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STRATEGIC MOMENTUM: THE EFFECTS OF REPETITIVE, POSITIONAL, AND CONTEXTUAL MOMENTUM ON MERGER ACTIVITY

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This paper defines and examines three types of strategic momentum. Repetitive momentum occurs when organizations repeat previous strategic actions. Postitional momentum occurs when organizations take actions that sustain or extend existing strategic positions. Contextual momentum occurs when general traits, such as organizational structure, shape strategic action in a consistent fashion. Event-history analysis of 262 large firms over a 29-year period indicates that: (1) the occurrence of mergers tends to increase the rate of mergers of the same type (repetitive momentum), and (2) organizational decentralization increases the rate of diversifying mergers (contextual momentum). Product market diversification was found to increase the probability of product extension mergers but not conglomerate mergers, only partly confirming positional momentum. The results indicate that internal momentum can affect merger activity, and suggest the importance of continuing research on the role of inertia in organizational adaptation.

INTRODUCTION

For nearly 30 years observers have argued that inertia pervades organizational life (Cyert and March, 1963). Inertia can mean remaining static, but it can also mean staying in uniform motion. When inertia occurs in strategic behavior it can be thought of as strategic momentum (Miller and Friesen, 1980). In this paper, we define and examine three specific types of strategic momentum in merger activity: repetitive, positional and contextual momentum.

Drawing on theories of organizational routines and cognitive decision making patterns, we predict these types of momentum will occur in merger activity. In particular, we hypothesize that firms will tend to repeat the same types of mergers that they have made before, to make diversifying mergers when they are already diversified and to make diversifying mergers after they are decentralized. We test these hypotheses using dynamic analysis of a sample of large firms over a 29-year period. The results of the analyses are generally consistent with the hypotheses.

THEORY AND HYPOTHESES

We define strategic momentum as the tendency to maintain or expand the emphasis and direction of prior strategic actions in current strategic behavior. Previous research has described strategic momentum in such settings as military decisions (Allison, 1971), government agency transitions (Mintzberg and McHugh, 1985), and corporate action (Quinn, 1980; Miller and Friesen, 1980; Boeker, 1989; Fredrickson and Iaquinto, 1989). Continuing research on momentum has proven difficult to carry out, however, because of both conceptual obstacles and the difficulty of conducting longitudinal studies of strategic action (Ginsberg, 1988).

In this paper, we explore evidence that strategic

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momentum occurs in merger activity. We draw on two approaches——theories of organizational routines and theories of managerial cognition—— to define and predict the occurrence of three types of strategic momentum. Merger activity offers a particularly fertile setting for examining strategic momentum. Mergers are important organizational actions, are publicly recorded over time, and have been the object of rich prior theoretical work regarding both their origins and consequences.

Many different explanations of merger activity have been proposed by strategists and other organizational theorists. Some explanations have focused on the external environment. Factors such as shifts in the structure of capital markets and industrial activity (Nelson, 1959), differences in valuation of firms (Gort, 1969), transaction costs in the market for corporate control (Williamson, 1975), and patterns of resource flows (Pfeffer and Salancik, 1978) have all served as the focus of empirical research on mergers. Other explanations have focused on factors internal to firms, such as reduction in risk (Amihud and Lev, 1981), or managerial acquisition of power (Marris, 1964; Rhoades, 1983). These studies have focused chiefly on managerial incentives for mergers.

Environmental and managerial incentive explanations are obviously important but may also be incomplete explanations of mergers and acquisitions. Environmental explanations, for example, may not account for variability among different types of mergers. The research of Nelson (1959), Gort (1969), and Williamson (1975), for example, identified factors that increase the aggregate level of merger activity but remained silent about what types of mergers would occur. The work of Pfeffer and Salancik (1978) made predictions about horizontal and vertical integration mergers but treated diversifying mergers as a 'residual' category—last resorts that occur only when nondiversifying mergers are not feasible.

Similarly, managerial incentive explanations sometimes ignore the organizational context of strategic decision making. Managers may act in their own self interest but a variety of work suggests that other factors also shape decisions. The context and structure of managerial decision making (e.g. Hunt, 1990) and the consequences of managerial cognition and behavior (e.g. Duhaime and Schwenk, 1985; Jemison and Sitkin, 1986) may be as important as the preference functions of top managers. It is natural, then, to turn to the possibility of strategic momentum as an additional source of merger activity.

