Customer Satisfaction, Future Earnings and Market Mispricing

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Abstract

This paper examines the effect of customer satisfaction on the market's perception of firm's future earnings. Using the future earnings response coefficient (FERC) model, we find that customer satisfaction improves the extent to which current stock prices reflect future earnings. However, market expectation underestimates the future earnings benefit of customer satisfaction. Security analysts also underestimate the effect of satisfaction. We also find that analysts' misinterpretation decreases with the number of analyst following. Finally, we document that investors can more precisely appreciate future earnings news contained in satisfaction for firms with high analyst coverage, relative to firms with low analyst coverage. Overall, the finding in this study suggests customer satisfaction provides relevant information about future earnings to the market.

Keywords: Customer satisfaction; Future earnings response coefficient (FERC) model; Future earnings.

1. INTRODUCTION

Customers are the lifeblood of any organization. Without customers, a firm has no revenues, no profits and therefore no market value. In this study, weexplore four issues related to customer satisfaction that are highly relevant to firms and investors. The first issue isthat whether customer satisfaction provides market information about future earnings? Second, we examine if market participants, such as investors and analysts, fully appreciate the future earnings information incorporated in satisfaction? Third, we analyze whether analysts could help investors to understand information contained in satisfaction more precisely. Prior studies show that customer satisfaction is value-relevant (Fornellet al., 2006) and can be served as a leading indicator of the degree and stability of firm's future profit (e.g., Anderson and Sullivan, 1993; Narayandas, 1998; Anderson and Mansi, 2009).

Although a positive relationship between customer satisfaction and firm's future earnings is well-established, little study investigates whether customer satisfaction provides useful information that enable markets to predict firm's future earnings. To fills the gap, we take extant research on information content of customer satisfaction one step further by examining whether customer satisfaction increases the ability of the market to price future earnings. Specifically, we examine whether customer satisfaction affect the relation between current annual stock returns and future earnings for firms with higher customer satisfaction as compared to firms with lower customer satisfaction.Other researchers have employed this methodology, developed in Collins, Kothari, Shanken, and Sloan (hereafter, CKSS, 1994) to examine whether disclosures 'bring the future forward' (Lundholm and Myers, 2002) and whether income smoothing increases the informativeness of earnings (Tucker and Zarowin, 2006).

The crucial notion underlying this approach is that the greater the association between current returns and future earnings, the more the information about future earnings that is provided by, in this paper, customer satisfaction, that is not reflected in current and past earnings. That is, investors are better able to predict future earnings for higher customer satisfaction firms resulting in current returns reflecting more of future earnings. Using the American Customer Satisfaction Index (ACSI) database of 757 firm-year observationsfrom 1997 to 2006, the empirical results show that the stock returns of firms with higher customer satisfaction have a higher future earnings response coefficients

(FERCs) than the firms with lower customer satisfaction, namely higher customer satisfaction firms reflect more information about future earnings than lower customer satisfaction firms, confirming the important role of customer satisfaction in providing relevant information about future earnings.

Since customer satisfaction represents a forward-looking indicator of the degree and stability of future profit streams, it helps investors to better evaluate future earnings news.However, the future-earnings implication of nonfinancial measures (e.g., customer satisfaction in this paper) that are not dominated in monetary terms is more complicated than the use of financial, dollar-denominated measures (e.g., order backlog (Rajgopal et al., 2003).This raises the question of whether investors adequately incorporate the implications of customer satisfaction for future earnings when valuing firms.In this study, we examine the relation between customer satisfaction and stock price changes following earnings announcement for identifying whether market fully comprehend the information contained in customer satisfaction. If returns concentrate around earnings announcements, this would suggest market inability to fully understand the information about future earnings contained in satisfaction. The empirical results indicate market underestimates the impacts of ACSI and make the correction when earnings information is released.

Having documented evidence of investors' inability to assess the contribution of customer satisfaction to future earnings, this study turns to examine whether analysts, who are considered to be sophisticated market participants,fully appreciate the future earnings implications of customer satisfaction when they generate earnings forecasts. Using analyst earnings forecasts data retrieved from I/B/E/S, we obtain the results showing that analysts' forecasts errors are positively associated with customer satisfaction, suggesting that analysts underestimate the contribution of customer satisfaction on future earnings. On the other hand, Bowen et al. (2008) indicates more analyst coverage increasesanalysts' collective ability to uncover and disseminate information. Thus, we further investigate whether more analyst coverage mitigates analyst's misunderstanding of implication incorporated in satisfaction. The results confirm our conjecture that satisfaction-based estimation errors decrease with number of analyst coverage.

Since analyst's evaluationon future earnings news contained in satisfaction isless biased for firms with high analyst coverage, than ones with low analyst coverage. Given that financial analysts likely guide investors' assessment of value implications of public

information (Barth et al., 2001), we hypothesize market investors can more appreciate earnings information contained in customer satisfaction for the firms with higher analyst coverage, relative to firms with lower analyst coverage. The empirical results show that the association between customer satisfaction and abnormal return around future earnings announcement periods is significantly stronger for firms with low analyst coverage than firms with high analyst coverage, implying that investors can more precisely appreciate future earnings information contained in satisfaction for the firms with more analyst coverage.

This research contributes to the literature in several ways. First, although the value impact of customer satisfaction is well recognized, the effects of customer satisfaction on the ability of stock returns to reflect future earnings, however, have not been widely appreciated.Our analysis provides fresh evidence about the information content of customer satisfaction: the market understands and can better anticipate firms' future earnings based on forward-looking information contained in customer satisfaction. Second, the issue of market efficiency regarding customer satisfaction has been inconclusive.We add to the literature by adopting a differentperspective to provide new insight into this debate.Third, we provide all new evidence that investors can better understand future earnings contained in customer satisfaction for the firms with high analyst coverage, relative to firms with low analyst coverage. That is, analysts could be served as an information channel through which investors can better utilize customer satisfaction in forming expectations about future earnings.

The remainder of this paper is organized as follows. Section 2 provides a review of the relevant literature. Section 3 describes the models,variable measurements, sample selection and data sources. Section 4 presents descriptive statistics and discusses empirical evidence.Section 5 concludes the paper with a discussion and summary of findings.

2. LITERATURE REVIEW

2.1 FUTURE EARNINGS RESPONSE COEFFICIENTS (FERCs)

FERC is the estimated coefficient of future earnings in a regression of current return on current and future earnings, controlling for future returns. That is, FERC captures the relation between current stock returns and future earnings. A higher FERC represents that

current stock prices reflect more information regarding future earnings and, namely, implying higher price informativeness. Prior research in accounting has provided empirical evidence that stock prices reflect the expectations of market participants about future earnings, as a result of the stock market anticipates future earnings with various available information, including accounting and non-accounting information (Beaver et al., 1980; Kothari and Sloan, 1992). Since more and more stock market participants have much better abilities to forecast future earnings, current stock returns will catches up more information on future earnings.

