, in other words, that there are certain conditions under which acquirers are able to consistently create value; the quest is then better defined in terms of the search for explanation of the variance of acquisition performance, as opposed to the assessment of the location of the mean of the performance distribution.

On this front, the strategy literature introduced an important innovation in our understanding of M&A performance. Since the pioneering work of Rumelt (1974), the degree of resource relatedness between the divisions within a firm has been viewed as an

important antecedent of organizational performance. The same logic, applied to the M&A context, implies that acquirers should be able to generate higher value, the higher the degree of relatedness between their resources and their targets'. A substantial amount of empirical work has leveraged off this perspective on acquisitions (Chatterjee, 1986; Lubatkin, 1987; Singh and Montgomery, 1987; Shelton, 1988; Fowler & Schmidt, 1989). Later work has refined and extended these earlier studies (Seth, 1990a and 1990b; Chatterjee et al, 1992: Healy, Palepu and Ruback, 1992). Unfortunately, the empirical evidence from these relatedness studies is not entirely unambiguous; even though many of them find positive impacts of the degree of product/market relatedness (as a proxy for resource relatedness) on acquisition performance (Singh & Montgomery, 1987; Shelton, 1988; Fowler & Schmidt, 1989; Healy, Palepu & Ruback, 1992), others find the opposite results (Chatterjee, 1986) or no significant impact (Lubatkin, 1987; Seth, 1990b).

A more careful reading of the resource relatedness hypothesis takes into account the fact that the degree of relatedness can be priced out during negotiations and its value-creation potential consequently weakened. Once this argument is factored in the model, the condition under which value can be created from acquisitions becomes significantly more restrictive: value can only be created when the combination between the two firms which completed the transaction results in synergies superior to those created by the combination of the target with any of the other bidders. Acquirers are therefore "forced" to form a *uniquely* highly valued combination of their resources with those of the target firm, in order to earn positive abnormal returns (Barney, 1988). Based on this argument, Barney (1988) expects that the bidders in most related acquisitions will not obtain higher abnormal returns than bidders in unrelated acquisitions. More in general terms, performance explanations relying on characteristics of the two firms which are known and

quantifiable at the time of negotiation are likely to be included in the pricing of the transaction, thereby reducing at least in part their power to impact the value generated for the acquiring institution.

One possible source of value creation in acquisitions, which is likely to be less sensitive to this argument, is the degree to which the acquiring firm develops a specific ability to effectively manage the post-acquisition integration process. This is because it is difficult for the target firm (as well as for the markets) to identify the existence of this capability, articulate its characteristics and assess the potential impact on the performance of the entire transaction. We intend to explore this issue by first examining the received literature on post-acquisition management in order to identify what is known about the complexities of post-acquisition integration processes, and then by building on the most recent advancements in organizational learning and evolutionary economics in order to understand the mechanisms behind the creation and evolution of a post-acquisition integration management practice. This paper will focus on the effects of knowledge codification and accumulation processes on the decision-making behavior of acquiring firms, while the performance implications will be examined in a separate work (Singh & Zollo, 1998)

1.2 Research on Post-Acquisition Management

The origins of the post-acquisition management literature can be found in the behavioral and HRM traditions, which generally tend to emphasize the negative consequences of post-acquisition integration processes on the organizational conditions of the two firms (see Hogan & Overmyer-Day, 1994 for a good overview). Contributions in this area focus on the negative impact of cultural clashes (Nahavandi & Malekzadeh,

1988; Buono & Bowditch, 1989), of top management conflict (Mirvis, 1985), of top management turnover (Walsh, 1988; Walsh &a Ellwood, 1991; Cannella & Hambrick, 1993), of poor handling of communication processes (Schweiger & DeNisi, 1991), and of failing to take into serious consideration the implications of post-acquisition integration processes on individual attitudes and behaviors (Astrachan, 1990; Joyce Covin et al, 1996).

These contributions have the merit to shed significant light on the challenges faced by firms when they attempt to translate their initial objectives and their post-acquisition integration strategies in specific action steps, while trying to minimize the negative consequences of organizational disruption and psychological resistance to change. However, they also suffer from having only a partial view of the M&A process: by focusing on the negative implications of the post-acquisition integration phase, they stop short of considering the conditions which determine the potential for value creation in mergers and acquisitions. Are all integration processes inherently destructive, as indicated by these contributions, or are the various forms and degrees of organizational disruption dependent upon characteristics of the transaction and of the two firms involved? In the latter case, it could very well be that the negative consequences highlighted in these studies are the "price" to pay in order to achieve the economic benefits analyzed in the strategic and financial literature. In any case, it appears clear that studying one without the other part of the performance equation leads to a partial and potentially biased understanding of acquisition processes.

The so-called "process view" of acquisitions (Jemison & Sitkin, 1986; Haspeslagh & Jemison, 1991; Haspeslagh & Farquhar, 1994; Pablo, 1994) attempts to bridge the gap between the two streams of literature by highlighting the necessity to include both value

creation potential as well as implementation complexities in a sound theoretical treatment of acquisition processes. In doing so, they propose a process perspective which analyzes the alternatives and challenges existing in the various steps of the process and provides particularly useful taxonomies of possible integration approaches. They create a taxonomy dependent upon two dimensions: the levels of strategic interdependence between the firms, and the levels of organizational autonomy given to the acquired firm. They consider the combinations created by varying levels of strategic interdependence with varying levels of organizational autonomy needed in order to preserve the core capabilities embedded in the cultural environment of the acquired entity (Haspeslagh & Jemison, 1991; p. 145). From a modeling point of view, their framework can be condensed in essentially one type of post-acquisition decision-making variable (the type of organizational integration) and two explanatory constructs based on the pre-acquisition characteristics of the two firms (the degree of strategic and of organizational fit). Importantly, they add the quality of the acquired firm's resources and the (absolute and relative) transaction size as relevant factors in their decisional framework.

Large scale empirical analyses of post-acquisition decisions are, unfortunately, rare. Datta and Grant (1990) show a significant correlation between the degree of resource relatedness and the level of integration and a partial moderating role of the relatedness construct between integration and acquisition performance: in unrelated acquisitions, the level of integration hurts acquisition performance, but in related transactions the impact is not statistically significant. In a more recent work, Pablo (1994) examines the contextual and organizational explanations of the decision about the level of integration between the firms involved in the acquisition. She uses a set of scenarios which varied along the dimensions of strategic fit, organizational disruption potential,

buyer's multiculturalism, goal conflicts and power differentials, and evaluates their impact on the degree to which the acquiring firm would integrate the target. Also, Pablo, Sitkin & Jemison (1996) advance the notion of the acquirer's attitude towards risk in order to explain several types of acquisition-related decisions, including the level of post-acquisition integration.

