PRICING UNDER CONDITIONS OF ENVIRONMENTAL TURBULENCE: A CONCEPTUAL AND EMPIRICAL ASSESSMENT

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Firms typically make a wide range of price-related decisions, including list prices, discounts, rebates, bids, negotiation ranges, and price differentials across market segments. In this article, it is argued that underlying these decisions are a number of dimensions that reflect the overall pricing orientation of the firm. Specific dimensions include the extent to which price decisions are risk aversive versus risk-oriented, reactive versus proactive, cost-based versus market-based, and standardized versus flexible. It is hypothesized that increasing levels of turbulence in the environments of firms will result in pricing approaches that are more risk-oriented, proactive, market-based, and flexible. To test these hypotheses, a survey was conducted of manufacturing firms in the Midwestern United States. The results indicate significant relationships between various aspects of environmental turbulence and all four of the pricing dimensions. Implications are drawn for theory and practice.

INTRODUCTION

Price has historically been one of the least understood and most underutilized of marketing tools in business organizations (Dolan, 1995; Morris and Morris, 1990). Managers have been criticized for their reliance on relatively inflexible and reactive approaches to pricing (Guiltinan, 1976; Kijewski and Yoon, 1990; Morris and Calantone, 1990; Simon, 1992). Critics point to the prevalence among firms of formula-based approaches to price determination, and to a preoccupation with cost-based methodologies, as evidence of their concerns (Hanan, 1995; Morris and Fuller, 1989; Nagle, 1983; Shapiro and Jackson, 1978).

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And yet, evidence is emerging which suggests that firms are beginning to adopt more sophisticated approaches to price management, and are coming to appreciate the strategic importance of the price variable (Crane, 1996; Woodside, 1995). Examples have been provided of companies and industries where prices are managed in a fairly proactive and value-based manner (e.g., Auty, 1996; Bush, et al., 1989; Roth and Smith 1995; Sarnice, 1987; Schriber, 1988). Various observers report that firms are developing more complex price structures (e.g., banks and financial institutions), initiating more frequent price changes (e.g., airlines), and customizing price to individual market segments (e.g., telecommunications companies, magazine publishers).

The thesis of this paper is that firms are indeed changing their approaches to pricing, and that these changes are environmentally-driven. More specifically, and consistent with theoretical and empirical work in the field of strategic management

(e.g., Covin and Slevin, 1989; Hall, 1980; Khandwalla, 1977; Zahra, 1986), it is argued that increasing levels of turbulence in the external environments of firms are forcing managers to become more strategic in their pricing behaviors in order to survive. Moreover, dynamic, threatening, and complex environmental conditions create a need for opportunistic or entrepreneurial pricing.

To assess the relationship between environmental forces and contemporary pricing practices, results are reported of a survey directed at senior executives from a cross-section of U.S. - based industrial firms. Price is approached as a set of managerial decisions which have some key underlying dimensions. Corporate environments are characterized in terms of rates of change, heterogeneity, and competitive intensity. Based on the findings, managerial implications are drawn and suggestions are made for ongoing research.

BACKGROUND

Factors Affecting Price Determination

Marketing scholars have produced a number of managerial frameworks intended as guides to price determination (e.g., Cannon and Morgan, 1991; Dolan, 1995; Morris and Calantone, 1990; Nagle, 1987; Oxenfeldt, 1973). These frameworks incorporate logical, step-by-step approaches to setting prices, while also illustrating that price management involves a hierarchical set of decisions. A major contribution of these frameworks is that they systematically identify the key factors to be considered when making price decisions, typically distinguishing between factors internal to the firm and those outside the firm.

