Strategic Management Journal
Strat. Mgmt. J., **24**: 615–630 (2003)
Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/smj.323

PRICING PROCESS AS A CAPABILITY: A RESOURCE-BASED PERSPECTIVE

SHANTANU DUTTA,[1] MARK J. ZBARACKI[2]* and MARK BERGEN[3]
[1] *Marshall School of Business, University of Southern California, Los Angeles, California, U.S.A. and London Business School, London, U.K.*
[2] *The Wharton School, University of Pennsylvania, Philadelphia, Pennsylvania, U.S.A.*
[3] *Carlson School of Management, University of Minnesota, Minneapolis, Minnesota, U.S.A.*

Strategists following the resource-based view argue that firms can generate rents through value creation. To create value, firms develop and use resources and capabilities that other firms cannot imitate, trade for, or substitute other assets for. Even a firm that has created value, however, may not capture the potential rents associated with that value. To capture rents, a firm must set the right prices for what it sells. Most views of pricing assume that a firm can readily set appropriate prices. In contrast, we argue that pricing is a capability. To develop the ability to set the right prices, a firm must invest in resources and routines. We base our argument on a study of the pricing process of a large Midwestern manufacturing firm. We show that pricing resources, routines, and skills may help or inhibit a firm in setting the right price—and hence in appropriating value created. Our view of pricing as a capability contributes to the resource-based view because it suggests that strategists should consider the portfolio of value creation and value appropriation capabilities a firm uses to create competitive advantage. Our view also contributes to economics because it suggests that strategic decisions about pricing capabilities have important implications for a fundamental economic action, determining prices. Managers in firms without effective pricing processes may be unable to set prices that reflect the wishes of its customers, so the customers may misuse their resources. As a result, resources may be used ineffectively. Our view of pricing as a capability therefore takes the resource-based-view straight to the heart of what is perhaps the central economic question: the best use of resources.

INTRODUCTION

A central problem of strategy is how firms can earn economic rents. Research following the resource-based view addresses this problem by suggesting that firms can use superior resources and capabilities to generate rents. According to the resource-based view, these resource bundles and capabilities can vary across firms (Barney, 1991). Firms seeking competitive advantage should accumulate resources and capabilities that are absent in other firms. These resources must not be perfectly mobile; they must be resources that other firms cannot trade for, substitute other assets for, or imitate (Dierickx and Cool, 1989). From a resource-based view, a firm can enjoy a competitive advantage by 'implementing a value-creating strategy not simultaneously implemented by large numbers of other firms' (Barney, 1991: 107). Firms can, for example, create value by combining and developing resources in ways that improve products or that lower costs (Peteraf, 1993; Montgomery and Wernerfelt, 1988).

Even when a firm has created value, however, it might not generate economic rents. In addition

Key words: pricing; resource-based view; capability; organizational routines; ethnography
*Correspondence to: Mark J. Zbaracki, The Wharton School, University of Pennsylvania, 2000 Steinberg Hall-Dietrich Hall, Philadelphia, PA 19104, U.S.A.

Received 7 February 2001
Final revision received 21 January 2003

to creating value, a firm must also set the right prices to capture the potential rents. Pricing is an important means by which a firm appropriates value through market-based exchange. If a firm sets prices too low, it may cede some of the value created to the customer. In contrast, if the firm sets prices too high, then the quantity sold will be too low. A firm's ability to set the right prices is an important means of appropriating value and therefore an important determinant of the ability of a firm to generate rents.

Very little literature, however, has directly addressed the process by which firms set or change prices, perhaps because researchers assume that the processes by which prices are set or changed are relatively costless or simple and hence do not require strategic attention (Rao, Bergen, and Davis, 2000). For example, in the marketing literature, Rao (1984) argues that pricing is the only element in the marketing mix that does not require expenditure. This assumption is echoed in the strategy literature. For instance, McGee and Thomas (1989: 105) suggest that 'pricing (for example) on its own is less useful than examining how distinctive firm level characteristics influence competitive forces.'

Some recent research, however, indicates that the price-setting process may be sufficiently complex to merit attention. Brandenburger and Stuart (1996: 6), for example, in their value-based analysis of business strategy, argue that added value is '[a] necessary (though not sufficient condition) for a player to capture value.' They show that knowing the added values for all players in a market might yield only a range in which a price might fall. How the value will be allocated to the different players in the value chain may still depend on other factors, such as how good the various players are at bargaining. Moreover, 'frictions' in the marketplace that might restrict bargaining could further influence a firm's ability to appropriate the value it has created. The possibility of such frictions is consistent with an emerging stream of research in macroeconomics that argues firms face costs of adjustment that sometimes inhibit price changes (Blinder *et al.*, 1998; Carlton, 1986; Ball and Mankiw, 1994; Rotemberg, 1982; Levy *et al.*, 1997). Taken together, these disparate streams of research suggest that a firm seeking to appropriate the value it has created may have to attend to the process by which it arrives at prices. None of this research, however, focuses on the processes, resources, and routines within a firm—especially the processes for changing prices—that may affect that firm's ability to set prices.

Following the resource-based view, we argue that these processes for setting or changing prices are capabilities that a firm can use as a basis for competitive advantage (Wernerfelt, 1984; Peteraf, 1993; Teece, Pisano, and Shuen, 1997). Given that a firm has created value, we argue that it is not a foregone conclusion that the firm will capture that added value by setting the right prices. Rather, firms must develop that ability in its pricing processes. Further, we argue that these processes are imperfectly imitable because of time decompression diseconomies (Dierickx and Cool, 1989). A firm cannot simply purchase the systems and skills required for pricing effectively. Instead, a firm must tailor and develop its pricing systems and processes to meet both its own and its customers' requirements.

We base our argument on a study of the pricing process of a large Midwestern manufacturing firm. Our study asks what it takes for a firm to set or change its prices—not just any one price, but prices across its product line. We seek to understand how firms set or change prices. We focus on the resources, routines, and skills that might help or inhibit a firm in setting the right price—and hence in appropriating value. We present evidence that the price-setting process is a capability in the resource-based tradition. We also show that the lack of pricing capability may preempt a firm from appropriating a higher value. Finally, we show how a firm that develops this pricing capability can capture a higher share of the value it creates.