The level of post-acquisition integration, however, is only one of the dimension of the post-acquisition management process which can potentially be relevant in order to explain the overall performance of the transaction. A high level of integration between the two firms can be achieved in several different ways; for example, the acquiring firm can decide to retain key resources of the acquired firm and to try to align their use across the two organizations through a consensus-building process, or vice-versa it can decide to substitute or dismiss part or all of the pre-existing resources (human or physical) in order to accomplish a faster, unambiguous, and (hopefully) more effective level of integration. The notion of resource deployment, which is being advanced in the most recent treatments of acquisitions by strategy scholars (Anand & Singh, 1997; Capron and Mitchell, 1997), is related to this resource substitution construct but is arguably less precise in that it is generally confounded with the decision about the level of integration. Resources can be deployed at low levels of integration, such as the transfer of key personnel in an LBO transaction completed by specialized financial acquirers, or, vice versa, can be retained by both organizations in a higher level of integration mode where the same pre-existing resources are simply used in a similar and coordinated fashion.

One way to approximate the degree of reliance on consensus-building as opposed to a replacement-based approach is to consider the degree of replacement of the top

management team of the acquired firm, a variable which has received some degree of attention in the literature. The "market for corporate control" theory, for example, suggests that inefficient management teams will be replaced by more competent ones in a market where teams compete for the control of productive assets (Manne, 1965; Jensen and Ruback, 1983). The strategic management literature often opposes to this view of acquisitions one where the top management of the acquired entity might own firm-specific and uniquely valuable talents and skills; the disruption of these "managerial rents" (Castanias and Helfat, 1991) could significantly harm the performance of the acquisition process. Empirically, Cannella and Hambrick (1993) do show that the departure of managers from the target firm (even more so if in senior executive positions) has a negative impact on acquisition performance, and that the co-optation of the target's managers in the acquirer's organization might help achieve better results.

While there seems to be little reason to doubt that the degree of substitution of the target firm's top management team represents an important piece of the puzzle in our understanding of M&A performance, theoretical and empirical work on the explanation of the drivers of this decision is still at an embryonic stage. In Cannella and Hambrick (1993)'s study, the issue is not explicitly addressed: interestingly, however, neither the degree of resource relatedness, nor the target's pre-acquisition performance (objectively measured as an ROE ratio) correlates with the degree of executive departure (p.147; Table 2). In the only studies specifically dedicated to the explanation of the replacement decision, Walsh (1989) and Walsh and Ellwood (1991) find explanations of turnover based on characteristics of the negotiation process and, interestingly, on the pre-acquisition profitability of the *acquirer*, but no incidence of the target's pre-acquisition performance. This, almost casual, evidence about the importance of the characteristics of

the acquiring firm foreshadows some of our work, which also focuses on the acquirer's attributes and how they influence the post-acquisition management process.

Both the decision on the level of integration and on the degree of substitution of top managers seem to command considerable consensus as to their importance in understanding acquisition processes and performance, but the study of their determinants is today still at an embryonic stage. This paper will therefore focus on the study of the antecedents of these two decisions and will therefore defer the analysis of the performance implications of these decisions to future work. The two dependent variables are defined as follows:

Definition 1. Level of Integration is the degree to which processes are *linked* (connected in terms of logistics or information flows), *aligned* (changed to make them similar) or *centralized* across the two organizations[1].

Definition 2. Level of Replacement is the degree to which pre-existing processes and resources are maintained intact (low replacement), as opposed to substituted or disposed of in either one of the two organizations involved (high replacement).

First of all, it is very clear that these two dimensions represent (perhaps) the most important, but certainly not the only aspects of the complex decision-making process which characterizes the post-acquisition integration phase. Second, it is also clear that these two key decisions are not completely independent from each other. Process centralization, for example, which can be considered the highest form of integration, will also imply a certain degree of resource substitution and disposition. Still, it is conceivable to think about, and has been frequently observed during our field work, acquisitions with

high levels of replacement and low levels of integration (restructuring-driven transactions of distressed targets, for instance), and vice versa, high levels of integration with low levels of replacement of resources (vertical acquisitions, or consensus-based integration approaches). The two dimensions seem to have, therefore, a good potential for the definition of the critical attributes of a post-acquisition integration strategy.

2. A KNOWLEDGE-BASED PERSPECTIVE ON ACQUISITION PROCESSES

The potential contribution of the present work consists in drawing the attention, on the characteristics of the specific knowledge accumulated by the acquiring firm from previous acquisition experiences, in order to explain the type of post-acquisition strategy defined by acquirers. As we will see below, we are interested in both the quantity and the quality (i.e. in tacit or codified form) of the accumulated knowledge in order to model and test hypotheses about the decisions on the level of integration and of resource replacement. The basic intuition is that, in order to understand the evolution of acquisition processes, and in particular the types of decisions made by the acquirer in the integration phase, one needs to look at what the acquirer has experienced in the past in similar transactions, and to what extent it has attempted to extract and retain the lessons learned from these experiences. The rationale follows known arguments regarding the impact of path dependencies, routinization and codification (or bureaucratization) processes on organizational decision-making (March & Simon, 1958; Cyert & March, 1963; Nelson & Winter, 1982). In the most recent years, the strategy literature has shown increasing interest in the impact of the evolution of knowledge in firms on both organizational

[1] This is an application of Thompson's (1967) ideas to an explicit post-acquisition integration context.

processes and performance, recognizing its primary role in the creation (and destruction) of organizational capabilities and, ultimately, in the creation (and destruction) of competitive advantage.

In its very essence, this recently coined "knowledge-based view of the firm" (Grant & Spender, 1996) assumes that an organization can be defined by the type and the quality of productive and administrative knowledge embodied in people, in written procedures and in other non-codified skills, notions or beliefs (Nelson & Winter, 1982; Winter, 1987; Henderson & Clark, 1990; Kogut & Zander, 1992; Nonaka, 1994). One fundamental question for this way of looking at firms' behavior is how knowledge accumulates across time and under what conditions this accumulated knowledge generates strategically relevant capabilities. In the context of acquisitions, the existence and the effectiveness of these knowledge accumulation mechanisms is not to be taken for granted, as it is not at all clear whether, under conditions of low task frequency and of high task complexity and diversity, knowledge can accumulate in any meaningful fashion (March, Sproull & Tamuz, 1991).