The major internal factors receiving emphasis include the firm's overall objectives and strategy, its marketing mix, and its costs of producing and selling the product or service. Strategically, a firm attempting to differentiate itself on the basis of superior product quality is apt to engage in premium pricing (Crane, 1996; Farris and Albion, 1980). With regard to the firm's marketing mix, evidence has been provided to suggest that price is affected by brand names, advertising exposure, product quality, and channel selection either directly or through their interactions with one another (Comanor and Wilson, 1979; Kalyanaram and Winer, 1995; Nelson, 1974; Tellis, 1989; Tellis and Fornell, 1988). The firm's costs, alternatively, tend to receive more attention from managers than any other (external or internal) determinant. As a result it appears that large numbers of firms continue to rely on some variation of a cost-plus formula when setting price (Dudick, 1989; Gagne and Discenza, 1995; Morris and Fuller, 1989).

The external factors affecting price can be classified into three groups, those concerned with demand, those that concern competition, and legal/regulatory constraints. Research on demand considerations has concentrated on issues of price elasticity of demand as well as behavioral aspects of buyer responses to price-related cues. Work on elasticity, traditionally the domain of economists, has recently found an audience among those concerned with market segmentation strategy (Auty, 1996; Ghosh, et al., 1983, Morris, 1987; Matson, 1995; Morris and Joyce, 1988; Simon, 1979). Behavioral work on pricing has attempted to redress the limitations placed on price theory by economic assumptions of perfect rationality, perfect information, and perfect information processing on the part of buyers. In this vein, researchers have explored the effects of reference prices, differential price thresholds, adaptation levels, price anchors, assimilation-contrast effects, price ordering effects, and odd pricing on purchase intentions (Crane, 1996; Jacoby and Olson, 1977; Kalyanaram and Winer, 1995; Monroe, 1973, 1976; Zeithaml, 1988).

Insights regarding competitive issues in pricing have again come predominantly from the discipline of economics, where the principal interest has been theoretical explanations of price behaviors under conventional market structures (e.g., oligopoly). Considerable effort has also been devoted to predicting price behavior when various assumptions concerning these market structures are relaxed. Thus, work has been done on the effects

of product differentiation, imperfect information regarding competitive price moves, underutilized industry production capacity, and low barriers to market entry on the pricing actions of firms operating under different market structures (e.g., Ahlberg et al., 1995; Carpenter and Hanssens, 1994; Ball and Cecchetti, 1988; Lal and Matutes, 1989; Matson 1995; Mesak and Clelland, 1988; Schmalensee, 1982; Thomas, 1988).

Finally, price is affected by legal considerations, which can vary considerably depending on the structure of a market, the stage in the value-added chain at which a firm finds itself, and specific characteristics of what is sold (e.g., product vs. service) and where it is sold (e.g., locally, nationally, globally). The economic and legal implications of such practices as price fixing, collusion, price discrimination, price administration, predatory pricing, and dumping have been investigated by scholars from a number of disciplines (e.g., Bosch and Eckard, 1990; Samuelson and Balmer, 1988; Schreiber, 1988; Stern and Eovaldi, 1984).

Environmental Forces and Pricing

Both the internal and external factors identified in the preceding discussion would seem to be strongly influenced by the dynamics which occur in the external environments of companies. The corporate strategy literature has focused extensively on environmental forces and the strategic and structural adjustments which firms must make to endure threats and capitalize on opportunities created by these forces (e.g., Hall, 1980; Hofer and Davoust, 1977; Khandwalla, 1977). Much of this work concerns environmental turbulence, or the extent to which external environments can be characterized by faster rates of change, increasing heterogeneity or complexity, and greater levels of hostility or threat. For instance, Miller and Friesen (1982) have provided evidence that, under turbulent conditions, successful firms demonstrate more adaptability and flexibility, and higher levels of innovation and entrepreneurship, than their less-successful counterparts in the same industries (see also Covin and Slevin, 1989; Davis, Morris, and Allen, 1991; Kotter and Heskett, 1992; Miller, et al., 1988).