Our view of the price-setting process builds on the behavioral theory of the firm (Cyert and March, 1963), which argues that prices may be set to balance competing interests, rather than to maximize profits. The behavioral theory of the firm takes the price-setting process as an organizational artifact. We treat the ability to set prices as consequences of the strategic choices a firm makes. Central to any pricing decision, we argue, is the pricing capability that a firm has chosen to develop. In setting prices, firms face two issues: appropriating rents and balancing competing internal interests. A pricing capability consists of the systems and processes that a firm develops to address these two issues. Our perspective has implications for strategy theory. In particular, it suggests that firms can develop and sustain their competitive advantage

by developing a portfolio of capabilities addressing activities ranging from value creation to value appropriation. Finally, our argument is important to economics because it suggests that these price-setting capabilities affect a fundamental economic action, determining the 'right' price. These implications, however, depend on the argument that price-setting is a capability. We turn to that argument now.

METHOD AND DATA

Research setting

We studied the price-setting processes of a large Midwestern industrial firm that manufactured parts used to maintain machinery. The company was a market leader in its industry and sold more than 8000 parts across three product lines. The company sold its products to original equipment manufacturers, to end users, and to value-added resellers that would in turn sell the components to end users. Our study addressed primarily the market for the components sold through the various value-added resellers. The firm has a reputation as a high-quality producer and as an innovator in these markets. Managers have invested significantly in product, process, and pricing capabilities over the past 10 years. The product capabilities include a new high-performance product line and the process capabilities include two new production facilities. What we call pricing capabilities include considerable resources invested in their pricing process. The relatively high profitability the firm has enjoyed over the years demonstrates its position as a market leader.

Data sources

To improve the validity of the theory developed we used the triangulation methods described by Huberman and Miles (1994) and Eisenhardt (1989). We gathered data from multiple sources within the company, seeking consistent themes across different activities in the price-setting process. Our three main sources of data were interviews, nonparticipant observation, and records data. We gathered the data over the course of two annual 'pricing seasons' during which the firm set its prices. Data collection for the first season was retrospective; we interviewed participants and gathered their stories about the pricing process. Data for the second season tracked the price-setting process as it occurred.

Interviews

We began by conducting interviews with the organizational members directly responsible for defining and implementing the pricing strategy. In these initial interviews, we sought a detailed description of the price-setting process, including the tasks and participants involved, the data-processing requirements, the routines used, and the disagreements among participants. We then interviewed a broader range of participants, including the vice-president in charge of marketing, the director of sales, the marketing director, and various area managers for the sales force as well as members of the sales force, various support staff responsible for maintaining pricing information, systems analysts responsible for maintaining the pricing systems, and former employees who had been central to pricing. We also interviewed various customers, from whom we sought detailed descriptions of how the customers dealt with changes made at the focal firm. We also sought to understand the relationship between the customers and the focal firm, as well as the relationship between the customers and other firms selling comparable products.

In total, we interviewed 27 informants. Those informants included all the participants at headquarters and a representative sample of the sales force and customers. In all cases, we interviewed informants either at the firm or (with customers) at their place of business. All but one of the interviews were taped and transcribed. One customer did not want to be taped, so one researcher asked questions while another took detailed notes during the interview. The interviews varied in length from 45 minutes to over 7 hours. In many instances, we conducted multiple interviews, returning to interview informants until we had as complete a picture as possible of their perspectives on price-setting at the organization. We interviewed five informants twice, and two informants three times. We interviewed the main pricing coordinator nearly every time we visited the research site.

Nonparticipant observation

Some members of the research team sat in on pricing meetings over the course of the second

pricing season. We also observed various interactions among pricing team members while we were on site. In addition, various members of the organization demonstrated for us the computer resources and various other pricing tools that they used.

Records data

We collected different kinds of record data to provide information about price-setting actions at the organization. We collected copies of list prices and supplemental prices for both pricing seasons that we studied. Where available, we collected notes and other documents from the first pricing season of our study. We also collected a complete set of meeting minutes and supplemental documents from the pricing meetings of the second pricing season, copies of email messages circulated among the central price-setting team, and copies of special pricing requests (e.g., discounts and rebates off of list price) for several pricing seasons. The special pricing requests gave a comprehensive account of pricing requests that management had approved. We also collected detailed records of time the pricing coordinator spent on pricing activities as well as information about those activities and about others involved. When available, we also collected accounting information on the costs of pricing activities (including such items as travel costs, the costs of computing systems, and the cost of publishing prices to customers). Over the course of the study and data analysis, two of the authors continued to contact the pricing coordinator to clarify issues to gather additional documents and information.

Data analysis

Following the logic of inductive case study methods (Eisenhardt, 1989; Huberman and Miles, 1994) our data analysis proceeded in an iterative manner, first analyzing the data and comparing the data to existing theory, then developing new theory, then returning to the data to see how our theory matched the data, and again returning to the theory for yet another revision. Initially, we sought simply to understand the process of setting and changing prices. When we started the fieldwork, we believed that the process to set or change prices was relatively straightforward. The literature on pricing suggests that firms first assess customer elasticity and competitive prices and then set prices to maximize profits (Pashigan, 1998). As we studied the process of setting or changing prices, we quickly realized that the price-setting process is complex and that existing theories on pricing did not capture this complexity. The evidence, however, was consistent with what we knew about the extensive resources and coordination that firms need to pursue strategic pricing initiatives. We concluded that a theory of the process by which prices are set or changed must address the different resources and capabilities required to set and change prices.

A RESOURCE-BASED PERSPECTIVE OF THE PRICING PROCESS

Pricing-setting as a capability

As noted earlier, the literature in marketing, strategy, and economics seems to follow the predominant view that price-setting is a simple and relatively costless task. For example, Rao *et al*. (2000) believe that 'managers tend to view a price change as easy, quick, and reversible.' The evidence from our study suggests that managers find it a surprisingly difficult process. Consider, for example, the challenge faced by the pricing manager of the firm that we studied. When he learned that his competitors could offer different levels of discount on different products to different customers, he found that he faced two barriers that constrained his ability to respond. First, he found it difficult to determine what prices to set in response. Second, he found that his systems did not allow him to implement the prices his analysis suggested he should set.