Also, it is not clear whether the accumulation of knowledge in tacit forms (basically, in the minds of the individuals exposed to the processes) is sufficient to sustain the learning challenge when past experiences are scarce and highly complex. It might very well be, for example, that under these extreme learning conditions, a certain degree of knowledge codification and manipulation becomes necessary in order to develop an organizational capability. In other words, the known drawbacks of knowledge codification as an imitable accumulation mechanism (Lippman & Rumelt, 1982; Zander & Kogut, 1995) might be overcome by the necessity to produce an extraordinary effort to extract the lessons from few, scarcely comparable, experiences, and to identify the

opportune variations in the current procedures. Writing manuals and guidelines, creating spreadsheets and electronic decision support devices might help not only the coordination and execution of highly complex, simultaneous tasks, such as those typically faced in a post-acquisition phase, but, perhaps even more importantly, might constitute the best opportunity to produce the cognitive efforts which underlie the development of an organizational capability.

Before showing how this theoretical perspective can help us understand the evolution of post-acquisition integration strategies, it might prove beneficial to provide a brief account of the most important findings of our field work, as it may help the reader to better assess the limits of our current understanding of the acquisition process, and evaluate the logic of the proposed approach.

2.1 Post-Acquisition Management in the Banking Industry

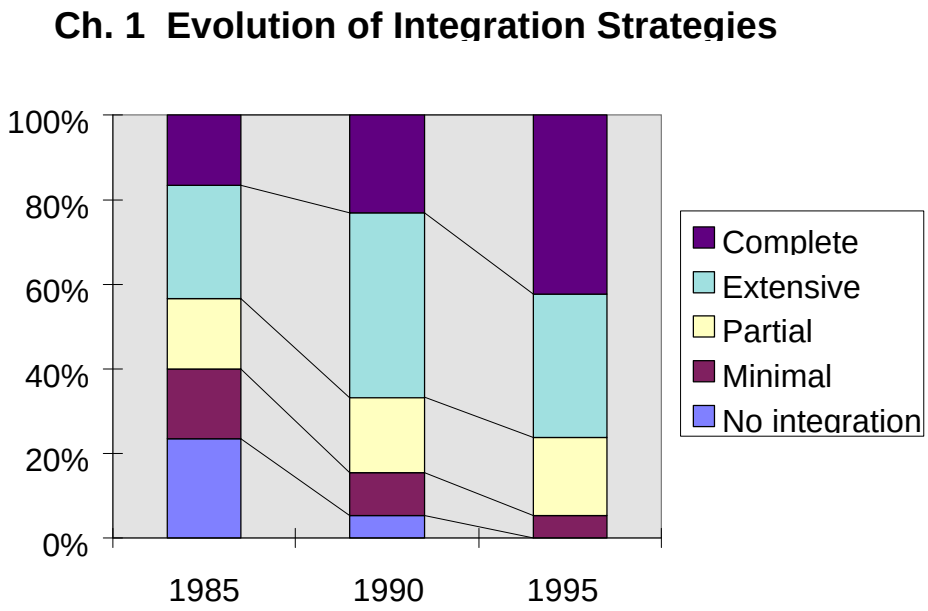
The U.S. commercial banking industry is in the midst of a natural experiment that particularly suits our research needs. We were interested in an industry in which we could study mostly within-industry transactions. Also, we wanted to examine the post-acquisition management process in a relatively simplified setting, where much of the acquisition activity is within industry boundaries, either horizontal, or geographic market extension transactions. As a result of significant deregulation of commercial banking services (particularly the reduction of barriers to inter-state branching and to the use of multi-bank holding company structures), and of rapidly changing technological requirements, the competitive pressure on industry participants increased dramatically during the present decade. It became widely accepted in the industry, that banks have to

acquire assets of other banks in order to develop the scale economies and interstate presence needed to be significant players in the future. Significant regulatory impediments still exist, however, in limiting the ability of banks to purchase other financial institutions and, even more strongly, non-financial enterprises.

We engaged in field-based observations by obtaining initial access to nine banks, all of whom were active acquirers. We interviewed 35 decision-makers in the nine banks in order to develop a greater understanding of the post-acquisition process in all of its sub-tasks, and of the changes in the way these institutions have managed acquisitions of other banks during the last 10-15 years. As a result of this field work, we uncovered a number of relatively unexpected patterns:

1. **Evolution of Post-acquisition Strategies.** Most acquisitions completed before 1989-90 were managed in a *low replacement and low integration mode*. Acquired banks were typically not integrated (with few exceptions), information systems were not converted, the top management team was rarely substituted and the product lines were not standardized. With the S&L crisis and the consequent spree of acquisitions of failed institutions from RTC- or FDIC-led auctions (1989-92) came an acquisition management mode where a *higher level of replacement* of target management was accompanied by a *low to medium level of integration* (at least in the first phases of the post-acquisition process).. The *higher levels of integration*, along with *higher degrees of replacement*, which one would expect to be the standard case given the context (horizontal transactions), have achieved dominant importance only in the last few years. A senior executive in a highly acquisitive bank, part of the pilot group, lamented that when he was hired as a controller (in 1991) there were 32 (thirty-two) different management

information systems simultaneously used in the various divisions and geographical areas controlled by the bank! They were at that time in the process of increasing the level of integration to address this incompatibility across formerly acquired but scarcely integrated institutions. Other banks reported a similar (if not as dramatic) situation at some point in time in their acquisition history. It looks like the acquiring institutions in this industry went through a rapid change in their approach to the management of their acquisitions. The following Chart 1 shows the evolution of the decision about the level of integration implemented by the participating banks (50 institutions, see Section 3 for details) at different points in time.