Extant literatures have proved that information environment can be an important factor of FERC. Gelb and Zarowin (2002) and Lundholm and Myers (2002) suggest that expanded disclosure helps investors to better predict future performance by bringing the future forward, and thus FERC are greater when disclose quality is higher. Lee et al. (2007) find that investors are able to better anticipate future earnings when financial statements are audited by the big accounting firms. Prior studies also document that information dissemination function provided by information intermediaries (e.g., financial analysts and institutional investors) helps to enhance price informativeness (Jiambalvo et al., 2002; Ayers and Freeman, 2003; Piotroski and Roulstone, 2004; Dhiensiri et al., 2005). Choi et al. (2010) suggest that more frequent and more accurate management forecasts assist investors in better predicting future earnings, reflected by higher FERCs.

In addition to information environment, other studies suggest that accounting policies also affect future earnings information contained in current returns. Tucker and Zarowin (2006) find that the relation between current stock prices and future earnings is stronger when earnings have been smoothed using discretionary accruals. Hanlon et al. (2007) point out that relative to non-dividend paying firms, dividend paying firms have current returns that are more associated with future earnings. Oswald and Zarowin (2007) present that firms who capitalize R&D expenditures rather than expensing them are associated with greater stock price informativeness (higher FERC). Orpurt and Zang (2009) suggest that firms producing direct method cash flow statements enhance forecasts of cash flows and earnings, and reflect more future performance in current stock returns than those firms applying indirect method.

2.2 CUSTOMER SATISFACTION AND FERC

It is widely accepted that delivering products and services of high quality leads to

customer satisfaction and in turn to higher profits. Customer satisfaction positively affects customer retention (Anderson and Sullivan, 1993; Bearden and Teel, 1983; Bolton and Drew, 1991), word of mouth (Anderson, 1998; Fornell, 1992), willingness to pay (Homburg et al., 2005), usage (Bolton and Lemon, 1999), and cross-selling opportunities (Reichheld and Sasser, 1990; Hallowell, 1996). Also, customer satisfaction reducing customer reactions with negative economic consequences for the firm, such as complaints (Fornell, 1992), payment defaults (Bolton, 1998), and search (Ratchford and Srinivasan, 1993).

Via its influence on customer behavior, customer satisfaction is predicted to increase future revenues (Fornell, 1992; Rust and Zahorik, 1993; Rust etal., 1994, 1995) and reduce the cost of associated customer transactions (Reichheld and Sasser, 1996; Srivastava et al., 1998). Customer retention implies a stable customer base that provides relatively predictable future sales and lowers associated costs, that is, less vulnerable to competition and environmental shocks (Anderson and Sullivan, 1993; Narayandas, 1998). Positive word of mouth from satisfied customer brings about higher growth in sales and more efficient acquisition of new customers (Anderson, 1998; Fornell, 1992). Greater customer satisfaction also increase the willingness of customer to pay, namely, high customer satisfaction enables the firm to charge higher price (Anderson, 1996; Narayandas, 1998). Cross-selling not only enhances the sales of the firm but also leads to faster market penetration, then, accelerates firm's cash flow (Srivastava et al., 1998). Anticipated future net cash flows should also increase as a result of increased usage (Anderson and Mansi, 2009).

In addition to the linkages between customer satisfaction and customer behavior, Ittner and Larcker (1998) find that customer satisfaction has a positive impact on firm performance.Prior research documents that customer satisfaction positively affects operating margin (Bolton, 1998; Rust et al., 1994, 1995), profit margins (Ittner et al., 2009), return on assets (ROA) and return on invested capital (ROI) (Anderson et al., 1994; Anderson et al., 1997; Ittner et al., 2009), accounting returns (Ittner and Larcker, 1998), net cash flow and profitability (Bolton, 1998; Gruca and Rego, 2005; Mittal and Kamakura, 2001; Rust et al., 1994). Furthermore, Anderson et al., (2004) find a positive association between customer satisfaction and shareholder value as measured by Tobin's q, and Fornell and colleagues (2006) show that customer satisfaction helps explain changes in equity prices.

A large amount of literature demonstrates that increased customer satisfaction is associated with higher firm future profits and/or value. However, few studies have explored whether the customer satisfaction enhances the amount of future earnings reflected in current return. In this paper, we provide the extensive theoretical and empirical examination of the association between customer satisfaction and future earnings.

Through prior literature, it is widely accepted and credibly established that customer satisfaction enables the firm to improve its level and stability of profitability. Therefore, the fundamental logic that underlies this paper's framework is that (1) high customer satisfaction is a significant signal of the strength of the firm's customer relationships, (2) favorable customer relationships enable firms to obtain more stable future performance, and (3) stable customer base that provides a relatively predictable source of future profitability and diminish the uncertainty and fluctuation of firm's future earnings.Therefore, we expect that *firms with higher customer satisfaction will have greater FERC than those with lower customer satisfaction, ceteris paribus.*

3. DATA AND METHODOLOGY

3.1 DATA

To conduct empirical tests, we collect data on customer satisfaction, firm value, and a set of control variables. There are multiple sources involved, including the American Customer Satisfaction Index (ACSI) for customer satisfaction, Center for Research of Securities Prices (CRSP) for stock returns, and COMPUSTAT database for financial information.

We acquire data regarding customer satisfaction from the ACSI project conducted by the National Quality Research Center at the University of Michigan's Stephen M. Ross School of Business. The ACSI is a unique national system of customer satisfaction measurement that covers more than 200 corporate and government organizations, selected to represent fully the largest industries in the seven major sectors of the U.S. economy. It was established in 1994, and data are collected on an annual basis. The index is the only uniform and independent measurement system on customers' satisfaction and future intentions regarding the products and services they consume. The ACSI data have been

used broadly in research published in a variety of academic journals since its debut[1].

Fornell and colleagues (1996) describe the methodology underlying the ACSI in detail. Briefly, the ACSI is estimated from telephone and Internet survey responses. Each organization's index is based on more than 200 individual respondents. Respondents are identified and data are collected in a manner that is completely independent of any of the organizations measured by the ACSI. The methodology produces a single overall customer satisfaction score for each organization. The ACSI scores range from 0 to 100; higher numbers represent higher levels of customer satisfaction. Data are collected throughout the year, but data for each industry are collected at the same time during each year.

3.2 MODEL AND EMPIRICAL PREDICTIONS

The CKSS framework has its theoretical basis in the discounted cash flows valuation model. CKSS argue that investors' revisions in dividend expectations are summarizedby their revisions in earnings expectations, which allows them to express current stock returns as a function of the current period's unexpected earnings and changes in expected future earnings.Thus, their returns-earnings relation is modeled as follows:

$$RET_t = b_0 + b_1 UX_t + \sum_{k=1}^{3} \gamma_k \, \ddot{A}E_t(X_{t+k}) + \varepsilon_t \quad \textit{Eq. (1)}$$

where $RET_t$is the ex-dividend annual stock return for Year *t*, $UX_t$is the difference between the realized earnings for Year *t* and what was expected at the beginning of the year, X_{t+k} is the reported earnings for Year $t+k$, and $\ddot{A}E_t(X_{t+k})$ is the change in expectations between the end and beginning of Year *t* for Year $t+k$earnings. Here, b_1 is the current period earnings response coefficient (ERC), γ_k is the FERC for Year $t+k$, both of which are predicted to be positive.