REPETITIVE MOMENTUM

Repetitive momentum occurs when an organization repeats a specific previous action. It is the most basic kind of strategic momentum. We suggest that theories of organizational routines and competencies and theories of managerial cognition imply the occurrence of repetitive momentum in merger activity. Theories of organizational routines and competencies view routines (repetitive patterns of activity on the part of organizational members) as a basic component of organizations (Cyert and March, 1963; Nelson and Winter, 1982; Hannan and Freeman, 1984). As an organization takes actions over time it develops routines and competencies which then become independent engines for further actions (Levitt and March, 1988; Burgelman, 1983). As a result, an organization undertakes some activities, such as mergers, because it knows how to do them.

Although favorable performance resulting from an action increases the likelihood that it will be repeated, unfavorable outcomes can also increase the likelihood that an action will be repeated. Advocates of an action may interpret failures not as evident that the policy is incorrect, but rather that the action has not been pursued with sufficient vigor (Staw, 1976; Levitt and March, 1988). From this perspective, when a firm engages in an acquisition, *for whatever reason*, it develops competency in the process of making that type of acquisition. Each acquisition of the same type allows these competencies to be refined, which increases the likelihood of even more acquisitions of the same type.

Cognitive theories suggest the same outcome will result, but for different reasons. In this research tradition, perceptual or cognitive constraints can serve as mechanisms leading to inertia (Prahalad and Bettis, 1986; Jemison and Sitkin, 1986; Duhaime and Schwenk, 1985; Schwenk 1984). Organizational mindsets or ideologies can affect perceptions of the environment and constrain the types of actions conceivable to

organizational strategists. A common mindset or cognitive map can develop among managers in the dominant coalition which limits and shapes strategic action on the part of the firm (Thomas and McDaniel, 1990; Porac, Thomas, and Baden-Fuller, 1989; Prahalad and Bettis, 1986; Daft and Weick, 1984).

A wide variety of factors have been proposed as determinants of cognitive maps or knowledge structures, but as Walsh (1990: 14) points out 'There seems to be some consensus that knowledge structures form with experience in a particular information environment.' This line of reasoning suggests that when a firm engages in an acquisition, *for whatever reason*, that type of acquisition takes a more central role in the cognitive map of the dominant coalition and is more likely to be seen as an appropriate response to external stimuli.

Repetition has been widely observed in longitudinal observational studies of strategic behavior (Mintzberg and Waters, 1986; Quinn, 1980). Miller and Friesen (1980) did not distinguish different types of momentum but observed what was essentially repetitive momentum in 24 organizational traits with a sample of 26 firms over a 20-year period. If repetitive momentum also occurs in merger activity, firms should tend to repeat whatever type of mergers they have completed in the past, independent of other factors.

Hypothesis 1: The greater the number of prior mergers of a given type, the higher the probability of another merger of the same type.

POSITIONAL MOMENTUM

Ginsberg (1988) proposed that strategy can be conceptualized in terms of: (1) position, and (2) perspective. A strategic position represents the substance of the firm's strategy: its choice of product/market domain or its specific competitive advantage. A strategic perspective is the integrated sets of ideas through which problems are interpreted and from which streams of decisions flow. We define positional momentum as occurring when an organization takes strategic actions that sustain or extend its existing strategic position, regardless of how it arrived at that position. For example, a firm that reached a diversified position through internal expansion has a strategic position of diversification. If positional momentum occurs, such a firm should be more likely to undertake a diversifying merger than other firms. It should not be more likely to undertake other kinds of mergers, however.

Theories of organizational routines predict that positional momentum should occur. In the merger context, competency at managing and assessing diverse products should develop in organizations with high levels of diversification. The effect of this competency may be passive—diversifying mergers will appear less uncertain or risky because management has experience in controlling and overseeing diverse product lines (Quinn, 1980). The effect may also be active: the firm may actively decide to build on its distinctive capabilities, which include managing diverse product lines. Individual managers with competency in the diversified internal environment may encourage further diversification through merger.

Cognitive maps and shared knowledge structures could also generate positional momentum. Many students of strategic management have noted that organizations have domains, fields of activities deemed as acceptable or desirable for the organization. High levels of diversification can broaden managerial conceptions of appropriate domains of action. Thomas and McDaniel (1990) have shown that managers in diversified organizations attend to a broader range of information in interpreting strategic issues than those in organizations with narrower lines of business. A broader definition of domain should make managers more likely to engage in diversifying mergers. It is important to keep in mind that a high level of diversification can occur through internal expansion as well as mergers and acquisitions. The effect of diversification on merger activity is, we argue, independent of the effect of prior diversifying mergers.

Many close observers of strategic action have noted the occurrence of positional momentum (Miller and Friesen, 1980; Ginsberg, 1988). Boeker (1989) showed, for example, that semiconductor firms tended to maintain the strategic position they had at time of founding. If positional momentum occurs in merger activity, we should see diversified firms tend to make diversifying mergers but not other types of mergers.

