Customer Satisfaction, Market Share, and Profitability: Findings from Sweden

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Are there economic benefits to improving customer satisfaction? Many firms that are frustrated in their efforts to improve quality and customer satisfaction are beginning to question the link between customer satisfaction and economic returns. The authors investigate the nature and strength of this link. They discuss how expectations, quality, and price should affect customer satisfaction and why customer satisfaction, in turn, should affect profitability; this results in a set of hypotheses that are tested using a national customer satisfaction index and traditional accounting measures of economic returns, such as return on investment. The findings support a positive impact of quality on customer satisfaction, and, in turn, profitability. The authors demonstrate the economic benefits of increasing customer satisfaction using both an empirical forecast and a new analytical model. In addition, they discuss why increasing market share actually might lead to lower customer satisfaction and provide preliminary empirical support for this hypothesis. Finally, two new findings emerge: First, the market's expectations of the quality of a firm's output positively affects customers' overall satisfaction with the firm; and second, these expectations are largely rational, albeit with a small adaptive component.

Does higher customer satisfaction lead to superior economic returns? Widespread acceptance of this relationship is evident in the growing popular literature on quality and customer satisfaction, the increasing number of consulting and marketing research firms that promise to improve a client's ability to satisfy customers, and—perhaps most persuasively from a market-oriented perspective—the number of organizations actively using some form of customer satisfaction measurement in developing, monitoring, and/or evaluating product and service offerings, as well as for evaluating, motivating, and/or compensating employees.

However, at the level of the firm, recent empirical evidence casts doubt on whether companies' efforts to improve customer satisfaction and quality through implementation approaches such as total quality management (TQM) actually are having the desired effects. Specifically, several surveys point to the failure of TQM to enhance either economic returns or competitiveness. A study by the American Quality Foundation and Ernst & Young suggests that many companies are wasting their efforts in trying to improve quality (American Quality Foundation 1992). The consulting firms of A.T. Kearney and Arthur D. Little present equally disappointing findings in two separate studies: (1) 80% of more than 100 British firms reported "no significant impact as a result of TQM" and (2) almost two-thirds of 500 U.S. companies saw "zero competitive gains" (*The Economist* 1992).

If frustration with attempts to improve quality leads many business firms to abandon the Quality Movement (*Newsweek* 1992), the recent surge of interest in customer satisfaction is likely to follow the same path—unless it can be demonstrated that there are positive economic returns to improving customer satisfaction. Firms will appropriate resources for improving customer satisfaction only if the effects are of sufficient size, as measured by traditional accounting methods.

In view of these facts, it is not surprising that there is resurgent interest in understanding the links between quality, customer satisfaction, and firm performance (e.g., economic returns).[1] In a meta-analysis of strategy variables, Capon, Farley, and Hoenig (1990) identify 20 studies that find a positive relationship between quality and economic returns. For example, Buzzell and Gale (1987) and Phillips, Chang, and Buzzell (1983) each report a significant relationship between relative quality—as perceived by the business unit—and return on investment (ROI) for firms represented in the PIMS database. In the last few years, researchers have started to elaborate on the process by which delivering

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[1]In marketing, customer satisfaction long has been recognized as a central concept, as well as an important goal of all business activity. Satisfaction is a core concept in the American Marketing Association's official definition of marketing.

high-quality goods and services influences profitability through customer satisfaction. Building from the individual-level model of customer satisfaction proposed by Oliver (1980), several studies discuss and/or observe a strong link between customer satisfaction and loyalty (Anderson and Sullivan 1993; Bearden and Teel 1983; Boulding et al. 1993; Fornell 1992; LaBarbera and Mazursky 1983; Oliver and Swan 1989). Reichheld and Sasser (1990) discuss why increasing customer loyalty should lead to higher profitability. Rust and Zahorik (1993) empirically demonstrate the relationship between customer satisfaction and profitability for a health care organization.

Our purpose is to examine more closely the links between customer-based measures of firm performance—such as customer satisfaction—and traditional accounting measures of economic returns. Although there have been a few firm-specific studies (e.g., Rust and Zahorik 1993), this article represents the first large-scale examination of the relationship.

A unique feature of our empirical work is the set of customer-based performance measures for firms participating in the Swedish Customer Satisfaction Barometer (SCSB) (see Fornell 1992 for a description). The SCSB provides yearly firm-level indices of quality, expectations, and overall customer satisfaction for major competitors in a variety of product and service industries. Importantly, each firm's set of indices is an estimate based on an annual survey of current customers rather than a set of unstandardized numbers drawn from multiple "independent" sources (e.g., trade press, consumer advocates) or based on an internal, self-reported measure of quality. The SCSB provides a standard set of customer-based performance measures that can be matched to economic performance measures, such as market share and ROI.

Prediction of economic returns is one of the central purposes of the SCSB. The index is constructed using a methodology that maximizes the relationship between customer satisfaction and the likelihood of repeat purchase. It is important to note that this methodology distinguishes the SCSB measures from other common approaches used to combine the facets of customer satisfaction into a single index—unit weighting schemes or some variation of factor analysis (e.g., the J.D. Power Index for automobiles). The logic behind the SCSB methodology is to derive the weights with respect to a proxy for economic returns (e.g., customer loyalty), providing a better chance of predicting actual economic returns (Fornell 1992).

We begin by defining and discussing the links between quality, expectations, customer satisfaction, and profitability, as well as the relationship between customer satisfaction and market share. Next, the data and methodology are discussed. Finally, we present the findings and discuss their implications.

Customer Satisfaction and Profitability

How does satisfying current customers affect profitability? How do market expectations and experiences affect cus-

tomer satisfaction? In this section, we develop a conceptual framework linking customer-based measures of firm performance (e.g., customer satisfaction) with traditional accounting measures of economic returns, such as ROI.

Before proceeding, it is important to make clear what is meant by "customer satisfaction" in the context of this study. At least two different conceptualizations of customer satisfaction can be distinguished: transaction-specific and cumulative (Boulding et al. 1993). From a transaction-specific perspective, customer satisfaction is viewed as a post-choice evaluative judgment of a specific purchase occasion (Hunt 1977; Oliver 1977, 1980, 1993). Behavioral researchers in marketing have developed a rich body of literature investigating the antecedents and consequences of this type of customer satisfaction at the individual level (see Yi 1991 for a review). By comparison, cumulative customer satisfaction is an overall evaluation based on the total purchase and consumption experience with a good or service over time (Fornell 1992; Johnson and Fornell 1991). Whereas transaction-specific satisfaction may provide specific diagnostic information about a particular product or service encounter, cumulative satisfaction is a more fundamental indicator of the firm's past, current, and future performance. It is cumulative satisfaction that motivates a firm's investment in customer satisfaction. Because the focus here is on the relationship between customer satisfaction and economic returns, our theoretical framework treats customer satisfaction as cumulative.

