SHIFTING GEARS: ENABLING CHANGE IN CORPORATE AGGRESSIVENESS

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This paper interprets the corporate strategies of multi-business firms as patterns in their aggregate deployment of resources to functional uses across businesses. By integrating business and corporate levels in the study of strategy-making, such a perspective facilitates analyzing aggressiveness in corporate posture as a concept distinct from, but complementary to, competitive strategy and diversification. Changes in aggressiveness, we argue, result from the interplay of two sets of forces: (1) inhibitors that create inertia; and (2) inductors that stimulate redeployments. Specific hypotheses are tested using data drawm from a random sample of 352 firms in ten economic sectors between 1977 and 1984. Results support the view that prior performance and sector volatility have a curvilinear impact on the propensity of firms to change their corporate aggressiveness. Change in corporate posture is significantly inhibited by size and prior resource deployments. However, the inductive forces of prior performance and volatility act to stimulate change.

Researchers draw on theories of industrial organization to explain how strategy mediates the relationship between industry structure and the performance of firms. Students of strategy emphasize how firms develop competitive advantages at the business level (Hambrick, 1983b; Schendel and Patton, 1978; Tremblay, 1985), and how firms realize economies of scope at the corporate level (Bettis, 1981; Lamont and Anderson, 1985; Montgomery, 1985). Even though both competitive positioning and diversification ultimately entail resource and skill deployments, few researchers have attended to the actual resource allocations made by firms to functional areas.

This paper argues that a strategy crystallizes from the longitudinal deployment of a firm's resources over time (Mintzberg, 1978; Mintzberg and Waters, 1982). As such, strategy represents the cumulative effect of the year-to-year allocations made by a firm to such functional uses as marketing, manufacturing, and R&D (Hofer and Schendel, 1978). Though this argument is easily made at the business level, we argue here that the corporate strategies of multi-business entities can also be understood as an aggregation of these longitudinal deployments to functional areas. Such a definition of strategy facilitates analysis of corporate posture as a concept distinct from, but complementary to, familiar notions of corporate diversification.

Additionally, many researchers focus on the consequences of strategy for performance. In contrast, this paper explores the factors that energize and constrain resource redeployments. Rather than attempt to explain the underlying determinants of deployments, this paper dwells on the contextual forces that work to either stabilize or de-stabilize resource allocations. Such an altered perspective stands to improve our understanding of the interface between process and content theories of strategy formulation: strategies develop over time as firms make particular decisions that constrain subsequent decisions (Hofer and Schendel, 1978).

Once initiated, resource allocations have two consequences. On the one hand, inertial forces

emerge as firms grow larger (Aldrich, 1979; Hannan and Freeman, 1984; Stinchcombe, 1965) and commit to a course of action (Staw, 1982). These organizational-level forces act as *inhibitors*—they reduce a firm's flexibility in redeploying its resources. On the other hand, previous performance and environmental uncertainty also play a feedback role: They act as *inductors* in triggering changes in organizational activity patterns (Cyert and March, 1963; Pfeffer and Salancik, 1978). Hence, we hypothesize that inhibiting forces and inductive forces both influence the longitudinal deployment of corporate resources.

CORPORATE STRATEGY AS RESOURCE DEPLOYMENTS

Organizations are internalized structures for allocating resources (Williamson, 1975). As such, strategic managers are typically concerned with maximizing shareholder value (Alchian and Demsetz, 1972; Rappaport, 1986). In this role they strive to achieve ? llocative efficiency (Leib-enstein, 1966), minimize transaction costs (Arrow, 1974; Williamson, 1975), and maintain adequate returns to invested capital (Jensen and Meckling, 1976). Managers do so by deploying scarce resources of equipment, personnel, and capital to their most productive uses in various functional areas (Hofer and Schendel, 1978). Accordingly, a firm's strategy describes a pattern in a stream of allocative decisions (Mintzberg, 1978), one whose consistency over time ultimately defines the synergies derived from the firm's scope (Galbraith and Kazanjian, 1986) as well as its competitive posture in an industry (Mintzberg and Waters, 1982; Porter, 1980).

