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Customer Satisfaction and Stock Prices: High Returns, Low Risk

Do investments in customer satisfaction lead to excess returns? If so, are these returns associated with higher stock market risk? The empirical evidence presented in this article suggests that the answer to the first question is yes, but equally remarkable, the answer to the second question is no, suggesting that satisfied customers are economic assets with high returns/low risk. Although these results demonstrate stock market imperfections with respect to the time it takes for share prices to adjust, they are consistent with previous studies in marketing in that a firm's satisfied customers are likely to improve both the level and the stability of net cash flows. The implication, implausible as it may seem in other contexts, is high return/low risk. Specifically, the authors find that customer satisfaction, as measured by the American Customer Satisfaction Index (ACSI), is significantly related to market value of equity. Yet news about ACSI results does not move share prices. This apparent inconsistency is the catalyst for examining whether excess stock returns might be generated as a result. The authors present two stock portfolios: The first is a paper portfolio that is back tested, and the second is an actual case. At low systematic risk, both outperform the market by considerable margins. In other words, it is possible to beat the market consistently by investing in firms that do well on the ACSI.

Does the satisfaction of a company's customers have anything to do with the company's stock price? In a way, it must. Otherwise, it would be necessary to go back to the drawing board of how capitalistic market theory is supposed to work. The empirical literature on the nature of the relationship is growing, but it is still in its infancy in many respects. Empirical results (Anderson 1996; Anderson, Fornell, and Lehmann 1994; Anderson, Fornell, and Mazvancheryl 2004; Bolton 1998; Fornell 2001; Ittner and Larcker 1996, 1998; Rust, Moorman, and Dickson 2002) point toward a significant relationship between customer satisfaction and economic performance in general, but less is known about how the satisfaction of companies' customers translates into securities pricing and investment returns, and virtually nothing is known about the associated risks. The tacit link between buyer utility and the allocation of investment capital is a fundamental principle on which the economic system of free market capitalism rests. The degree to which capital flows from investors actually move in tandem with consumer utility is a matter of significant importance because it is an indication of how well (or poorly) markets truly work. A parallel, but narrower, issue is the extent to which equity markets themselves are efficient. The assertion in efficient markets theory is that financial prices accurately reflect all public information at all times, but financial assets can be correctly priced in equity markets even if consumer sovereignty is restricted in product markets. In a monopoly, for example, dissatisfied buyers cannot punish the seller by taking their business elsewhere, and capital flows are not likely to correspond with consumer utility, but that does not in itself imply that capital markets are inefficient. However, efficient allocation of resources in the overall economy and consumer sovereignty depend on the joint ability of product and capital markets to reward and punish companies such that firms that fail to satisfy customers are doubly punished by both customer defection and capital withdrawal. Similarly, firms that do well by their customers would be doubly rewarded by more business from customers and more capital from investors.

We begin by estimating the relationship between customer satisfaction and market value of equity. As expected, we find a strong relationship. This prompts the question, How do investors react to news about changes in customer satisfaction? Despite the significant relationship between customer satisfaction and market value, we find no evidence that they react in a timely manner. Is this because the news is somehow factored into share prices already, or is it due to market imperfections? The evidence suggests the latter. Two stock portfolios, one paper strategy that is back tested and another describing an actual case, lead to similar conclusions: It is possible to beat the market consistently with investment decisions based on customer satisfaction. Perhaps even more remarkable is that these results are not associated with a risk premium. Indeed, the opposite is true;

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the systematic risk is low relative to the market. Although these results may appear too good to be true and puzzling from a conventional financial perspective, we present arguments suggesting that they are in line with empirical findings both in marketing and in the literature on customer satisfaction.

Customer Satisfaction: Economic Effects

We now turn to the fundamentals behind the relationship between customer satisfaction and stock prices. Both basic neoclassical economics and marketing theory provide a general case for a positive association. Conversely, several market factors may contribute to a negative relationship. In addition to market factors, there are other circumstances in which the association could actually be negative. We discuss both categories and empirically analyze stock market reaction to quarterly news releases from the American Customer Satisfaction Index (ACSI) (Fornell et al. 1996). By controlling for other firm-specific news, we test the effect of news announcements about customer satisfaction on stock prices.

Real economic growth depends on the productivity of economic resources and the quality of the output (as experienced by the user) that those resources generate. In the final analysis, expanding economic activity per se is not what is essential. Both marketing and neoclassical economics view consumer utility, or satisfaction, as the real standard for economic growth. The extent to which buyers financially reward sellers that satisfy them and punish those that do not and the degree to which investment capital reinforces the power of the consumer are fundamental to how markets function. A well-functioning market allocates resources, including capital, to create the greatest possible consumer satisfaction as efficiently as possible. A dissatisfied buyer will not remain a customer unless there is nowhere else to go or it is too expensive to get there.

Restrictions on consumer choice may be good for the monopolist but, in general, are considered harmful to the economy. In a competitive marketplace that offers meaningful consumer choice alternatives, firms that do well by their customers are rewarded by repeat business, lower price elasticity, higher reservation prices, more cross-selling opportunities, greater marketing efficiency, and a host of other things that usually lead to earnings growth (Fornell et al. 1996).