CKSS use the reported earnings for Year *t-1* as the proxy for the expectation component of UX_t.CKSS use the realized earnings for Year $t+k$ as a proxy for the expectation formed at the end of Year *t*, and use past earnings to form an expectation at the beginning of Year *t*. However, there are errors in variables problems in the model because investor expectations are unobservable.Ideally, the explanatory variables in a

[1]See Ittner and Larcker(1998); Anderson et al. (2004); Grucaand Rego(2005); Fornell et al. (2006); Luo et al. (2009); Tuli&Bharadwaj (2009).

return-earnings regression should only reflect information that arrives during period *t*. However, the variable X_t includes old information that has already been reflected in past returns. Similarly, any surprises in X_{t+k} are unrelated to RET_t and also act as measurement error in the X_{t+k} variables. To reduce the measurement error in using realized future earnings to proxy for investor expectations, CKSS include future returns in the model. The logic underlying the inclusion of future returns is that if realized earnings are higher (lower) than expectations, stock price should increase (decrease) accordingly from Year *t+1* to *t+k*.

To investigate the ability of stock prices to reflect future earnings, as measured by the FERC, we follow the work of CKSS (1994), Lundholm and Myers (2002), and Tucker and Zarowin (2006). Based on the observation that accounting recognition lags stock returns in measuring value creation, these papers add future earnings into the regression of current returns on current earnings and do not restrict the condition that earnings follow a random walk.

$$RET_t = b_0 + b_1X_{t-1} + b_2X_t + b_3X_{t3} + b_4RET_{t3}+\varepsilon_t \quad Eq.\ (2)$$

whereRET_t is current annual stock returns for year *t*. X_{t-1}, X_t and X_{t3} represent the prior, the current, and realized future earnings aggregated over three years, respectively. X_{t-1} and X_t are used to capture the market's prior expectation about future earnings. Since future earnings contain the unexpected and expect components and only expected component is relevant for current stock returns, Collins et al. (1994) use future returns RET_{t3} as an instrumental variable to eliminate the unexpected component of realized future earnings (X_{t3}). In *Eq.* (2), the coefficient $b_3$is the FERC of our interest, and is predicted to be positive. The coefficient on past earnings (b_1) is predicted to be negative, the current ERC (b_2) is predicted to be positive, and the coefficient on future returns (b_4) is predicted to be negative.

To formally test the the effect of customer satisfaction on FERC, we extend *Eq.* (2) by adding the customer satisfaction measure ACSI, and we interact ACSI with the earnings variables. The empirical model is as follows:

$$RET_t = b_0 + b_1X_{t-1} + b_2X_t + b_3X_{t3} + b_4RET_{t3} + b_5ACSI_t + b_6ACSI_t*X_{t-1} + b_7ACSI_t*X_t + b_8ACSI_t*X_{t3} + b_9ACSI_t*RET_{t3} + \varepsilon_t \quad Eq.\ (3)$$

In *Eq.*(3), the primary coefficient of interest is b_8, the coefficient on the interaction term of future earnings with customer satisfaction. We predict b_8 to be positive indicating that customer satisfaction enhances the market's ability to anticipate future earnings. We have no prediction for the coefficients on $ACSI_t$, $ACSI_t*X_{t-1}$, $ACSI_t*X_t$, and$ACSI_t*RET_{t3}$. In following tests, we also include various robustness tests and control variables. Control variables are introduced for the size of the firm (proxied by the market value of equity), whether the firm makes a loss of not, growth opportunities (proxied by the book-to-market ratio), earnings volatility (proxied by the standard deviation of future earnings), and number of analysts following the firm. The measurements of variables are provided in Table 1.

[Insert Table 1]

4. EMPIRICAL RESULTS

4.1 DESCRIPTIVE STATISTICS AND CORRELATION ANALYSIS

Panel A of Table 2 summarize the statistic of customer satisfaction and sample distribution by years. The average ACSI score of ten years is 76.040, from this, the score of each year is stable. Panel B of Table 2 provides a breakdown of the numberof firm-year observations based on Standard IndustrialClassification single-digit codes. Industries in the sampleinclude manufacturing(food-petroleum),manufacturing (plastics-electronics), transportation and communication (excluding utilities), Wholesale trade and retail trade, finance, services(hotels-recreation) and public administration. Most of the firms in thesample are in transportation and communication (30.25%), manufacturing (food—petroleum) (23.51%) and wholesale trade and retail trade (17.44%). The fewestobservations are in public administration (1.19%).

[Insert Table 2]

Descriptive statistics and a correlation matrix of variables are presented in Table 3. Panel Aof Table 3 shows descriptive statistics for the variables used in the regressions. Current stock returns (RET_t) have a mean (median) of 9.94 % (6.85 %), and current earnings per share divided by the beginning share price (X_t) have a mean (median) of 4.80 % (5.23 %). Current stock returns are positively skewed, while current earnings are negatively skewed. The standard deviation of future threeyears form year t+1 ($EarnStd_t$) have a mean (median) of 3.19 % (1.36 %). Mean and median market capitalization ($Size_t$)

are 9.5453 billion and 9.4881 billion respectively,revealing that the sample consists primarily of larger firms. Mean book-to-market ratio is 0.4342. The average number of analyst following a firm is about 2, with a range from 0 to 41.

In the panel B of Table 3, Pearson (Spearman) correlations are provided above (below) the diagonal.Current stock returns (RET_t) are positively correlated with current and future earnings ($X_t$and X_{t3}), as expected. Returns are negatively correlated with past earnings (X_{t-1}), in line with the mean-reverting mature of earnings. As expected, the future returns variable (RET_{t3}) are positively correlated with future earnings (X_{t3}). However, one concern is the statistically significant negative correlation between current returns (RET_t) and future returns (RET_{t3}) (Pearson correlation = -0.1151 and Spearman correlation = -0.1003). As a result, future returns may influence regression results beyond their role as a measurement error proxy. Orpurt and Zang (2009) also show a significant correlation between these variables in their Panel D of Table 2. Both Pearson and Spearman correlations show that customer satisfaction ($ACSI_t$) is positively correlated with future earnings figures.

[Insert Table 3]

4.2 THE EFFECT OF CUSTOMER SATISFACTION ON THE FERC

In this section, we use OLS regression analyses to test whether firms with higher customer satisfaction have greater FERC than firms with lower customer satisfaction. Standard errors for all regressions are corrected for heteroskedasticity and within-firm clusters. To compare with previous studies, in Panel A of Table 4, we first present the results of benchmark model (Eq. (2)). As previously predicted, both the coefficient on X_{t3} (FERC) and the coefficient on X_t, are significantly positive (0.7449 and 0.7762, respectively), and the coefficient on $X_{t-1}$is significantly negative (-0.8280). The coefficient on RET_{t3} is also significantly negative (-0.1199), which confirms the successful role of the instrumental variable. The adjusted R^2 of the benchmark model is 14.97%, which is higher than that of the traditional earnings response coefficient (ERC) model. The significant improvement in explanatory power is consistent with the findings of Collins et al. (1994).