Marketers have also recognized the strategic importance of environmental turbulence. Khandwalla (1977) points to marketing activities as a principal mechanism for dealing with the uncertainty inherent in turbulent environments. Zeithaml and Zeithaml (1984) introduced the concept of "environmental management" to describe various strategies marketers should employ when confronted with turbulence so as to affect and manage change in the external environment. Bonoma (1986) has proposed that marketers fill the role of "subversive" when dealing with turbulence in order to circumvent a prevailing reliance on conventional wisdom within organizations. McKenna (1991) argues that a faster-changing and more complex environment has resulted in greater emphasis on niche marketing, relationship marketing, customization of marketing programs, the obsolescence of mass advertising, the use of speed as a marketing strategy, and a general pervasiveness of marketing throughout organizations (see also Hamel and Prahalad, 1991; Webster, 1992).

At the same time, marketing scholars have devoted relatively little attention to determining the specific implications environmental dynamics hold for pricing strategy. Monroe (1990) suggests that pressures from the external environment are making product and service pricing more delicate, complex, and important. Mitchell (1989) claims that environmental turbulence elicits fear, uncertainty, and doubt among sellers and buyers alike when it comes to making price-related decisions. Mesak and Clelland (1988) have concluded that environmental change is forcing firms to make faster and more frequent price decisions (see also Guiltinan and Gundlach, 1996). Beyond these fairly general insights, however, scant evidence has been provided regarding the extent to which turbulence actually influences the pricing behavior of firms, or the manner in which pricing decisions are affected.

Linking Environmental Dynamics and Company Pricing Behavior

Price management actually includes a large number of decisions. Firms effectively make decisions regarding pricing objectives, overall price strategy, structural questions concerning product line and market segment price differentials, the employment of various types of price promotions, and the establishment of specific price levels for individuals products and services (Mohn, 1995; Monroe, 1990; Stern, 1989; Tellis, 1986). The selection from among available options in each decision area reflects a firm's *underlying orientation* toward the use of price. At present, little is known regarding company pricing orientations. However, based on the contemporary pricing literature, it would seem a firm's pricing actions might reflect a risk aversive or, alternatively, risk-taking orientation (Guiltinan, 1976; Guiltinan and Grundlach, 1996), a reactive versus proactive orientation (Nagle, 1987), a cost-based versus market-based orientation (Morris and Morris, 1990; Murdock and McGrail 1994), or a standardized versus flexible orientation (Bush, Lucas and Ferrell, 1989; Matson 1995). There may well be other underlying dimensions which characterize a firm's pricing behavior, but these are the ones that appear most in the literature (Bingham, 1989; Dolan, 1995; Farris and Quelch, 1987; Kaprowski, 1995; Monroe, 1990; Stern, 1989; Tellis, 1986; Woodside, 1995). Further, while each of these dimensions captures an important aspect of pricing behavior, they probably interact with one another.For example, being more proactive with one's pricing actions may entail greater risk.

Environmental turbulence can be expected to affect a firm's pricing orientation in some fairly direct ways. For the purpose of this discussion, we will focus on the extent to which the environment is more (or less) dynamic, heterogeneous, and hostile (Miller and Friesen, 1982). In general, environments which contain a) higher rates of