To what degree do markets actually reflect the normative tenets of market theory? Under what circumstances would news about increasing customer satisfaction contribute to higher stock prices? Under what circumstances would it have the opposite effect? From a cursory glance at the literature, it is tempting to assume that news about rising customer satisfaction would have an immediate and positive effect on stock prices. Beginning with the early contributions of Bursk (1966) and Jackson (1985), there is substantial conceptual logic and empirical evidence to suggest that the health of a firm's customer relationships is a relevant indicator of firm performance (Ambler et al. 2002; Bell et al. 2002; Berger et al. 2002; Blattberg and Deighton 1996; Bolton, Lemon, and Verhoef 2004; Fornell 1995, 2001; Fornell et al. 1996; Hogan, Lemon, and Rust 2002; Rust et al. 2004). For example, it has been found that customer satisfaction has a negative impact on customer complaints and a positive impact on customer loyalty and usage behavior (Bolton 1998; Fornell 1992). Increased customer loyalty may increase usage levels (Bolton, Kannan, and Bramlett 2000), secure future revenues (Rust and Keiningham 1994; Rust, Moorman, and Dickson 2002), reduce the cost of future transactions (Reichheld and Sasser 1990), lower price elasticity (Anderson 1996), and minimize the likelihood of customer defection (Anderson and Sullivan 1993; Mithas, Jones, and Mitchell 2004). Customer satisfaction may also reduce costs related to warranties, complaints, defective goods, and field service costs (Anderson, Fornell, and Lehmann 1994; Fornell 1992; Garvin 1988). Empirical evidence also suggests that customer perceptions of superior quality are associated with higher economic returns (Aaker and Jacobson 1994; Capon, Farley, and Hoenig 1990; Fornell 2001). Naumann and Hoisington (2001) report positive associations among employee satisfaction, customer satisfaction, market share, and productivity measures at IBM Rochester. Several case-based research studies also find that customer satisfaction is positively associated with employee loyalty, cost competitiveness, profitable performance, and long-term growth (Heskett, Sasser, and Schlesinger 1997; Reichheld and Teal 1996). Finally, in a recent study of the relationship between customer satisfaction and shareholder return, Anderson, Fornell, and Mazvancheryl (2004) find a strong relationship between customer satisfaction and Tobin's q (as a measure of shareholder value) after controlling for fixed, random, and unobservable factors.

If, as the empirical evidence suggests, customer satisfaction tends to improve repeat business, usage levels, future revenues, positive word of mouth, reservation prices, market share, productivity, cross-buying, cost competitiveness, and long-term growth and if it tends to reduce customer complaints, transaction costs, price elasticity, warranty costs, field service costs, defective goods, customer defection, and employee turnover, it seems logical to expect that these effects will eventually affect stock prices and company valuations. Even if a substantial portion of the empirical findings were dismissed,[1] it would be difficult not to take seriously the notion of customer satisfaction as a real, albeit intangible, economic asset. Putting the argument in the context of economic assets allows for a logical link to conventional capital asset pricing (see Fornell and Wernerfelt's [1987, 1988] economic analysis of the value of keeping customers and the more recent work by Wayland and

[1]For example, in a study of a catalog retailer, Reinartz and Kumar (2000, 2002) find a weaker-than-expected (but significant) relationship between customer retention and profitability. The strength of any customer retention–profitability relationship depends on the cost of creating and maintaining repeat customers. If repeat business is created through price discounts or other means that do not cause an upward shift in the firm's demand curve, the relationship will be weaker. Thus, repeat business produced by higher customer satisfaction will be more profitable in general than repeat business generated by price discounts.

Cole [1997], Srivastava, Shervani, and Fahey [1998], Gruca and Rego [2005], Gupta, Lehmann, and Stuart [2004], Anderson, Fornell, and Mazvancheryl [2004], Hogan, Lemon, and Rust [2002], Venkatesan and Kumar [2004], and Rust, Lemon, and Narayandas [2005]). Srivastava, Shervani, and Fahey (1998) provide the conceptual logic for more categorically drawing the link from the empirical findings on customer satisfaction to stock returns and shareholder value. They identify four major determinants of a company's market value: (1) acceleration of cash flows, (2) increase in cash flows, (3) reduction of risk associated with cash flows, and (4) increase in the residual value of the business. Not only does the customer asset, as defined by the expected future discounted net cash flow from current and future customers, influence all four determinants, but it can also be expressed as the sum of all other economic assets of the firm (Wayland and Cole 1997); Gupta, Lehmann, and Stuart (2004) also demonstrate this.

First, the acceleration of cash flows is affected by the speed of buyer response to marketing efforts. Because it takes less effort to persuade a satisfied customer (Keller 1993) and because it is more likely that receivables turnover is better for firms with satisfied customers, speed of cash flow is positively affected. Second, there is also a relationship between customer satisfaction and levels of net cash flows. Marginal costs of sales and marketing are lower, as are the requirements for working capital and fixed investments (Srivastava, Shervani, and Fahey 1998). In addition, revenue growth benefits from more repeat business. Gruca and Rego (2005) provide empirical evidence for this. They show that increases in customer satisfaction lead to significant cash flow growth. Specifically, one point in customer satisfaction (measured by ACSI on a 0–100 scale) was associated with a 7% increase in cash flow. Third, Gruca and Rego also find that the risk associated with future cash flows is reduced for firms with high customer satisfaction. If the variability in cash flows is reduced, the cost of capital goes down as well, thus producing yet another source for stock price growth. Finally, the residual value of business is a function of the size, loyalty, and quality of the customer base, all of which are obviously related to the satisfaction of this customer base (Srivastava, Shervani, and Fahey 1998).

Customer Satisfaction and Market Value of Equity

In light of the evidence reported in the literature, it might be expected that a significant relationship exists between market value of equity and ACSI. If customer satisfaction truly is an economic asset that is not only left off the balance sheet but also not fully reflected by the recorded assets, there should be a relationship between ACSI scores and market capitalization. Following standard practice (Barth and McNichols 1994; Ittner and Larcker 1998; Landsman 1986), the model we define in Equation 1 estimates the effect of an identifiable, but intangible, asset on market capitalization in a combined longitudinal cross-sectional setting, while controlling for accounting book values. In this case, we are interested in (1) whether customer satisfaction (ACSI) has a significant effect on market value of equity and (2) the size of this effect when we control for the influence of the recorded assets and liabilities. Thus:

$$(1) \qquad \ln MVE = \alpha + \beta_1 \ln BVA + \beta_2 \ln BVL + \beta_3 \ln ACSI,$$

where MVE is the market value of equity, BVA is the book value of total assets, BVL is the book value of liabilities, and ACSI is the respective company score on the American Customer Satisfaction Index.