Strategy researchers typically make a distinction between business strategy and corporate strategy that by-passes the functional resource allocation process (Hofer and Schendel, 1978; Bourgeois, 1980; Ginsberg and Venkatraman, 1985). As Wheelright (1984: 82) points out, strategy-making at the corporate-level 'specifies two areas of overall interest to the corporation: the definition of the business in which the corporation will participate . . . and the acquisition of corporate resources and their commitment to each of these businesses'. In practice, investigations of corporate strategy tend to focus on only one part of this definition—the extent of diversification—at the expense of the resource deployments these diversifications entail. Yet the decision to diversify is itself a decision of how heavily to emphasize (in both quantity and kind) particular functional areas, be they commitments to plant and equipment, research and development, or advertising and distribution.

A number of empirical studies also demonstrate how different degrees of diversification produce functional consequences: so, leverage ratios tend to increase following conglomerate mergers (Weston and Mansinghka, 1971); diversified firms tend to carry a higher percentage of debt than undiversified firms (Melicher and Rush, 1974; Barton and Gordon, 1988); diversified firms tend to have lower relative R&D (Hoskisson and Hitt, 1988); and diversified firms spend less on both R&D and advertising, while R&D investments bring higher returns to less diversified firms (Bettis, 1981). Indeed, Rumelt's (1974) finding that related diversifiers produce higher levels of performance indicates that functional synergies may well operate across businesses.

Jointly, these studies suggest that focusing on diversification strategy may obscure a more basic interpretation of strategy-making as a pattern in the allocation of resources to functional uses. To re-integrate corporate, business, and functional level assessments of strategy, we define strategy herein as a *pattern in the longitudinal deployment of resources to functional areas across businesses*.

Researchers characterize the resource deployment patterns of firms in various ways. One useful way to distinguish firms is in their relative *aggressiveness* at exploiting and allocating resources (Romanelli, 1986; Venkatraman and Grant, 1986). Aggressiveness involves: (1) the *depth* of the resource commitment, and (2) the *riskiness* associated with resource allocations designed to achieve innovation and improve market share (Miles, 1982; Khandwalla, 1977). Differential aggressiveness may explain why some firms move more quickly into new niches and regularly develop first-mover advantages (Lieberman and Montgomery, 1988).

It may be possible to order firms' strategies on a continuum of aggressiveness (Miles and Snow, 1978; Brittain and Freeman, 1980). Karnani (1984) argues persuasively that generic strategies can be ordered on such a continuum. Moreover, empirical attempts to ascertain

whether Porter's three strategic types occur with any degree of regularity found that emergent clusters did not reflect pure types (Dess and Davis, 1984; Miller and Friesen, 1986), indicating either that the typology itself is flawed, or that firms' strategies may be better distinguished along one or more continua.

Researchers frequently describe firms' strategies using measures of financial strength and R&D intensity to depict the overall aggressiveness of firms' strategic postures (Miller and Friesen, 1983). Hambrick (1983a), for instance, found that prospectors tend to be more aggressive than defenders. Moreover, prospectors devote more resources than defenders to developing new products and to motivating, informing, and educating their sales force and customers, a result demonstrated by their higher ratios of R&D and marketing to sales. Just as functional allocations are used to typify business strategies, so do we focus in this paper on how the aggressiveness of firms is represented by their deployments of corporate resources to product development and market development, and the riskiness that these deployments entail (Khandwalla, 1977).

Enabling and disabling forces on corporate change

Although the study of strategy-making requires a longitudinal investigation of firms' resource allocations, few empirical studies actually test such hypotheses. Instead, most studies sift out those strategic variables that induce higher firm profitability (Rumelt, 1982). Such wholesale reliance on the factors that determine profitability, however, diverts attention from the social forces that both propel and constrain the *implementation* of strategy (Hirsch and Friedman, 1986).