Hypothesis 2: High levels of current product diversification increases the probability of a future diversifying merger.

CONTEXTUAL MOMENTUM

Finally, we define contextual momentum as occurring when broad organizational features, such as structure or culture, shape strategic actions. In general, theory has predicted that strategy determines structure (Mintzberg, 1990). This idea has been proposed not only as a normative prescription, but has also been argued as an historical fact. Looking at decentralization, for example, observers have argued and produced evidence that diversification has led to decentralized administrative structures (Chandler, 1966; Rumelt, 1974). The argument is that efficiency considerations permit and encourage the diversified firm to adopt a decentralized structure. Contextual momentum would mean the reverse causality should also occur: a decentralized structure should lead to diversifying actions.

Organizational routines and competencies clearly could create contextual momentum. Mintzberg and Rumelt have suggested that structural decentralization leads to a climate and training context in which individual managers become more capable of assuming major new enterprises (Rumelt, 1974; Mintzberg, 1979). Mintzberg (1979: 394) points out that 'The ease with which headquarters can add divisions in this structure encourages it to do so; moreover divisionalization generates a steady stream of general managers who look for more and larger divisions to run'. This process, he argues, leads to a link between decentralization and diversification.

Contextual momentum could also arise from patterns in managerial cognition (Hall and Saias, 1980; Rumelt, 1974; and Mintzberg, 1979). Rumelt suggested that greater decentralization, when embodied in the divisionalized form, may give more time and objectivity to senior management, which in turn makes it more likely they will perceive opportunities outside their standard areas of expertise (Rumelt, 1974). They will be more likely to perceive the possibility of diversifying mergers.

On balance, these arguments seem to imply that decentralization should lead to greater merger activity, and to diversifying mergers in particular. Previous research has strongly supported an association between product market diversification and divisionalization (e.g. Rumelt, 1974). The direction of causality has remained unclear, however, because available analyses have been cross sectional. If contextual momentum occurs, we predict that decentralized structures should enhance the chance of later diversifying mergers.

Hypothesis 3: Structural decentralization increases the probability of a future diversifying merger.

DATA AND METHODS

Sample and dependent variables

The sample for this study consisted of 262 large firms observed from 1949–77. The firms in the sample are those identified by Richard Rumelt in his strategy–structure data base (1989). The sample consists of 262 large mining and manufacturing firms obtained through a random sampling of *Fortune* 500 companies. This data base provides information on product market strategy, administrative structure, and the timing of changes in strategy and structure. Complete information on the sampling procedure and the method of classifying strategy and structure is provided in the data base. Rumelt's data on these firms were extended back to 1949 and forwards to 1977 using information from annual reports and Moody's manuals.

A merger history for each of the firms was constructed from the 1978 Federal Trade Commission report on large mergers in manufacturing and mining, and added to the original data base. The report provided information on the time of occurrence for mergers and acquisitions with a value in excess of 10 million dollars from 1948 through 1977. Each merger is categorized into one of four broad types: horizontal (including market extension), vertical (both forward and backward), product extension, and conglomerate. This list excludes mergers and acquisitions with a value less than 10 million dollars but unlike other FTC lists of mergers and acquisitions, the transactions are categorized by type of merger.

We defined diversifying mergers as either product extension or conglomerate mergers. Each of these types of merger involves the addition of distinctly new and separate product groups to the firm's prior activities. In contrast, horizontal and market extension mergers involve the acquisition of a company that produces a product already produced by the acquiring firm. Vertical mergers involve the acquisition of a customer or supplier (either actual or potential) and thus involve extension of the firm's boundary along a processing chain. All four types of mergers can be used to test Hypothesis 1, which relates to the effects of prior mergers. Hypotheses 2 and 3 link diversification and decentralization to diversifying mergers, consequently only product extension or conglomerate mergers are used to evaluate those hypotheses.

INDEPENDENT VARIABLES

A cumulative count was generated for each type of merger throughout the observed history of the firm. Thus each firm begins with a value of zero mergers for each type, receives a count of one after the first merger, two after the second merger, and so on. The cumulative value at any given time is the independent variable used in the analysis of the effects of prior mergers on later mergers. These counts are used to test Hypothesis 1.

Current product market diversification was measured with the classification system developed by Rumelt (1974; 1989). The diversification score was used to examine the effect of current strategic position on mergers (Hypothesis 2). This classification scheme uses a computation of the firm's specialization ratio (the proportion of a firm's revenues derived from its largest single business) and its related ratio (the proportion of a firm's revenues derived from its largest single group of related businesses). This index contains nine ordered levels of diversification. 'Single Business' firms are not diversified and were assigned a value of 0. The most diversified firms, which have diversified '. . . without regard to the relationships between new businesses and current activities' were given a value of 8 (Rumelt, 1974: 30). The complete classification rules are given in Rumelt (1989). We also constructed collapsed scales (single business, dominant business, related business and unrelated business). Results of analyses with the collapsed scales were not substantially different from the results obtained with the full scale.