We obtained the data from 1994–2002 ACSI scores and COMPUSTAT company book values for the same years; there were a total of 601 observations. The mean value for market value is $26 billion. For book value of assets and liabilities, the respective means are $23 billion and $15 billion.

Table 1 reports the results of fitting Equation 1 by ordinary least squares. The regression is highly significant with an R-square of .70. The ACSI coefficient is significant and large. A 1% change in ACSI is associated with a 4.6% change in market value. The coefficients for assets and liabilities are also significant with the expected signs. Table 1 also includes estimates without the ACSI variable: R-square drops to .61, and the negative coefficient for liabilities increases. Thus, by omitting customer satisfaction in the estimation of company market value, the negative impact of liabilities appears to be greater than it should be. This is also consistent with the previous discussion that customer satisfaction alleviates cash flow volatility and reduces the cost of capital.

Investor Reaction

We offer the preceding results as empirical evidence in favor of the argument that customer satisfaction should be considered an economic asset beyond what is recognized on the balance sheet. The results are also consistent with the finding that customer satisfaction is associated with long-term shareholder value. However, they do not address

TABLE 1
The Effect of ACSI on Market Value of Equity

		Ln(Market Value)	Ln(Market Value)
ACSI (lnACSI)	β_1	4.592 (.000)	
Total assets (lnBVA)	β_2	1.943 (.000)	2.039 (.000)
Total liabilities (lnBVL)	β_3	–1.020 (.003)	–1.157 (.003)
Constant	α	–20.056 (.000)	.235 (.704)
N		601	601
R^2		.70	.61
F		(.000)	(.000)

Notes: We estimated the models by including dummy variables (not shown) for years 1995 through 2002 (1994 was the reference year); *p* values are in parentheses.

whether ACSI scores provide information to investors (that is not already known to them). How then do investors react to news about customer satisfaction? Do they take advantage of customer satisfaction as a leading indicator of financial performance, or do they fail to realize the potential of the information? Is the information already factored in share prices? If, indeed, customer satisfaction is relevant to market valuation, according to efficient markets theory, new information about customer satisfaction fluctuations should be instantly reflected in stock prices. That is, all else being equal, investors should reward firms with increased market capitalization as news about the improved value of firms' customer relationships becomes available. Conversely, news about deteriorating customer relationships should have the opposite effect.

Such reasoning is in concert with financial valuation theory in that customer relationships can be expressed in terms of net present value (Blattberg and Deighton 1996; Hogan et al. 2002; Rust and Keiningham 1994; Venkatesan and Kumar 2004). In competitive markets, the value of satisfied customers should be worth more than the value of dissatisfied customers.

However, the picture is more complicated. There are reasons for suggesting that investors may not react in a predictable fashion, and there are circumstances in which stock prices drop as a result of news about increasing customer satisfaction. Although such a reaction might be at odds with how capitalistic markets should function, consumer market imperfections (which may be unknown) make it difficult to anticipate capital market reactions to customer satisfaction news. First, investors may react negatively to news about rising customer satisfaction if they believe that the firm is giving away too much surplus to the buyers. The aggregate surplus that consumers receive from goods and services is a measure of consumer welfare, but the difference between the maximum price a buyer is willing to pay and the actual price is also something that investors may want to capture. Investors would be more likely to consider an increase in consumer surplus in a negative light if the buyer's switching costs were significant, if there was a high degree of product differentiation, or if there was some level of monopoly power.

Second, investors may also take an unkind view of improvements in customer satisfaction for firms that already have substantial leads over their competition. If customers of competing firms were much less satisfied, the marginal return of improving customer satisfaction further might be called into question. Certainly, it would be difficult to ignore economic laws of diminishing returns for the investment in any economic asset, regardless of its status on the balance sheet.

Third, and related to the preceding two points, the marginal cost of improving customer satisfaction may be too high. This is particularly relevant for services, especially those that are labor intensive. For example, it has been shown (Anderson, Fornell, and Rust 1997) that productivity and customer satisfaction are not always compatible in the service sector. Improved customer satisfaction may come at the expense of productivity, and vice versa. Such a trade-off between productivity and customer satisfaction may also contribute to unfavorable market reactions to news about customer satisfaction improvements.

Fourth, there is the possibility of a "reverse causality effect." Customer defection can have a positive effect on average customer satisfaction simply because the departing customers were the most dissatisfied. Customers who remain are less likely to be as discontented. Instead of benefiting from improved satisfaction, the company simply retains a smaller group of (somewhat more satisfied) customers, but often with reduced sales and profits as a result. Note that this effect is not the result of consumer market imperfections. Indeed, it is more likely to occur in fluid markets with low switching barriers and no monopoly power.

Fifth, issues of timing and expectations complicate the matter further. The ACSI measures each company once a year. Although the measurement is cumulative in the sense that it aims to capture all relevant customer experience (with the product or service) to date, it is possible for changes in customer satisfaction to occur and to have an effect on buyer behavior (with implications on revenues and profits) in periods between measurements. It is also difficult to ascertain market expectations about customer satisfaction. A firm's improved ACSI scores may be viewed as negative if the firm was expected to show a greater degree of improvement, and vice versa. Sources of such expectations may be difficult to identify; they may include corporate announcements about additional investments in consumer service, the hiring of more frontline personnel, investments in information technology and customer relationship management systems (Krishnan et al. 1999; Mithas, Krishnan, and Fornell 2005a, b; Prahalad, Krishnan, and Mithas 2002; Rai, Patnayakuni, and Patnayakuni 2006; Sambamurthy, Bharadwaj, and Grover 2003; Srinivasan and Moorman 2005), and a host of things that may affect customer satisfaction.