Miller and Friesen (1980: 591) noted that 'the one theme that stands out in the literature is that organizations tend to demonstrate great sluggishness in adapting to their environments'. A variety of explanations have been given for the tendency of organizations to resist change even when their environments threaten them with extinction (Hannan and Freeman, 1984; Hedberg, Nystrom and Starbuck, 1976). Inflexibility creates momentum that carries the organization forward; in turn, momentum generates inflexibility and inhibits change. We therefore concur that 'to have significance for the allocation of resources, a strategy must necessarily involve some commitment that is irreversible, at least for a time' (Oster, 1982: 377).

Larger firms often have more complex scopes of operation, greater formalization, and standardization (Blau and Schoenherr, 1971; Hall, 1977; Pugh et al., 1969). These structures create inertial forces which constrain firms' subsequent ability to adjust to uncertainty and adapt to environmental changes (Hannan and Freeman, 1984). In contrast, smaller firms tend to be quicker to respond to external contingencies and are frequently more flexible than larger firms (Aldrich and Auster, 1986). Firms standardize programs to repeat earlier successes, but the very existence of these programs creates inertia (Hedberg et al., 1976).

Inertia inhibits managers' ability to adjust to uncertainty and adapt to environmental changes (Hannan and Freeman, 1984). Because of their vested political interests, managers commit to the status quo (Cyert and March, 1963). Moreover, inertial forces crystallize around enduring organizational myths and ideologies (Starbuck, 1982), and are perpetuated by corporate cultures (Pettigrew, 1979). Accordingly, we propose the following hypothesis:

> H1: Inertial forces reduce the propensity for firms to change their corporate aggressiveness.

Organizational change requires both motivation and ability. Prior performance affects change in two ways: on the one hand, performance outcomes present managers with feedback regarding the appropriateness of their actions; on the other hand, performance outcomes present managers with different degrees of slack (Lawrence and Dyer, 1983). Low levels of prior performance stimulate managers to act, but constrain managerial action by reducing available resources (Graham and Richards, 1979). Similarly, high levels of prior performance demotivate managers, but enable managerial action by increasing available resources (Sharfman et al., 1988). The conjunction of both motivation and ability may therefore encourage managers to instigate change when their firms experience intermediate levels of prior performance. Accordingly, we propose the following hypothesis:

> H2: Prior performance has a curvilinear impact on the propensity for firms to change

their corporate aggressiveness. Specifically, firms experiencing either low or high performance in a previous period are less likely to change than firms experiencing intermediate levels of performance.

The process set off by environmental volatility is a tendency toward increased organizational self-containment that is reflected in firms' efforts to buffer, or smooth unsteady environments (Kaufman, 1985; Thompson, 1967). Firms cannot afford to aggressively reallocate resources for any of the individual environmental possibilities that are likely to occur in a highly uncertain environment because profits from such reallocations soon turn into losses when the environment changes (Friesen and Miller, 1986). Volatility thus acts as a paralyzing force.

Managers formulate strategies to help their firms avoid dependence (Pfeffer and Salancik, 1978) and reduce or absorb uncertainty (Thompson, 1967). Volatile environments require managers to take more aggressive actions (Brittain and Freeman, 1980; Miller and Friesen, 1983). Too much volatility, however, may impede change: Faced with uncertainty about actions and effects, managers may continue past behaviors (Anderson and Paine, 1975). Pfeffer and Salancik (1978), for instance, empirically validated such a curvilinear relationship between environmental uncertainty and the propensity of firms' managers to adopt joint venture and merger strategies. So, it may very well be that only intermediate levels of environmental volatility induce managers to effect change (Tosi, Aldag and Storey, 1973; Snyder and Glueck, 1982). Accordingly, we propose that:

H3: Prior environmental volatility has a curvilinear impact on the propensity of firms to change their corporate aggressiveness. Specifically, firms experiencing either low or high volatility in a previous period are less likely to change than firms experiencing intermediate levels of volatility.