The first of these two difficulties was a consequence of the sheer variety of possible prices the firm could set. For any competitor and product, the manager could easily choose to match an individual price. His firm, however, produced 8000 products across 1400 different customers and multiple competitors. Across those various products and customers, he needed to be able to know when it was appropriate to match a price and when it was not appropriate to match prices. That task of determining whether to match a price—simple for any given product—became quite complicated across hundreds or thousands of products sold to multiple differentiated customers in a market with multiple competitors—the reality of this manager and the

typical reality of any large producer. In order to extract value created, the pricing process had to consist of a variety of routines and procedures that cut across multiple conflicting groups and involve both members of the firm and the various customers purchasing the firm's products.

The second of the pricing manager's difficulties was a consequence of his pricing system. While his competitors could easily vary discounts by product and competitor, with his pricing system he could vary discounts across customers, but could offer each customer only a single discount across their entire selection of products. As he described the situation:

> People were discounting one level of [list price] for everything in the [price list]. This happens today and it drives me insane. There are parts that are driving our business and you do not discount [them]. This was our fundamental problem. [Our competitor] had a program and they were using it against us and it was frustrating me. I had to match what they were doing. Our pricing system did not allow us to do that.

In many cases, it was simply easier to either offer a customer a bigger discount across all products and cede value to the customer on the products for which the firm could get a higher price, or offer a smaller discount on all products and lose the business on the products for which the competitor was offering a lower price.

> There is a desire to unbundle [prices] across products. It is not that we do not want to sell these products together, it is more that we do not want to have across the board discount for all products. Some products are always very price competitive ... other parts you can't get anywhere else or you buy once in a blue moon. We would give one price off across the board .... The fact was there was so much money lying on the table.

Of course the firm could manually compute the level of discount for different products and then offer rebates to match competitors. However, to do so across 8000 products and 1400 different customers was extremely cumbersome. The ability to change prices depended on the processes the manager had in place.

Following the resource-based view, we therefore argue that the price-setting process is a capability based on a combination of routines, coordination mechanisms, systems, skills, and other complementary resources that are difficult to imitate (Wernerfelt, 1984; Peteraf, 1993; Dierickx and Cool, 1989; Teece *et al*., 1997). The extraordinary complexity of the price-setting process precludes presenting the entire process behind the pricing process capability. Instead, our perspective delineates two major dimensions of the price-setting capabilities. One is the price-setting capability within the firm. A second is the pricing-setting capability *vis-à-vis* customers. For ease of exposition, we address them sequentially. In reality, these two dimensions interact with each other much in the way that most organizational decision processes loop and recycle (Eisenhardt and Zbaracki, 1992). We address some of these interactions in the following description of the two dimensions of pricing capabilities. Following the description of the two dimensions of pricing process capability, we describe how a firm develops its pricing capability and the advantages accruing to that firm.

Price-setting capability within the firm

The price-setting process within the firm has three major components that we describe below in greater detail: identifying competitor prices, setting pricing strategy, and performing analysis of proposed prices and gaining commitment to the new prices.

Identifying competitor prices

Setting prices began with efforts to gather competitor data. The process of identifying competitor prices was surprisingly complex across 8000 products, three major product lines, and multiple competitors. Moreover, competitor features often only partially matched the firm's products, so extracting the value created required that the firm account for product differences along many dimensions. The pricing director described the task:

> You have 8000 part numbers. You look at each part number and try to work out who was your competitor—what prices did they have in the market place, was it high volume, was it all going to one customer, if so by how much. Are we positioned higher or lower in the market place.

The information on competitive pricing was made still more difficult for two reasons. First, much of pricing was a team process. For example, because competitors did not simply distribute

list prices to the firm, the firm needed members of the sales force to turn to customers with whom they had close relations to obtain list price information. Subsequently, the marketing group frequently needed other organizational members—especially engineering—to determine functionally equivalent products. So during the first year, the pricing manager described the team that was involved in setting the list price as including 'me—I was the pricing manager—three sales people—the territory manager, the area manager, and a private label person—and product [engineering and design] people.'

Second, the list prices provided only a portion of the price information. Competitors generally offered the customers rebates and special discounts off of list prices. Such special pricing practices were quite prevalent in the industry and were repeatedly discussed by almost every informant. The sales persons and other members of the firm therefore had to make additional effort to gather credible price information from customers.

The task of getting competitive information, then, is a series of nested routines: routines for obtaining competitive data from market sources, routines for ensuring that the pricing information addressed functionally equivalent products, routines for documenting the competitive price in a database, and, finally, routines for calling up the information when necessary.

Setting pricing strategy

Even after obtaining competitive data, participants had to agree first on the products that should be used as a basis for comparison and second on how those comparisons should be made. During the first year of our study such disagreements led to considerable debate among participants on what prices to raise, what prices to leave untouched, and what prices to reduce. The director of pricing, considering a product line from a marketing perspective, described one such dispute:

> People who did know us considered us one thing: high price. As a marketer, I did not like that. I wanted good value and I wanted to create a good brand that meant good value, so I knew that I had that as a problem.

In response, he proposed lowering the list price on that product line in order to communicate to the end user that the product was a good value. The sales force objected. The pricing director described their concern:

> The [sales representative] has a very focused opinion around the fact that we should be the highest [list] price because when he sold to resellers .... He could come in and say 'Take my line. [Our competitor] will sell it to you for $21 and I will sell it to you for $20. The [competitor] price sheet says $35 and mine says $45 so you can make more margins with my product than you can with theirs.'

As the pricing director observed, these reflected deep differences about whether prices targeted resellers or end users:

> The fundamental argument from [the sales force] to me was that the people who sell the product are the resellers. They don't care what the [list price] is; they care what they pay. And so his mental map of pricing was that we created a [list price] for our resellers. My answer was 'No we didn't.' You may use it but we created a [list price] for the end user customers. We wanted to attract a good value to the end user.

These differences evoked passionate disputes from the various participants. As one participant observing an argument over the issue said, 'There was one argument on Tuesday morning that I thought they were going to throw punches.'