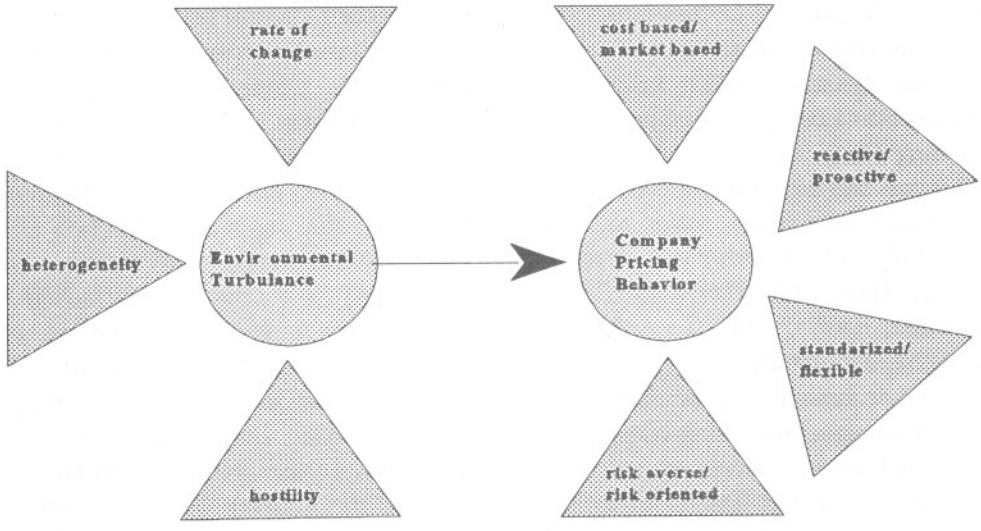

Figure 1
A Conceptual Model Linking Environmental Turbulence to a Firm's Pricing Behavior

change, b) more heterogeneity, and c) that are more threatening, are hypothesized to affect pricing behavior in similar ways. Consistent with suggestions in the corporate strategy literature, in all three instances firms can be expected to be willing to assume greater risk, and to be more proactive, market-oriented, and flexible in their pricing efforts (Harrigan, 1981; Hofer and Davoust, 1977; Khandwalla, 1977; Miller and Friesen, 1983; Zeithaml and Zeithaml, 1984). Figure 1 illustrates these linkages.

High rates of environmental change imply faster rates of product and resource obsolescence, newer forms of competition, changing consumer economics, liberalizing social expectations, and shorter managerial decision windows (Stevenson, et al. 1994). Environments that are more heterogeneous or complex, especially with regard to marketplace conditions, imply greater product/market specialization and "nichemanship" on the parts of firms large and small. Heterogeneity also results in the disappearance of "mass markets" in favor of markets which are diverse, fragmented, and segmented (Calantone and Sawyer, 1978; Cohen, 1986; Dickson and Ginter, 1987).

Alternatively, an increase in environmental hostility, especially in the form of competitor aggressiveness, implies that firms will encounter more difficulty in meaningfully differentiating their offerings, and experience downward pressure on their margins (Day and Ryans, 1988; Porter, 1980). Competitor aggressiveness forces firms to engage in more product/service innovation, and as more products and services are introduced to the marketplace, product failure rates are likely to rise (Cooper, 1979; Schnaars, 1991). These problems will be heightened where entry barriers are low, effective substitutes are more readily available, and the bargaining powers of suppliers and buyers are greater (Porter, 1980; Schnaars, 1991).

Managers will be forced to abandon conservative, risk-aversive pricing approaches when faced with rapidly changing economic and market conditions, rapid movement of products through their life cycles, stronger demands from individual customers for unique product/service packages, and aggressive competitor forays into one's markets (Bingham, 1989; Guiltinan and Gundlach, 1996; Cohen, 1986; Monroe, 1990). They will be more comfortable taking the lead in initiating price actions as rapid environmental change undermines the stability of traditional market positions, while heterogeneous markets enable firms to act independently (or undetected) on price within a given niche, and competitor hostility creates more price then non-price competition (Benady 1994; Fox, 1982; Tellis, 1989; Zeithaml and Zeithaml, 1984). Market-based pricing will also become necessary because cost-based approaches will fail to provide the adaptability necessary to keep abreast of changes in customer expectations, to take advantage of opportunities created by niche markets, and to respond quickly to competitor initiatives (Cannon and Morgan, 1991; Dolan 1995; Kijewski and Yoon, 1990; Ross, 1984). Finally, the prices will have to become more flexible and less standardized (Bush, et al., 1989; Karmen, 1989; Matson, 1995; Murdock, 1994; Shapiro and Jackson, 1978; Stern, 1989) in order to capitalize on the different price/value perceptions which result in various parts of the marketplace when environments are changing rapidly, to reflect differences in elasticity among the numerous niche markets that appear, and in response to competitive pressures for differential treatment of key accounts.

THE STUDY

Sampling Approach

To assess these proposed relationships, a cross-sectional study of U.S.-based industrial firms was undertaken. Surveys were sent to a randomly selected sample of 500 manufacturing firms located within the state of Indiana and listed in the Harris Directory. Only companies with fifty or more employees were included. A personalized letter, questionnaire, and stamped, self-addressed envelope were mailed to the senior marketing executive at each firm. If the marketing executive did not have pricing responsibility, he/she was asked to pass the survey on to the appropriate

executive. Follow-up telephone calls were made, and participants were promised an executive summary of the findings.