The second column of Panel A reports the results of primary model. The main variable of interests the coefficient on $ACSI_t$* X_{t3}, corresponding to b_8 in Eq. (3). After

including the interaction between $ACSI_t$ and the other variables in the benchmark FERC model, the coefficient on X_t is significantly positive. The coefficient of interest is significantly positive (b_8= 0.0277, *p*-value = 0.0410), suggesting that the extent to which current returns reflect the future earnings increases by 0.0277 for firms in the largest decile of customer satisfaction relative to firms in the lowest decile. Since the impact of satisfaction function in the future instead of current, the coefficient on $ACSI_t$ is insignificant. The results strongly suggest that ACSI scores convey valuable information about future earnings capacity that investors can use to place a greater current pricing weight on future expected earnings.

We then perform analyses to control for potential correlated omitted variables. Based on the work of Lundholm and Myers (2002) and Tucker and Zarowin (2006), firm size, negative earnings, firm growth, earnings volatility, and analyst coverage have all been shown to be significantly related to the FERC. Thus, we estimate the model similar to Eq. (3) above but with the addition of these explanatory variables, each separately interacted with the future earnings variable as well as included individually.

Panel B of Table 4 shows the estimation results for the models by adding individual control variable. After controlling for these factors, the coefficients on $ACSI_t$* X_{t3} remain statistically positive, strongly supporting ourexpectation that customer satisfaction provides valuable information and thus improves market's ability to impound future earnings into current returns. Besides, the coefficient on $Nanal_t$*X_{t3} are positive, suggesting that more analyst coverage is associated with an increase in the ability of stock prices to reflect future earnings.

The last column of Panel B presents the regression results for the full determinant FERC model, including the individual and individual and interaction effects of the five control variables. The explanatory power of the full model (32.40%) is consistently greater than that of the single determinant model (29.07% to 30.69%). This result suggests that these five control variables jointly improve the specification of the FERC model beyond the contribution of any single control factor. Importantly, the coefficient on $ACSI_t$* X_{t3} remains significantly positive, validating the results for the single determinant model. Overall, the findings support that increased customer satisfaction is associated with stock prices that reflect more information about future earnings, attesting to the important role of customer satisfaction in providing relevant information about future

earnings. However, whether market participants fully understand the future earnings information incorporated in satisfaction is still a question, in the next section, we will take further research on it.

[Insert Table 4]

4.3 DOES MARKET FULLY APPRECIATE FUTURE EARNINGS INFORMATION CONTAINED IN CUSTOMER SATISFACTION?

From preceding empirical results, we know that the market understands and can better anticipate firms' future earnings based on forward-looking information contained in customer satisfaction. However, market efficiency in impounding information conveyed by satisfaction into stock prices has been inconclusive. Ittner and Larcker (1998) and Fornell et al. (2006), for example a short-window event study and find that the market does not immediately react to satisfaction news. Further, Fornell et al. (2006) and Aksoy et al. (2008) provide evidence that future stock returns are systematically related to satisfaction measures and conjectures that investors fail to fully appreciate the implications of current satisfaction for future earnings. Yet more recent research (e.g., Ittner et al., 2009; Jacoboson and Mizik, 2009; O'Sullivan et al., 2009) find that satisfaction-based mispricing is either inexistent or limited.

For conventional efficient-market models, some critics point out that stock returns might indicating risk premiums that are not properly addressed other than mispricing.In this study, we exam the relation between customer satisfaction and stock price changes following earnings announcement for identifying whether the market can fully comprehend the information contained in customer satisfaction.

If abnormal returns to the customer satisfaction are due to omitted risk factors, then future abnormal returns should not be concentrated around the earnings announcement periods (Bernard and Thomas 1989, 1990; Bernard et al. 1997), because asset-pricing models do not predict significant shifts in expected returns over short windows. Thus, if we find evidence of concentration of returns around earnings announcements, this would suggest that the abnormalreturnpredictabilityof customer satisfaction is due to market inability to fully understand the information contained in customer satisfaction. And that the market investors will revise their expectation during subsequentearningsannouncementsbecause a relatively large amount of informationreaches

the marketduringearningsannouncementperiods.

Panel A of Table 5 shows that a portfolio constructed by taking a long position in firms in the highest quartile of ACSI, Q4, and a short position in firms in the lowest quartile of ACSI, Q1, (hereafter, Q4-Q1 portfolio) produces returnsduring three-day windows of subsequent quarterly earnings announcements for one-, two-, and three-year horizons (EARet12, EARet24, EARet36) are 2.99%, 4.24%, and 5.15%, respectively.Results are nearly identical when size-adjusted returns (denoted as EASRet) are used instead of raw returns. Thus, the association between ACSI and future abnormal returns is unlikely to be due to omitted risk factorsalone. The market seems to underestimate the future benefits of ACSI, andlarge price corrections occur during future earnings announcements when significantinformation about firms' performance is released.

To check the robustness of the univariate results, weemploy regression analysis using firms in all fourquartiles of ACSI to evaluate the consistency of the relationbetween ACSI and futurereturns.Specifically, we estimate the following model:

$$EASRet = a_0 + a_1 DACSI + \varepsilon_t \qquad Eq.\ (4)$$

*EASRet*is size-adjustedreturnbeginningone day priorto the announcement of earnings for a quarter and ending one day after the announcement. We calculate *EASRet* for each of the 12 quartersafter the ACSI measurementdate. Thus, data permitting,12 observations correspondto each ACSI value.*DACSI* is the quartile rank of ACSI scaled from 0 to 1, with rank assigned annually. We use a rank measure to reduce the effect of outlier and because of the possibility of nonlinearity in the relation between *EASRet* and ACSI.

The Panel B of Table 5 reports the regression results of basic model for test of ACSI effect. The model in first column has only *DACSI* as the explanatory variable. The coefficient of *DACSI* is significantly positive (a_1 = 0.0097, p = 0.0000), suggestingACSI-related abnormal returns around earnings announcements. As an additional test of the significance of the regression coefficient on *DACSI*, we conduct the following simulation. For each firm quarter, we randomly select a three-day period from the non-earnings-announcement days starting two days after the announcement of previous quarter earnings and ending two days before the announcement of current quarter earnings. Using this random three-day period in place of the actual earnings announcement period,

we estimate Eq. (4) and obtain a value for a_1, the slope coefficient of *DACSI*. After repeat this process 999 times,we find that the there is no simulated values of the slope coefficient on *DACSI* exceed the actual slope coefficient on *DACSI*, 0.0097 (see Table 5), suggesting a significance level for a_1 of 0.001 (equal to (0 + 1)/(999 + 1); This result is consistent with the presence of a significant level of ACSI-related abnormal returns around earningsannouncements.

Having established that the ACSI-related abnormal returns around earnings announcement dates are significantly greater than zero, we now focus on how the magnitude of these abnormal returns compare with the magnitude of abnormal returns during the non-earnings-announcement period. For this purpose, we estimate the following model:

$$FullSRet = b_0 + b_1 DACSI + \varepsilon_t \quad Eq.\ (5)$$

where*FullSRet* is size-adjusted return cumulated over the period beginning two days after the announcement of earnings for the previous quarter and ending one day after the announcement of earnings for the current quarter. We calculate *FullSRet* for each of the 12 quartersafterthe ACSI measurement date. Thus, datapermitting,12 observationscorrespond to each ACSI value. The coefficient a_1, in Eq. (4) representsthree-dayearningsannouncement date abnormal returns related to the ACSI effect, and b_1, in Eq. (5) represents three-month abnormal returns related to the ACSI effect.Note that Eq. (4) and Eq. (5) are estimated using the same number of observations because we use only those observations for which data are available for both EASRet and FullSRet. This restriction makes the comparison of the coefficients across Eq. (4) and Eq. (5) more meaningful. The column 2 of Panel B reports the regression estimates of Eq. (5). The coefficient b_1, is negative and insignificant (b_1 = -0.0042, p = 0.3022), confirming the ACSI effect to abnormal returnsis concentrated around the earnings announcement periods.