2. **Strong Firm Effects.** In addition to this longitudinal effect, we have noticed a wide dispersion of the cross-sectional distribution of post-acquisition integration practices. There is a firm effect in the choice of post-acquisition management approaches. In other words, on a case basis, it was clear that some banks would manage very comparable

transactions very differently. We list some particularly striking examples of firms with comparable levels of acquisition expertise:

Banc One has created a highly sophisticated, routinized and codified integration process whereby information systems are converted (but not centralized), human resources are "affiliated" (extensively trained and socialized), but product lines are not standardized and a large degree of decisional autonomy is left to the top management team of the acquired entity, which is never replaced and actually often "co-opted" to key roles at the corporate level of the acquiring organization. As of 1995, Banc One's organization chart listed 81 CEOs, while the corporate-wide product line included about 400 different deposit products (where 20 is considered a reasonable number). Banc One's process can be characterized as low replacement and medium-level integration[2].

Norwest, on the other hand, has an equally routinized and codified process which allows them to achieve a much higher level of integration, where the data processing systems are centralized and the product line is standardized. The top management team of the target is kept in place and actively contributes to the integration process which is coordinated at the local level, with limited supervision from the corporate development team.

Nationsbank aims at similarly high degrees of centralization of information systems and standardization of product lines, but is more aggressive in terms of substituting top managers and keeps a tight control of the integration process from the corporate headquarters, with limited decision input from the target's management. Also, an entire corporate structure is here permanently in place and endowed with high visibility and

[2] Since 1995, Banc One has undertaken an extensive reorganization process which aims to reach a much higher level of integration among all its affiliated banks, centralizing information systems and decision-making authority, while trying to maintain a strong market presence. The most recent acquisitions have been managed in a significantly different way, according to the new guidelines.

institutional power, specialized in the coordination of all the simultaneous and multi-divisional post-acquisition integration tasks.

3.. **Codification of Post-acquisition Integration Practices**. Coupled with strong longitudinal and cross-sectional variation in post-acquisition integration strategies is a similarly strong (longitudinal and cross-sectional) variation in the extent to which acquiring banks develop specific tools aimed at facilitating the completion of the various simultaneous task comprising the post-acquisition integration process. We were actually surprised by the level of sophistication achieved by some of the acquiring firms in their handling of complex tasks such as the conversion of information systems, the standardization of product lines, the training and socialization of the workforce. Equally surprising, however, was the relatively limited diffusion of these tools even in cases of high acquisition experience. Not only did many relatively experienced acquirers not develop the most "advanced" manuals and models, but those who actually developed them have done so, many years after the first acquisition experiences, by heavily investing in time, money and energy. One highly experienced participant bank worked for four years to create the manuals and the computerized tools to manage first the information systems conversion phase, then the human resources affiliation process (tracking down the evolution of the acquired workforce on a daily basis) and finally the customer impact of the integration process. The following Table 1 summarizes the diffusion patterns of the integration tools in the sample studied with the Phase 1 survey (see section 4 for details).

Table 1. Evolution of the Post-acquisition Integration Tools

	Created ? (% of Yes)	When ? Avg.	Year of 1st Appearance	Years from Eval. Tools
Financial evaluation spreadsheets	89.6%	1989.83	1975	0.00
Due Diligence check-list	91.7%	1989.95	1976	0.72
Info systems training manual	45.8%	1990.48	1982	0.37

Products training manual	54.2%	1990.54	1980	0.71
Info systems conversion manual	54.2%	1990.73	1982	0.74
Branch staffing models	50.0%	1991.00	1985	2.05
Product mapping models	52.1%	1991.09	1982	1.27
Project management packages	50.0%	1991.14	1976	2.00
Due Diligence manual	39.6%	1991.19	1986	0.85
Affiliation/integration manual	41.7%	1991.24	1986	1.53
Training/Self-training packages	41.7%	1991.79	1985	2.29

The columns report on the frequency of observation of these tools in the sample, the average of the year in which the tool was created, the year in which the tool was created for the first time by a bank in the sample, and the average number of years lapsed between the creation of financial evaluation models (typically the most basic M&A tool) and the creation of that particular manual or computerized model. Acquirers in the banking industry appear to have evolved their post-acquisition integration practices by slowly developing increasingly complex tools. From simple due diligence check-lists, some acquirers created due diligence and post-acquisition integration manuals (for the conversion of information systems, the affiliation of human resources and various training purposes). From basic evaluation spreadsheets, some acquirers developed entire information systems which enable them to make informed decisions on product standardization, branch staffing and to closely monitor their implementation.

It appears clear from these preliminary observations that explanations based on the characteristics of the task, such as the degree of relatedness among the two organizations and the quality of the resources of the acquired bank, are not able to explain the evolution in the approaches to manage essentially the same type of task. The deregulation process, so relevant in many aspects of the banking industry, cannot offer any light on this phenomenon, as regulatory authorities limit their role to the authorization of the

acquisitive event and do not have any say in post-acquisition management decisions. Actually, the liberalization of interstate banking, and the higher relevance assumed by "out-market", as opposed to "in-market" acquisitions, might have lead to predict lower, instead of higher, levels of integration, as the degree of resource relatedness (measured in this case as geographical overlap of the branch networks) is lower. We submit that the missing element in our efforts to explain post-acquisition integration behaviors of firms lies in the extent and in the way acquiring firms accumulate knowledge from their previous acquisition experiences. The following sections are meant to provide the theoretical bases for this statement and details of the empirical exercise designed to test its implications.

2.2 Knowledge Accumulation Mechanisms and Post-Acquisition Decisions

In taking a knowledge based view of acquisitions, we suggest that decisions to integrate acquired units are influenced by the degree to which the acquiring firm accumulates and, eventually, codifies experience from previous transactions. Nelson and Winter (1982) suggest that organizational routines are significant repositories of knowledge within the firm. They further argue that these routines have to be replicable in comparable settings, for the firm to benefit from its prior knowledge. In the context of acquisitions, then, the acquiring organization might develop a practice, or routinized behavior, which incorporates past experience in both tacit and explicit form. Two constructs can be therefore advanced which underlie the evolution of the specific practice aimed at the successful management of the post-acquisition integration phase.

Definition 3. K*nowledge codification* is the degree to which the knowledge about integration processes is extracted from previous experiences and codified in specific tools, such as manuals, blueprints, computational models etc.

Definition 4. **P*rocess routinization*** is the degree to which knowledge from previous experiences accumulates in tacit forms (i.e. in the minds of human actors) and results in quasi-automatic, uniform, response behavior to varied stimuli.