What is quality and how is it distinct from customer satisfaction? In this study, perceived quality is taken to be a global judgment of a supplier's current offering (Steenkamp 1989). This is similar in spirit to the position taken by Zeithaml (1988, p. 3) in summarizing an extensive review of the literature on quality: "Perceived quality can be defined as the consumer's judgment about a product's overall excellence or superiority." However, it is worth noting that there are several distinct conceptualizations of quality (Holbrook 1994). In marketing and economics, quality often has been viewed as dependent on the level of product attributes (e.g., Hauser and Shugan 1983; Rosen 1974). In operations management (e.g., Garvin 1988; Juran 1988), quality is defined as having two primary dimensions: (1) Fitness for use—Does the product or service do what it is supposed to do? Does it possess features that meet the needs of customers? and (2) Reliability—To what extent is the product free from deficiencies? In the services literature in marketing, quality is viewed as an overall assessment (e.g., Parasuraman, Zeithaml, and Berry 1985). Service quality in this context is believed to depend on gaps between delivered and desired service on certain dimensions.

The theoretical framework presented here views customer satisfaction as distinct from quality for several reasons. First, customers require experience with a product to determine how satisfied they are with it. Quality, on the other hand, can be perceived without actual consumption experience (Oliver 1993). Second, it has been long recognized that customer satisfaction is dependent on value (Howard and Sheth 1969; Kotler and Levy 1969), where value can be viewed as the ratio of perceived quality relative to price

or benefits received relative to costs incurred (Dodds, Monroe, and Grewal 1991; Holbrook 1994; Zeithaml 1988). Hence, customer satisfaction is also dependent on price, whereas the quality of a good or service is not generally considered to be dependent on price. Third, we view quality as it pertains to customer's current perception of a good or service, whereas customer satisfaction is based on not only current experience but also all past experiences, as well as future or anticipated experiences. Finally, there is ample empirical support for quality as an antecedent of customer satisfaction (e.g., Anderson and Sullivan 1993; Churchill and Suprenant 1982; Cronin and Taylor 1992; Fornell 1992; Oliver and DeSarbo 1988).

Overview of the Theoretical Framework

The theoretical framework developed in the remainder of this section can be summarized in the general set of equations presented in Table 1. Profitability at time t is positively affected by customer satisfaction, as well as other factors (e.g., past values of the dependent variable, economic conditions, firm-specific factors, luck, error). Customer satisfaction, in turn, is positively affected by market expectations and experiences. Finally, current market expectations are positively related to both historical expectations and the market's experiences with quality in the most recent period. The nature of each of these relationships is discussed subsequently.

How Does Customer Satisfaction Affect Profitability?

Fornell (1992) enumerates several key benefits of high customer satisfaction for the firm. In general, high customer satisfaction should indicate increased loyalty for current customers, reduced price elasticities, insulation of current customers from competitive efforts, lower costs of future transactions, reduced failure costs, lower costs of attracting new customers, and an enhanced reputation for the firm. Increased loyalty of current customers means more customers will repurchase (be retained) in the future. If a firm has strong customer loyalty, it should be reflected in the firm's economic returns because it ensures a steady stream of future cash flow (Reichheld and Sasser 1990).

The more loyal customers become, the longer they are likely to continue to purchase from the same supplier. The cumulative value of a loyal customer to a firm can be quite high. For example, consider the lunch habits of three colleagues that regularly patronize a restaurant close to their workplace. If the average price of a meal is $6 and the trio visits the restaurant three times a week, the annual revenue received by the establishment is in the neighborhood of $2,700. One hundred similarly loyal customers would be worth $90,000. This group would be worth almost a half million dollars over the next five years—even if they all colluded to keep the restaurant a secret from other potential customers. The net present value of the expected margin from these customers reflects their asset value to the restaurant. Increasing customer satisfaction increases the value of a firm's customer assets and future profitability.

$$\text{EXPECTATIONS}_t = f_1 (\text{EXPECTATIONS}_{t-1}, \text{QUALITY}_{t-1}, \zeta_{1t})$$

$$\text{SATISFACTION}_t = f_2 (\text{QUALITY}_t, \text{PRICE}_t, \text{EXPECTATIONS}_t, \zeta_{2t})$$

$$\text{PROFITABILITY}_t = f_3 (\text{SATISFACTION}_t, \zeta_{3t})$$

where ζ_{it} = vector of other factors (e.g., environmental trends, firm-specific factors, error)

Customer satisfaction should reduce price elasticities for current customers (Garvin 1988). Satisfied customers are more willing to pay for the benefits they receive and are more likely to be tolerant of increases in price. This implies high margins and customer loyalty (Reichheld and Sasser 1990). Low customer satisfaction implies greater turnover of the customer base, higher replacement costs, and, due to the difficulty of attracting customers who are satisfied doing business with a rival, higher customer acquisition costs. Decreased price elasticities lead to increased profits for a firm providing superior customer satisfaction.

High customer satisfaction should lower the costs of transactions in the future. If a firm has high customer retention, it does not need to spend as much to acquire new customers each period. Satisfied customers are likely to buy more frequently and in greater volume and purchase other goods and services offered by the firm (Reichheld and Sasser 1990).

Consistently providing goods and services that satisfy customers should increase profitability by reducing failure costs. A firm that consistently provides high customer satisfaction should have fewer resources devoted to handling returns, reworking defective items, and handling and managing complaints (Crosby 1979; Garvin 1988; TARP 1979, 1981).

The costs of attracting new customers should be lower for firms that achieve a high level of customer satisfaction (Fornell 1992). For example, satisfied customers are reputedly more likely to engage in positive word of mouth, and less likely to engage in damaging negative word of mouth, for the firm (Anderson 1994b; Howard and Sheth 1969; Reichheld and Sasser 1990; TARP 1979, 1981). Media sources are also more likely to convey positive information to prospective buyers. Customer satisfaction claims may make advertising more effective, and high customer satisfaction may allow the firm to offer more attractive warranties.

An increase in customer satisfaction also should enhance the overall reputation of the firm. An enhanced reputation can aid in introducing new products by providing instant awareness and lowering the buyer's risk of trial (Robertson and Gatignon 1986; Schmalansee 1978). Reputation also can be beneficial in establishing and maintaining relationships with key suppliers, distributors, and potential allies (Anderson and Weitz 1989; Montgomery 1975). Reputation can provide a halo effect for the firm that positively influences customer evaluations, providing insulation from short-term shocks in the environment. Customer satisfaction should play an important role in building other

important assets for the firm, such as brand equity (Aaker 1992; Keller 1993).

The first hypothesis of the model can be stated as follows:

H₁: Customer satisfaction has a positive effect on economic returns.

Although there are many compelling reasons to conclude that higher customer satisfaction leads to higher profitability, it is, nevertheless, not always the case. At some point there must be diminishing returns to increasing customer satisfaction. For example, many companies seek to increase customer satisfaction by investing in quality control. There are many economic benefits associated with this activity (e.g., less rework, lower warranty costs). Yet quality control is likely to have its greatest impact when reliability is relatively low, and there may come a point when the costs associated with reducing the probability of defects will be greater than the benefits to the firm.