Rumelt defined five structural categories for firms in his sample. At one extreme are functional firms, in which '. . . the major subunits are defined in terms of the business functions of stages in the manufacturing process' (Rumelt, 1974: 38). At the other extreme are holding companies composed of subsidiaries or divisions owned by a parent corporation, but operationally autonomous, so that formal organization above the divisional level is '. . . virtually nonexistent' (Rumelt, 1974: 40).

We collapsed the scale into four categories. Functional firms were assigned a value of one; functional-with-subsidiaries were assigned a value of 2; divisionalized firms were assigned a value of 3; holding companies were assigned a value of 4. We used four rather than five categories because Rumelt's distinction between geographic and product division structures has no bearing on the mechanisms we propose. Furthermore, there were too few instances of firms divisionalized by geography to make a distinction empirically useful. The decentralization scale was used to test Hypothesis 3.

CONTROL VARIABLES

Annual sales were used as a measure of size. The sales figures provided in the annual *Fortune* 500 or Moody's manuals roster were converted to constant dollars and added to the sample. The use of sales figures for the same year would produce a spurious relationship between sales and the occurrence of a merger—the end of year sales figure would include sales attributable to any company acquired during the year. The previous year's sales were used to avoid this problem. The sales figures are highly skewed, so the logarithm of sales was used in the analysis.

In a few cases a company was not listed in either source. Ford Motor Co. was privately held and no sales figures were released for the first several years of the observation period, for example. Similarly, Digital Equipment was too small to show up in archival sources in its earliest year. In cases like this the earliest sales figures available were used.

During the time period of this study there were two secular trends in this population: one towards diversification and one towards divisionalization. Furthermore, mergers are known to occur in cyclical waves and one of these waves occurred during the observation period of the study. The historical trend towards greater diversification and the wave of mergers during the sixties raises the possibility that an observed pattern of merger activity is not due to strategic momentum in a given firm but rather to external forces common to all of the firms.

Golbe and White (1988) analyzed the effects of broad economic forces on aggregate merger activity using the same FTC series used in this study. They found that broad economic factors such as stock market trading volume, nominal GNP, and the tax-adjusted ratio of purchase price to replacement cost of all firms in the economy were significant predictors of the aggregate number of mergers.

To control for economy-wide factors we counted the number of each type of large merger for each year for *all* firms, including those not in the sample. These totals were adjusted for each firm in the sample by subtracting any mergers that it completed during that year. These merger counts were included as indicators of any common environmental factors that influenced the merger rates. The analysis of Golbe and White (1988) suggests that these counts are good indicators of broad economic trends.

The use of this control variable has two benefits. The first benefit is that the net effect of a variety of macro-economic factors influencing merger rates can be measured with a single indicator. If economy wide economic factors are producing fluctuations in merger activity then the aggregate number of mergers in a given period is a direct measure of the net effect of those economy wide factors. The second is that it directly measures the source of any imitation process. If a firm is imitating the merger activity of other firms, then the probability of a merger should vary directly with the number of mergers of that kind.

The inclusion of industry as a control variable is important, but problematic. Research by Pfeffer and Salancik (1978) indicated that industry patterns have an effect on the nature and extent of merger activity. One might expect industry concentration, growth and profitability to affect merger activity. Industry dummy variables can also serve as a proxy for any other aspect of the environment that varies across industry group. On the other hand, as firms diversify it becomes less and less meaningful to assign them to a specific industry or even a group of industries.

We used Moody's manuals to assign a 4 digit SIC code for each firm *at the beginning* of the observation period to capture variations in initial conditions. We then grouped the 4-digit SIC codes into eight broad industry groups. These categories are our own construction. While there are a reasonable number of firms in this study, the degrees of freedom are limited by the number of events. Therefore industries were aggregated as much as possible without losing the integrity of the categories.

As an example, petroleum and related products, rubber and plastics, chemicals and allied products, primary metals, or paper and allied products all involve the processing of raw materials and were placed in a processing category. Alternatively, lumber and wood products and metal mining involve the production of a raw material and were placed in the 'extractive' category rather than being placed in the same category as paper and allied products and primary metals. A frequency distribution of firms by initial industry group is provided in Table 1.