We then perform analyses to control for potential correlated omitted variables. If the relation remains significant after controlling for these risk factors, then this would indicate that the ACSI effect is not driven by the omitted risk factors. Thus, we estimate the model similar to Eq. (4) and Eq. (5) above but with the additional explanatory variables. Specifically, we estimate the following model:

$$EASRet = c_0 + c_1 DACSI + c_2 DSize + c_3 DBM + c_4 DBeta + \varepsilon_t \qquad Eq.\ (6)$$

Column 3 shows the estimation results of the models by adding individual control variable. *Size* and *BM* are defined as above. *Beta* represents the systematic component of stock price variability. After controlling for these factors, the coefficient on *DACSI* remains positive and significant (c_1 = 0.0103, p = 0.0000), suggesting that omission of risk factors is not a likely explanation for the ACSI effect, validating the results for the single determinant model. Other than ACSI, only one variable –*BM* (p = 0.0121) – has significant coefficients. The difference in explanatory of the model in columns 1 and 3 (0.0027 and 0.0030, respectively) suggests that many of the risk variables, though not incrementally significant, may still have contributed in explaining the variation in EASRet. Repeating the same additional test as Eq. (4), the simulated values of the slope coefficient on *DACSI* exceed the actual slope coefficient on *DACSI*, 0.0103, only once(see Table 5), suggesting a significance level for c_1 of 0.002 (equal to (1 + 1)/(999 + 1); This result is consistent with the presence of a significant level of ACSI-related abnormal returns around earningsannouncements.

Next, In order to confirm the ACSI effect to FullSRet is significant or not while adding the same explanatory variables, we estimate the following model:

$$FullSRet = d_0 + d_1 DACSI + d_2 DSize + d_3 DBM + d_4 DBeta + \varepsilon_t \qquad Eq.\ (7)$$

From last column,we can see that the coefficient on *DACSI* is negative and insignificant (d_1 = -0.0030, p = 0.4676), consistent with the presence of a significant level of ACSI-related abnormal returns around earnings announcements.

[Insert Table 5]

4.4 DO ANALYSTS FULLY APPRECIATE THE FUTURE EARNINGS INFORMATION INCORPORATED IN SATISFACTION?

The results of preceding empirical test indicate that market participants fail to fully appreciate the information contained in customer satisfaction when forming earnings expectations. In this section, we want to explore whether or not financial analysts, who are considered to be sophisticated market participants, also underestimate the future earnings implications of customer satisfaction when they generate earnings forecasts.

Prior research demonstrates that forecast accuracy is important to analysts (e.g., Mikhail et al., 1999), and thus analysts have incentives to scrutinize relevant information, such as customer satisfaction (Ngobo et al., 2009), in their research output, such as earnings forecasts and recommendations.However, prior research also presents that there may be limits to analysts' abilities to use all accessible information (Abarbanell and Bushee, 1997), especially processing complex information, such as order backlog (Rajgopal et al., 2003) and book-tax differences (Weber 2009). This argument is particularly relevant to customer satisfaction and suggests the complex nature of accounting for customer satisfaction may lead to errors in analysts' forecasts.

If analysts incapable to correctly incorporate the effect of customer satisfaction in their earnings forecasts, we want to further examwhether more analyst coverage reduce analysts forecast errors about customer satisfaction. The expectations of analysts, like investors, are probably benefit from better information environments. Although analysts have motivations to provide quality forecasts, improving forecasts also involves costs, such as increased efforts in information gathering, processing and analyzing.Priorresearch finds that greater analyst coverage is associated with an improvement in the disseminationof information. More analyst coverage increasesanalysts' collective ability to uncover and/or disseminate information, and as a result, increases thequality of public information (Bowen et al., 2008).Given the complexity of customer satisfaction, it may be particularly costly for analysts to interpret and incorporate into their forecasts. If these costs are reduced by additional public information, then we expect that analysts' satisfaction-related errors are less severe for firms with better information environments.

Follows the work of Rajgopal et al., (2003), and Weber (2009), we present tests of the relation between customer satisfaction and analysts' forecast errors using a model that controls for various other factors known to be associated with forecast errors. In addition, we allow the association between forecast errors and customer satisfaction to vary across information environments by regressing FError on ACSI and its interaction with our proxy for information environment, the level of analyst following (*NANAL*).The empirical model is written as follows:

$$FError_{i,t+1} = b_{ind} + b_{year} + b_1 ACSI_t + b_2 ACSI_t * NANAL_t + b_3 SIZE_t + b_4 BM_t + b_5 ACC_t + b_6 TIME_t + \varepsilon_t \quad Eq.\ (8)$$

where $FError_{i,t+1}$ is the firm *i*'s actual *t*+1 earnings minus the consensus forecast ofthose earnings, deflated by month 1 stock price after ACSI publish.ACC_t is the ratio of accruals to average total assets for year *t*. $TIME_t$isthe time from consensus date of analysts' forecasts in year *t* to actual earnings announcement date in year *t*+1. Other variables are as previouslydefined.

Prior research (Brown, 1997) reports that larger firms tend to have fewernegative earnings surprises, thus we predict a positive relation between firm size and forecast errors. Next, the book-to-market ratio (BM_t), Brown (2001) indicates that growth firms tend to have fewer negative earnings surprises. Bradshaw et al. (2001) suggest that forecast errors are negatively related toaccounting accruals and conclude that analysts' forecasts are inefficient withrespect to the information in accruals. Finally, the closer the date of actual announcement, analysts' forecasts are more accurate.

Table 6 presents the results.This result is consistent with analysts failing to fully incorporate the relation between customer satisfaction and future earnings into their forecasts(b_1 = 0.0065, p = 0.0175).The estimated coefficients on various control variables are consistent with those discussedabove. As expected, the coefficient on *BM* is significantly negative (b_4 = -0.0029, p = 0.0492), and the coefficients on *TIME* is positive and significant (b_6 = 0.0024, p = 0.0030).Importantly, the coefficient on the interaction between *ACSI* and *NANAL* is significantly negative (b_2 = -0.0022, p = 0.0228), which indicates that satisfaction-related forecast errors are mitigated by better information environments.

Overall, the results in Table 6 provide evidence that analysts' satisfaction-related errors are less severe when they have access to better information environments.These results are also consistent with the notion that satisfaction-related information can be complex and thus costly to fully incorporate into forecasts, suggesting the possibility that satisfaction-related forecast errors are the result of analysts opting to avoid incurring these costs when they are relatively high (i.e., when information environments are weaker).