Such disputes (in content if not in passion) follow naturally from the goal conflict that the behavioral theory of the firm predicts (Cyert and March, 1963). For purposes of extracting value created, however, setting prices requires that the firm establish routines to resolve such goal conflict. The firm we studied had spent several years developing the expertise necessary to resolve these routines, which evolved as the firm got the various experts involved in different aspects of pricing so that they could understand the specific dimensions of the conflict. We therefore argue that competitors cannot imitate the routines without investing significant resources over time, so they are subject to time compression diseconomies (Dierickx and Cool, 1989).

Translation from pricing strategy to price

With the competitor database in place, various individuals participated in a series of price simulations to translate the pricing strategy into specific pricing actions. The pricing strategy implied specific changes for various product lines in the

company, and the pricing analysts studied the effects of these changes on different groups of customers, paying special attention to larger customers. A quote from one of the financial analysts demonstrates the complexity of customer impact analysis:

> We would do [analysis] at the overall business unit level and then I would pull down into these massive Excel spreadsheets: here is a customer and here are the 3000 parts they bought last year and here are the 8000 items in our price list; here are the proposed changes. What would be the impact of that on this customer? And then, let's say we did a [volume discount]. They [the customer], of course would want their highest volume parts and we took 10 percent off of that. What is the impact of that? ... So we had at least 8000-lined spreadsheet doing these look-up functions.

These analyses also required nested routines. Each impact analysis required that the pricing team develop assumptions about the customer analyzed, so there were routines established to discuss such assumptions. These assumptions in turn were based on information gathered from participants in different parts of the firm, so there were routines to gather this information. There were further subroutines required to resolve disputes. As we discuss below, participants often disagreed on how a customer would respond to the new prices. Such disagreements again made the decision processes loop or recycle, as participants would have to redo the customer analysis. Moreover, each impact analysis process addressed just one customer and similar analyses had to be repeated for all the major customers and for some smaller customers. As one pricing manager described it:

> There was a discussion going back and forth .... There was some attempt to gain a consensus but it was a split [marketing and field sales person]—two on the side of lowering the discount and one adamantly opposed to lowering the discounts.

Resolving (or better, avoiding) such disputes required a detailed analysis of key customers to see what the effects of a price change would be. Objections required the pricing team to reconsider the assumptions or gather additional information. Resolution of these disagreements required a broader set of interconnected resources and higher-order coordination mechanisms across these different groups.

Developing pricing capability within the firm, then, combines routines, skills, know-how, and coordination mechanisms. We summarize the elements of internal pricing capability in Table 1.

Pricing-setting capability *vis-à-vis* customers

Deciding on new prices only initiates the price-setting process. The firm's managers knew that they also needed to 'sell' the prices to customers. They were very concerned about the effect of their price changes on the relationship with their customers. For instance, if customers did not accept the reasons for a price change they would complain or, worse, would want to negotiate the prices. Thus the firm had to build its capability first to convince customers of the logic behind the price change and second to negotiate prices with its major customers. Brandenburger and Stuart (1996) suggest that firms may vary in their ability to extract value due to variations in their bargaining abilities. Here we extend that argument by showing that value appropriation through bargaining is a capability in the resource-based tradition. Firms therefore can vary in the resources and skills devoted to selling a new price or negotiating prices. Such resources and skills are essential if a firm wishes to avoid ceding to customers the value it has created. We describe below each of these abilities.

Convincing customers on the price change logic

The ability to convince customers of the logic behind a price change is complex for at least two reasons. First, it depends on the ability of the organization to agree on pricing actions internally. For ease of exposition we have separated the discussion on price-setting capability within the firm from price-setting capability with respect to customers; in practice, however, the two are linked. Over the course of our interviews, we found that pricing actions taken inside the organization have effects through the organization all the way through to the end user. A senior pricing manager described such an incident:

> In [one product line] we were 30 percent below the market—we were nowhere, el cheapo. I just slammed [the prices] and you could hear the screams and they were coming from the resellers who had customers who were going 'Oh, you are going to increase our prices.'

Table 1. Pricing capability within the firm

Activities	Routines	Skills/know-how	Coordination mechanisms
Identifying competitor prices	Defining functionally equivalent products Nested routines for tracking competitive prices (e.g., special discounts): • Price database • Data entry • Calling up prices • Tracking product changes (competitor and firm) Accessing competitive price information	Technical know-how about competitive products, product changes Sales force tacit know-how of field sources for reliable competitive price information	Cross-functional teams to generate equivalent competitive product comparisons Coordination between sales force and select customers to establish competitive prices
Setting pricing strategy and translation from pricing strategy to price	Collecting customer purchase history Nested conflict resolution routines: • Meetings • Hierarchy • Pricing controls Tracking past pricing actions Pricing action analysis: • Gather information • Process information • Exchange and resolve assumptions • Code processed information • Define actions • Gain commitment to actions	Systems development expertise Pricing strategy expertise Database skills Financial analysis skills Customer price sensitivity: • Technical analysis • Tacit know-how (experience) on customer response Scenario analysis of customer response	Coordinating knowledge of differing assumptions Developing consensus on assumptions about customers Coordinating knowledge of different pricing strategies Channeling information of pricing actions

The senior manager recognized that the prices for that segment of the product line were lower than the market would bear. The marketing group recognized that there was clear value created and that the firm's customers had few alternatives, so it should have been easy to extract more value by simply raising prices. The sales group, however, felt that price increases would jeopardize their customer relationships. Moreover, as one salesperson explained, they could easily reverse the price increases:

> In past years when this has happened, I looked at this price sheet in 94 and on the new one in 95 there was a 3.2 percent difference. We would walk in and sell them at [30 percent off list price] and I would change the [discount by 3.2 percent] so it was a very simple price change.

If the internal participants fail to agree on a price change, then pricing decisions made in one part of the firm often are not implemented. While value is created, leading to potential rent, goal conflict (Cyert and March, 1963) results in prices set lower than necessary. The value created is then ceded to the customer. Making price changes requires routines to ensure cooperation between different participants.