For all these reasons, it is not easy to predict stock market reactions to news about customer satisfaction for individual companies. It would not be enough to appeal to capitalistic market theory without consideration of an assortment of market conditions. Even if the relevant characteristics were observed and properly assessed, the effect may be confounded by the shape of the satisfaction response curve, by the firm's location on the curve, or by the reverse causation phenomenon. Thus, even if investors do not react to news about customer satisfaction, share prices may still be unbiased. Only if it is possible to use ACSI information to discover mispriced stocks consistently over time and invest accordingly (and thus beat the market) can the question about possible pricing bias be addressed. Accordingly, we conduct both an event study and portfolio studies. We begin with the event study.

We estimate the rate of return on stock price of firm j on day t with the following market model:

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt}, \quad (2)$$

where R_{jt} is the rate of return on the common stock of the jth firm on day t, R_{mt} is the market rate of return using the Standard & Poor's (S&P) 500 composite index on day t, α_j is an intercept, β_j is a slope parameter that measures the

sensitivity of R_{jt} to the market index, and ε_{jt} is a disturbance term with the usual ordinary least squares properties. The S&P 500 is a capitalization weighted index based on a broad cross-section of the market and has been used in several previous event studies (MacKinlay 1997).

We use the market model (Equation 2) to estimate the abnormal return for the common stock of firm j on day t, such that

$$AR_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt}). \quad (3)$$

On the basis of recommended guidelines and commonly used practice, we specified the length of the estimation period as 255 days, ending 46 days before the event date (Cowan 2003; McWilliams and Siegel 1997).

We averaged daily abnormal returns using the closing price at the day of the release over the sample of N firms to yield cumulative abnormal returns:

$$CAR_{T_1T_2} = \frac{\sum_{j=1}^{N}\sum_{t=T_1}^{T_2} AR_{jt}}{N}, \quad (4)$$

where T_1 and T_2 correspond to the first and last days of the event period.

Because the sampling distribution of abnormal returns tends to be skewed and leptokurtic (Brown and Warner 1985; Corrado 1989; Lyon, Barber, and Tsai 1999; McWilliams and Siegel 1997), we used bootstrapping for all significance tests. Use of bootstrapped test statistics provide a more robust assessment of the statistical significance of the results of the event study and is becoming increasingly common in academic studies (Chatterjee, Richardson, and Zmud 2001).

It is well known that event studies benefit considerably from a precise definition of the event period (Barclay and Litzenberger 1988; Brown and Warner 1985; Dyckman, Philbrick, and Jens 1984). As for the ACSI, there is an exact announcement day. Thus, we specify a one-day event period. A short event period leads to more efficient estimation because it reduces the possibility of other factors affecting the returns. It also increases the power of the statistical tests.

As we indicated previously, we defined the event as the ACSI announcement for a firm as (simultaneously) published in *The Wall Street Journal* and on the ACSI Web site. Because the *The Wall Street Journal* is a daily publication, it seems reasonable to consider the day the ACSI announcement is published in *The Wall Street Journal* as the day when "the event" occurs. The included events range from the second quarter of 1999 to the third quarter of 2002.[2]

Following recommended practice (MacKinlay 1997), we set up controls so that the customer satisfaction news would not be confounded with other news items over the same period. We collected all firm-related news items five calendar days before and after the event date from leading sources: PR Newswire, Dow Jones, and Business Wire. We excluded from the analysis events with announcements regarding mergers and acquisitions, spin-offs, stock splits, chief executive officer and chief financial officer changes, layoffs, restructurings, earnings announcements, and lawsuits. In total, after we eliminated the events with confounded news items during the event windows, the data consisted of 161 events for 89 companies for which stock-trading data were available for the study period. For manufacturing firms, there were 48 events of rising ACSI scores; for service firms, the corresponding number was 32. There were 41 events with decline in ACSI for manufacturing and 40 for services. The results appear in Table 2.

Although the combined samples for manufacturing and services changed in the direction of higher stock prices for firms with an increase in ACSI and lower prices for firms with a decrease in ACSI, these effects are too weak to be distinguished from chance variation. The results for service firms are also contradictory; that is, share prices increased regardless of the direction of the change in ACSI.

These results are fairly consistent with the findings of Ittner and Larcker (1998). They used a longer event window of five days and found no significant effects of ACSI news. For a ten-day window, they reported close to significant (at the 10% level) abnormal returns but only after they deleted outliers (still 97%–98% of the variance in the abnormal returns remained unexplained). Note that Ittner and Larcker were forced to use cross-sectional analysis (because of the limited amount of data available at the time), and thus their results cannot be used to test the effect of ACSI on changes in stock prices (Lambert 1998).[3]

[2]Although ACSI has measured customer satisfaction since 1994, before the second quarter of 1999, the results were published once a year in *Fortune* magazine, making it difficult to pinpoint the event date because readers received the magazine on different dates. For example, Ittner and Larcker's (1998) study used a much longer event window (five and ten days) in their analysis of the effect of the *Fortune* publication.

[3]Although it seems unlikely that the ACSI information would trickle out slowly or that investors would simply wait before acting on the information, we also calculated cumulative abnormal returns for a 5-day window following the release date. Again, the null hypothesis of zero abnormal returns cannot be rejected. A final test checks for the possibility of prior leakage of information. The ACSI results were routinely provided under embargo to the public relations and market research units of corporate subscribers

TABLE 2
Abnormal Returns For ACSI News Announcements

Type of News	Firm Type	N	Event Day Abnormal Returns
Increase in ACSI	Manufacturing and services	80	.34
	Manufacturing	48	.01
	Services	32	.85
Decrease in ACSI	Manufacturing and services	81	–.17
	Manufacturing	41	–.54
	Services	40	.20

Notes: None of the abnormal returns are significant at the 5% level based on nonparametric bootstrapped tests (two tailed).

Portfolio Studies

The finding that news about customer satisfaction does not move stock prices, even though customer satisfaction is statistically significant with respect to market valuation, is not necessarily contradictory to efficient markets theory. It would still be possible that stock prices fully and quickly reflect all available information. It is also possible that firms with highly satisfied customers generate higher profits. Under efficient markets theory, however, it would not be possible to develop trading strategies based on ACSI information that consistently earn excess returns.