[Insert Table 6]

4.5 THEMODERATE EFFECT OF ANALYST COVERAGE ON THE ASSOCIATION BETWEEN CUSTOMER SATISFACTION AND ABNORMAL RETURN

Luo et al., (2010) points out that analyst recommendation mediate the effects of changes in customer satisfaction on firm abnormal return. Thus, financialanalystis important due to the prominent role that analyst play as informationintermediaries in capital markets.From section 4.4, we know that analysts' satisfaction-related errors are less severe when they place in better information environments, that is, more analyst coverage increases analysts' collective abilities to analyze, interpret, and apply complex data (in this article, customer satisfaction). Given analyst' effort, the information about future earnings comprised in customer satisfaction may pass through analyst coverage and reflect in current stock prices. Hence, in this section, we want to explore whether investors can more appreciate earnings information contained in customer satisfaction for the firms with higher analyst coverage, relative to firms with lower analyst coverage.

The empirical model is similar to Eq. (4). To test this question, we divide the sample into two groups based on the median value of analyst coverage. The abnormal return is expected to be lower for the high analyst coverage group, as compared to the low coverage group. In order to capture the moderating effect of analyst coverage, we define a dummy variable - high analyst coverage (*HINANAL*) – that equal to one if the firm is classified as high NANAL group, and zero otherwise. The empirical model is as follows:

$$EASRet = a_0 + a_1 DACSI + a_2 DACSI * HINANAL + a_3 HINANAL + \varepsilon_t \qquad Eq.\ (9)$$

$$EASRet = b_0 + b_1 DACSI + b_2 DACSI * HINANAL + b_3 HINANAL + b_4 Size + b_5 BM + b6Beta + \varepsilon_t Eq.\ (10)$$

The results of the tests for differences in the effect of customer satisfaction on the abnormal return around the earnings announcement between the high and low analyst coverage groups are shown in Table 7. The tests are based on the Eq. (9) and Eq. (10), where the coefficient of interest is *ACSI * HINANAL*,which represents the difference in the association between customer satisfaction and the abnormal return around the earnings announcement between the high and low analyst coverage groups. Table 7 reports the results of two regression specifications. Column 1 includes variable in the basic model and *ACSI * HINANAL*,and Column 2 adds other control variables. In both specifications, the coefficients on *ACSI* continue to be significant positive (0.0130 and 0.0142, respectively), and those on interaction variables*ACSI * HINANAL* are significant negative (-0.0061 and -0.0073, respectively), indicating better information environment do reduce

abnormalreturn around earnings announcement.This result confirms our argument that investors can more appreciate earnings information contained in customer satisfaction for the firms with higher analyst coverage, relative to firms with lower analyst coverage.

[Insert Table 7]

5. CONCLUSIONS

In this paper, we address several issues regarding the relationship between customer satisfaction and future earnings. First, using FERC methodology, we find that increased customer satisfaction is positively associated with the extent to which stock prices reflect future earnings, attesting to the important role of customer satisfaction in providing relevant information about future earnings. However, we find that abnormal returns associated with customer satisfaction are concentrated around future earnings announcements, suggesting that market underestimates the effect of customer satisfaction on future earnings. Besides, we provide evidence that analysts'forecast errors are positively associated with satisfaction, implying that even sophisticated analysts cannot fully incorporate the implication of customer satisfaction into their earnings forecasts. Since analysts' forecast errors decrease with the number of analyst following,wefurther find that investors can more precisely appreciate future earnings news contained in satisfaction for firms with high analyst coverage, relative to firms with low analyst coverage.

The findings of this paper offer a number of implications to several parties. For policy makers, customer satisfaction is important because it contains future earnings information. As a leading indicator of firm performance, we suggest the value-relevance of customer satisfaction should be emphasized and considered to be disclosed in financial reporting.For managers, who aim at maximizing wealth of shareholders, should understand that customer satisfaction is the source of future profits. In the long run, improving customer satisfaction is beneficial to firm value. For academics, financial analysts are helpful to investors in interpreting complex and non-financial information. Also, more analyst coverage makes public information more transparent. For investors, the contribution of customer satisfaction on future profit streams is higher than what they expected. Thus, investors should put more weight on customer satisfaction in evaluating the prospect and value of the firm.

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TABLE 1
Variable Measurements

Variables	Measurements
RET_t	The buy-and-hold annual returns during the 12-month period starting three months following the firm's *t*-1 fiscal year-end.
X_{t-1}	Earnings per share for fiscal Year *t* -1, deflated by the stock price at the beginning of Fiscal Year *t.*
X_t	Earnings per share for Fiscal Year *t*, deflated by the stock price at the beginning of Fiscal Year *t.*
X_{t3}	The sum of earnings per share for Fiscal Years *t* +1 through *t* +3, deflated by the stock price at the beginning of Fiscal Year *t.*
RET_{t3}	The buy-and-hold stock return for Fiscal Years *t* +1 through *t* +3 starting three months following the firm's *t* fiscal year-end.
$ACSI_t$	A measure of firm's customer satisfaction of Fiscal Year *t*, ranging from 0 to 100.
Control variables	
$Size_t$	The natural log of market capitalization at the beginning of Fiscal Year *t.*
BM_t	Book value of equity divided by market value of common shares outstanding at the beginning of Fiscal Year *t.*
$Loss_t$	1 if a firm reports negative earnings for Fiscal Year *t* and 0 otherwise.
$EarnStd_t$	The standard deviation of earnings per share for Fiscal Years *t*+1 to *t*+3, deflated by the stock price at the beginning of Fiscal year *t.*
$Nanal_t$	The natural log of (one plus the number of analysts following in the latest month prior to earnings announcement for Fiscal Year *t.*).

Table 2

Sample Selection and Distribution

Panel A: Sample Distribution by Year

Fiscal Year	N	Mean	Std. Dev.	P5	P95	Min	Max
1997	53	74.896	5.959	64.000	84.000	60.000	85.000
1998	76	76.243	5.936	65.000	84.000	61.000	85.500
1999	72	75.806	5.494	65.000	84.000	61.000	86.000
2000	78	76.538	5.808	66.000	85.000	59.000	87.000
2001	88	74.903	6.895	64.000	84.000	49.000	87.000
2002	89	75.978	5.870	66.000	85.000	56.000	87.000
2003	89	76.118	5.601	66.000	84.000	55.000	85.000
2004	92	75.750	6.242	66.000	85.000	56.000	90.000
2005	99	75.783	6.098	65.000	85.000	58.000	88.000
2006	21	78.381	6.095	71.000	87.000	67.000	91.000
Total	757	76.040	5.874	66.000	84.000	49.000	91.000

Panel B: Industry Segmentation Data

SIC Code	Titles of Industries	Firm-Year Observations	Observations (%)
2	Manufacturing (food—petroleum)	178	23.51
3	Manufacturing (plastics—electronics)	99	13.08
4	Transportation and communication	229	30.25
5	Wholesale trade and retail trade	132	17.44
6	Finance, insurance, and real estate	72	9.51
7	Services (hotels—recreation)	38	5.02
9	Public administration	9	1.19

Panel A reports sample (ACSI scores) distribution by years. Panel B presents Industry segmentation data, transportation andmanufacturing (food—petroleum) account for more than 50%.