Second, convincing customers of the logic behind a price change is complex when the firm relies on distributors to resell the product to the customer. The firm must consider whether the distributor's pricing system is capable of adapting to the pricing changes. Consider the costs imposed on a distributor when the firm changed prices for a customer:

> The manufacturer gave them [a large customer] a discount and agreed to match the competitor's price item by item instead of saying 'Here is the discount.' That was the biggest challenge to us. We

> had to have a way to calculate the various rebates based on the price that they gave these people. It was no longer an issue of, okay, 30 off [list price], etc. So I had to do the street level and go by item number and calculate the rebate percentages on every single item in the system that they were offering this company.

The effects of a price change extend beyond the immediate customer (the distributor) to the distributor's customer. Quite frequently, in response to a price change, the distributors would tell the members of the firm's marketing group or sales force that 'their customers were looking for justifications' for a price change. Thus, the process of selling prices to customers required that the firm develop routines to gather and disseminate information on how pricing affected their distributors and immediate customers as well as their customers' customers.

Negotiating price changes with major customers

Even the most convincing logic for a price change may not persuade some customers. Smaller customers were often price takers who would decide whether to buy the product based on the new prices. The internal process of setting the right price for this segment of customers was very important.

For large customers, however, prices could be negotiated. Such negotiations required that the firm repeat all the routines and coordination mechanisms to estimate the effects of a price change, but this time applied specifically to each large customer. The price-selling capability *vis-à-vis* major customers therefore required members who had a rich knowledge of the relevant players in the pricing process within the firm. For example, at the firm we studied, one of the senior pricing managers realized that he couldn't have his staff address pricing issues because his group did not have any individual who knew how all the relevant players in the organization would respond to price changes:

> The problem that I knew we were encountering when we were doing this pricing was that you couldn't delegate this to anybody because nobody had been around ten years to know what was going on.

Further, price-selling capability *vis-à-vis* customers required members who had a rich knowledge of their customers. Specific relationships between customers and members of the firm could affect the ability of the firm to negotiate with its customers. Reputations built over past exchanges may extend into future relationships and can ease the price negotiation process. A member of the sales force described such an instance:

> Another example is of a distributor who is one of our top five in New York City. The two principals of that company were two fathers of the business and they were two ornery men—tough—and they would squeeze us every time we went in there and it was hell. I would come out of the office physically and mentally exhausted and they were the old school and it was an education for me. This goes back a ways. And now their sons take over and I would never say anything but it is a piece of cake ... because of the relationship that I had established with the fathers I gained respect with the sons and they don't push me.

Here a reputation gained through repeated past interactions led to easier negotiations and better terms. The respect built on past exchanges made it easier to extract a share of the value created. Strong social ties translated into better prices (Uzzi, 1999).

Given the variety of data and participants, the bargaining ability of the firm (Brandenburger and Stuart, 1996) required many interconnected resources and coordination mechanisms and thus can be described as a capability. This capability *vis-à-vis* customers—especially major customers—took time to develop. Once developed, though, they lead to higher value appropriation. In Table 2 we summarize the resources and routines that make up the external pricing capability.

In the next section we describe the actions taken over the years to develop pricing capability in the firm. We then show how these capabilities enabled the firm to extract a higher value *vis-à-vis* a major customer.

Developing pricing process capabilities

As we argued above, any individual price can be changed quite readily. From the perspective of competitive strategy, however, the challenge is extracting value by making *effective* price changes across a variety of products and customers, and against multiple competitors. The evidence from our case study suggests that developing that capability requires coordination across various participants in the pricing process. That coordination

Table 2. Pricing capability *vis-à-vis* customers

Activities	Routines	Skills/know-how	Coordination mechanisms
Convincing customers on the price change logic	Information exchange with customers' pricing systems Identify effects on customers' customers Send information to pricing team Prepare price change presentation: • Educate pricing team for customer presentation • Develop customer presentations • Educate customers	Technical skills: pricing tool kit and price change effects Know-how on customer response Tacit know-how to separate sincere concerns from negotiating postures	Learn about different perspectives Develop consensus within firm and sales force on new prices Learn of customer response
Negotiating price changes with major customers	Organizational hierarchy approval of new prices Customer assessment: • Past discounts • Past performance • Alternatives available • Information accuracy Development of negotiation materials (repeats overall firm analysis at customer level)	Knowledge of firm members biases and relations with customers Know-how about competitive offerings Knowledge of customer negotiation strategy Cross-functional negotiation expertise Customer price sensitivity analysis: • Systems knowledge • Data analysis • Finance • Customer	Consensus among participants on new prices Consensus in negotiation team on negotiation strategy

involves developing systems, structures, and routines that can generate effective price changes. Moreover, developing these mechanisms must always begin from the base of existing systems, structures, and routines; a firm cannot simply abandon existing mechanisms. Here we describe the various actions taken by the firm to develop its internal and external pricing capability and how these developments enabled the firm to extract higher value from a large customer.

Developing internal pricing process capability

The antecedents to the internal pricing process capability we found at the firm began with the vision of a senior pricing manager, who, when he began setting prices, encountered considerable difficulty responding to competitor pricing actions. Historically, the firm had been a market leader and didn't need to worry much about prices; it had been quite successful with a simple 'cost-plus' pricing system. The firm developed a spreadsheet of prices that pricing managers adjusted as they saw fit. The senior pricing manager said about the historical system:

> [We] would say 'Here is a price increase across the board,' and that was it .... We didn't have market data or understand much about each of the competitors or fully understand what the market was.

He also had no information on the exact price certain customers had paid for their previous purchases because the sales force could offer special prices, discounts, or other subsidies. The discounts would not show up in the list prices the firm set. For example, the manager discovered that he couldn't keep track of prices from year to year:

> I knew when it got to the next year I couldn't remember why the hell I had priced the way I did and I would have customers calling me saying, 'What did you just do to me?' I had no idea why I had priced. What I found going through that is part number by part number there were different issues, different competitors, reasons why it needed to be.

The senior manager therefore sought a system that could help him get more accurate information when setting prices. That system anchored the pricing capability at the firm we studied. The manager indicated that his whole purpose in designing the pricing system 'was to try to maximize the profitability in the marketplace.' Doing, that, however, required setting up routines and processes for tracking the data and the reasons for setting prices:

> So the whole design [of the computer system] was we need a rule-based pricing system .... [The pricing computer system] gives you a database to understand and report what you did, why you did it, and flag to you when a variable changes.