We used effect coding rather than dummy variable coding in the analyses of the industry groups (Kerlinger and Pedhauzur, 1973). Effect coding is similar to dummy variable coding except that cases in the excluded category have a -1 for all of the other category variables instead of a zero. The effect of group membership is then defined by the difference from the overall mean rather than by contrast to an excluded category. The advantage of effect coding is that the estimates obtained do not depend upon which category is excluded. Since we have no substantive reason to use any particular industry group as a reference point we prefer a procedure where the estimated coefficients are the same regardless of which category is chosen as the excluded category.

ANALYSIS

Examination of the hypotheses requires the use of dynamic analysis. We want to determine the effects of prior mergers, current level of

Table 1. Descriptive Statistics

Cumulative number of mergers per firm	*Mean*	*Standard deviation*
Horizontal/market extension mergers	0.267	0.709
Vertical integration mergers	0.156	0.497
Product extension mergers	0.702	1.276
Conglomerate mergers	0.187	0.546
Total number of mergers per year		
Horizontal/market extension mergers	13.000	6.777
Vertical integration mergers	6.379	3.959
Product extension mergers	27.207	22.799
Conglomerate mergers	15.758	13.306
Annual Sales (in millions)	170.426	388.387
Strategy	*Beginning*	*Ending*
Single business	12	15
Single-vertical	71	56
Dominant vertical	8	7
Dominant constrained	35	36
Dominant linked	35	26
Dominant unrelated	2	5
Related constrained	4	6
Related linked	52	62
Unrelated business	43	49
Structure		
Functional	121	71
Functional-subsidiaries	32	34
Divisionalized	98	149
Holding company	11	8
Industry Groups	*Frequency*	
Extractive	15	
Processing	81	
Equipment manufacturing	64	
Electrical/electronic equipment	29	
Textiles & apparel	9	
Consumables	42	
Other manufacturing	18	
Trade	4	

diversification and current level of decentralization on the instantaneous probability of a merger. In addition to requiring the dynamic analysis of longitudinal data, the hypotheses also require that we be able to study multiple types of events and that these events can happen more than once. We used a multivariate point process model which can examine such events over time rather than other types of dynamic models which are suitable only for nonrepeatable events (Amburgey, 1986).

The dependent variable for this study can be thought of as the instantaneous probability of a merger at time τ, given the state of the particular firm at time τ. The independent variables are factors that affect this conditional probability. Formally, the model for the analysis is represented as

$$\lambda(\tau) = \exp[\beta X(\tau)]$$

where $\lambda(\tau)$ represents the rate of occurrence of mergers of a given type, $X(\tau)$ represents the values at time τ of a vector of independent

variables, and β represents a vector of parameters embodying the effect of each independent variable. In this case, the independent variables include the theoretical variables prior mergers, diversification and decentralization, as well as the control variables.

The data were assembled in the form of event histories. For each firm, a series of 'spells' (durations between events) were compiled. The first spell begins at the start of the observation period (or in some cases at the time the firm is founded) and ends at the time of the first event. The second spell begins one day after the first event and ends at the time of the second event. This process continues until the end of the observation period or until the firm is acquired and exits the sample. Thus each firm's event history consists of a string of spells, each beginning immediately after one event and ending with the occurrence of another event (of any type). Since several of the covariates change over time, any spells lasting longer than a year were segmented into year-long spells ending with dummy events. Thus the values of the independent and control variables are updated at least annually.

Event history analysis, which includes multivariate point process models, is particularly well suited for the questions posed in this study (Ginsberg, 1988: 571). This technique is used rather than logistic regression or similar methods for three reasons. First, event history analysis makes use of the length of time the firm is in a particular state before the transition occurs, in assessing the estimated conditional probability. Second, this approach permits one to make use of cases that are right censored. These cases do not have an event of a particular type before the end of the observation period. Event history analysis permits one to make appropriate use of the information that the firm did not have an event until the end of the observation period, without assuming that it will never have such an event. Finally, the multivariate point process allows us to look at the four marginal probabilities in the same model. Thus a simultaneous analysis of competing risks can be conducted. The marginal rates for all four types of mergers were estimated simultaneously.

The parameters were estimated by the method of maximum likelihood using Tuma's (1982) RATE program. A base model including the theoretical variables and the size and merger count control variables was first estimated. Because the degrees of freedom available for analysis are limited (particularly for vertical mergers), it is necessary to assess the explanatory contribution of the industry group variables relative to their cost in terms of loss of power. Each industry group was first added to the base model alone. Only those industry groups with effects significant at a 0.10 level were retained for the final model.

RESULTS

Table 1 provides descriptive statistics for the sample of firms during the study period. The mean number of mergers per firm is relatively low for all four types of mergers, and in fact the mode for all types is zero. The total number of each type of merger indicates that product-extension mergers were the most frequent, followed by conglomerate and horizontal/market extension mergers. Vertical integration mergers were the least frequent.