Although firms respond to environmental stimuli, major changes seem to occur infrequently (Mintzberg and Waters, 1982; Miller and Friesen, 1980; Tushman and Romanelli, 1985). Students of strategy contend that previous resource commitments and past organizational responses to

environments heavily constrain strategic choices (Cooper and Schendel, 1976; Miles, 1982). This suggests the following hypothesis:

H4: Inertial forces exert a greater impact on the propensity for firms to change their corporate aggressiveness than inductive forces.

METHOD

To test these hypotheses it was important to control for other confounding effects that might influence managers' propensities to implement change. Two sources of bias might be introduced from: (1) sector-specific characteristics (e.g. capital intensity, geographical concentration, closeness to actual user); and (2) firm-specific characteristics (e.g. internal politics, structure, culture).

To control for firm-specific forces we drew a random sample of 13 two-digit SIC code sectors from Standard and Poor's COMPUSTAT tapes. Three sectors with fewer than four firms in the sector were eliminated because they were outliers, having too few firms compared to the mean number of firms across all 13 sectors. The resulting sample consisted of 352 firms in 10 two-digit sectors. To control for sector-specific effects all variables used in the analysis were standardized with respect to sector means and standard deviations.

To enable a longitudinal assessment of inertial and inductive effects on corporate aggressiveness, 8 years of data on the 352 firms were extracted, covering the period 1977–1984. These data were arbitrarily broken down into two 4-year periods, the first period spanning the years 1977–1980, the second period spanning the years 1981–1984. This was done to reduce the likelihood of investigating short-run year-by-year variability in resource allocations unrelated to significant changes in corporate aggressiveness. While planning horizons vary across firms and industries, most planning departments use a 5-year horizon (King and Cleland, 1978). Turnaround researchers tend to use 3-year spans, however, so we picked 4 years as a reasonable time span for important changes to become evident.

All firms failing to report corporate R&D and advertising expenses for any year were eliminated from the analysis. The reduced sample of 194

Table 1. Representativeness test

	Firms included	No.	Firms excluded	No.	F-value	p	d.f.
Overall sample							
By size	1.88	194	1.48	140	4.61	0.03	(1,132)
By ROA (77–80)	0.07	194	0.07	146	2.26	0.26	(1,338)
By volatility (77–80)	0.18	194	0.18	158	4.92	0.58	(1,350)
Sector breakdown by size							
SIC 20 Food and Kindred Products	2.91	13	3.57	5	1.28	0.28	(1,16)
SIC 22 Textile mills	1.48	20	1.31	12	0.07	0.80	(1,30)
SIC 23 Apparel	1.35	12	1.20	22	0.06	0.80	(1,32)
SIC 26 Paper	2.37	14	2.27	11	0.12	0.73	(1,23)
SIC 27 Printing and publishing	1.39	8	1.53	26	0.10	0.76	(1,32)
SIC 28 Chemicals	2.39	42	1.23	6	2.21	0.14	(1,46)
SIC 29 Petroleum and coal	3.16	17	1.94	21	5.58	0.02	(1,36)
SIC 30 Rubber and plastics	2.47	11	2.09	2	0.07	0.80	(1,11)
SIC 33 Primary metals	2.02	11	1.48	19	0.89	0.36	(1,29)
SIC 36 Electrical and electronic	0.74	46	0.16	16	1.62	0.21	(1,60)

firms on which all the analyses reported are based constitutes 35 percent of the original random sample. To check for representativeness, the mean value of firm size across sector groupings was calculated for each sample and f-tests performed. As shown in Table 1, these samples were significantly different only for the petroleum and coal sector. This sector was therefore eliminated from the analysis, leaving an n of 177.

Measurement of variables

Four sets of variables were calculated from the raw data and used in the analysis: (1) *corporate aggressiveness*; (2) *organizational inertia*; (3) *firm performance* and (4) *sector volatility*.