The computer system itself, however, was only a small portion of this 'rule-based pricing system.' The rule-based system needed a dedicated staff and a variety of systems and routines for support, without which the firm could not overcome the goal conflict that would lead to suboptimal prices. The pricing manager had convinced senior management to give him dedicated staff with know-how in pricing and systems and additional resources to set up these new routines.

> I had dedicated staff on board and people with clear responsibilities ... X manages the competitive prices and the files, and ensures we put them out into [our pricing system] to be more responsive .... I had Y and Z working on an enormous effort—[the pricing system] so that we could develop this database and a rule-based system. Part of that [system] was the simulation capability to tell me the overall monetary effect of that decision.

Implementing these systems took nearly 5 years from the time the manager first began pricing products to the time the systems were fully operational. The required organizational knowledge was distributed amongst a variety of participants and was acquired only through extensive experience with the pricing tasks and participants. It took time for everyone to develop experience with the new system, with the concept behind the system, and with the specific pricing context. It could not be acquired overnight through a training program.

Indeed, many of the advantages of the system were discovered only after years of experience. During the second year of our study, for example, the participants had begun to find ways to use the new systems to do new analysis on pricing actions through a 'market-basket' of typical products. That allowed increased confidence in the effects of a pricing action. Other benefits required years of data to accumulate. For example, while the new system allowed the firm to track various actions taken in past years, that capability existed only with the implementation of the new system. Consequently, before the firm members could do analysis on the history of price changes, they needed to accumulate a base of several years of historical data on price changes by product and customer. Only then could they identify the effects of their pricing actions. Furthermore, though the new system allowed a variety of new pricing actions, gaining commitment to those pricing actions required time as well. The firm members needed to develop new interaction routines with the new system by learning what they could do, then working together to see the possible implications of those actions. These pricing capabilities took time and effort and could not be developed overnight. Again we argue that they are also susceptible to time compression diseconomies.

Developing pricing process capability vis-à-vis customers

An important pricing task is accurately matching price to customer value for each market segment (Nagle and Holden, 1997; Dolan and Simon, 1996). If a firm sets a price too high, for example, some potential customers in that segment may not buy the firm's products. Conversely, effective price-setting in a segment may lead to higher quantity demanded in that segment because the price is set right. We have argued that even though a firm can readily match any given price for a customer, the firm needs routines and resources to know when a price best matches the customer's value. In the previous section, we outlined these systems, procedures, and routines that make up this internal pricing capability.

A firm may also need to develop capabilities with respect to its customers, however, because often firms must negotiate prices with large customers. In that respect this firm was typical. Even with the systems developed and installed, the new pricing director (the replacement for the pricing director who had created the internal capabilities) found that there continued to be pressure to reduce prices:

> There is always pressure in lowering the price. I wanted it tied to something different than the past. In the past it has always been 'We are a loyal distributor,' or, 'You have to make me more competitive.'

The pricing director needed to know whether the lower price a customer wanted was appropriate. If the price requested was too low, the firm would cede value created to the customer. If the price was too high, then the quantity sold would be too low. The pricing director realized that she needed a pricing capability, including what she called a 'template,' to determine the validity of such demands from large customers. As she described it, at her request the pricing analyst 'made a template for us to use with distributors .... We determined what we thought would be the critical data that would tell us whether we were getting our money's worth [from a customer] for the pricing we were getting.' The price-setting template they developed was based on the internal systems and the routines established by the previous pricing director. Rather than focusing only on the competitive needs of a customer, the template also compared the discounts offered to a customer with those of comparable customers. The template thereby more effectively measured the effects of the discounts and rebates offered in negotiation, allowing the manager to target prices specifically to a customer.

As with the internal pricing process capabilities, these external price-setting capabilities also take time to develop. Once the system was in place, the firm began to uncover new uses. The template the pricing director developed subsequently altered the negotiation process. In conjunction with developing the template, the new pricing director changed the composition of the negotiating teams. For the first time, through the template the negotiating process incorporated finance, accounting, and computer support skills. When necessary, the negotiating team also began to incorporate people with these skills. Again, we can see that the price-setting capabilities with respect to customers are subject to time compression diseconomies (Dierickx and Cool, 1989). Once developed, they can lead to competitive advantage for the firm by increasing the ability of the firm to respond more effectively to pricing requests from large customers.

Value appropriation through pricing process capability

We now demonstrate how the combined internal and external pricing capabilities increase a firm's ability to generate higher profits and more accurately allocate value. We show how the firm used its pricing capabilities to extract a higher surplus from its customers by reversing a cycle of lower prices with an important customer. We argue that this capability is therefore essential to the fundamental pricing task of matching price to customer value.

In the first pricing season, the manager for one of the large customers compared the discount his company had received to the discount offered to a major national customer. The manager already had one of the deepest discounts offered by the firm, but he wanted a still deeper discount to match the special contract negotiated by the firm with the national customer. The former director of pricing had already responded with a discount larger than the large customer had received, but smaller than the national contract. The senior manager at the large customer rejected the larger discount. In the meantime, the pricing director resigned; the new pricing director describes her discussions with the customer:

> They said all the things that they didn't like about our company .... How we hadn't been supporting the dealers well. It all came to the same thing: if you just gave them pricing [lower prices] that would be support.

The new pricing director used the systems developed by the former pricing director, in conjunction with the template she created and the negotiating team she had put together, to assess whether the lower prices demanded by this large customer were warranted. The template allowed her to compare the discounts offered to this customer with those of comparable customers. Through a detailed analysis of the customer's pricing, the pricing director found that the deal currently on the table was already too generous:

> We did a ton of analysis. I had all the data in front of me and there was nothing that should tell me they should get a deeper discount—they had one of the sweetest deals going because of their size and it was a lot of pressure. We went in with a ton of data and I made them wade through my strategies and at the end they said 'What are you going to give us?'

> What I gave them was another incremental growth program—if they could grow upon their current base there was another percentage they could get.

The new director had offered a higher price than the price the customer had rejected. Moreover, the incremental discounts in the new package would be effective only if the customer sold more of the firm's products. As a result, the pricing manager was able to extract value created that would have been ceded to the customer:

> The difference between where we had ended up in our previous discussion and what I agreed to with them and offered through the [new] letter was approximately $200,000 difference on an annual basis less.