The two constructs are clearly not orthogonal and some degree of correlation can be expected between the two, given that they are both products of the same knowledge accumulation process. However, the mechanisms of process routinization and knowledge codification are separable, in that the latter is more tacit in its character, while the former is explicitly codified. Studying them as separate mechanisms is not only correct from a theoretical point of view, but might be particularly useful for the normative aspects of the forming theory on the creation and evolution of organizational capabilities.

3 MODELS AND HYPOTHESES

In this section, two simple models are developed in an initial effort to explore the impact of both resource-based and knowledge-based explanations on the decisions to integrate the two organizations and to replace the top management team of the acquired firm.

The Level of Integration.

The degree of resource relatedness between the two organizations is expected to be positively associated with the level of integration. In the context of the banking industry, for value creation from economies of scale and scope to take place, it is necessary to reach a higher level of integration: support functions have to be centralized,

management information systems have to be converted and facilities have to be rationalized.

In addition to this baseline relationship, though, we suggest that there is a role for the degree of routinization and of knowledge codification achieved by the acquirer in the management of the integration process. The more routinized and codified the acquirer's practice is, the more likely it will be that the acquirer will strive for higher levels of integration, as it will have a higher degree of confidence in its ability to manage and neutralize the negative effects of the level of integration on acquisition performance.

High levels of integration (and of replacement) create correspondingly high amounts of disruption in the routines and structures of the organizations involved, and therefore should be associated with greater complexity in the post-acquisition management (Amburgey, Kelly and Barnett, 1993; Haveman, 1992 and 1993). We might label this "*structural*" complexity, as it is dependent upon the existence and strength of barriers to changes in organizational structures.

Higher levels of integration also imply a larger number of highly interdependent decisional processes to be completed, as more parts and functions of the organizations become involved. Additional data has to be gathered and processed in order to allow informed decisions, and more frequent and time-consuming political interaction is necessary in order to arrive to the required set of decisions. We might label this "*decisional*" complexity, as it depends upon the cognitive barriers to the effective completion of interdependent decision processes.

These higher levels of structural and decisional complexity, in turn, would challenge the acquisition management team to draw upon its prior experience with past transactions, in order to extract the "wisdom" necessary to inform the present decision-

making processes. This "wisdom" can come in form of either informal (tacit or explicit) heuristics and rules of thumb which aim to simplify the decisional context and therefore reduce the cognitive barriers to rational decision-making, or as more formalized procedures and routines.

These hypotheses can be expressed in more formal terms:

H1 ***Resource Relatedness****. The higher the degree of relatedness between the two organizations, the higher the level of integration.*

H2 ***Knowledge Codification****. The higher the degree of codification of the integration process, the higher the level of integration.*

H3 ***Process Routinization****. The higher the degree of routinization in the post-acquisition process, the higher the level of integration.*

which leads to the following analytical expression for modeling the level of integration:

(1) Integration = a + b*Relatedness + c* Codification + d* Routinization

where:

b > 0 as per H1

c > 0 as per H2

d > 0 as per H3

The Level of Replacement of the Top Management Team.

In a similar spirit, the level of replacement is submitted to be a function of resource characteristics of the acquired organization, and of the degree of development of a post-acquisition practice at the acquiring organization.

Specifically, the quality of the target's pre-existing resources and routines are submitted to be inversely related to the level of replacement implemented by the acquirer. The rationale is consistent with basic principles of rational choice: the worse the performance feedback, the higher the likelihood of an intervention to change the elements upon which the process operates (resources) and/or the process itself (routines). In the context of prior acquisition research, this hypothesis is the essence of the "market for corporate control" view of the phenomenon, where acquisitions are believed to be a policing mechanism able to resolve or at least reduce standard agency problems.

In addition to the "baseline" resource-based explanation, one can submit similar hypotheses for the impacts of knowledge-based variables. In this case, though, the rationale behind the importance of knowledge accumulation mechanism is mainly focused on the increasing ability, given by experiential learning, to manage the level of conflict resulting from disruptive change introduced in relatively inert environments. The complexity arguments advanced for the level of integration model are somewhat weaker, and might actually work against the hypothesis (it might be easier to implement high integration strategies using resource replacement as opposed to consensus-building processes). This might in particular affect the impact of the codification mechanism, as a tool to reduce the complexity of the decision-making and of the implementation phases: in essence, you might not need to write any manual in order to lay-off top managers or replace the acquired firm's product line.

The preceding discussion results in the following hypotheses:

H4 ***Resource Quality****. The lower the level of pre-acquisition performance in the acquired organization, the higher the level of replacement planned.*

H5 ***Knowledge Codification***. *The higher the degree of knowledge codification, the higher the level of replacement planned.*

H6 ***Process Routinization***. *The higher the degree of process routinization, the higher the level of replacement planned.*

leading to the following equation:

(2) Replacement = f + g* Resource Quality + h* Codification + i* Routinization

where:

$g < 0$ as per H4

$h > 0$ as per H5

$i > 0$ as per H6

4 DATA AND MEASURES

This study was conducted in two parts: in the first stage, we had an extended set of field observations on acquisition management practices in the industry. At this time, we worked with a pilot group of nine banks with acquisition experience ranging from medium to very high. The banks were (in order of size): Chase/Chemical, Bank One, PNC Bank, Norwest, First Fidelity, First Bank Systems, First Empire State, Old National and Associated Bancorp. In the case of Chemical and First Fidelity, we contacted them and met their key executives when the banks were still independent, and followed them after they had been acquired. Additional field work was made with the collaboration of Nationsbank, First Union, Southern National/BB&T and CoreStates, and included participant observation of one systems conversion process at PNC Bank and of top management decision-making processes during the integration of a recent acquisition by Southern National/BB&T.

The second stage of the study was a two-phase questionnaire survey of the 250 largest bank holding companies in the US. The questionnaire has the following phases:

Phase 1- Level of Analysis: the Acquiring Bank.

Every participant bank was asked to complete

- One Acquisition History Profile: a list of all the bank acquisitions completed since foundation with basic information on each of them[3].
- One Acquiring Bank Questionnaire describing the characteristics of the acquisition process put in place by the acquiring institution. This includes the degree of codification, the division of responsibilities, the strategic priorities and some basic process and performance measures (5 pages).