Table 1 also indicates the shift in strategy and structure in the sample over the observation period. The shift in structure is the most substantial—at the beginning of the observation period most firms were structured by function but by the end most utilized a decentralized divisional form. There is also a shift towards more diversified product market strategies. At the start the largest category was firms involved in a single business (usually vertically integrated firms) but by the end most were diversified, either in a related or unrelated fashion.

Finally, Table 1 provides the industry groups at the beginning of the observation period. The largest group of firms began as either extractors or processors of raw materials although manufacturers of electrical and nonelectrical equipment were almost as large. The only other group of significant size produced consumable products.

Tables 2 and 3 provide the results of the analysis. The coefficient for each variable shows its estimated effect on the instantaneous probability of each type of merger, with the standard error shown in parentheses. In both tables the first model includes the three theoretical variables, logged sales, and the adjusted number of each type of merger. The second model adds

Table 2. The effects of prior mergers, diversification and decentralization on product-extension and conglomerate merger rates [Diversifying mergers]

	Product-Extension		Conglomerate	
	Model I	Model II	Model I	Model II
Firm				
Prior mergers of the same type	0.248** (0.037)	0.243** (0.037)	0.308** (0.114)	0.219* (0.117)
Diversification	0.055** (0.022)	0.054** (0.022)	0.033 (0.035)	0.040 (0.035)
Decentralization	0.118** (0.042)	0.111** (0.042)	0.321** (0.078)	0.343** (0.078)
Logged Sales	−0.400** (0.103)	−0.401** (0.104)	−0.218 (0.173)	−0.186 (0.168)
By all firms				
Total product extension mergers	0.021** (0.002)	0.022** (0.002)		
Total conglomerate mergers			0.037** (0.007)	0.036** (0.007)
Industry Groups				
Consumables		−0.337* (0.180)		0.668** (0.230)
Number of mergers	281	281	106	106
Chi-squared	209.80	213.47	87.80	95.52
Degrees of freedom	5	6	5	6
Probability value	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$
Likelihood ratio		1.735		3.857
Degrees of freedom		1		1
Probability value		Not Significant		$p < 0.05$

** Significant at $p < 0.05$, * Significant at $p < 0.10$.
Standard errors are given in parentheses.

the industry group variable (consumables) that had a significant effect when entered singly.

In order to assess the models themselves, Tables 2 and 3 contain two likelihood ratio tests. Likelihood ratio tests follow a chi-squared distribution with degrees of freedom equal to the difference between the number of parameters in two models. The first test indicates a comparison between the models with covariates and a constant rate model. The chi squared values indicate that all of the models are a significant improvement over a constant rate model. The next test compares Model I and Model II. The models for horizontal, vertical integration, and conglomerate mergers that incorporate initial industry effects (Model II for each type) provide a significantly better fit than the model without industry effects. In the case of product extension mergers, Model II is not a significant improvement over Model I even though the industry variable has a coefficient significant at the 0.10 level. In general, the tests indicate that the models all improve on a base model with no covariates, and that for the most part industry variables improve the fit of the models.

Hypothesis 1 predicted that the number of prior mergers of a given type would increase the chances of an additional merger of that type. Tables 2 and 3 show that the cumulative count of prior mergers of the same type had a significant positive effect for product extension mergers and horizontal mergers in both models. There is a significant positive effect for conglomerate mergers in the first model but after the addition of industry it is only marginally significant. The effect of prior mergers is positive and significant for vertical integration mergers in the first model but once industry effects are included the effect of prior mergers is not significant. The results of this analysis suggest that repetitive momentum occurs in three of the four types of mergers.

Hypothesis 2 predicted that high levels of current diversification would increase the probability of a diversifying merger. Table 2 shows

Table 3. The effects of prior mergers, diversification and decentralization on horizontal and vertical integration merger rates [Nondiversifying mergers]

	Horizontal		Vertical Integration	
	Model I	Model II	Model I	Model II
Firm				
Prior mergers of the same type	0.551** (0.082)	0.444** (0.087)	0.572** (0.165)	0.257 (0.176)
Diversification	−0.028 (0.044)	−0.015 (0.046)	0.014 (0.052)	0.016 (0.055)
Decentralization	−0.177** (0.065)	−0.157** (0.066)	−0.104 (0.077)	−0.066 (0.080)
Logged Sales	−0.116 (0.161)	−0.142 (0.164)	−0.167 (0.197)	−0.236 (0.200)
By all firms				
Total Horizontal Mergers	0.039** (0.016)	0.040** (0.016)		
Total vertical integration mergers			0.051 (0.033)	0.050 (0.033)
Industry groups				
Processing		0.790** (0.228)		1.494** (0.285)
Textiles/apparel		1.113** (0.398)		
Number of mergers	91	91	61	61
Chi-squared	45.35	60.90	13.54	43.42
Degrees of freedom	5	7	5	6
Probability value	$p < 0.001$	$p < 0.001$	$p < 0.02$	$p < 0.001$
Likelihood ratio		7.776		14.840
Degrees of freedom		2		1
Probability value		$p < 0.05$		$p < 0.001$