As a way to test this, we consider two stock portfolios based on ACSI data. The first is a hypothetical paper portfolio with simple trading rules. The second is a real-world portfolio. Both tests have pros and cons. However, their combination leads to more powerful analyses. The major advantage of the paper portfolio is that the trading rules are clear and explicit. In addition to there being no theoretical basis for simulating various permutations of the trading strategy, its major disadvantage is that it is hypothetical and back tested with perfect hindsight.

For the real-world portfolio, these advantages and disadvantages are reversed. Actual trading involves many details regarding timing, size of investments, number of holdings, rebalancing, and so forth, that are not always precisely determined by static and explicit decision rules. In many ways, the situation is similar to case studies of organizations for which theoretical specificity must give way to realism. Yet this is also the benefit of a real-world portfolio: It presents authentic investments and actual results.

Most important, however, paper portfolio and the actual portfolio share a critical aspect: Both rely solely on ACSI data. No other type of data or additional information was considered in any of the investment decisions. Although details may vary between the portfolios, and assuming an absence of contemporaneous underlying share price determinants that covary with ACSI (we discuss this further subsequently), it would be difficult to attribute the results to sources other than customer satisfaction.

Because the market does not immediately respond to changes in ACSI, it seems reasonable to base the strategy on both levels (because they do not appear to be fully impounded in the market price) and changes (because they do not appear at all to be impounded in the market price). To have a diversified portfolio of reasonable size, we selected firms in the top 20% of ACSI (relative to their competition). In line with Jones and Sasser (1995) and Ittner and Larcker (1998), who find that low levels of customer satisfaction appear to have less of an impact, we also made the selection conditional on the requirement of being above the ACSI national average.

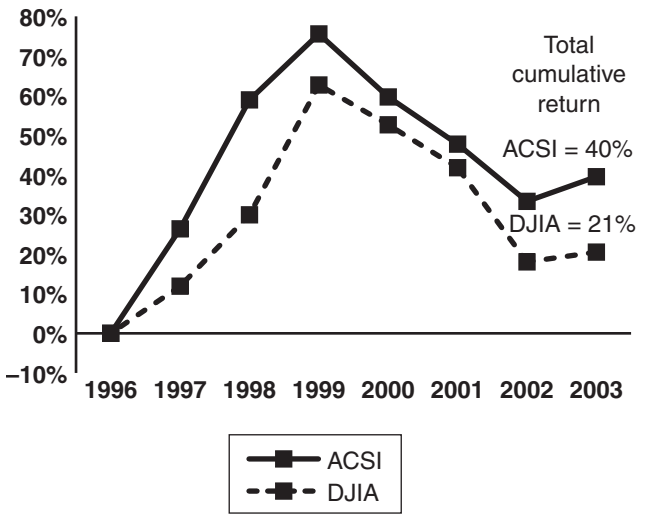
Because ACSI scores for each individual firm are updated once a year, we purchased shares (using the closing price) the day the ACSI results were announced and held them for a year or longer. If we picked a stock the first year, we examined its inclusion in the portfolio again the following year. If it met the criteria of being in the top 20% and above the national (average) ACSI level, we held it for another year and then subjected it to the same test. If it failed the criteria, we sold it. We applied the same principle for all stocks. If we did not pick a stock the first year, we reexamined it for inclusion the next year, and so on. This trading strategy led to a portfolio of 20 companies in 1997 and 20 in 1998, and there were 26 companies at the conclusion of the test on May 21, 2003.

Between February 18, 1997, and May 21, 2003, a period when the stock market had both ups and downs, the portfolio generated a cumulative return of 40% (with dividends and transaction costs excluded but after stock splits, if any, were adjusted). It outperformed the Dow Jones Industrial Average (DJIA) by 93%, the S&P 500 by 201%, and NASDAQ by 335%. Figures 1–3 show the cumulative returns over time.

The results suggest that customer satisfaction pays off in up-markets and down-markets. When the stock market grew, the stock prices of many firms with highly satisfied customers grew even more. The only exception occurred at the peak of the stock market bubble in 1999, when NASDAQ and the S&P 500 generated short-lived, but higher, returns. When the stock market dropped in value, the stock prices of firms with highly satisfied customers seemed to have benefited from some degree of insulation.

Although the trading rules barred all information beyond ACSI, could there be competing explanations for the findings? We examine the possibilities. First, and regardless of whether efficient markets theory holds, it is difficult to beat the market. Most professional stock pickers do not, and the chance probability of consistent excess returns is minute. Second, there are theoretical underpinnings behind these returns that are bolstered by empirical

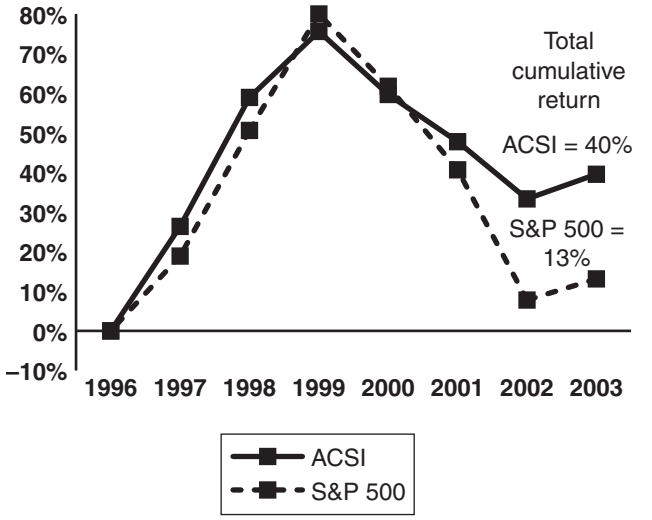
FIGURE 1
Cumulative Returns: ACSI Top 20% Versus DJIA (1997–2003)[a]



[a]February 18, 1997, through May 21, 2003.