A total of 207 usable questionnaires were returned within the designated time period, for a 41 percent response rate. This rate compares very favorably with similar research on industrial firms (see Hart, 1987). An analysis of non-response bias was performed by comparing responding to non-responding firms based on SIC codes, sales revenue, and number of employees. No significant differences were identified.

Questionnaire Design

A self-report survey was designed for completion by senior executives. Respondents were first asked to specify a primary product sold by their firms which was then used as their reference point in answering the rest of the questions. The questionnaire was organized into three sections: price-related behaviors, industry and competitive conditions, and perceptions of the rate of change in the external environment.

The first section included 35 pricing questions, with 8 devoted to risk-oriented behaviors, 10 to price proactiveness, 12 to the relative emphasis on cost versus market-based approaches to price determination, and five to price flexibility. These questions focused on the extent to which specific methods or approaches were employed, and included five-point response scales ranging from 1 = "not at all" to 5 = "extensively".

The assessment of environmental heterogeneity focused on industry and market characteristics. Respondents indicated the number of competitors in their markets, the amount of heterogeneity in competitor offerings, the existence of any dominant competitors in the industry, the number of customers, and the degree of heterogeneity in customer requirements. Response scales included both open-ended and multichotomous formats.

To measure the extent to which the environment was threatening, Porter's competitor rivalry variables were assessed using a series of five-point bipolar scales. Respondents characterized their competitors on a five-point scale ranging from "passive" to "aggressive", entry barriers on a five-point scale ranging "low" to "high", effective substitutes on a five point scale ranging from "none" to "many", and dependency both on suppliers and buyers on five-point scales ranging from "not at all dependent" to "heavily dependent on at least one". An open-ended question on the number of new competitors entering the market in the last two years was also included.

Finally, environmental change was measured by asking respondents to indicate the rates of change which their firms had experienced over the preceding two years in eight key areas (e.g., the economy, regulation, technology). Each environmental area was rated on a five-point scale ranging from "no change" to "a great deal of change".

To ensure the clarity and logical flow of the items, the instrument was pretested with a sample of 17 managers not included in the final sample. No significant changes were required.

RESULTS

An overview of the pricing practices of respondent firms is provided in Table 1. Means and standard deviations are based on five-point scales, where lower scores indicate less reliance on a given practice or approach. As can be seen, the sample demonstrated considerable variability on most of these items, although some general trends emerged. Pricing was more cost-based than market-based, although customer and competitor considerations were clearly acknowledged. Firms demonstrated a moderate degree of price flexibility, with volume discounts the most prominent source of flexibility. With regard to proactiveness, respondents tended to initiate price changes rather than follow the lead of others. In terms of risk-orientation, the responses were mixed, but tended toward a moderate risk profile.

The external environment confronting the sampled companies can be characterized as fairly turbulent, again within considerable variability in the responses. Respondents perceived fairly high rates of external change especially in the economic, regulatory, and technological environments. Firms confronted numerous competitors (median = 8.05, x = 5), and there was significant heterogeneity in competitive offerings. Customer requirements also demonstrated considerable heterogeneity. The environments of these firms can also be considered fairly hostile. Not only did firms face numerous competitors, but these competitors were perceived to be very aggressive. Entry barriers were relatively high, but effective substitutes were generally available, and dependency on both suppliers and buyers was fairly great.

To assess the underlying dimensionality of company pricing behavior, factor analysis was run on the 35 pricing questions. A total of eight factors with eigenvalues greater than 1.0 were retained. Factors were not determined a priori, and so names were assigned to these factors based on the set of items whose loadings on a particular factor exceeded .45. These seven factors explained 70 percent of the variance in the data. Reliability coefficients (Cronbach's alpha) were then calculated for each of the factors, and item analysis performed. Based on Nunnally's general criterion, five of the factors demonstrated satisfactory reliabilities, which are summarized in Table 3.