The customer accepted the higher price a few days later.

Renegotiating higher prices with a major customer is a major accomplishment. The outcome demonstrates both elements of effective price-setting. First, it prevents the firm from allocating value created to the customer. Second, the outcome demonstrates a careful matching of the price offered to the customer's willingness to pay. Without the capability, the firm had offered a price that would have been too low. With the capability, the firm demonstrated that a higher price was appropriate.

The critical issue was knowing what price the firm could offer to this customer. In order to know whether the customer would accept a higher price, the firm needed internal and external dimensions of the firm's price-setting capability. Consistent with the resource-based view, these capabilities consisted of both the tangible and intangible combinative skills of the participants in the price analysis. These skills were linked to the firm-specific organizational routines—such as the negotiation processes—and resources—such as the computer systems and pricing history. Without the knowledge of the players, without the diverse set of specific skills, and without the existing pricing systems, the manager could never have altered the share of value that went to the firm. Moreover, the capabilities and resources were developed over time at the firm. The capabilities therefore satisfy the central conditions for sustained competitive advantage: inimitability and imperfect mobility.

DISCUSSION

In the preceding sections, we have developed a resource-based perspective of the process by which prices are set or changed. We suggest that the price-setting process is a capability. Although our argument follows from the behavioral theory of the firm, evolutionary theory, and the resource-based view of the firm in addressing how routines influence what a firm does, it is unique in its focus on routines that address pricing. In the resource-based view, a capability enables the firm to produce some essential output (Winter, 2000) such as some novel product or some new way of producing a product (Peteraf, 1993). In our perspective, price-setting is that essential output.

Our argument addresses the tension between a firm's desire to change prices and the constraints on its ability to implement price changes. As we argued above, most views of pricing—including work in economics, marketing, and strategy—assume that firms can readily change prices. Yet macroeconomic research suggests that changing prices might be costly, and therefore prices may be much less flexible than these views suggest. Moreover, the behavioral theory of the firm suggests that a firm might choose to offer its customers prices lower than the price that would maximize profits. In our view, firms face two issues in setting prices: appropriating rents from value created and balancing competing interests inside the firm. Central to any pricing decision, we argue, is the pricing capability—the systems and processes—that managers at a firm choose in addressing the tension between the desire to change prices and the constraints on changing prices. Both costs of changing prices and prices below market value are consequences of those choices. These choices therefore have important implications for strategy and economics. We turn to those implications now.

At a strategic level, our perspective suggests that, in addition to competing through value-creating resources, firms can compete by investing in resources to appropriate value. At the firm we studied, these resources enabled the firm to set prices more flexibly, thereby responding more effectively to competitor actions. It also allowed the firm to set prices more accurately, thereby matching prices more closely to what a customer is willing to pay. Our resource-based perspective on pricing processes suggests that strategists should

consider how firms manage a portfolio of capabilities, ranging from value creation to value appropriation. Firms must maintain an appropriate balance between value creation capabilities and value appropriation capabilities.

Firms that fail to balance their portfolios of value creation and appropriation capabilities can suffer. Consider, for instance, Tripsas and Gavetti's (2000) study of the switch from analog to digital imaging technology at Polaroid. As they show, Polaroid led the camera industry in developing new digital technology. Nevertheless, Polaroid failed to bring its new technology to market because it did not know how to profit from the technology. Polaroid believed it could make money only by selling film and film developing—even though it had a strong capability in its camera technology that its managers could have easily extended into digital imaging. Following a 'razors and razor blades' image, though, Polaroid sold cameras (analogous to razors) and expected that it would extract value through the sale of film (analogous to razor blades). Polaroid's value appropriation capability was built around film sales. With digital imaging, however, there was no film to be sold, so the capabilities built around the sale of film and film developing could not be used to extract value from digital technology.

By adhering to their old way of making a profit on its cameras through the sale of film—what we here define as a price-setting capability—Polaroid's senior managers failed to bring a new technology to market. Even though Polaroid led the industry in developing digital technology—a value creation capability—it did not develop the capabilities to appropriate value from that new technology. Polaroid's managers failed to see the different relationship between value creation and value appropriation capabilities that arose with the shift from analog to digital technology.

Our perspective suggests that when a firm like Polaroid invests in resources to develop new technology, it must also consider its corresponding internal and external pricing capabilities so that it can extract value from the new technologies.

Viewing price-setting as a capability suggests that many pricing questions in economics and marketing result from the decisions a firm makes about its pricing process capabilities. Consider the tactical decision to change prices in response to a change in the marketplace, which lies at the heart of the macroeconomics literature on price rigidity (Carlton, 1986; Blinder *et al.*, 1998). The firm must figure out the competitive prices offered in the marketplace. Our perspective shows that this will be a difficult task, especially in industries in which sellers offer different prices to different groups of customers. Even if a firm manages to get accurate information, it has to decide whether it makes sense to match prices. Firms serving different customer segments, where these segments in turn are differentiated, face considerable uncertainty about the price elasticity and the relative profitability of these different groups of customers. This uncertainty is exacerbated because the pricing process involves personnel from different parts of the firm, who have different sets of information and assumptions about the customer. The firm's response will depend on its existing resources, skills, routines, and coordination mechanisms. Firms incapable of responding adaptively to price competition might lack the routines for resolving disputes internally. Effective price responses, then, depend on the capabilities to set or change prices.

A resource-based view of pricing might alter the way economists and marketers understand and model pricing. Beyond competing on price in the trenches of setting day-to-day prices, firms compete at a higher level, in their price-setting capabilities—the resources, skills, and routines that will define pricing outcomes well into these firms' futures. For economists, understanding price rigidity would depend on understanding the routines and coordination mechanisms that shape the price change process, and hence the costs of adjustment central to models of rigidity (Blinder *et al.*, 1998; Carlton, 1996; Ball and Mankiw, 1994; Rotemberg, 1982). For marketers, pricing strategy (Dolan and Simon, 1996; Nagle and Holden, 1997) would depend on the various forms of pricing a firm chose, but implementing those pricing forms would require that a firm develop price-setting capabilities.