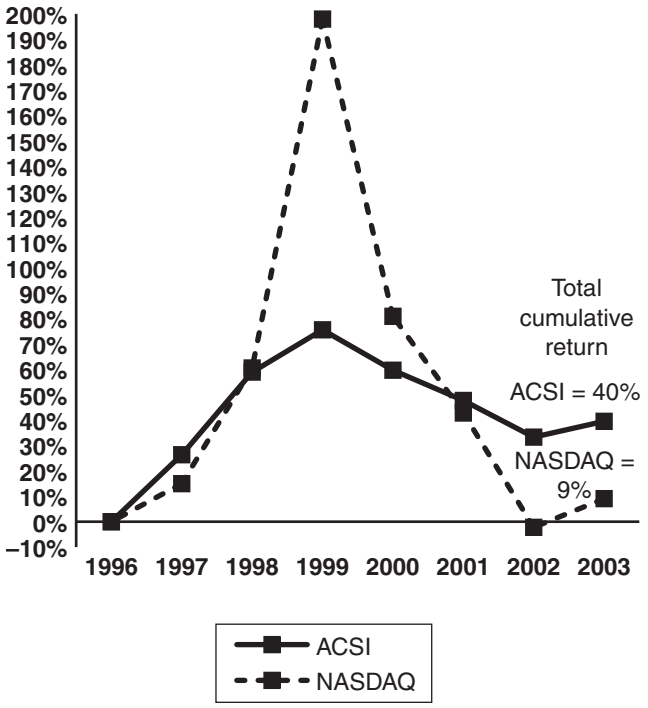
and to *The Wall Street Journal* about two weeks before the release. That corresponds to 10 additional trading days before the event. Again, the results are not significant. The results of 5-day and 15-day analyses appear in the Appendix.

FIGURE 2
Cumulative Returns: ACSI Top 20% Versus S&P 500 (1997–2003)[a]



[a]February 18, 1997, through May 21, 2003.

FIGURE 3
Cumulative Returns: ACSI Top 20% Versus NASDAQ (1997–2003)[a]



[a]February 18, 1997, through May 21, 2003.

findings in the marketing literature. Third, the abnormal returns are not due to compensation for risk. The beta risk associated with the portfolio is .78 and thus is substantially less than market.[4] Fourth, there is no known ACSI covariate that accounts for the results. Firms are included in ACSI on the basis of size (Fornell et al. 1996), and the ACSI aggregate should approximately mirror large cap indexes (e.g., DJIA). There is no reason to suspect that the top 20% of ACSI firms would have the same performance as the bottom 80%. To verify this empirically, we collected stock price data for all ACSI firms. The cumulative return for the bottom 80% portfolio was 20.4%, which is virtually identical to that of the DJIA (21%), thus ruling out selection criteria as a covariate of the stock performance. Because book-to-market ratios are sometimes mentioned as possible predictors of long-term abnormal stock returns (Fama and French 1992), we compared these ratios as well. For the top 20%, the book-to-market ratio was .41 for the full time period. The corresponding ratio for the bottom 80% was .42. Finally, we examined the "size effect." It has been shown that smaller firms' stocks tend to produce higher returns (Banz 1981; Bernard and Thomas 1989; Reinganum 1981). Are the top 20% of ACSI firms smaller than the bottom 80%? Consistent with the results in Table 1, the opposite is true. The average revenue for the top 20% of firms is $37.8 billion, compared with $26.4 billion for the bottom 80%.

Overall, these results are noteworthy because they suggest a trading strategy with high returns and low risk, based on theory and findings not in finance or economics but rather in the marketing literature. Because of the magnitude of the abnormal returns, the findings are perhaps even more remarkable considering that most brokerage firms had negative abnormal returns on their stock recommendations between 1997 and 2001 (McGeehan 2001). Nonetheless, a word of caution is warranted. The results refer to a paper portfolio that is back tested. As with all such testing, there are obvious limitations. In hindsight, it may not be that difficult to find a successful trading strategy. In defense of the results, however, we note that the trading strategy used was extraordinarily simple and straightforward.

However, not all individual trades were good ones. Gateway computers is a case in point. Stock was purchased on August 21, 2000, because the company had an ACSI score of 78, which was in the top 20% of its industry and above the national average. Stock was sold on August 20, 2001, because the company dropped out of the top 20%. Over that period of time, the company's stock price fell by 84% because consumer demand for personal computers declined sharply. As we discussed previously, there may be many reasons that the trading strategy may not work for each individual company all the time. In addition, there is no reason to believe that high customer satisfaction will provide full stock market insulation if primary consumer demand falters. It may dampen the fall to some degree, but industry demand is affected by many other factors. However, from a diversified portfolio, negative industry disturbances should be counterbalanced by positive ones. To

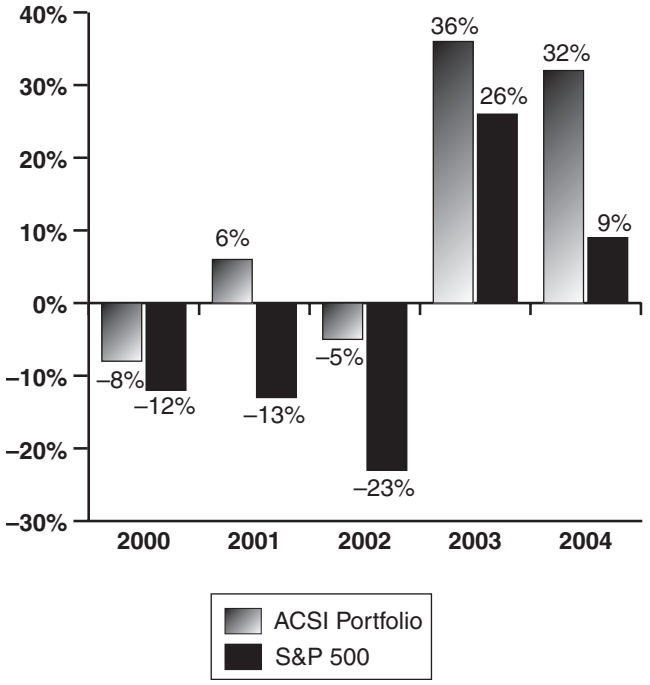
[4]The beta values are relative to the S&P 500 over the entire life of the portfolio. On a year-by-year basis, the betas are .72 (1997), .75 (1998), .74 (1999), .75 (2000), .76 (2001), .81 (2002), and .93 (2003).

some extent, the large losses made on Gateway in one period were compensated by a 47% gain in another period (1999–2000), as well as Dell Computer's return of 50% in 1998–1999 and the very large rise of the Wal-Mart (96% in 1998–1999) and Southwest Airlines (96% in 1998–1999) stocks.