The five factors that remained were concerned with cost-based pricing (COST), reactiveness (REACT), proactiveness (PROACT), risk-taking (RISK), and flexibility (FLEX). Scaled measures were then computed by summing the items comprising each of the factors. Means and standard deviations for these scales were as follows: COST (x=10.5, s.d.=2.59), REACT (x=13.6, s.d.=4.54), PROACT (x=7.7, s.d.=1.87), RISK (x=7.6, s.d.=2.42), FLEX (x=9.26, s.d.=2.52). In addition, an environmental change (CHANGE) scale was constructed by summing together the eight items that dealt with rates of change in various components of the environment. The resulting scale had a mean of 23.9 and a standard variation of 4.77. This scale was then correlated with the global question regarding the overall rate of change in the external environment, producing a coefficient of .69, which was significant at the .01 level.

To test the proposed relationships between the environmental variables and pricing behavior, a series of correlation analyses (Pearson's) were performed. Specifically, CHANGE, the three measures of heterogeneity, and the five measures of hostility were run against the five pricing scales. Significant findings are summarized in Table 4. All were in the direction hypothesized. As can be seen in the table, the rate of environmental change demonstrated a significant relationship with the tendency to be proactive in one's pricing efforts. Where customer needs and requirements were more heterogeneous, firms were apt to pursue greater risk in pricing. Heterogeneity in competitor product offerings was negatively associated with reliance on cost-based pricing, and with proactiveness in pricing. Firms facing larger numbers of competitors also had a higher risk profile. Hostility, particularly in the form of competitor aggressiveness, was correlated with the greatest number of price dimensions. Specifically, competitor aggressiveness was associated with a tendency to be less reactive, more proactive, more flexible, and to pursue higher risks in one's pricing approaches. A larger number of effective substitutes was negatively associated with relying on cost-based pricing. Where customers had greater bargaining power, firms relied less on reactive approaches and more on flexible approaches to pricing.

CONCLUSIONS AND IMPLICATIONS

Price is the most neglected variable in the marketing efforts of companies. Managers have tended to view price simplistically in terms of margins and costs, not as a strategic marketing variable. Thus, the mindset is often to compete on a price basis where one absolutely must, but otherwise to focus on non-price forms of competition (e.g., sales promotions, product quality, aftersale service, relationship-building).

Table 1: Descriptive Statistics for Price Variables

*Price Basis (Market vs. Cost)**	mean	s.d.
Cost Based:		
We add a standard mark-up to the unit price.	2.95	1.23
We price to achieve a dollar per unit return cost.	2.54	1.33
We use cost-based formulas.	3.33	1.32
We price to recover investment in product development quickly.	2.00	1.00
Costs play an important role.	1.66	.93
Tax considerations play an important role.	4.63	.74
*Market Based:**		
Competition plays an important role.	2.37	.90
We charge a price roughly equal to that of our competitors.	1.97	1.10
We price so as to realize a target share of the market.	2.50	1.79
Price reflects the amount of value a given customer receives.	2.98	1.31
The key factor in setting price is the customer's ability to pay.	1.63	.91
Customer demand plays an important role.	2.30	.88
*Price Flexibility**		
We charge one standard price for this product to customers.	2.72	1.51
The season of the year influences the price of the product.	2.56	1.11
We offer volume discounts to customers.	3.48	1.36
A different price is charged for a given product depending on the buyer.	2.26	1.29
Price is based on the market segment.	2.70	1.26
*Price Proactiveness**		
Price is adjusted according to price changes in the industry.	1.90	1.13
Competitor's prices are a strong influence to adjust price.	1.81	1.17
Price changes are initiated before others in the industry.	2.75	1.12
Price is changed in parallel with other firms in the industry.	1.61	1.15
Price decreases are always met without delay.	1.11	.89
Prices are increased when competitors increase theirs.	1.34	1.12
Competitors adjust their prices more to ours than we do to theirs.	2.91	1.04
We tend to be a price follower.	1.01	1.01
Price change frequency for leading product compared to rest of industry.	2.58	1.00
Yearly number of price changes.	1.53	2.99
*Risk-oriented Pricing**		
We use the price of one product to sell other products in the line.	1.98	.95
We use price to discourage entry into the market by new competitors.	1.86	.97
We employ aggressive pricing actions.	2.28	1.13
We use special price promotions.	2.06	1.20
We sell a product at cost/loss to get customers to but other products.	1.73	.96
We bundle products together and charge a combined lower cost.	1.92	1.08
Our overall pricing behavior is aggressive.	2.36	.86
We view price as a major competitive weapon.	2.75	1.04