Economics and marketing research could extend this resource-based view of pricing to consider how pricing process capabilities vary across industries and across different market structures. Research might compare industrial vs. consumer markets. We studied pricing process at a firm that makes 8000 products in the industrial market. The routines, coordination mechanisms, and interconnected resources we observed might differ

from those at an airline, where yield management is crucial, or in grocery stores, where customer prices are posted and therefore are easier to compare. Although the critical routines or coordination mechanisms may vary across different settings, the resources and capabilities a firm develops will define its ability to respond.

Our resource-based perspective on pricing reinforces the notion that strategy is essential to the allocative and adaptive role that markets play (Moran and Ghoshal, 1999). If the price-setting processes are strategic choices managers make, a firm's ability to allocate resources depends on the pricing process capabilities that managers choose to develop. From a strategic perspective, for example, we have argued that firms without effective pricing processes may be unable to appropriate value created. We have then extended that argument to suggest that managers need to balance their resource allocation between capabilities for value creation and for value extraction. Beyond the strategic implications for a firm, however, our perspective also has implications for economic perspectives on how markets allocate resources. For example, our view of pricing as a capability suggests that a firm's ability to set prices that accurately reflect what customers value depends on the pricing capability a firm has developed. Managers in a firm without effective pricing processes may be unable to set prices that reflect the wishes of their customers, so the customers may misuse resources. As such effects ripple through a supply chain or through a market sector, society may be worse off because resources are used inefficiently. Given that pricing processes shape pricing decisions, the very ability of markets to allocate resources rests in the hands of corporate strategists and managers, who make endogenous choices to build pricing capabilities. Our view of pricing as a capability therefore takes the resource-based-view straight to the heart of what is one central economic question, the effective use of resources.

ACKNOWLEDGEMENTS

The authors would like to thank Anne Marie Knott, Doug Miller, Joe Norsworthy, John Lafkas, Margaret Peteraf, Nicolaj Siggelkow, Om Narasimhan, Orv Walker, Sandeep Mangaraj, Sidney Winter, and Zachary Van Buren, for their helpful comments on previous versions of the paper. We also thank the marketing workshop participants at the University of California at Berkeley and at Tulane University for their comments. Special thanks to Daniel Levy and Mark Ritson for their insights and help in data collection. We also thank the various members of the organization for their help in collecting the data for the research. Finally, we thank the two anonymous reviewers for very helpful comments that greatly improved the clarity of the paper. We take responsibility for all remaining errors. The research was supported financially by the Marshall School of Business–USC, the University of Chicago, and the Reginald Jones Center at the Wharton School of the University of Pennsylvania.

REFERENCES

Ball L, Mankiw NG. 1994. Asymmetric price adjustment and economic fluctuations. *Economic Journal* **104**: 247–262.

Barney J. 1991. Firm resources and sustained competitive advantage. *Journal of Management* **17**: 99–120.

Blinder AS, Canetti ERD, Lebow DE, Rudd JB. 1998. *Asking About Prices: A New Approach to Understanding Price Stickiness*. Russell Sage Foundation: New York.

Brandenburger AM, Stuart HW Jr. 1996. Value-based business strategy. *Journal of Economics and Management Strategy* **5**: 5–24.

Carlton DW. 1986. The rigidity of prices. *American Economic Review* **76**: 637–658.

Cyert RM, March JG. 1963. *A Behavioral Theory of the Firm*. Prentice-Hall: Englewood Cliffs, NJ.

Dierickx I, Cool K. 1989. Asset stock accumulation and the sustainability of competitive advantage. *Management Science* **35**: 1504–1511.

Dolan RJ, Simon H. 1996. *Power Pricing: How Managing Price Transforms the Bottom Line*. Free Press: New York.

Eisenhardt KM. 1989. Building theory from case study research. *Academy of Management Review* **14**: 532–550.

Eisenhardt KM, Zbaracki MJ. 1992. Strategic decision making. *Strategic Management Journal*, Winter Special Issue **13**: 17–37.

Huberman AM, Miles MB. 1994. Data management, analysis methods. In *Handbook of Qualitative Research*, Denzin NK, Lincoln YS. (eds). Sage: London; 428–444.

Levy D, Bergen M, Dutta S, Venable R. 1997. The magnitude of menu costs: direct evidence from large U.S. supermarket chains. *Quarterly Journal of Economics* **112**: (August): 791–825.

McGee J, Thomas H. 1989. Strategic groups: a further comment. *Strategic Management Journal* **10**(1): 105–107.

Montgomery CA, Wernerfelt B. 1988. Diversification, Ricardian rents and Tobin's q. *Rand Journal of Economics* **19**(4): 623–632.

Moran P, Ghoshal S. 1999. Markets, firms, and the process of economic development. *Academy of Management Review* **24**(3): 390–412.

Nagle TT, Holden R. 1997. *The Strategy and Tactics of Pricing*. Prentice-Hall: Englewood Cliffs, NJ.

Pashigan BP. 1998. *Price Theory and Applications*. Irwin/McGraw-Hill: New York.

Peteraf MA. 1993. The cornerstones of competitive advantage: a resource-based view. *Strategic Management Journal* **14**(3): 179–191.

Rao A, Bergen M, Davis S. 2000. How to fight a price war. *Harvard Business Review* **78**(2): 107–116.

Rao V. 1984. Pricing research in marketing: the state of the art. *Journal of Business* **57**(1): S39–S60.

Rotemberg JJ. 1982. Sticky prices in the United States. *Journal of Political Economy* **90**: 1187–1211.

Teece DJ, Pisano G, Shuen A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal* **18**(7): 509–533.

Tripsas M, Gavetti G. 2000. Capabilities, cognition, and inertia: evidence from digital imaging. *Strategic Management Journal*, Special Issue **21**(10–11): 1147–1161.

Uzzi B. 1999. Embeddedness in the making of financial capital: how social relations and networks benefit firms seeking financing. *American Sociological Review* **64**: 481–505.

Wernerfelt B. 1984. A resource-based view of the firm. *Strategic Management Journal* **5**(2): 171–180.

Winter SG. 2000. The satisficing principle in capability learning. *Strategic Management Journal*, Special Issue **21**(10–11): 981–996.