Our final analysis goes from hypothetical paper trading to an actual stock portfolio of ACSI companies. Thus, it avoids the usual limitations of back testing and provides additional evidence about the strength of the relationship between customer satisfaction and stock price. As before, we considered no other data but ACSI data in the investment decisions. We took both long and short positions and based trading decisions on ACSI levels, changes, and satisfaction elasticity of demand.[5] The portfolio took long positions in firms with high (above competition) and increasing (by two points or more) ACSI scores and also when the ACSI–customer retention (elasticity) estimate was above average. It took short positions when scores were low (lower than any competitor) and deteriorating (by two points or more). The short positions were generally small and ranged over time from 0% to 20% of the portfolio. We held these positions for a one-year period or more. We balanced the portfolio weighting with approximately the same dollar amount for each company at the starting point but also with consideration given to industry representation.[6] We periodically rebalanced to dollar equalize the positions, and we executed trades throughout the year without attention to the date of the ACSI release.[7] We reinvested dividends and included transaction costs. Trading began in April 2000, at a time just before the burst of the stock bubble from which the market, as of the end of 2004, has not yet recovered.

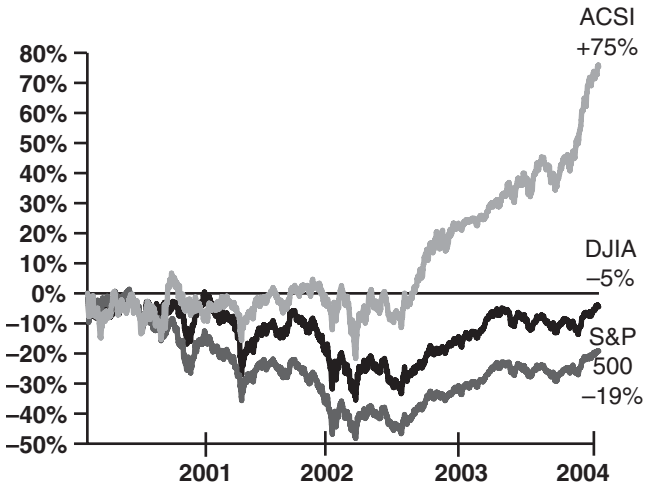
The portfolio generated impressive positive returns. As we show in Figure 4, it outperformed the S&P 500 each and every year during the five years since its inception, often by a considerable margin. The smallest gain relative to market was in 2000 when the S&P dropped by 12% and the ACSI portfolio dropped by 8%.[8] In the following year, the portfolio gained 6%, whereas the S&P continued to fall by 13%. With the exception of 2002, when the S&P fell by 23% and the ACSI portfolio fell by 5%, there have been large gains: 36% in 2003 (versus 26% for the S&P) and 32% in 2004 (versus 9% for the S&P). On a cumulative basis (Figure 5),

FIGURE 4
Yearly Performance of ACSI Portfolio and S&P 500 (2000–2004)[a]



[a]April 11, 2000, through December 31, 2004.

FIGURE 5
ACSI Portfolio Versus DJIA and S&P 500 (2000–2004)[a]



[a]April 11, 2000, through December 31, 2004.

[5]For discussions on this type of elasticity, see Fornell (1992) and Anderson, Fornell, and Mazvancheryl (2004).

[6]The ACSI includes many utilities. To compensate, each utility in the portfolio received only half of the dollar amount invested in nonutility companies.

[7]Accordingly, some trades were executed subsequent to the ACSI release date (approximately 70%), and some were executed before that date. Because there was no announcement event effect, the positive returns were not helped by this timing. On the contrary, they were somewhat handicapped. The cumulative return for the portfolio for all the event days (using the closing price of the day of the ACSI release), through February 2003, was –1.6%. The DJIA and S&P 500 did somewhat better at +.5% and +.6%, respectively. All trades subsequent to February 2003 were executed after the ACSI release.

[8]The 2000 results do not represent the full year. They reflect the starting date of the portfolio (April 11, 2000).

the ACSI portfolio gained 75%, compared with a loss of 19% for the S&P 500. The DJIA did slightly better at –4%.[9]

As with the previous portfolio study, these returns are not associated with higher risk. The betas for the real-world portfolio are equivalent to the paper portfolio. The mean beta risk for all years was .77 relative to the S&P and .76 relative to the DJIA. On an annual basis, the beta risk of the portfolio was consistently below market.[10]

Similar to the hypothetical paper version, share prices for firms that did well on ACSI rose faster than the market and dropped at a slower rate. However, short selling produced weaker returns (less than 3% of the total), implying asymmetric impacts from high versus low customer satisfaction. However, it would be premature to conclude on the basis of this finding alone that the market rewards high customer satisfaction more than it punishes low satisfaction. Additional studies would be necessary to draw such a conclusion.