** Significant at $p < 0.05$, * Significant at $p < 0.10$.
Standard errors are given in parentheses.

that the effect of product market diversification was positive and significant for product-extension mergers in both models. There is no statistically significant effect of diversification on conglomerate mergers in either model, however. Thus current diversification has a positive effect on only one out of two of the predicted merger types providing only modest support for this hypothesis. Although caution must be used in interpreting 'nonresults,' it should be noted that——as expected——current level of diversification did not increase the chances of horizontal or vertical (nondiversifying) mergers.

Hypothesis 3 predicted that high levels of structural decentralization would increase the probability of diversifying mergers. Structural decentralization had a significant positive effect on product extension and conglomerate mergers. The effects of decentralization were approximately equal when the industry variables were included. The effect of decentralization was somewhat larger for conglomerate mergers than for product extension mergers. Hypothesis 3 was supported by the analysis.

We made no formal hypothesis regarding the effects of decentralization on nondiversifying mergers but these results are of interest. Current decentralization level had no significant effect on the likelihood of horizontal or vertical integration mergers. This is consistent with the expectation that high current decentralization enhances the chances only of diversifying mergers. Indeed, structural decentralization had a significant negative effect on the rate of horizontal mergers and a weak negative effect on vertical integration mergers in Model I but not in Model II. Decentralization thus enhanced the chances of only diversifying mergers.

While not central to our theories, several control variables showed interesting effects. Each of the different types of mergers was strongly influenced by initial industry position. Three of the industry groups had significant effects. Starting the observation period in the processing group increased the likelihood of horizontal and vertical integration mergers. Beginning in the consumables group increased the likelihood of conglomerate mergers and decreased the likelihood of product extension mergers. Finally, beginning in the textiles/apparel group increased the likelihood of horizontal mergers.

The total number of mergers had significant positive coefficients for three of the four types of mergers, the exception was vertical integration mergers. Finally, it should be noted that the general lack of significant size effects should be treated with caution because the sample does not draw from the entire size distribution of companies.

DISCUSSION

Overall, the results provide support for the existence of repetitive and contextual momentum in merger activity, and partially support the possibility of positional momentum. Hypothesis 1 predicted the occurrence of repetitive momentum——the tendency to repeat prior strategic actions. It was supported for product-extension and horizontal mergers and weakly supported for conglomerate mergers. It was not supported for vertical integration once industry was controlled for in the model. After controlling for external factors and basic organizational features, then, these data suggest that organizations that have made a particular type of merger will tend to make the same type of merger again.

Contextual momentum occurs when organizational features, such as structure or context, shape strategic actions. Hypothesis 3, which predicted that decentralized structures would tend to produce diversifying mergers, was supported by the data. Decentralization increased the chances of both product-extension and conglomerate mergers, but only these types of diversifying mergers. Indeed, decentralization actually *decreased* the probability of horizontal mergers.

While this study does not test the mechanisms for strategic momentum directly, the pattern of results does provide some encouragement for the hypothesized sources of contextual momentum. Williamson (1975: 159–162) argued that decentralized (M-form) firms have superior inference capabilities which allow them to detect other firms that are performing at a suboptimal level. The decentralized firms use this ability to aggressively displace incumbent management teams in the market for corporate control and thus perform a 'capital market policing function'. This information-based argument implies that decentralization should increase the rate of all types of mergers rather than of diversifying mergers only. The arguments of Mintzberg (1979) and Rumelt (1974) on the effects of organizational context, however, predict the pattern observed here in which decentralization promotes diversifying mergers in particular.

We find only modest support for positional momentum, in which an organization takes strategic actions extending its current strategic position. As stated in Hypothesis 2, positional momentum would imply higher current levels of diversification would lead to both product-extension and conglomerate mergers. We found a positive effect for product-extension mergers but not for conglomerate mergers. We find this surprising and puzzling, but speculate on possible sources of this outcome. Multicollinearity provides one candidate for the result, of course. The correlation between decentralization and diversification was 0.42 which, although not indicative of substantial collinearity, could affect the results. The fact that the standard errors were not substantially inflated in the conglomerate merger equation while the coefficients were reduced encourages us to look for additional explanations as well, however.