Out of the 250 invited institutions, 70 did not have any acquisition experience after 1985 and 16 were acquired during the invitation process. Out of the remaining 164, 51 accepted to participate, for a 31.1% response rate which is highly satisfactory, given the complexity of the survey exercise and the necessary involvement of top management time. The asset size of the smallest invited institution is about $400 million, which implies very rare acquisition activity and really small transaction sizes (usually 1 or 2 branches). Further extensions of the sample to smaller institutions is likely to result in very low responses and significant losses of comparability between the transactions analyzed.

The experience base of the banks participating in the study is high, with 10 of the 12 largest and most active acquirers in the industry represented in the sample. The total number of acquisitions made by the 51 banks is 576, a sample large enough to ensure that

[3] The information gathered on each acquisition includes the asset size, the transaction price, the name of the coordinator of the post-acquisition integration process, the degree of geographical overlap of the two branch networks (whether the acquisition in considered "in-market" or "out-market"), the quality of the acquired institution, the level of integration and of replacement of the top management team, and

routinization of the acquisition process is likely to happen at least for a subset of the sample. With respect to the original population of the 250 largest institutions, the sample of respondents is biased with respect to their asset size (participants are significantly larger than non-participants, $p < .05$), but the differences in the means of ROA, ROE and efficiency ratios are not statistically significant.

The quality of the respondents is very appropriate for this study, as the Phase 1 documents have been completed by the manager responsible for the Corporate Development unit or the M&A group of the bank, or by the coordinator of the post-acquisition integration processes, if such a function exists.

MEASURES

This paper uses data gathered through a combination of the Phase 1 survey described above, and of public information on financial performance variables. Following is the operationalization of the key constructs modeled.

Level of Integration

The first dependent variable was measured with an assessment of the extent to which the information systems, the operating procedures and the product lines of the two firms were aligned or centralized. The scale varies from "**0**" ("few or no features were integrated"), to "**3**" ("all systems, procedures and products were completely integrated"),

Level of Replacement

The other dependent variable was measured with an assessment of "the extent to which the executive leadership of the acquired bank has been changed after the acquisition". The

qualitative assessments of the performance of the information systems conversion, of the human resources affiliation and of the overall integration process.

scale varies from enter "**0**" if there was "no substantial change" to "**3**" if "virtually all the top management team was replaced".

Resource Relatedness

The research project was purposefully designed to limit the extent of variation along this dimension. The sample of acquisitions studied includes either perfectly horizontal (i.e. buying a competitor located in the same geographic area) or market extension types of transaction, where the variation is provided essentially only by the degree of geographical overlap between the two branch networks. The bank industry has developed a clear and universally utilized distinction between "in-market" (horizontal) and "out-market" (market extension) acquisitions, which the survey uses by probing for the categorization of each transaction listed in the acquisition history profile in one of the two classes. The resource relatedness variable was then coded as 1, if the acquisition is "in-market" and as 0, if it is "out-market".

Resource Quality

The pre-acquisition quality of the resource endowment of the acquired firm is measured with an assessment of the type of performance produced by the target bank before the completion of the acquisition. The scale varies according to the following anchors: "**-2**" if the acquired institution was in a bankrupt situation, "**-1**" if it was a poor performer, "**0**" if an average performer, "**+1**" if a good performer, "**+2**" if an outstanding performer.

Process Routinization

The degree of process routinization is approximated by using the following three sets of measures:

- *The level of general acquisition experience*, the simple count of the number of acquisitions completed by the same acquirer before the one considered. This is the

most superficial approximation of the routinization construct. This variable (probably) represents a necessary, but certainly not a sufficient condition for the creation of a post-acquisition integration routine. In other words, the level of experience testifies only to the longitudinal accumulation of knowledge in the acquiring firms, but not necessarily to the persistence of practices (Helfat, 1994).

- *The specific type of acquisition experience* is a more refined concept, as it incorporates the specific evolutionary path followed by the bank in its acquisition trajectory. It measures the number of a certain kind of acquisitions completed before the one considered. For the purpose of this analysis, the criteria used are (i) degree of relatedness (number of "in-market" and "out-market" acquisitions) and (ii) quality of resources of the target (number of "failed" and of "healthy" institutions purchased).
- *The same decision made 3 acquisitions before*. While the previous measures approximate the routinization construct with a measure of experience trajectories, this variable attempts to get directly at the core concept of routinization, i.e. the replication of a certain type of decisions across time and under relatively different contextual conditions. Routinization is, in other words, a special case of path-dependency where not only current decisions are dependent upon past ones, but they are actually similar in kind. By using the decision made in a randomly selected previous acquisition, one can more precisely approximate the routinization effect.

Knowledge Codification

The *degree of knowledge codification* is measured by counting the number of manuals and models developed by the acquirer in the year of the acquisition, divided by the number of them presently available. This approximates the stage in the evolution of the integration practice reached by the acquiring bank in the year of the acquisition. The

documents for which data has been gathered are those listed in Table 1 in Section 2, for which the Acquiring Bank questionnaire provides the year in which each tool was created by the acquiring firm (if it was). The list can be considered essentially exhaustive of the type of manuals and computer support tools developed in the banking industry, as only one of the participants mentioned a non-listed tool under the rubric "other manuals and models".

5 ANALYSIS AND RESULTS

The coefficients in equations (1) and (2) have been estimated with two logistic regressions. The two dependent variables - level of replacement and degree of integration -- have very skewed distributions: in 48% of the acquisitions the top management team has been completely replaced, and in 75% of them the target has been either highly or completely integrated within the acquiring institution. This is in itself very useful information: the degree of integration of the acquired banks is typically very high, and the level of top management replacement is also complete in a large percentage of cases.

As a result of the skewness of the dependent variables, we can run regressions with the complete scale (but acknowledge the possible effects of skewness) or dichotomize the dependent variables and run logistic regressions, without a significant loss of information. We report the logistic regressions (which are appropriate when the dependent variable is dichotomous), although our substantive results do not change if we use the full scales for replacement and integration and run OLS regressions. The original four category definition of levels of replacement and integration was redefined into a dummy where the value 1 is taken in the case of "complete replacement" and of "complete integration", and the value 0 is taken in all the other cases.

The means, standard deviations and binary correlations of the variables used in the logistic regression models are presented in Table 2. The controls used are self-explanatory, except perhaps for the concept of "efficiency" ratio, which as a performance measure is specific to the banking industry. This ratio is the equivalent of the Selling, General & Administrative expenses/Net Sales ratio for a manufacturing company and represents the cost of the human and physical structure necessary to generate the flow of revenues. Obviously, the lower the ratio, the more efficient the bank is. The efficiency ratio is the industry standard for measuring performance in meeting cost reduction targets.