Discussion

By any standard, the results of the studies we report herein are extraordinary. Not only do they show that investments based on customer satisfaction produce sizable excess returns, but they also upset the basic financial principle that assets producing high returns carry high risk. The price of any financial asset is determined by the current value of the future cash payments it generates, discounted to compensate for risk and cost of capital. The economic value of satisfied customers seems to be systematically undervalued, even though these customers generate substantial net cash flows with low volatility. Firms that do better than their competition in terms of satisfying customers (as measured by ACSI) generate superior returns at lower systematic risk. Similar security mispricings, but on a much lower scale, have been found in related situations with respect to quality awards announcements (Hendricks and Singhal 2001) and marketing investments (Penman and Zhang 2001), but most discoveries of security mispricings point to "overpricing" (Shiller 2000). Under the assumption of efficient markets theory, if information about customer satisfaction is relevant to a company's future economic performance, it should be factored into the company's stock price such that it would not be possible to earn economic profits by trading on this information. Yet we show that this is indeed possible. However, this does not imply a wholesale rejection of efficient markets theory. There have been many documented anomalies over the years (e.g., the January effect, the small-firm effect, the Monday effect, the post-earnings-announcement drift). Most of them have since disappeared. Whether that will be the case with the customer satisfaction effect is yet to be determined, but it is less likely because, with the exception of the public release of ACSI and contrary to the January effect and others, the information is not costless and requires more sophisticated measurement technology than firms typically use today (Ittner and Larcker 2003). Because investments based on customer satisfaction may not be publicly known, it would also be much more difficult to verify a possible demise. According to Gupta, Lehmann, and Stuart (2004), financial analysts have yet to give more than scant attention to off-balance-sheet assets, even though these assets may be key determinants of a firm's market value. By using a discounted cash flow analysis for estimating the value of customer relationships, Gupta, Lehmann, and Stuart find that some companies were potentially mispriced, whereas others were not.

Taken as a whole, the conclusion from these analyses is that though firms with highly satisfied customers usually generate positive abnormal returns, news about changes in customer satisfaction does not have an effect on stock prices. In other words, the primary thesis behind capitalist markets and marketing theory is borne out, but not without reservations about efficient (equity) markets theory. Specifically, there seem to be imperfections with respect to the time it takes for stock markets to reward firms that do well by their customers and to punish firms that do not. In the wake of accounting scandals, the bursting of the stock market bubble, and the continued weakening of the relationship between balance sheet assets and future income, it would be in the interest of securities research to pay closer attention to customer satisfaction and the strength of customer relationships. For marketing managers, it is clear that the cost of managing customer relationships and the cash flows they produce is fundamental to value creation.

The principal short-term impact of the findings may be to boost security analysts' demand for customer satisfaction information. If history is a guide, however, it will be difficult for analysts to separate the "good" from the "bad" and the relevant from the irrelevant when it comes to this type of information. This will be a serious challenge because recent experience with valuing intangible assets did not turn out well. Just before the stock market bubble burst, Wall Street seemed enamored with customer metrics, most of which had dubious connections to economic value creation and large losses in shareholder wealth as a result. Thus, a more prudent approach might be expected this time, but appropriate prudence does not suggest eschewing customer metrics altogether, which more or less seems to be the case for securities research today.[11] Rather, the quality of measurement and economic relevance should dictate how these metrics should best be used. For example, although customer satisfaction is strongly related to economic value

[9]Because the portfolio includes reinvested dividends and transaction costs, the comparison with market indexes is not exactly "apples to apples," but the gains relative to market are much greater than the net effects from dividends and transaction costs. For example, with dividends and transaction costs included, the average diversified stock portfolio rose only 1% according to Lipper Research over the same time period.

[10]The year-to-year ACSI portfolio betas relative to the DJIA are .87 (2000), .67 (2001), .74 (2002), .82 (2002), and .84 (2004). The year-to-year ACSI portfolio betas relative to the S&P 500 are .83 (2000), .73 (2001), .72 (2002), .82 (2003), and .87 (2004).

[11]This is not to suggest that all securities analysts completely ignore customer satisfaction. For example, Merrill Lynch and Morgan Stanley have written reports on it, and in general, analysts attribute the surge in Apple's stock price in late 2004 to an increase in customer satisfaction.

creation and the (collective) customer may have information relevant to the financial prospects of the firm before investors do, this cannot be leveraged if measurement is flawed and unable to extract the information. Ittner and Larcker (2003) find that most companies' measurement methodologies for customer satisfaction are "mindless," misleading, and too primitive to be useful. This state of affairs is unlikely to change unless shareholders, corporate boards, and investors put more pressure on companies to account for intangible assets more effectively. If accounting were to include information about the health of the firm's customer relationships, investors would have a better understanding of the link between the firm's assets and its capacity to generate shareholder wealth, and managers would be compensated accordingly. Corporate governance would benefit as well.

If investors were to use capital more expediently to encourage firms to strive for higher levels of customer satisfaction and better quality of measurement, there would be many beneficiaries. Consumers would be better off. As consumer and equity markets become more synchronized, their joint influence may contribute to less misallocation of capital, quicker deflation of stock market bubbles (see Figures 1–3), fewer cases of security mispricings, and a better functioning of markets in general.

Although investors fail to realize the relevance of ACSI news and equity markets exhibit imperfections in this regard, the results of this study affirm the workings of free capitalistic markets with respect to the relationship between consumer utility and the flow of investment capital. Although it takes a while for equity markets and consumer markets to exercise their joint power, the finding that customer satisfaction and stock prices eventually move together suggests that most markets get it right in the long run. They apparently offer meaningful consumer choice, and short-term fluctuations and other exceptions notwithstanding, sellers may take comfort that they will (eventually) be rewarded for treating customers well and that they risk punishment for treating customers poorly.

APPENDIX
Five and Fifteen Days of Cumulative Abnormal Returns (CAR) for ACSI News Announcements

Type of News	Firm Type	N	CAR 5-Day Window	CAR 15-Day Window
Increase in ACSI	Manufacturing and services	80	1.85	–.95
	Manufacturing	48	.98	1.23
	Services	32	3.15	–4.22
Decrease in ACSI	Manufacturing and services	81	–.22	–1.65
	Manufacturing	41	–.78	–2.72
	Services	40	.36	–.55

Notes: None of the cumulative abnormal returns are significant at the 5% level based on nonparametric bootstrapped tests (two tailed).

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