* Five-point scale where higher scores indicate greater reliance on or agreement with the item in question.

Table 2: Descriptive Statistics for Environmental Variables

	mean	s.d.
*Environmental Change**		
Customer environment	2.99	1.12
Supplier environment	2.68	1.03
Labor environment	2.33	1.02
Regulatory environment	3.34	1.24
Economic environment	3.56	1.03
Technology environment	3.00	1.11
Competitive environment	2.85	1.05
Rate at which market intelligence becomes obsolete	3.21	.98
Overall external environment	3.17	.93
Market Heterogeneity		
Number of direct competitors**	8.05	8.09
Heterogeneity among competitive offerings***	3.14	.87
Heterogeneity among customer requirements****	2.95	1.10
*Market Hostility*****		
Competitor aggressiveness	4.30	.80
Barriers to entry	3.60	1.31
Effective substitutes	2.71	1.28
Dependence on suppliers	3.01	1.36
Dependency on buyers	2.56	1.30

* 5-point scales, with higher scores indicating greater rates of change
** Open-ended question
*** 5-point scale, with higher scores indicating more heterogeneity
**** 4-point scale with higher scores indicating more heterogeneity
***** 5-point bi-polar scales, with higher scores indicating more aggressiveness, higher barriers, more substitutes, and suppliers and buyers that have stronger bargaining power.

Table 3: Structures of Factors Reflecting Company Pricing Orientation, with Reliabilities

Factor	Item	Loading	Reliability
Factor 1			
Cost-based Orientation	V03 We added a standard mark-up to unit cost.	.74	.69
	V06 We price to achieve a return over cost/unit.	.47	
	V07 We rely on a cost-based formula.	.77	
	V34 Cost play a significant role in pricing.	.58	
Factor 2			
Reactiveness in Pricing	V11 We change price in parallel with other firms.	.73	.87
	V12 We charge a price equal to competitors.	.74	
	V13 We adjust price according to industry.	.76	
	V14 Competitor's prices influence us to adjust.	.80	
	V17 When competitors increase, we increase.	.77	
Factor 3			
Risk-oriented Pricing	V05 We price to realize target market share.	.71	.66
	V08 We price to discourage market entry.	.74	
	V18 We employ aggressive pricing actions.	.45	
Factor 4			
Flexibility in Pricing	V19 We charge one standard price.	-.77	.75
	V20 We change price seasonally.	.41	
	V22 We very price based on customer.	.72	
	V23 We vary price based on segment.	.60	
Factor 5			
Proactiveness in Pricing	V15 We initiate price changes.	.79	.67
	V24 Competitors adjust to us.	.69	
	V26 We tend to be price follower.	-.45	

Table 4: Summary of Significant Relationships Between Environmental and Price Variables

Environmental Variable	Price Dimension	Test Statistic	Significance
Rate of Environmental Change (Change)	PROACT	rho=.30	.01
Market Heterogeneity			
a. Heterogeneity of Customer Needs	RISK	rho.=.28	.01
b. Heterogeneity in Competitor Offerings	COST	rho= -.27	.01
	PROACT	rho= .36	.01
c. No. of Competitors	RISK	rho= .26	.01
Environmental Hostility			
a. Aggressiveness of Competitors	REACT	rho= -.19	.05
	RISK	rho=.23	.01
	PROACT	rho=.28	.01
	FLEX	rho=.23	.01
b. # of Effective Substitutes	COST	rho= -.21	.01
c. Bargaining Power of Buyers	REACT	rho= -.20	.01
	FLEX	rho= .22	.01