A five stage model is reported for each of the two equations. Whereas stage 1 presents the control variables forming a "baseline" explanation, stage 2 introduces the two resource-based variables (only one of the two has been subject to formal hypothesis), Stage 3, then, adds the degree of codification of the integration process, and Stage 4 includes the generalized and the two specialized experience trajectories defined above. Finally, Stage 5 introduces the more direct proxy for routinization of the decision process provided by the decision score (non-dichotomized) registered for the third acquisition preceding the one analyzed. The number of previous acquisitions considered in order to construct this measure is random; the analysis has been replicated considering the 5^{th} and the 1^{st} acquisition before the current one with no significant differences in the magnitude and the sign of the coefficients reported. Values in parentheses are a measure of the explanatory power of the single covariate, whereas the reported chi-square test measures the statistical significance of the variation in fit obtained by adding the new group of factors to the previous stage.

The logistic regression model for the level of integration (Table 3) provides evidence in favor of both the resource-based and the knowledge-based explanations. Models 2, 3, 4 and 5 significantly improve the fit with respect to the block of control variables and of the preceding nested models. In particular, the degree of resource relatedness is positively associated with the probability of high integration, as predicted in H1, while the quality of resources, for which no particular hypothesis was advanced, results significantly and negatively tied to the level of integration. The higher the degree of relatedness and the lower the quality of the resource endowment of the target firm, the higher the probability of completing integrating the acquisition.

The impact of the development of a codified practice (the level of knowledge codification, H2) on the decision to integrate the acquired firm is positive and statistically significant. In addition, this (rough) approximation of the degree of knowledge accumulation in explicit form provides a significant improvement in the fit of the model with the data (chi-square = 10.05 with 1 degree of freedom) and a sizable improvement in its predictive capacity (from 81.16% to 83.7% of correct predictions).

The degree of tacit routinization of the integration practice results to be at least as important (if not more so) as the resource characteristics and the codified knowledge accumulation mechanism in explaining the variation in the decision to integrate. While the generalized experience trajectory and one of the two specialized ones (the number of "out-market" acquisitions previously completed) significantly impact the level of integration, it is really the routinized replication of past decisions that exhibits the strongest explanatory power of all the predictors included in the model ($R = 0.27$, $p < .000$). Past experiences, therefore, matter not only as they change future behavior (i.e. more experienced banks integrate more, banks with more "out-market" acquisitions integrate less), but more

precisely, it matters because once a certain decisional approach is chosen, the same decision tends to be repeated also in contexts reasonably different from the original one. Hypothesis H3 is therefore strongly supported both in the more general operationalization based on path-dependent roles of experience trajectories and in the more specific measurement based on the degree of replication of past decisions.

The logistic regression model for the degree of replacement of the top management team (Table 4) also shows very good fit with the data at every step of the analysis. The effect of the quality of pre-existing resources in the acquired organization is strongly significant and negatively related to the replacement decision, as expected (H4). Interestingly, even the other resource-based variable, the degree of relatedness, is strongly and positively correlated with the replacement of the top management team. Consistently with Cannella & Hambrick (1993), top management teams in highly related acquisitions are replaced with higher probability. Both the resource relatedness and the resource quality effects hold true irrespective of the inclusion of knowledge-based explanations.

The effects of the knowledge-accumulation mechanisms, however, are remarkably strong and equally important to the resource-based explanations. The introduction of these variables improves the fit with the data and the predictive power of the model (from 76.81% to 82.97% correct predictions). More specifically, the degree of codification plays (somewhat unexpectedly) an important role in predicting a higher probability of replacement, supporting H5. The tacit knowledge accumulation mechanisms, however, result in an even stronger explanatory power (H6). Interestingly, the replication effect cancels out the impact of the experience trajectories, and is the single strongest predictor of the decision to replace the top management team (R = .38). Its introduction in the

logistic regression model not only remarkably increases the fit (chi-square = 45.17 with one d.f.), but also improves the predictive power of the model of three full percentage points (from 79.71% to 83.97%).

In both the decisions analyzed, then, the magnitude and the type of knowledge accumulated from previous acquisition experiences result to be strong predictors of post-acquisition integration strategies. In particular, the tacit knowledge accumulation patterns are related more to the replication of past decisions (routinization) than to the type of acquisition experiences had by the acquiring firm.

6 CONCLUSIONS

This study explored the sources of variation in post-acquisition management. The results of the analysis described above provide support for both resource based and knowledge based predictors of post-acquisition integration decisions. The resource based factors are consistent with what would be predicted based on prior research, while the knowledge based factors are new to this particular empirical context and might open some interesting research opportunities in the quest for the creation and evolution of organizational competence in dealing with complex, infrequent and heterogeneous tasks such as mergers and acquisitions.

Consistent with resource based arguments, the degree of integration is influenced by the resource relatedness between the acquired and acquiring banks. In cases where the two firms have high levels of relatedness, the two firms tend to have higher levels of integration. This is consistent with the expectations on the likely sources of value from related acquisitions presented by prior researchers such as Singh and Montgomery (1987), and Healy, Palepu and Ruback, (1992).

The empirical findings also show that the two fundamental mechanisms of accumulation of organizational knowledge, via tacitly embodied experience and via codified tools, strongly impact the type of post-acquisition strategies selected by acquiring firms. The probability of a high level of integration is strongly determined by the degree to which the acquirer has codified its understanding of how to accomplish this extremely complex and relatively infrequent task. At the same time, however, the number and type of acquisition experiences had in the past and, most importantly, the type of decisions made in the past, shape the current behavior in a way and with a strength perhaps unexpected. The decision about the replacement of the top-management team is influenced, besides the quality and the degree of relatedness of pre-acquisition resources, by the degree of codification of the integration management practice and by the type of post-acquisition routine established and replicated by the acquiring organization. It appears that acquirers tend to form their idiosyncratic approach to the management of the post-acquisition phase, and that they then replicate their "formula" over and over again, notwithstanding differences in resource-based conditions of their acquisitions. Post-acquisition management, in the context considered, seems more akin to the disciplined application and replication of organizational routines, than to the deliberate screening and selection of alternative patterns of actions which many scholars, as well as practitioners, might associate with strategically relevant decisions such as the ones considered. The evidence unearthed in this study might be interpreted as providing support for one of the fundamental tenets of evolutionary economics in its critique of the neo-classical assumptions behind the so-called "rational" decision-making processes.