There is also evidence that conformity to specifications is not as important in determining overall customer satisfaction as the design of a product or service in meeting customer needs (Anderson and Sullivan 1993). Given that increasing quality and customer satisfaction by design (e.g., adding features, increasing the quality of raw materials and/or level of features, increasing the level of personal service, providing greater variety by differentiating the product line to meet needs) is likely to increase costs at an increasing rate (Shugan 1989), it is likely that there are diminishing returns to efforts to improve product or service quality and customer satisfaction.

Firm-Level Antecedents of Customer Satisfaction

As Table 1 indicates, customer satisfaction is affected by overall quality, price, and expectations. At the individual customer level, several studies have shown that perceived quality affects customer satisfaction (Anderson and Sullivan 1993; Bearden and Teel 1983; Bolton and Drew 1991; Cadotte, Woodruff, and Jenkins 1987; Churchill and Suprenant 1982; Fornell 1992; Oliver and DeSarbo 1988; Tse and Wilton 1988). This relationship is intuitive and fundamental to all economic activity. Aggregated to the firm level, customers' current experience with a supplier's offering also should have a positive influence on their overall assessment of how satisfied they are with that supplier.

In addition, price plays an important role in this relationship. The received value of a supplier's offering—that is, quality relative to price—has a direct impact on how satisfied customers are with that supplier (Anderson and Sullivan 1993; Fornell 1992; Sawyer and Dickson 1984; Zeithaml 1988). Anterasian and Phillips (1988) discuss the role of value in driving overall business performance. In both our conceptualization and measurement of quality, it is important to consider the relationship between quality and price. In our empirical work, in view of the proposition that price affects satisfaction and the possibility of confounding effects of a price-quality relationship—as well the need to compare the hedonic value of quality across categories (Lancaster 1979; Rosen 1974)—each construct is measured

relative to the other (Fornell 1992). The resulting index measures the value received by customers. The expected relationship between quality and satisfaction can be summarized as follows:

H₂: The current level of quality as perceived by the market should have a positive effect on overall customer satisfaction.

Expectations about the quality of goods and services also should have a positive impact on customer satisfaction. At the aggregate level of analysis here, *expectations* captures the accumulated knowledge of the market concerning a given supplier's quality. Just as current quality is expected to have a positive influence on overall customer satisfaction, so should all past experiences with quality, as captured by expectations. In addition, expectations contain information based on not actual consumption experience but accumulated information about quality from outside sources, such as advertising, word of mouth, and general media. Like past experience, positive information about past quality should affect customer satisfaction positively.

In addition, in forming expectations, consumers use past experience and nonexperiential information to construct forecasts of the supplier's ability to deliver quality in the future. This role of expectations is important because the nature of the ongoing relationship between a firm and its customer base is such that expected future quality is critical to customer satisfaction and retention as it relates to long-term relationships with customers (Bateson 1989; Czepiel and Gilmore 1987; Gronroos 1990; Lovelock 1984; Shostack 1977). In durable goods categories, customer satisfaction depends on both whether the currently owned product will continue to meet customer needs and the anticipated quality of future service. In service industries, client satisfaction with the vendor depends on the anticipated quality of future service as well as the ability of the service to provide for future needs. This forecast component of expectations also argues for a positive impact of expectations on satisfaction.

The preceding factors suggest that we should expect the aggregate measure of expectations used here to have a positive impact on overall customer satisfaction. Although there may be individual differences affecting expectations at the individual level, such differences should cancel out in the aggregate (Katona 1979). In aggregating expectations across customers to the level of the firm, expectations should reflect more accurately both a firm's reputation for providing high (or low) quality and its ability to do so in the future.

The U.S. auto industry provides an interesting example of the effects of expectations on customer satisfaction. The reputation of Detroit's products suffered in the 1970s and a good portion of the 1980s. Past negative experiences, broadly disseminated through word of mouth and media sources, contributed to lower overall expectations with the products and service that accompanies them. It is likely that overall customer satisfaction in the late 1980s was therefore lower due to not only customers' experiences in the 1970s and 1980s, but also *anticipated* lower quality. A case in point is the Mercury Tracer and Mazda 323, two virtually identical cars. Mazda customers were more satisfied over-

all, ceteris paribus, because Mazda customers had higher expectations than Mercury customers (e.g., continued reliability, durability, positive service encounters). This, of course, is contradictory to the pervasive belief that firms that exceed their customers' expectations will enjoy an immediate increase in customer satisfaction, but it is consistent with the cumulative notion of satisfaction.

The arguments advanced here differ from those associated with the transaction-specific conceptualization of customer satisfaction. In a transaction-specific situation, we might expect an increase (decrease) in a consumer's expectations to lead to a short-term fall (rise) in that consumer's satisfaction with a specific transaction. In the context of cumulative customer satisfaction, the long-run effects of increased (decreased) expectations should outweigh this short-term effect and lead to a rise (fall) in overall customer satisfaction. Overall customer satisfaction aggregates customer experiences over time, and we expect the effect of any temporary disconfirmation of expectations to be marginal (Anderson and Sullivan 1993). Our firm-level measures of customer satisfaction also aggregate across customers, and, unless disconfirmation is systematic and widespread, positive and negative experiences should cancel out and their effect on overall satisfaction should be marginal. Due to this aggregation process, we expect overall satisfaction to be reflective of actual past levels of perceived quality or delivered value and forecasted future quality, rather than dominated by the effects of any perceived gap between current quality and expectations. This argument is persuasive from a competitive perspective as well, because expectations and perceived quality cannot remain out of sync for very long in a mature, competitive market. If expectations are too low, the firm will not attract customers and, consequently, new sales will not develop. If expectations are too high, customers will buy, become dissatisfied, and switch to competitive products, and, again, the firm will have deficient sales. At any given time, therefore, the difference between actual quality and expectations at the aggregate level should be small.

Although the present aggregate-level study does not allow us to evaluate the efficacy of these arguments completely—such as comparing the relative importance of the negative influence of expectations on satisfaction by a perceived gap between quality and expectations versus the importance of the positive direct impact of expectations on customer satisfaction—we nonetheless expect to find that the latter effect is stronger and the impact of expectations on cumulative customer satisfaction is positive. At the same time, it is worth noting that the conclusions reached previously are not without support. The preceding argument leads to the same conclusion reached by Boulding and colleagues (1993) in an individual-level study of the effects of expectations on overall judgments. Their argument for how "will expectations" (expectations of what quality service will be like, as distinct from what quality should be like) affect quality perceptions is based on an adaptation mechanism (Helson 1964; Oliver 1980), in a manner analogous to an assimilation effect (Anderson and Sullivan 1993). The market level argument presented here is different in that the effect of the market's expectations on customers' overall satisfaction at time t also depends on a forecast of what quality will be like in t + 1, t + 2, ..., as well as the impact of all past quality experiences from t − 1, t − 2, ... Overall customer satisfaction with a particular firm is a function of all past, current, and future experience:

H₃: The market's expectation of the quality of a supplier's offering should have a positive effect on overall customer satisfaction.