Such an orientation may be increasingly untenable. In turbulent times, organizations find that sustainable competitive advantage lies in flexibility, adaptability, speed, aggressiveness, and innovation. Pricing can play a key role in achieving such advantage, but only if managers a) develop a better understanding of the multiple dimensions and component decisions that come under the general banner of "pricing", b) address these components in a systematic and integrated fashion, and c) ensure that these efforts are driven by a consistent underlying corporate philosophy toward pricing. In terms of the latter issue, our recommendation is that managers adopt a philosophy of "entrepreneurial pricing".

While marketing managers have been urged to become more creative in their pricing efforts (e.g., Dolan, 1995), important questions exist regarding how and when to do so. This study provides initial guidance in addressing such questions. Among the price variables assessed, proactiveness, risk-taking, and flexibility were most associated with environmental turbulence. Further, the key environmental variables affecting price were the competitor and customer heterogeneity and competitor aggressiveness.

The results of the study suggest that the firm's pricing philosophy should reflect the following issues:

-Are we sufficiently proactive in terms of price increases, decreases, or changes in the various components of price? Proactiveness implies a willingness to move quickly, and to take the lead in instituting price moves relative to competitors.

-Do we pursue pricing actions that entail a degree of calculated risk in terms of customer response, distributor receptivity and competitor reaction? Such risks do not employ single, dramatic pricing

actions. Instead, they must be managed in the sense that the firm pursues a number of different price moves and is continually experimenting with the components of price and conducting pricing test markets in various market niches.

-Are we sufficiently flexible in terms of tailoring prices to different markets, segments and key accounts? Flexible in that the firm can get much closer to its customers in terms of understanding the sources of value a given customer realizes from the company's offerings, and the trade-offs customers will make between price and various product attributes.

From a managerial standpoint, price must become a strategic level decision variable, which means developing programs that take full advantage of various structural aspects of price. There is a danger, of course, that firms will develop pricing programs that are too managerially cumbersome or confusing to customers. This problem can be avoided if price managers first carefully and consistently segment their markets, develop reliable indicators of segment price sensitivity, and effectively communicate price policies to key decision-makers within segments. Moreover, pricing must be externally focused, with formal and ongoing environmental monitoring efforts. The ability to anticipate variability in rates of change, movements toward greater market heterogeneity, or intensification of competitor aggressiveness, and to quickly adapt price strategy would seem paramount.

While this study provides initial insight regarding the impact of environmental turbulence on price, a number of suggestions can also be made for ongoing research. For instance, additional work is needed to establish the implications of environment-price relationships for company performance. It may be that, under conditions of environmental turbulence, certain price dimensions (e.g., flexibility) have a greater impact on revenues or profits than do others (e.g., risk-taking). Another relevant issue involves how environment-price relationships vary over the stages of the organizational life cycle. Of concern here is how the age, size and complexity of an organization influence its perception and approach to the external environment as well as its strategic use of the price variable.

Further research is also needed to establish the dynamics of possible relationships among a set of environmental variables or price-related variables. Thus, for the environmental variables, faster rates of change may heighten competitive intensity, and more intensity may produce greater heterogeneity. Similarly, for the price variables, risk-taking in pricing may lead to more flexibility, which in turn permits price proactiveness within segments. An additional avenue for investigation concerns the ways in which the five pricing dimensions identified in this study interact with other elements of the marketing mix. As an example, it might be that advertising expenditures will be positively associated with pricing that is more flexible or more proactive, given the need to communicate such pricing efforts to the correct audiences and on a timely basis. These interactions, if they exist, may also differ depending on levels of environmental turbulence.

Progress in these areas may well contribute to a redefinition of the role of price as a marketing variable. Price becomes an adaptive means for addressing and capitalizing upon increasingly complex environmental change. In this fashion, the truly strategic nature of price may be realized.

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