Corporate aggressiveness

A firm's corporate aggressiveness was gauged by a continuous index in which three dimensions were tapped: (1) the firm's emphasis on product development; (2) the firm's emphasis on market development; and (3) the firm's willingness to take a risky position in the capital markets. These were measured respectively, by the firm's consolidated allocations to R&D as a percentage of sales, its consolidated allocations to market development as a percentage of sales, and its debt/equity ratio. The index of corporate aggressiveness in deploying capital resources was formed by pooling the firm's consolidated allocations to R&D and advertising as a percentage of total revenues together with the firm's debt/equity ratio (Cronbach's $\alpha=0.64$). To correct for the different units in which each of these functional allocations is measured, corporate aggressiveness was computed as a standardized score with respect to the means and standard deviations of the original sample. High values indicate a more aggressive, opportunistic posture, and low values indicate a more conservative posture.

Factor analysis was used to confirm the validity of the index. Over the 8-year period, mean budgetary allocations to R&D and advertising as a percentage of total revenues, and debt as a percentage of total capital loaded on a single factor ($\chi^2=12.4$, $p=0.006$), with a canonical R of 0.46. To further verify the stability of the factor structure, eight individual factor analyses were run for year-by-year observations. Seven of the eight analyses also uncovered a single factor ($p < 0.05$), thereby suggesting that corporate-level posture vis-à-vis R&D, advertising, and debt display a patterned relationship. Thus, change occurs in this analysis when firms alter their resource allocations in ways that shift the value of the corporate aggressiveness index.[1]

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[1] We also considered incorporating a manufacturing component into the measure of aggressiveness. Two measures were tried: (1) *productivity*, defined as value added per unit sales;

Organizational inertia

Inertia originates both in prior resource commitments that carry the organization forward and in contextual forces that inhibit change. Corporate posture in the prior period provides an estimate of the former, while the size of an organization provides a gross estimate of the latter.

Kimberly (1976) pointed to the lack of agreement about measures of firm size. Most researchers, however, report identical rankings by size using several measures in the same study. Because of the high correlations obtained in this sample between measures based on numbers of employees and total revenues ($r > 0.9$), firm size was computed as the logarithm of total employees.

Firm performance

Although there is little agreement on how performance should be measured (Cameron and Whetten, 1983; Venkatraman and Ramanujam, 1986), most measures of financial performance tend to move together (Hofer, 1983). They also correlate highly with cashflow investment ratios, a commonly used measure of slack resources (Chakravarthy, 1986). For this reason, performance was measured by *return on assets*, calculated as the ratio of operating income to total assets. Woo and Willard (1983) support its continued use as a measure of firm performance. Although market measures are sometimes used to assess performance, we did not include market assessments in this analysis because we were interested in performance viewed as resource availability.

Sector volatility

A measure of sector volatility was calculated by aggregating the sale volatility coefficients of individual firms within a sector (Tosi *et al.*, 1973). The resulting coefficient is a measure of sector volatility that correlates highly with industry expert ratings of environmental turbulence (Snyder and Glueck, 1982). Because the aggressiveness of any single firm could also be influenced by other forces (e.g. manufacturing/service, capital intensity, unionization) operating at the sector

[1] Continued.
and (2) *depreciation expense*. Neither loaded on the same factor scale as the marketing, R&D, and financial components, indicating that these measures may not adequately capture firms' manufacturing posture. We therefore did not include them in the aggressiveness index.

level (Scherer, 1980), these effects were accounted for by introducing dummy variables for each of the nine sectors defined at the two-digit SIC code level. The two-digit classification was used despite its acknowledged confounding of the specifics of competitive rivalry at the business level, because of our attempt to encompass corporate-level phenomena. Sector volatility gauges the uncertainty faced by the corporate enterprise as a whole.