Customers' Expectations of the Firm's Quality Are Adaptive

The experiences of customers in a previous period t − 1 should have a positive influence on buyer's expectations of quality in the current period t. Customers are likely to update expectations on the basis of both past experience and other types of nonexperiential information. This updating process is consistent with the notion of adaptive expectations found in both psychological and economic research. Oliver and Winer (1987) provide a comprehensive review of different approaches to modeling the updating of expectations. Johnson, Anderson, and Fornell (1994) compare alternative approaches for modeling expectations and find that expectations are very nearly rational in character but that they are adjusted over time in an adaptive manner (Lucas 1973; Muth 1961; Taylor 1979). That is, the market considers all available information concerning quality and continually updates expectations in an efficient manner save for "imperfections" (e.g., uncertainty, costs) that impede the flow of information and result in a small updating effect that gives the appearance of being adaptive.

The relative size of the adaptive updating effect is important and depends on both production and consumption factors (Anderson 1994a; Anderson and Sullivan 1993). On the production side, greater temporal variation in quality should imply a greater updating effect. For example, a high rate of innovation or technological change may provide shocks that require the market to revise expectations. Quality also may change because of period-to-period fluctuations in materials, production, or the service delivery system (e.g., business cycles). Conversely, there should be less of an updating or learning effect when there is greater stability. In this case, the market's expectations (based on similar past experiences) should mirror the level of quality experienced in the current period.

On the consumption side, the market's degree of uncertainty regarding a particular product or service encounter can influence the size of the updating coefficient. For example, where there is little familiarity or expertise among current customers, it is more likely that the updating effect will be large. The mix of newly acquired versus repeat customers consequently can influence the size of the updating coefficient, as can frequency of purchase, the stage of market evolution, or shifting sociodemographic factors. For some products, market information concerning the quality of the good or service may be costly or difficult to obtain without experience (Darby and Karni 1973; Nelson 1970; Zeithaml 1981). In attracting new customers, advertising itself also can influence the size of the updating effect. Although advertising may not necessarily distort expectations (e.g., puff-

ery), it is unlikely to provide complete information. Customers may be attracted by a limited set of particular benefits stressed in advertising, but they must experience the product or service to learn more fully about quality—and then may revise expectations accordingly. A similar argument might be constructed for the efficiency of word of mouth in conveying information about quality.

Uncertainty also can arise if it is difficult for customers to predict what their consumption experiences will be like over time. This may be the case if a product or service has important experience attributes (attributes that must be experienced to be evaluated) or credence attributes (those that are very difficult to evaluate and force the customer to rely on the product's reputation to evaluate them) (Darby and Karni 1973; Nelson 1970; Zeithaml 1981). If certain aspects of quality are unobservable or difficult to anticipate, it may be problematic for the market to predict future quality. Expectations of quality for a particular firm would be updated as information about actual quality becomes available. For example, automobile customers learn about durability, reliability, and quality of service over time. Personal computer users are likely to encounter unanticipated benefits and difficulties as new applications are identified and complementary products develop. Customers may have to adapt as the nature of an offering becomes apparent. In contrast, if information is relatively complete and easy to obtain, the period-to-period updating effect at the market level should be small. Similarly, there may be less updating if variation in production or consumption is indistinguishable from white noise. This might be the case if a product or service is difficult to standardize or quality is difficult for buyers to evaluate (Anderson 1994a; Anderson and Sullivan 1993; Deighton 1984; Hoch and Ha 1984).

It can be surmised from these statements that the size of the updating effect depends largely on the rate at which quality changes over time and the market learns. The rate of learning or adjustment by the market is not likely to be instantaneous—as it might be if the market were perfectly efficient—due to the cost of acquiring information and the effects of uncertainty discussed previously. Another implication is that the updating effect should be small relative to the cumulative effect of all past information. In Sweden, as in other industrialized nations, most industries are mature. In more mature markets, production-side factors are such that quality is relatively stable—even though the most highly evolved (or complacent) competitors in these industries certainly have been forced to change during the period of the study. Customers in mature markets may have greater experience with and knowledge of quality (Johnson and Fornell 1991). This implies that the updating coefficient, representing the relative weight given by the market to the most recent information about quality, should be small relative to the size of the coefficient of lagged expectations, that is, the relative weight given by the market to all past information about quality.

We argue that the processes described previously should lead to a similar finding at the firm level, just as Boulding and colleagues (1993) find evidence for a small updating effect at the individual level. The competitive argu-

ments advanced in the previous section also provide a compelling argument for a relatively small updating coefficient. The difference between the market's expectations and actual experiences with quality cannot be great for long periods of time or the firm will not survive.

The preceding arguments can be summarized as follows:

H_4: The marketplace has adaptive expectations concerning the quality of a supplier's offering. The size of the adaptive updating effect should be small.

Relative Importance of Quality and Expectations

If both current quality and expectations have a positive impact on customer satisfaction, then which effect should we expect to be stronger? If expectations primarily represent past quality experiences and/or nonexperiential quality information, we would expect current quality to have a greater impact for several reasons. First, current quality experiences should be more salient and take precedence over past quality experiences in determining customer satisfaction. Actual experience with a good or service should outweigh other information, especially in the aggregate. In addition, perceived quality is measured in our study as perceived quality relative to price and contains additional information that expectations do not contain. Finally, Oliver (1989) argues that transaction-specific satisfaction for ongoing consumption activities (durable goods, services, and repeatedly purchasing packaged goods) should be primarily a function of perceived performance. Expectations should be passive and have a minimal effect on satisfaction under these conditions (Bolton and Drew 1991; Oliver 1989). In such situations, the level of and even degree of variation in quality is well known to customers. This same argument has even greater force when the focus is on cumulative customer satisfaction. Cumulative customer satisfaction is based on many experiences. Customer knowledge, particularly in relatively mature and stable markets, should be such that expectations should accurately mirror current quality. The contribution of expectations to customer satisfaction should be mainly in the form of predicting future quality. Unless there is uncertainty with regard to future quality, the contribution of expectations to overall customer satisfaction should be minimal (Anderson 1994a). In the extreme, expectations provide no additional information.

Sweden's economy is well developed. The selected categories are mature, even though these categories are competitive and subject to change—as well as perceived with a limited degree of uncertainty—and information flows relatively freely. Accordingly, just as we expect the updating of expectations from period to period to be small, we argue the following:

H_5: The impact of perceived quality on overall customer satisfaction should be relatively greater than the impact of expectations about quality.

Customer Satisfaction and Market Share

Intuitively, customer satisfaction and market share might be expected to go hand in hand. Buzzell and Wiersema (1981a, b) find relative quality and market share to be posi-

tively related for firms in the PIMS database (though recent work by Szymanski, Bharadwaj, and Varadarajan [1993] suggests this may be the case only for PIMS data or when the employed methodology does not control for "unobservables"). The same type of relationship might be expected for customer satisfaction. For example, high customer satisfaction should help in attracting as well as retaining customers.