One plausible possibility is that the results arise from a mixture of counteracting processes. Mergers arising from risk reduction or imitation would produce a negative relationship between current level of diversification and diversifying mergers. To the extent that diversifying mergers occur to spread risk across product markets, firms with low current levels of diversification are the most likely to make diversifying mergers. Similarly, to the extent that firms diversify to imitate external trends, nondiversified firms are more likely to engage in a diversifying merger. On the other hand, strategic momentum predicts a positive relationship between current level of

diversification and diversifying mergers. If both types of processes are operating the net result would be a lack of an aggregate effect.

Finally, turning to the control variables, we note the strong and consistent effects of the external environment on merger activity. Initial industry group had strong effects, as did the total number of mergers for each type. The effect for total mergers is consistent with expectations that macroeconomic factors, of the sort studied by Golbe and White (1988), and imitation may affect merger activity.

IMPLICATIONS AND FURTHER RESEARCH

This study raises interesting issues regarding both merger activity and the role of inertia in strategic action. We have shown that merger activity is consistent with both repetitive and contextual momentum, with mixed results for positional momentum. We believe this perspective complements rather than replaces other theories regarding mergers. To examine the relationship of inertia to other factors, momentum hypotheses need to be tested in merger models containing additional variables. For example, additional individual macroeconomic variables would be appropriate, along with measures of prior performance and their interaction with prior merger activity.

Our data leave completely unexplored the effect of different types of momentum on the value of mergers. However, they do suggest possibilities for further work on this question. Congruence theories imply that good performance is more likely when there is a match between many different organizational attributes (Miller, 1986). This might imply that mergers arising from contextual momentum should tend to have positive outcomes. In addition, if experience increases the chances that a merger will be well chosen or well executed, repetitive momentum could lead to positive performance results. On the other hand, traditonal theory implies that inertia might lead firms to choose mergers no longer appropriate to current circumstances. Studies on this question could explore whether the market reacts in distinct ways to mergers heavily influenced by momentum (Schipper and Thompson, 1983).

More generally, we think our study points to the potential value of detailed research on the mechanisms of strategic momentum, and the relationship of strategic momentum to adaptation. The measure of strategic position used in this study (level of product market diversification) does not account for all important attributes of a corporation's strategic position (Ginsberg, 1988). Additional work on positional momentum should examine other dimensions of position such as the firm's basic competitive strategy.

Exploration of mechanisms producing strategic momentum should investigate levels as well as types of momentum. Ginsberg (1988: 560) points out the possibility of strategic adjustment, which falls short of a change in the nature of a strategic position. Adjustments are inertial, because they continue the direction of a pre-existing situation. But they can also lead to a change in magnitude of the underlying position, which may have important strategic consequences. Additionally, work on inertial mechanisms should explore additional potential sources of inertia. We focused on two phenomena: organizational routines and cognitive patterns of managers. Political processes and the development of commitment (Staw, 1976; Boeker, 1989) present obvious additional candidates for the origins of momentum.

Our results reinforce the common managerial belief that strategic choices should be approached with some prudence, because once implemented, they may have a force of their own that cannot easily be reversed (Quinn, 1980). However, we think this study points to the importance of empirical research on the crucial issue of the role of inertia in adaptation. Arguments that organizations spend long periods in relative inertia, punctuated by occasional revolutionary change are now widespread (Miller and Friesen, 1982; Tushman and Romanelli, 1985; Ginsberg, 1988; Tushman and Anderson, 1988). The impact of inertia and change on survival and adaptation remain unclear, however.

Traditional theory has argued that momentum can have disastrous consequences by keeping firms from seeing the need for change, from executing change even when it is sought (Starbuck, 1983) or by leading to excesses (Miller and Friesen, 1980). On the other hand, consistency may be important to external constituencies (Hannan and Freeman, 1984), prevent the organization from embarking on precipitous

change (Miller, 1986; Levitt and March, 1988), encourage competency driven action that promotes success (Quinn, 1980), and facilitate effective organizational learning through retention of past successes (Levitt and March, 1988).

We believe there will be no general answer to the issue of how momentum affects performance. A more fruitful approach will be to identify specific conditions under which different types and levels of momentum tend to be adaptive or dysfunctional. For example, high repetitive momentum may be valuable when competency driven action is more efficient than rational planning, or when precipitous change is especially dangerous. Low repetitive momentum may be appropriate when radical technological change is required for survival or when political contexts are in upheaval. We have identified distinct types and sources of strategic momentum. We offer them as building blocks for the continuing exploration of the complex role of inertia in organizational adaptation and survival.

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