Analysis

Various multiple regression models were formulated to test the hypotheses. To gauge the impact of the inhibiting and inductive forces on a firm's propensity to change its corporate aggressiveness, two approaches could be taken: (a) compute change scores, where corporate aggressiveness in period 1 is subtracted from the firm's aggressiveness in period 2 (equation 1); (b) compute proportional change scores (equation 2); or (c) include as one of the regressors on corporate aggressiveness in the current period the value of aggressiveness in the previous period (equation 3).

$$Y(t_2) - Y(t_1) = f[X(t_1), X(t_2), \ldots, X(t_n)] + e(t) \tag{1}$$

$$\frac{Y(t_2) - Y(t_1)}{Y(t_1)} = f[X(t_1), X(t_2), \ldots, X(t_n)] + e(t) \tag{2}$$

$$Y(t_2) = f[Y(t_1), X(t_1), X(t_2), \ldots, X(t_n)] + e(t) \tag{3}$$

Pendleton, Warren and Chang (1980) suggest that the first two models are problematic because they produce correlated error terms. So the third alternative was chosen and *corporate aggressiveness in period 1* was included in the regression equations as a separate variable, purely to examine the residual effects of the other variables on change that depart from the trend line (Bohrnstedt, 1969).

To assess whether the relationship between inductive forces and change in corporate aggressiveness was linear or curvilinear, quadratic functions of performance and volatility were introduced into two separate regression equations—one for the longitudinal effects of previous period forces, and another for the cross-

sectional effects of current period forces. The two models estimated in this analysis are therefore:

(1) $Y(t_2) = \beta_0 Y(t_1) + \beta_1 Size + \beta_2 ROA(t_1) + \beta_3 ROA^2(t_1) + \beta_4 Volatility(t_1) + \beta_5 Volatility^2(t_1) + e(t)$

(2) $Y(t_2) = \beta_0 Y(t_1) + \beta_1 Size + \beta_2 ROA(t_2) + \beta_3 ROA^2(t_2) + \beta Volatility(t_2) + \beta_5 Volatility^2(t_2) + e(t)$

To control for other inductive forces occurring at the sector level, dummy variables representing sector effects for each firm were introduced. Since volatility is itself a sector-level variable, however, it could not be entered into any regression equations in tandem with the dummy variables representing sector effects. To deal with this, environmental volatility was entered as a multiplicative coefficient of the dummy variables, thereby transforming the regression into an analysis of covariance (Johnston, 1972).

Table 2 presents the descriptive statistics on the principal variables and the correlation matrix. The presence of low correlations (less than 0.4) for all variables that were actually entered into models tested in this analysis indicates that multicolinearity was not a problem.

RESULTS

The results are presented in two stages. The first stage compares longitudinal with cross-sectional formulations for the relationship between predictor variables and change in corporate posture. The second stage reports the analysis of the relative contributions of inertial and inductive variables to explained variance in a firm's propensity to change its posture.

Table 3 presents the results of two multivariate models. Models 1 and 2 contrast the power of the longitudinal and cross-sectional formulations of the relationship between return on assets and sector volatility in period 1 and change in corporate posture. Both regressions show firm size to have a significant negative effect on the propensity to change corporate posture, thereby supporting hypothesis 1.

As model 1 in Table 3 indicates, the curvilinear formulation is weakly significant for prior performance ($p=0.114$) and strongly significant for prior sector volatility ($p=0.009$). Consistent with the logic of hypothesis 2, these results suggest that firms doing either poorly or extremely well in a previous period are less likely to change their corporate aggressiveness than firms that experienced intermediate levels of prior performance. Similarly, firms facing high and low environmental turbulence are less likely to increase their aggressiveness than firms in moderately volatile environments. These results support hypotheses 2 and 3 and suggest that both prior performance and sector volatility act as triggers in prompting changes in corporate aggressiveness that depart from the trend line.

These curvilinear relationships hold only for the longitudinal analysis reported in model 1. Neither the linear nor the curvilinear effects, however, are strong for the current period model, suggesting that managers are more responsive to long-term than they are to short-term conditions.

Table 4 presents the results of the covariance analysis that compares the relative effects of inertial and inductive variables on the propensity for firms to change their corporate aggressiveness. Altogether, inertial forces clearly overwhelm inductive forces, thus supporting hypothesis 4.