However, it is not clear that high customer satisfaction and high market share are always compatible. Fornell (1992) and Griffin and Hauser (1993) discuss the possibility of a negative relationship between customer satisfaction and market share. They argue that whereas a small market-share firm may serve a niche market quite well, a large market-share firm must serve a more diverse and heterogeneous set of customers. At least two primary forces are at work in determining whether the relationship between customer satisfaction and market share is positive or negative. First, increasing market share, at least up to a point, can produce economies of scale. This, for example, may allow the firm to charge lower prices, thus increasing the value of the firm's offering and consequently increasing customer satisfaction. By contrast, there may be a dilution of effort that goes with trying to serve an increasing number of customers and/or segments. This dilution could lead to low-quality service and is likely to occur in industries in which customer preferences are heterogeneous and/or personal service is important. In undifferentiated industries with homogeneous customer preferences, it is more likely that customer satisfaction and market share are positively related, especially in the long run.

It is instructive to examine these arguments for the cases of firms pursuing different "generic" strategies—differentiation, niche, and low-cost leadership—as originally categorized by Porter (1980). Firms following pure niche strategies are likely to be more successful at satisfying customers than those pursuing other strategies. Although it is true that firms can differentiate their offerings to meet the needs of multiple segments, it may become difficult or costly to do so without diluting the quality of what is provided (e.g., personal service). As a firm grows by bringing in customers with preferences further away from the firm's target market, the overall level of customer satisfaction is likely to fall.

It is worth noting that this situation is complex because of the dual impact of quality and price on satisfaction. For example, in a market in which there is a relatively large price-sensitive segment with homogeneous needs, a low-cost leader may provide a level of value that creates a relatively high level of customer satisfaction. There is clearly a need for understanding the trade-offs in such situations (e.g., price elasticity versus quality elasticity of returns), if there are conditions under which customer satisfaction and market share are negatively related. If lowering price can attract customers that become less satisfied while increasing the satisfaction of the current customer base, then what are the marginal effects of the additional customers on overall satisfaction and profitability?

In summary, the relationship between customer satisfaction and market share is an emerging issue in need of greater understanding. Achieving success in one may lower performance in the other. Market share can be gained by attracting customers with preferences more distant from the target market. Service capabilities also can be overextended as volume grows. Market share effects on profitability are equally problematic (see Szymanski, Bharadwaj, and Varadarajan 1993 for a review of the market share-profitability relationship). Clearly, there can be situations in which increasing one and/or the other is not profitable for the firm. For example, an extreme approach for maximizing customer satisfaction would be to eliminate all but one customer and direct all resources to that individual. Obviously, it would be a rare set of circumstances under which it would be profitable to do so. Conversely, a high market share or "one size fits all" strategy is likely to be profitable only if enough customers have similar preferences. It is also possible that differentiation may fail to provide higher satisfaction due to the difficulty of serving multiple customers within each segment and the dilution of effort that comes from serving multiple segments. A firm that manages both to provide high customer satisfaction by customizing its offering to each customer and maintain a large market share would have to enjoy very high economies of scope and scale. Another way to think about this issue is to consider what the small niche firm has to do to be successful. Providing superior customer satisfaction is critical for its survival.

Data and Methodology

Description of the Data

Annual indices of firm-level expectations, quality, and customer satisfaction are made available by the SCSB. Initiated in 1989, the SCSB is an ongoing project managed by the National Quality Research Center (NQRC) at the University of Michigan Business School and the International Center for Studies of Quality and Productivity (ICQP) at the Stockholm School of Economics. The 77 firms included in our NQRC study are all major competitors in a wide variety of industries: airlines, automobiles, banking (consumer and business), charter travel, clothing retail, department stores, furniture stores, gas stations, insurance (life, auto, and business), mainframe computers (business), PCs (business), newspapers, shipping (business), and supermarkets. The companies surveyed in each industry are the largest share firms such that cumulative share is approximately 70%. Several state-owned monopolies are also measured by the SCSB but are not included in this study.

The measurements in the SCSB begin with a computer-aided telephone survey designed to obtain a representative sample of customers for each firm. Potential respondents are selected on the basis of recently having purchased and used a company's product. To participate, each respondent is required to pass a battery of screening questions. The questionnaire employs 10-point scales to collect multiple measures for each construct. For example, for the quality construct, respondents are asked to evaluate quality given price and price given quality in two separate questions. This pro-

cess results in approximately 25,000 observations per variable (for each year) from which indices are constructed. Fornell (1992) describes a latent variable approach to estimating the indices.

The SCSB measures are combined with economic returns data for the publicly held firms. Specifically, ROI for each firm (that is, return on assets located in Sweden) is used as a measure of economic returns. Unusual or extraordinary returns are treated as outliers. To make the fullest possible use of the available data, missing values are treated as having the same correlation as the values present in the data set. In other words, the distributions of the variables are treated as censored and a covariance matrix is created as a basis for estimation.

Clearly, there are difficulties in combining the data sets. For example, the ROI data are for a business as a whole rather than a specific product measured by the SCSB. Although this is not a serious issue for the retail and service sectors, it is a concern for firms with more diverse product lines, such as the automobiles. Although ROI is commonly used in studies of the impact of strategic variables, it is not an ideal measure of economic returns. Capital market data (stock prices) would have been another interesting measure if a large portion of the SCSB firms were actively traded in Sweden or transacted most of their business there.

Testing the Hypotheses

The system of equations to be estimated is presented in Table 2. In keeping with the arguments advanced in the previous section, expectations are influenced by past quality, customer satisfaction is influenced by both quality and expectations, and economic returns are influenced by satisfaction. Obviously, there are other variables besides customer satisfaction that affect economic returns. The effects of these variables are captured in the lag structure, the error term, and a trend term. If the marketplace has adaptive expectations, then we should expect the coefficient for the impact of past quality $QUAL_{n-1}$ on expectations EXP_t to be positive $1 > \beta_{12} > 0$. (To test the adaptive expectations model, we restrict the coefficients such that $\beta_{12} = 1 - \beta_{11}$.) For customer satisfaction SAT_t we expect the impact of both current quality $QUAL_t$ and EXP_t to be positive, $\beta_{22} > 0$ and $\beta_{23} > 0$. The effect of current quality on customer satisfaction should be greater than that of expectations, $\beta_{22} > \beta_{23}$. The impact of SAT_t on profitability as measured by return on assets ROI_t is expected to be positive, $\beta_{32} > 0$. This latter relationship is predictive in that the survey measuring customer satisfaction is conducted in the first half of the fiscal year and economic returns are based on year-end financial reporting. As logarithms are taken of each variable, the estimated coefficients are interpretable as elasticities.