The vast majority of what happens within an organization can be explained by either habitual execution of well-known routines or by routinized impulse reactions to recognized stimuli. The space of will-driven behavior, such as strategy-making or strategic reorientation, is much more limited than most management scholars tend to assume [Winter, 1987; p. 163].

Table 2 - CORRELATION MATRIX

	VARIABLES	Avg	Std	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Level of integration	.718	.450														
2	Degree of replacement	.448	.498	.372 ***													
3	Rel. acquisition size	3.96 E+2	4.49 E+3	.028	-.049												
4	Acquirer's size	2.16 E+4	4.07 E+5	.020	-.051	-.005											
5	Acquirer's ROA	.912	.374	-.211 ***	-.139 ***	.019	.046										
6	Acquirer's efficiency ratio	44.2	8.31	.202 ***	-.061	-.010	-.046	-.129 ***									
7	Post-deregulation	.671	.470	.229 ***	.096 **	.042	.026	.071	.4227 ***								
8	Resource relatedness	.62	.48	.421 ***	.352 ***	-.014	.035	-.148 ***	.221 ***	.211 ***							
9	Resource quality	-3.5 E-2	1.08	-.253 ***	-.290 ***	-.042	.098 **	.351 ***	-.016	-.031	-.207 ***						
10	Knowledge codification	.671	.421	.183 ***	.096 **	.065	.035	.282 ***	.124 **	.671 ***	.049	.126 ***					
11	Total N of acquisitions	11.2	1.02 E+1	.135 ***	.053	-.017	.120 ***	.238 ***	.145 ***	.303 ***	.167 ***	.037	.391 ***				
12	Out-mkt acquisitions	4.99	5.57	-.148 ***	.011	-.175 ***	-.021	.264 ***	-.065	.104 **	-.036	.050	.222 ***	.714 ***			
13	"Failed" acquisitions	2.38	2.97	.275 ***	.179 ***	-.032	-.033	.201 ***	.207 ***	.495 ***	.213 ***	-.074	.446 ***	.622 ***	.252 ***		
14	Integration 3 acq. before	2.56	.84	.475 ***	.116 **	.026	.022	-.089 *	.235 ***	.174 ***	.201 ***	-.062	.216 ***	.103 **	-.196 ***	.240 ***	
15	Replacement 3 acq. before	1.68	1.30	.258 ***	.258 ***	.011	.045	-.042	-.084 *	.202 ***	.152 ***	-.130 **	.181 ***	.017	-.142 ***	.291 ***	.319 ***

Pearson's correlation. Significant at the 0.01 (***), 0.05(**) or 0.10 (*) level

Table 3 - LOGISTIC REGRESSION MODELS

Dependent Variable: LEVEL OF INTEGRATION

	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5
Controls					
Relative acquisition size	-.06(-.09)**	-.05(.07)*	-.06(.08)*	-.11(-.24)***	-.11(-.24)***
Acquirer's size	4.36E-07	4.14E-07	4.00E-7	-9.9E-8	1.53E-8
Acquirer's ROA	-1.83(-.14)***	-1.28(-.09)**	-1.73(-.13)**	-1.63(-.1)**	-1.15
Acquirer's efficiency ratio	.12(.20)***	.09(.15)***	.09(.14)***	.03	.03
Post-deregulation year	.01	.05	-.63	-1.23(-.06)*	-.66
Degree of replacement	1.99(.29)***	1.30(.19)***	1.14(.16)***	.84(.08)*	1.25(.15)**
Resource-Based Factors					
Resource relatedness		1.20(.19)***	1.32(.21)***	1.08(.13)**	.96(.11)**
Resource quality		-.41(.11)*	-.51(-.15)***	-.56(-.16)***	-.62(-.18)***
Knowledge Codification			1.94(.19)***	2.13(.20)***	1.66(.14)**
Experience Trajectories					
Total N of acquisitions				.18(.18)***	.13(.11)**
N of Out-mkt acquisitions				-.33(-.27)***	-.25(-.19)***
N of "Failed" acquisitions				.19(.07)*	.18(.04)
Routinization					
Integration 3 acq. Before					1.04(.27)***
Chi-square Improvement	76.73***	15.96***	10.05***	39.15***	18.62***
% Correct	80.43	81.16	83.70	86.96	88.41
N	276	276	276	276	276

Beta coefficients (R in parenthesis). Significant at the 0.01 (***), 0.05(**) or 0.10 (*) level

Table 4 - LOGISTIC REGRESSION MODELS

Dependent Variable: DEGREE OF REPLACEMENT

	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5
Controls					
Relative acquisition size	-.02	-.0005	-.0016	-.01	-.03
Acquirer's size	-9.9E-5	-8.5E-5	-9.6E-5	-.0001	-1.0E-6
Acquirer's ROA	-.23	.41	.18	-.19	-.35
Acquirer's efficiency ratio	-.13(-.24)***	-.16(-.31)***	-.17(-.33)***	-.15(-.25)***	-.15(-.22)***
Post-deregulation year	.85(.05)*	.87(.05)*	.42	-.06	-.43
Level of integration	2.25(.24)***	2.04(.22)***	1.9(.21)***	1.71(.20)***	1.91(.23)***
Resource-Based Factors					
Resource relatedness		1.59(.23)***	1.65(.25)***	1.59(.23)***	1.9(.26)***
Resource quality		-.46(-.15)***	-.60(-.19)***	-.54(-.17)***	-.65(-.18)***
Knowledge Codification			1.33(.11)**	1.24(.09)**	1.32(.08)**
Experience Trajectories					
Total N of acquisitions				-.04	-.0002
N of Out-mkt acquisitions				.11(.08)**	.07
N of "Failed" acquisitions				.15(.08)**	.03
Routinization					
Replacement 3 acq. Before					.99(.38)***
Chi-square Improvement	89.64***	30.25***	5.60**	9.22**	45.17***
% Correct	72.10	76.81	77.17	79.71	82.97
N	276	276	276	276	276

Beta coefficients (R in parenthesis). Significant at the 0.01 (***), 0.05(**) or 0.10 (*) level

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