Table 2. Descriptive statistics

	Mean	S.D.	1	2	3	4	5	6
1. Aggressiveness (77–80)	0.32	1.75						
2. Aggressiveness (81–84)	0.03	1.64	0.93					
3. Log (employees)	1.76	1.76	0.01	−0.02				
4. ROA (77–80)	0.07	0.05	0.09	0.07	0.03			
5. ROA (81–84)	0.06	0.06	0.06	0.04	0.01	0.60		
6. Volatility (77–80)	0.17	0.04	0.16	0.17	−0.26	0.34	0.17	
7. Volatility (81–84)	0.14	0.04	−0.29	−0.32	−0.36	0.02	−0.17	0.50

All values reported after standardizing by sector, $n=177$.
Correlations > 0.1 are significant at $p < 0.05$.

Table 3. Longitudinal and cross-sectional models of corporate aggressiveness

| | Models of aggressiveness (81–84) | | | |
| | (1) Longitudinal | | (2) Cross-sectional | |
Independent variables	Beta	p	Beta	p
Intercept	−2.83	0.005	1.37	0.172
Aggressiveness (77–80)	33.60	0.000	31.42	0.000
Log (employees)	−2.03	0.044	−2.41	0.017
ROA (77–80)	1.59	0.114		
ROA × ROA (77–80)	−2.19	0.030		
ROA (81–84)			−0.55	0.584
ROA × ROA (81–84)			−0.58	0.562
Volatility (77–80)	2.64	0.009		
Volatility × Volatility (77–80)	−2.66	0.009		
Volatility (81–84)			−1.14	0.257
Volatility × Volatility (81–84)			0.81	0.422
Adjusted R^2	0.87		0.87	
F-value	202.71	0.000	199.36	0.000
d.f.	(6,176)		(6,176)	

Excluding the momentum of prior aggressiveness, however, inertial forces gauged by organizational size explain 4 percent of the variation in a firm's propensity to change its corporate aggressiveness compared to 11 percent for inductive forces. These results indicate that inductive forces exert a relatively strong influence on those firms that do change corporate aggressiveness. Such inductive forces as prior performance and sector volatility appear to counteract the inertia generated by firms' size and prior deployments.

Table 4 also shows that size and prior performance jointly explain 7 percent of the variation in change compared to 8 percent for

sector volatility. Future research might consider whether firm-level forces other than those examined in this analysis (e.g. structure, culture and internal processes) play as strong a role in enabling and disabling change as economic interpretations stressing the role of market forces would have us believe.

DISCUSSION

Strategy researchers may have prematurely narrowed the focus of the field with three unfortunate consequences: (1) a distancing of the concept of

Table 4. Relative effects of inertial and inductive forces on corporate aggressiveness

Independent variables	Percentage contribution to R^{2a}	F-value	d.f.	p
Inertial effects				
Aggressiveness (77–80)	0.87	132.73	1,165	0.000
Log (employees)	0.04	7.40	1,165	0.007
Inductive effects				
ROA (77–80)	0.03	6.91	2,165	0.001
Industry × Volatility (77–80)	0.08	20.89	9,171	0.000

[a] Figure represents percentage of additional variance accounted for by variable.

strategy from the resource allocation patterns of organizations; (2) an over-reliance on cross-sectional analyses of the correlates of firm performance at the expense of longitudinal interpretations of resource deployment; and (3) an artificial separation of the business and corporate levels of strategy that may belie the coherence of managerial decision-making processes.

Strategy both influences and crystallizes around aggregate allocations of capital resources to functional areas. So a complementary focus on the propensity of firms to redeploy resources views firm performance and sector volatility as forces that propel strategy-making processes. Such an approach has the potential merit of re-integrating business and corporate levels of strategy-making into a multidimensional construct involving resource allocation patterns. In this analysis we focused on the profiles of aggressiveness evident in these allocations. Future work might further elaborate the linkage between diversification posture at the corporate level, competitive strategies at the business level, and the functional commitments of resources that they entail. Distinctive competences and synergies may emerge from the patterning of resources in and across functions of businesses.