Specification

To account for heterogeneity in the cross-section of industries (e.g., differences in accounting practices, industrial organization considerations) and possible unobservable effects (e.g., firm strategy, pioneering advantage), the system is formulated as state dependent (Amemiya 1985; Boulding 1990; Jacobsen 1990a, b; Maddala 1977). This formulation

TABLE 2
System of Equations Underlying the Conceptual Framework

Lagged Dependent Specification
$EXP_t = \alpha_1 + \beta_{11}EXP_{t-1} + \beta_{12}QUAL_{t-1} + \beta_{13}TREND + \varepsilon_{1t}$
$SAT_t = \alpha_2 + \beta_{21}SAT_{t-1} + \beta_{22}QUAL_t + \beta_{23}EXP_t + \beta_{24}TREND + \varepsilon_{2t}$
$ROI_t = \alpha_3 + \beta_{31}ROI_{t-1} + \beta_{32}SAT_t + \beta_{33}TREND + \varepsilon_{3t}$

First Differences Specification
$\Delta EXP_t = \beta_{12}\Delta QUAL_{t-1} + \beta_{13}TREND + \varepsilon_{1t}$
$\Delta SAT_t = \beta_{22}\Delta QUAL_t + \beta_{23}\Delta EXP_t + \beta_{24}TREND + \varepsilon_{2t}$
$\Delta ROI_t = \beta_{32}\Delta SAT_t + \beta_{33}trend + \varepsilon_{3t}$

reflects the expected persistence of the benefits of customer satisfaction for the firm (consistent with the overall or cumulative nature of satisfaction focused on in this study). This specification is also consistent with the argument that the marketplace has adaptive expectations. Finally, it fits with the intuitive notion of Ricardian Rents resulting from high customer satisfaction (Montgomery and Wernerfelt 1988). Accordingly, the endogenous variable in each equation is regressed on its lagged quality and a set of independent variables capturing the appropriate effects.[2] In view of the existence of simultaneity and expected correlation between the errors of the equations, three-stage least squares is used to estimate the model.

It is worth noting that a common—and conservative—correction for controlling for heterogeneity and unobservables in short cross-sectional time-series data is to transform the data through first differences (Maddala 1977). (This specification restricts $\beta_{11} = \beta_{21} = \beta_{31} = -1$.) It should be pointed out that this specification is more consistent with a transaction-specific conceptualization of customer satisfaction. It implies that short-term changes in quality and expectations have immediate rather than long-term consequences for customer satisfaction and ultimately profitability. We therefore expect expectations to have a negative effect on customer satisfaction in this specification.

Results

Table 3 presents three-stage least squares estimates for the two specifications. The findings generally confirm the pattern of effects as hypothesized. Let us first discuss the findings relating quality and expectations to satisfaction and then turn our attention to the effect on economic returns. With regard to the first equation of each specification, the coefficients support the idea of adaptive expectations. The relative size of the coefficients for the impact of past expectations EXP_{t-1} and past quality $QUAL_{t-1}$ on current expectations EXP_t is consistent with how one would expect a firm's reputation for quality to change over time. Although

[2]For longer time-series, potential methods of controlling for unobservables are the family of error-component models (Amemiya 1985) and latent-class pooling methods (Ramasway, Anderson, and DeSarbo 1994).

TABLE 3
Empirical Findings

All coefficients are three-stage least squares estimates.

Lagged Dependent Specification— Weighted R-square is .82

$EXP_t = .01^* + .91^* EXP_{t-1} + .09^* QUAL_{t-1} - .003^* TREND$

$SAT_t = -.12 + .44^* SAT_{t-1} + .49^* QUAL_t + .10^* EXP_t - .003^* TREND$

$ROI_t = -1.10^* + .75^* ROI_{t-1} + .40^* SAT_t + .002 TREND$

First Differences Specification— Weighted R-square is .35

$\Delta EXP_t = .11^* \Delta QUAL_{t-1} - .011^* TREND$

$\Delta SAT_t = .72^* \Delta QUAL_t - .50^* \Delta EXP_t + .000 TREND$

$\Delta ROI_t = .76^* \Delta SAT_t - .001 TREND$

*indicates the coefficient is significant at the .01 level.

expectations are fundamentally stable, changes in the level of quality provided by a firm will enhance or erode the company's reputation for quality over time. The estimates presented in Table 3 suggest that though the market eventually will revise its expectations completely (the long-run elasticity of expectations with respect to changes in past quality is restricted to be one), this will be a slow process for the typical firm. Conversely, there appears to be considerable momentum for the current level of expectations. The stability of expectations suggests that a firm's reputation for providing quality will not change quickly.

As seen in the second equation of Table 3, both quality and expectations have a positive impact on customer satisfaction.[3] For the state-dependent or persistence formulation, these effects are not only in the predicted direction, but also of the predicted relative size. In fact, the estimates suggest that current customer satisfaction is primarily a function of (1) current quality and (2) past satisfaction. Quality has the greatest impact on customer satisfaction, according to both specifications. The importance of current quality in determining customer satisfaction is consistent with the notion that current experience will be weighted more highly than past or anticipated experience.

In the first specification, the size of the effect of lagged customer satisfaction indicates a strong carryover effect. For every percentage point change in customer satisfaction at t–1, customer satisfaction at t changed by .44%. This suggests that high past satisfaction of current customers provides a strong indication that current and consequently future customer satisfaction will be high. Interestingly, the estimate of a carryover effect of .44 is very nearly identical to the average carryover effect for sales, .468, as estimated in the meta-analysis of Assmus, Farley, and Lehmann (1984).

[3]It is worth noting that the methodology here produces similar substantive results to other methods of controlling for fixed effects (e.g., instrumental variables). The exception is the size of the coefficient for the effect of customer satisfaction on ROI. This coefficient is significantly larger when instrumental variable methods are used (Anderson, Fornell, and Lehmann 1993).

A sizeable carryover effect supports the notion that customer satisfaction is indeed cumulative. The implication is that high customer satisfaction insulates the firm from short-term changes in quality. The strong carryover effect of past customer satisfaction also means that it is time-consuming for firms with low customer satisfaction to improve their standing in the market.

The effect of expectations of quality on customer satisfaction is positive and significant, as well as relatively small. For every percentage point change in expectations, customer satisfaction changes by .10%. This is supportive of the argument for adaptive expectations. Expectations adapt slowly and provide incremental information to that provided by quality. In particular, in modeling customer satisfaction as a long-term, dynamic phenomenon, the carryover effect of past satisfaction naturally captures information about past experience with quality, leaving expectations with a relatively marginal effect that can be interpreted as the effect of the market's forecast of future quality on current satisfaction.

It is important to note that the sign of the impact of expectations on customer satisfaction is reversed in the first-differences specification (i.e., negative), which implies that a short-term increase in expectations actually may lead to a decrease in customer satisfaction. That is, increasing customer expectations by overpromising is likely to be detrimental to the firm in the short run, whereas increasing customer expectations through improving quality benefits the firm in the long run.