TABLE 3
Sample Statistics

Panel A: Descriptive statistics

Variable	Mean	Std. Dev.	Median	5%	95%
RET_t	0.0994	0.3522	0.0685	-0.4292	0.7239
X_{t-1}	0.0437	0.0652	0.0507	-0.0181	0.1024
X_t	0.0480	0.0600	0.0523	-0.0227	0.1141
X_{t3}	0.1679	0.1516	0.1613	-0.0428	0.4205
RET_{t3}	0.1911	0.6270	0.1014	-0.6000	1.2129
$Size_t$	9.5453	1.3479	9.4881	7.3880	11.7670
$Loss_t$	0.0687	0.2531	0.000	0.0000	1.0000
BM_t	0.4342	0.3242	0.3815	0.0644	0.9667
$EarnStd_t$	0.0319	0.0733	0.0136	0.0027	0.1084
$Nanal_t$	2.4628	0.9874	2.7726	0.0000	3.4012

Panel B: Pearson (Spearman) Correlation below (above) the Diagonal (Full sample)

	RET_t	X_{t-1}	X_t	X_{t3}	RET_{t3}	$ACSI_t$	$Size_t$	$Loss_t$	BM_t	$EarnStd_t$	$Nanal_t$
RET_t		**0.1458**	**0.2444**	**0.2337**	**-0.1003**	-0.0073	**-0.1011**	**-0.0861**	**0.1386**	**0.0811**	-0.0272
X_{t-1}	-0.0703		**0.5163**	**0.2840**	-0.0529	-0.0599	**-0.1753**	**-0.1870**	**0.3736**	**0.1431**	**-0.1601**
X_t	**0.2037**	**0.3146**		**0.4782**	-0.0027	-0.0656	**-0.1724**	**-0.4381**	**0.3245**	**0.1765**	**-0.1196**
X_{t3}	**0.2867**	0.0163	**0.2509**		**0.3914**	**-0.0786**	**-0.1743**	**-0.1120**	**0.3764**	**0.1244**	**-0.1049**
RET_{t3}	**-0.1151**	**-0.1694**	**-0.1848**	**0.3020**		0.0134	**-0.1664**	**0.1403**	**0.1530**	0.0476	**-0.0980**
$ACSI_t$	-0.0160	**0.0951**	0.0227	-0.0311	-0.0357		**0.0895**	**-0.1542**	**-0.3670**	**-0.2408**	**-0.1981**
$Size_t$	**-0.1348**	**0.0993**	0.0274	**-0.1092**	**-0.2024**	0.0694		**-0.1813**	**-0.4163**	**-0.3044**	**0.3912**
$Loss_t$	**-0.0930**	**-0.2848**	**-0.6881**	**-0.1303**	**0.2314**	**-0.1710**	**-0.2091**		**0.1680**	**0.2279**	**-0.1037**
BM_t	**0.1495**	-0.0251	**-0.0803**	**0.2044**	**0.2236**	**-0.3059**	**-0.3823**	**0.2186**		**0.4368**	**-0.2340**
$EarnStd_t$	**0.1223**	**-0.1392**	0.0046	**-0.0758**	0.0574	**-0.1764**	**-0.2115**	**0.2087**	**0.2592**		**-0.2256**
$Nanal_t$	-0.0641	-0.0074	-0.0036	-0.0034	-0.0256	**-0.1354**	**0.1828**	**-0.1028**	**-0.1279**	**-0.1302**	

Panel A presents descriptive statistics for the variables used in the regressions. Panel B show correlations among the variables used in the benchmark FERC regressions. Significance of the correlation coefficients at the 5% level or higher are marked in bold. All variables are defined at Table 1.

TABLE 4

Regressions of FERC Models: Analyzing the Effect of Customer Satisfaction

Panel A: Main Tests (Full sample)

	Benchmark CKSS Model		Primary Model	
Variables	Coefficient	*p*-value	Coefficient	*p*-value
Intercept	-0.0036	(0.8457)	0.0385	(0.8582)
X_{t-1}	-0.8280***	(0.0000)	-2.2456	(0.1422)
X_t	0.7762***	(0.0005)	7.4484***	(0.0017)
X_{t3}	0.7449***	(0.0000)	-1.4181	(0.1587)
RET_{t3}	-0.1199***	(0.0000)	0.0188	(0.9437)
$ACSI_t$			0.0000	(0.9898)
$ACSI_t$* X_{t-1}			0.0192	(0.3693)
$ACSI_t$* X_t			-0.0929***	(0.0042)
$ACSI_t$* X_{t3}			**0.0277****	**(0.0410)**
$ACSI_t$* RET_{t3}			-0.0014	(0.6835)
Adjusted R^2	0.1497		0.2905	
Observations	757	757	757	757

Panel B: Including Potentially Correlated Omitted Variables

	Adding a single control variable =					Full
Variables	$Size_t$	$Loss_t$	BM_t	$EarnStd_t$	$Nanal_t$	Model
Intercept	0.2120	-0.0050	-0.2464	-0.1298	0.2289	0.2665
	(0.3684)	(0.9827)	(0.2931)	(0.5545)	(0.3059)	(0.3729)
X_{t-1}	-2.1066	-2.2849	-2.2711	-1.6657	-2.2999	-2.3804
	(0.1652)	(0.1390)	(0.1361)	(0.2723)	(0.1315)	(0.1198)
X_t	7.6426***	7.6182***	7.5880***	7.7870***	7.9722***	6.9287***
	(0.0012)	(0.0014)	(0.0017)	(0.0009)	(0.0008)	(0.0044)
X_{t3}	-0.9174	-1.4619	-1.1833	-1.5423	-2.6090**	-3.2217**
	(0.3973)	(0.1614)	(0.2360)	(0.1272)	(0.0180)	(0.0137)
RET_{t3}	0.0226	-0.0050	-0.0605	0.0655	0.0392	-0.0924
	(0.9317)	(0.9852)	(0.8213)	(0.8033)	(0.8822)	(0.7287)
$ACSI_t$	0.0006	0.0004	0.0031	0.0016	-0.0013	-0.0004
	(0.8287)	(0.9008)	(0.2814)	(0.5613)	(0.6337)	(0.9102)
$ACSI_t$* X_{t-1}	0.0180	0.0198	0.0191	0.0123	0.0194	0.0220
	(0.3960)	(0.3566)	(0.3708)	(0.5620)	(0.3626)	(0.3020)
$ACSI_t$* X_t	-0.0955***	-0.0913***	-0.0934***	-0.0986***	-0.1005	-0.0846**
	(0.0030)	(0.0050)	(0.0050)	(0.0021)	(0.0019)***	(0.0113)
$ACSI_t$* X_{t3}	**0.0278****	**0.0280****	**0.0229***	**0.0306****	**0.0383*****	**0.0421*****
	(0.0388)	**(0.0437)**	**(0.0892)**	**(0.0235)**	**(0.0067)**	**(0.0046)**
$ACSI_t$* RET_{t3}	-0.0017	-0.0012	-0.0005	-0.0022	-0.0018	-0.0002
	(0.6383)	(0.7437)	(0.8804)	(0.5332)	(0.6078)	(0.9460)
$Size_t$	-0.0208*					-0.0147
	(0.0703)					(0.2366)
$Size_t$* X_{t3}	-0.0586					-0.0134
	(0.2799)					(0.8178)
$Loss_t$		0.0836				-0.0091
		(0.1804)				(0.8885)
$Loss_t$* X_{t3}		0.0837				0.1062