In this study, size inhibited the propensity of firms to change their corporate aggressiveness. Both social factors (such as institutionalized norms of conservatism) and economic factors (such as asset specificity) may contribute to the development of inertial forces that act to retard changes in the deployment of resources. Even so, changes in corporate posture need not be beyond the reach of even the largest firms. Here, prior performance and sector volatility acted as important triggers of voluntaristic change. Firms experiencing middling levels of performance tended to redeploy their assets more than firms doing either very well or very poorly, thereby providing support to the view that strategies are commitments: a reluctance to change may result from either inertia or escalating commitment to a chosen course of action (Oster, 1982; Staw, 1982).

The curvilinear impact of sector volatility on the propensity of firms to change their corporate aggressiveness suggests that intermediate levels of environmental turbulence facilitate change. Environments may act as resource cushions for firms (Lawrence and Dyer, 1983), and strategy-makers may feel more comfortable at reallocating resources in moderately stable environments: High stability precludes preemptive action, while low stability may paralyze (Anderson and Paine, 1975; Pfeffer and Salancik, 1978).

Support for the longitudinal model but not the cross-sectional analysis suggests that managers tend not to rely on immediate influences that may be serendipitous. Rather, they turn to historically confirmed prior outcomes, that is, to environments that are trending (Friesen and Miller, 1986).

Finally, these results do not support the predictions of any single model of organizational evolution. Changes in corporate aggressiveness were partially constrained by inertia and simultaneously prompted by both environmental conditions and the strategic responses of firms to feedback regarding their performance. This suggests that neither the ecological models of Hannan and Freeman (1984), nor the life cycle models of Greiner (1972) and Kimberly *et al.* (1980) are adequate in explaining organizational evolution. Rather, our two-period analysis suggests three conclusions: (1) strategic activity is partially conditioned by firm-level and sector-level forces that both enable and disable change; (2) the inductive force of prior performance and sector volatility influences change in an inverted curvilinear fashion; and (3) the momentum of prior deployments and firm size tends to overwhelm inductive forces.

Limitations of study and suggestions for future research

Future research could improve these results by specifying a broader range of variables to assess different inertial and inductive forces. Other firm-level social and economic variables could conceivably inhibit the strategic responsiveness of firms, and, more specifically, organizational processes that constrain managers' interpretations of environments (Daft and Weick, 1984; Dutton and Duncan, 1987), including age, homogeneity, investment in advanced technology, number of geographic locations, and market indicators of performance as triggers of corporate change (Ginsberg, 1988). Similarly, return on assets provided a readily accessible and parsimonious measure of resource scarcity. This measure is

also consistent with the finding that larger organizations perform better because they hold more slack (Sharfman *et al.*, 1988). However, other measures of slack, both relative and absolute, could also be examined in future research (Bourgeois, 1981).

Examining sector volatility using dummy variables at the two-digit SIC code level allowed a preliminary estimate of corporate environments. Future research, however, could significantly extend our understanding of the environment within which corporate-level strategies are formulated. Indeed, firms differ in terms of the particular combinations of businesses and product/market domains in their portfolios. Corporate volatility might be better gauged by weighing the volatilities of the businesses that constitute each corporate portfolio.

Finally, future research should elaborate a more complex and interactive model of corporate change, one that can better account for year-to-year allocations and test for alternative lagged effects of firm and sector level variables. Moreover, although the analysis attempted to separate out the relative influences of inertial and inductive forces through the use of statistical controls, future longitudinal research might pursue quasi-experimental designs that can exploit natural groupings of firms on the basis of point of exposure to changes in environmental conditions, and characteristics of initial position with respect to these conditions (Romanelli and Tushman, 1986). In this way, models of strategy-making could be developed that encompass an increasing variety of economic and institutional interpretations of organizational change.

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