Return on investment, a long-term measure of economic health, is strongly affected by customer satisfaction. This is true for both specifications. However, the interpretation of the two specifications is different. The lagged-dependent variable specification implies that a change in customer satisfaction is not reflected all at once in returns. Rather, a percentage point change in customer satisfaction in one period carries over to future periods, consistent with the cumulative nature of customer satisfaction. The first-differences specification, on the other hand, implies that there is a larger immediate effect from a change in customer satisfaction, but that this advantage is short-lived and unsustainable. Nevertheless, both findings suggest that providing high quality and high customer satisfaction is rewarded by economic returns. Moreover, the log-linear formulation implies that if the costs of providing high quality and customer satisfaction are increasing at an increasing rate, then there must be an optimal level of satisfaction. Obviously, then, strategies that seek to maximize customer satisfaction are inappropriate.

How do these figures compare with other studies examining the impact of marketing mix variables on ROI? Buzzell and Gale (1987) report an impact coefficient for relative quality on ROI of .11. We can transform this value into an average elasticity of ROI with respect to quality by using their mean values of ROI and quality. This calculation yields an average short-run elasticity for ROI with respect to quality of .25. The coefficients in Table 3 can be used to compare our findings with this figure. To obtain an estimate of the short-run impact of a change in quality on

FIGURE 1
Returns due to Increased Satisfaction

One Point Increase In Each Year
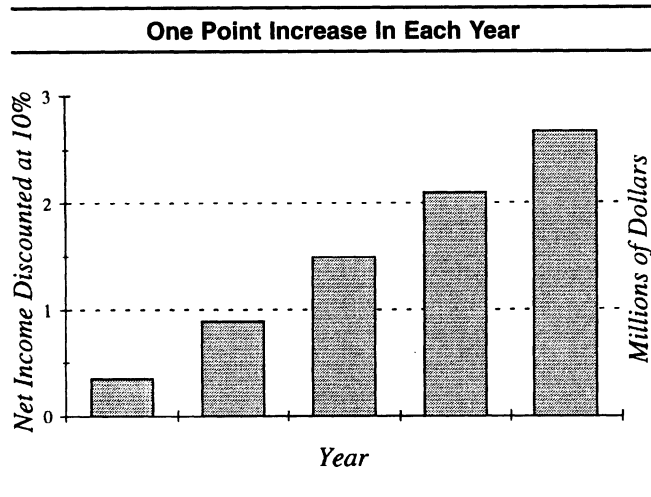
ROI, we calculate the elasticities in the chain from quality to ROI. Here, the short-run elasticity of ROI with respect to quality is .49(.40) = .196. Hence, we find an elasticity of ROI with respect to quality comparable to, though slightly smaller than, that found in the PIMS database.

Empirical Prediction of the Value of a One-Point Increase in Customer Satisfaction

What is the value of an increase in the customer satisfaction index for the typical Swedish firm represented in the SCSB? To illustrate this, let us consider the case of a firm with a five-year planning horizon. Suppose the firm must estimate the increase in ROI resulting from increasing its customer satisfaction index by a single point in each of the next five years (cumulative increase of five points). Assuming the firm's ROI in the initial year is the same as the average for the sample (10.83%), the estimates in Table 3 imply incremental increases in ROI for the next five years of .07%, .18%, .33%, .51%, and .71%, respectively, over what the firm's ROI would have been without increasing customer satisfaction. The fifth-year ROI of 11.54% represents a 6.59% increase over the original ROI of 10.83%. The five-year cumulative increase of 1.8% (1.8 = .07 + .18 + .33 + .51 + .71) represents cumulative incremental returns of 16.66% relative to current ROI (16.66 = 100 [1.8/10.83]). The net present value for the incremental returns can be calculated by assuming that our "typical" firm has an asset base corresponding to the sample mean ($600 million), a policy of paying out all returns as dividends, and applies a discount rate of 10.00%. As illustrated in Figure 1, the results of this calculation indicate incremental returns over the next five years of $.357 million, $.888 million, $1.487 million, $2.09 million, and $2.66 million, respectively. This represents cumulative discounted returns of $7.48 million, or 11.5% of current ROI.

Although the preceding calculations may seem somewhat modest in absolute size, it should be kept in mind that the prediction is based on a cross-sectional analysis and that the scale of a typical Swedish firm is much smaller than that found in an economy such as the United States'. For ex-

ample, if the same coefficients apply to a sample of U.S. firms (e.g., the *Business Week* 1000, with average assets of $7.5 billion and average ROI of 11%), the cumulative incremental returns from a continuous one-point increase in customer satisfaction over a five-year span would be $94 million, or 11.4% of current ROI.

The Value of Current Customer Assets

The preceding empirical prediction of the value of customer satisfaction can be supplemented by an analytical model. If improving customer satisfaction increases the likelihood of repurchase, then we can illustrate the economic benefits of such a change by considering current customers as an asset to the firm and calculating their net present value to the firm. A straightforward calculation might capture customer assets as a function of the likelihood or probability that a satisfied customer will remain loyal, PR(Loyal|Satisfaction), the average gross margin per period G, the length of the average repurchase cycle λ, and a discount factor ∂. The associated net present value equation can be written:

$$NPV = \sum_{t=1}^{T} \lambda G(Pr\{Loyal|Satisfaction\}/(1 + \partial))^{t/\lambda}.$$

We assume that there is a monotonic relationship between customer satisfaction and repurchase intentions that is linear for small changes in satisfaction. Anderson and Sullivan (1993) estimate that a .0058 increase in repurchase likelihood (on a scale from 0 to 1) will result from a one-point increase in customer satisfaction. Hence, if a firm's satisfaction index is on average 67 and undergoes an increase to 70, the typical firm's repurchase probabilities would change from the average of .75 to .7674. Given the average gross margin for the firms in the SCSB ($65 million) and assuming customers purchase an average of once per year, the net present value of customer assets would rise $6.4 million, or 5.4%, from $118.8 million to $125.2 million.