		(0.6826)				(0.6110)
BM_t			0.1365***			-0.0163
			(0.0056)			(0.8044)
BM_t* X_{t3}			0.1040			0.5092**
			(0.5714)			(0.0176)
$EarnStd_t$				0.7410***		0.6140**
				(0.0000)		(0.0121)
$EamStd_t$* X_{t3}				-0.2876		0.1144
				(0.4477)		(0.8015)
$Nanal_t$					-0.0417***	-0.0339**
					(0.0047)	(0.0312)
$Nanal_t$* X_{t3}					0.1932***	0.2299***
					(0.0069)	(0.0030)
Adjusted R^2	0.3020	0.2907	0.3056	0.3069	0.2975	0.3240
Obs.	757	757	757	757	757	757

This table reports coefficients for regressions of the current stock return on the past, current and future earnings, future returns as well as interaction variable using the PLS model. All variables are as defined in Table 1. Two-tailed *p*-values are presented in the parentheses and are computed based on standard errors that are corrected for heteroskedasticity.

TABLE 5
Abnormal Returns around Future Earnings Announcements Grouped by ACSI Quartile

Panel A: Characteristics of Customer Satisfaction Quartile Portfolios Formed at the End of June Each Tear over the 1997-2006 Period

Variable	Q1 (Low ACSI)	Q2	Q3	Q4 (High ACSI)	All Firms	Q4-Q1 *t*[*z*]-stat.
ACSI	71.0843	74.3990	77.0000	79.9887	75.8000	8.95***
	[71.0000]	[74.0000]	[76.0000]	[79.0000]	[75.0000]	[5.43]***
EARet12	-0.0011	0.0015	0.0040	0.0083	0.0033	2.99***
	[0.0020]	[0.0019]	[0.0045]	[0.0074]	[0.0038]	[2.90]***
EARet24	-0.0017	0.0017	0.0032	0.0079	0.0028	4.24***
	[0.0012]	[0.0025]	[0.0034]	[0.0064]	[0.0033]	[4.08]***
EARet36	-0.0015	0.0007	0.0029	0.0081	0.0026	5.15***
	[0.0007]	[0.0020]	[0.0033]	[0.0062]	[0.0032]	[4.97]***
EASRet12	-0.0022	-0.0004	0.0026	0.0077	0.0020	3.26***
	[0.0011]	[0.0006]	[0.0041]	[0.0062]	[0.0032]	[3.02]***
EASRet24	-0.0030	0.0004	0.0021	0.0075	0.0018	4.77***
	[0.0000]	[0.0020]	[0.0033]	[0.0060]	[0.0029]	[4.37]***
EASRet36	-0.0029	0.0000	0.0020	0.0076	0.0017	5.85***
	[-0.0005]	[0.0024]	[0.0033]	[0.0056]	[0.0029]	[5.24]***
Obs.	178	203	356	177	914	

Panel B: Regressions of Full Quarter Stock Returns and Three-Day Earnings Announcement Period Stock Returns on ACSI

	Dependent Variable		Dependent Variable	
	EASRet	FullSRet	EASRet	FullSRet
Intercept	-0.0034***	0.0092***	-0.0063***	0.0120**
	(0.0017)	(0.0003)	(0.0018)	(0.0106)
DASCI	0.0097***	-0.0042	0.0103***	-0.0030
	(0.0000)	(0.3022)	(0.0000)	(0.4676)
DSIZE			0.0003	-0.0084**
			(0.8421)	(0.0318)
DBM			0.0044**	0.0012
			(0.0121)	(0.7552)
DBETA			0.0005	0.0003
			(0.7488)	(0.9395)
Adj. R^2	0.0027	0.0000	0.0030	0.0003
Obs.	10,968	10,968	10,968	10,968
Years	1997-2006	1997-2006	1997-2006	1997-2006
Results based on 999 simulated regressions(Frequency):				
$a_1 \geqq 0.0097$			0	
$c_1 \geqq 0.0103$			1	

In Panel A, EARet12, EARet24, and EARet36 (EASRet12,EASRet24, and EASRet36)are the raw (size-adjusted) one-year,two-year,and three-yeartotal returns in the three-dayperiods(-1, 0, +1) aroundquarterlyearningsannouncements. In Panel B, FullSRet is size-adjustedreturn(in percentage)beginningtwo days afterearningsannouncement dateof the previousquarter and ending one day after earningsannouncement date of the currentquarter;and EASRetis size-adjustedreturn (in percentage)beginningone day prior to the earningsannouncement date and ending one day after earnings

announcement date of the currentquarter, where size-adjustedreturnis definedas raw buy-and-holdreturnless NYSE/AMEX size-decilereturn. Amaximumof 12 quarterlyFullSRetand 12 quarterlyEASRetvaluescorrespond to each ACSI value; *DASCI*,*DSize*, *DBM*, and *DBeta* are the quartile rank measure scaled from 0 to 1, in ascending order of ACSI each year; and *Beta*represents the systematic component of stock price variability.

Table 6
The Effect of Information Environment on Forecast Errors

	Expected sign	Estimated coefficient	p-value
$ACSI_t$	+	0.0065**	(0.0175)
$ACSI_t$*$NANAL_t$	−	-0.0022**	(0.0228)
$SIZE_t$	+	-0.0001	(0.6832)
BM_t	−	-0.0029**	(0.0492)
ACC_t	−	0.0099	(0.1936)
$TIME_t$	+	0.0024***	(0.0030)
Adj. R^2		0.0180	
Obs.		609	

The model includes industry- and year-specific fixed effects (not tabulated). $FError_{i,t+1}$ is the firm *i*'s actual *t*+1 earnings minus the consensus forecast ofthose earnings, deflated by month 1 stock price after ACSI publish.ACC_t is the ratio of accruals to average total assets for year *t*. $TIME_t$isthe time from consensus date of analysts' forecasts in year *t* to actual earnings announcement date in year *t*+1. Other variables are as previouslydefined at Table 1.

TABLE 7
Regressions of Full Quarter Stock Returns and Three-Day Earnings Announcement Period Stock Returns on ACSI*NANAL

	Dependent Variable	
	EASRet	EASRet
Intercept	-0.0050***	-0.0085***
	(0.0014)	(0.0003)
DASCI	0.0130***	0.0142***
	(0.0000)	(0.0000)
DACSI*HINANAL	-0.0061*	-0.0073**
	(0.0809)	(0.0415)
HINANAL	0.0031	0.0042*
	(0.1572)	(0.0635)
DSIZE		0.0000
		(0.9853)
DBM		0.0047***
		(0.0073)
DBETA		0.0005
		(0.7743)
Adj. R^2	0.0028	0.0032
Obs.	10,968	10,968
Years	1997-2006	1997-2006

High analyst coverage (HINANAL) equal to one if the firm is classified as high NANAL group, and zero otherwise. Other variables are as previouslydefined at Table 5