Customer Satisfaction and Market Share

How are customer satisfaction and market share related? We have been able to obtain 1989–90 company-level market share data to match the customer satisfaction indices for a subsample of the SCSB firms. Plots of the raw data and year-to-year changes in market share and customer satisfaction are shown in Figure 2. Both plots suggest downward sloping, that is, inverse relationships between customer satisfaction and market share. The plot of raw satisfaction versus raw market share shows that no firm has *both* high customer satisfaction and high market share. Moreover, year-to-year increases (decreases) in market share are likely to be associated with decreases (increases) in customer satisfaction. The pearson correlation between raw market share and satisfaction is –.25 (p-value of .03 with n = 77) and the correlation between year-to-year changes in the variables is –.37 (p-value of .05). Regressing changes in the customer satisfaction index on changes in market share yields a coefficient of –.88 (p-value of .05).
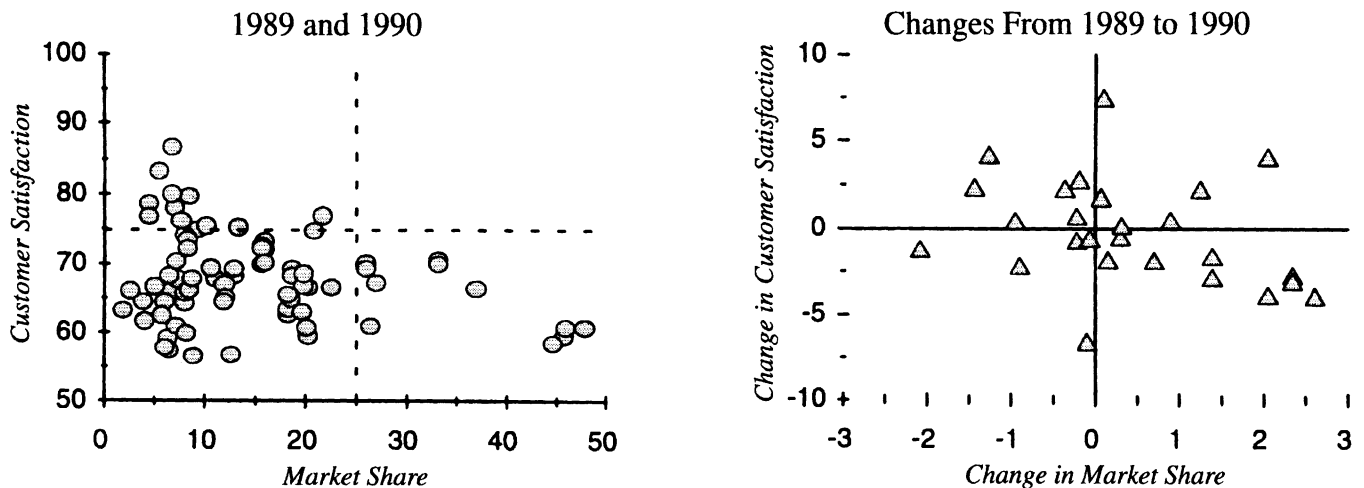
FIGURE 2
Market Share and Satisfaction

Figure 2 provides a preliminary indication, similar to Griffin and Hauser (1993), that increasing market share actually may decrease customer satisfaction. This may indicate that a more differentiated strategy can lead to decreases in market share. In addition, it may indicate that, at least in short-run cross-sectional analyses, customer satisfaction and market share are not always compatible goals.

Summary and Conclusions

The widespread belief in the intuitive relationship between quality, customer satisfaction, and economic returns, as well as the growing frustration with attempts to improve quality, serve to underscore the importance of analytical and empirical work increasing our understanding of customer satisfaction and how it relates to economic returns. The frustration of many firms engaged in attempts to improve quality may be due to any number of factors, from poor market data to the intransigence of functional silos or fixation with short-term results that may leave firms unable to wait for the benefits of investing in quality and customer satisfaction to materialize (Ettlie and Johnson 1994). Although we do not provide guidance for managers seeking either tools for improving quality (e.g., TQM) or guidelines for implementing quality programs, it does provide motivation for continuing their efforts and overcoming any impediments encountered: Firms that actually achieve high customer satisfaction also enjoy superior economic returns. An annual one-point increase in customer satisfaction has a net present value of $7.48 million over five years for a typical firm in Sweden. Given the sample's average net income of $65 million, this represents a cumulative increase of 11.5%. If the impact of customer satisfaction on profitability is similar for firms in the *Business Week* 1000, then an annual one-point increase in the average firm's satisfaction index would be worth $94 million or 11.4% of current ROI. Firms considering implementing or, in an increasing number of cases, curtailing quality programs should consider

the benefits indicated by these findings in reaching their decisions.

Our findings also indicate that economic returns from improving customer satisfaction are not immediately realized. Because efforts to increase current customers' satisfaction primarily affect future purchasing behavior, the greater portion of any economic returns from improving customer satisfaction also will be realized in subsequent periods. This implies that a long-run perspective is necessary for evaluating the efficacy of efforts to improve quality and customer satisfaction.

The long-run nature of the economic returns from improving customer satisfaction also has broad strategic implications. If increasing customer satisfaction primarily affects future cash flows, then resources allocated to improving quality and customer satisfaction should be treated as investments rather than expenses. Loyal and satisfied customers are a revenue-generating asset to the firm that is not without cost to acquire, retain, and develop. This is very different from viewing sales as a set of more or less disjoint and mutually exclusive transactions. Implementing a customer-asset orientation means aligning the firm's processes, resources, performance measures, and organizational structure for treating customers as an asset. Our findings provide a rationale for firms to move in this direction. Once the potential of a customer-asset orientation is acknowledged, there are two key procedural questions for management: (1) How do we measure the value of this asset? and (2) How do we increase its value? Answers to both these questions are now being developed (e.g., Fornell 1991a, b; 1994).

Our findings also provide a preliminary indication of trade-offs between customer satisfaction and market share goals. We find that customer satisfaction actually may fall as market share increases. For example, whereas a small market-share firm may serve a niche market quite well, a large market-share firm often must serve a more diverse and heterogeneous set of customers. Gains in market share may come from attracting customers with preferences more dis-

tant from the target market. The firm may overextend its service capabilities as the number of customers and/or segments grows. In such a situation, even though the overall level of customer satisfaction is falling, a firm's sales and profits may be increasing. It is worth noting that this may be a short run versus long run phenomenon. In the long run, it is possible that customer satisfaction and market share go together, but there is growing evidence that this is not always the case in the short run or a cross-sectional analysis.

When quality and expectations increase, there is a positive effect on customer satisfaction in the long run, but increased expectations may have a negative impact in the short run. The large, positive impact of quality on customer satisfaction is intuitive. Expectations have a positive effect on customer satisfaction in the long run because they capture the accumulated memory of the market concerning all past quality information and experience, as well as the market's forecast of the firm's ability to deliver quality in the future. This forward-looking component of expectations is important because this, in part, is how a firm's reputation for providing high or low quality influences the overall satisfaction of its customers. In the context of cumulative customer satisfaction, the long-run effects of increased (decreased) expectations should outweigh the short-term effect of any temporary gaps and lead to a rise (fall) in overall customer satisfaction. This firm-level finding is consistent with individual-level research showing that disconfirmation of expectations has a weaker effect on cumulative customer satisfaction than the direct impact of perceived quality (Anderson and Sullivan 1993).

Finally, our findings indicate that, in the aggregate, customers have adaptive but largely rational expectations. Changes in the level of quality provided by a firm enhance or erode a firm's reputation for quality over time. This is an important process to manage for the typical firm because subsequent changes in its reputation for providing quality may not be immediate. The implication for a firm trying to make a quality "turnaround" or "comeback" is, therefore, not to expect immediate returns but coordinate product/service improvements with efforts to accelerate the diffusion of information regarding such improvements through the marketplace.

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