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Consumer Negative Voice and Firm-Idiosyncratic Stock Returns

Prior research has largely focused on the positive side of customer experience, such as satisfaction. In contrast, this study investigates the negative side of customer experience and tests the harmful impact of consumer negative voice on firms' stock returns. Based on a longitudinal real-world data set that matches consumer negative voice (complaint records) in the airline industry with firm stock prices, this article finds that higher levels of current consumer negative voice harm firms' future idiosyncratic stock returns. In addition, this harmful impact is robust (albeit different across airline companies) after latent heterogeneity and traditional finance fundamentals are considered. These findings enable marketers and corporate financers to be more confident with customer equity theory and customer relationship management. In addition, armed with "hard" data (record-based, longitudinal), this research helps relieve criticisms against prior studies that are based on "soft" data (survey-based, cross-sectional). To financial analysts, this research suggests that, all else being equal, they should rate downward the stocks of firms that are shadowed by harmful consumer negative voice. In today's high-tech environment with blogs and online forums, the damage caused by negative voice may be nontrivial and should not be ignored. Overall, this research demonstrates to managers that investments in reducing consumer negative voice could indeed make financial sense in terms of promoting firm-idiosyncratic stock returns.

There is little doubt that customer experience management represents an essential task for marketing practitioners (Rust, Lemon, and Zeithaml 2004). Research over the past 70 years has largely focused on the positive side of customer experience, such as satisfaction (Fornell et al. 2006; Luo and Homburg 2007; Nixon 1936). This study examines customer experience management rather differently. Specifically, it investigates the negative side of customer experience and tests the harmful impact of consumer negative voice on firm stock returns.[1]

[1]Following prior studies (Godes and Mayzlin 2004; Richins 1983; Singh 1988), I refer to consumer negative voice as a manifestation of consumer complaint responses to dissatisfaction of consumption experience. Recent research across finance, strategy, and marketing has shown that in addition to fundamentals, stock analysts are paying attention to nonfundamentals. For example, these nonfundamentals include customer satisfaction (Anderson, Fornell, and Mazvancheryl 2004; Fornell et al. 2006), advertising, and research and development (Chan, Lakonishok, and Sougiannis 2001), among others. Parallel to these studies, the current research uncovers another nonfundamental of consumer negative voice. Indeed, financial investors may know about and pay attention to consumer complaints in the airline industry because many different media reports (e.g., *The Wall Street Journal*, CNN, Yahoo Finance, Mrconsumer.com, Google.com) widely publicize the U.S. Department of Transportation (DOT) consumer complaints.

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Both academic research and the trade press suggest that it is more important to investigate negative customer experience (i.e., consumer negative voice) than positive experience (i.e., customer satisfaction). For example, prior research on negative word of mouth (NWOM) has explicitly surmised that "unfavorable information about products tends to carry greater weight with prospective buyers than favorable information" (Mahajan, Muller, and Kerin 1984, p. 1389). Chevalier and Mayzlin (2006, p. 346) recently echoed that "negative review is more powerful in decreasing book sales than positive review is in increasing sales." Indeed, as prospect theory predicts, a negative, dissatisfying customer experience may matter even more than a positive, satisfying experience because "losses loom larger than gains" (Kahneman and Tversky 1979, p. 263; see also Ho, Lim, and Camerer 2006; Mittal, Ross, and Baldasare 1998; Homburg, Koschate, and Hoyer 2005).

As the popular trade press points out, "You are never going to please 100% of your customers…. Your goal is to do the least damage [with less negative customer experience]" (Carter 2006, p. 32). In today's high-technology-based blogosphere and Internet forums, unhappy customers can unleash a flood of complaints and grievances against corporations (Einhorn 2006). Paradoxically, much less attention has been given to consumer negative voice (Richins 1983; Wangenheim 2005). Indeed, to my knowledge, no published study has examined the impact of consumer negative voice on firms' share prices.

Against this backdrop, this article tackles the following simple, but powerful questions: How harmful is consumer negative voice financially? Can consumer negative voice, as manifested in complaint records, decrease companies' stock returns? A central tenet of this article is that financial investors might believe that unhappy customers will become less loyal and purchase less, and therefore company stocks will lose value, and returns may become negative. In

testing these ideas, a real-world data set was assembled on consumer negative voice in the context of the airline industry, and this was matched with firm stock prices. The results suggest that (1) higher levels of current consumer negative voice harm firm-idiosyncratic stock returns, and (2) this harmful impact is robust, albeit different, across airline companies, after unobserved heterogeneity and traditional finance fundamentals are controlled for.

These findings are not trivial. First, theoretically, given the current focus themes, such as the impact of marketing within the financially oriented firm, it is useful to know whether the less addressed negative side of consumer experience has a significant impact on firm share prices. Such findings would enable marketers and corporate financers to be more confident with customer equity theory and customer relationship management. Second, empirically, the supported results are based on "hard" data (record-based, longitudinal), which helps relieve criticisms against prior marketing studies that are based on "soft" data (survey-based, cross-sectional). Third, practically, because investors may weigh losses (i.e., negative voice) more heavily than gains (i.e., satisfaction) (Maxham and Netemeyer 2003, p. 58; see also Mahajan, Muller, and Kerin 1984), such findings of the harmful financial impact of consumer negative voice offer relevant and clear-cut implications for financial analysts. To managers, this study is among the first to show unequivocally that reducing consumer negative voice can boost a firm's idiosyncratic stock returns for promoted shareholder wealth.

Conceptual Framework

In this section, I develop the conceptual framework by integrating the literature on consumer complaints, word of mouth (WOM), customer equity, and market-based assets. I posit that consumer negative voice influences firm-idiosyncratic stock returns.

Firm-Idiosyncratic Stock Returns

Firm-idiosyncratic stock returns are defined as the expected excessive firm-specific cash flows relative to the average market portfolio returns of stock exchanges, such as the New York Stock Exchange or the American Stock Exchange (Campbell et al. 2001; Fama and French 1993, 2005). This study focuses on firm-idiosyncratic stock returns rather than the general marketwide stock returns because the former is company specific and controllable by management (e.g., Ang et al. 2006), whereas the latter is influenced by macroeconomic factors beyond the control of management. In other words, marketwide return is influenced by macroeconomic factors, such as interest rates and inflation shocks in the country, whereas firm-idiosyncratic return is driven by micro, firm-level factors, such as marketing strategies (e.g., Chan, Lakonishok, and Sougiannis 2001; Minton and Schrand 1999; Xu and Malkiel 2003).

The finance literature suggests that for the purpose of minimizing idiosyncratic risks and hedging investments, financial analysts should pay close attention to the metric of firm-idiosyncratic excessive returns (if not more than nonexcessive average market returns) (e.g., Ang et al. 2006;

Campbell et al. 2001; Xu and Malkiel 2003). In particular, Bansal and Clelland (2004, p. 94) note that firm-idiosyncratic risk accounts for as much as "80% of total stock risk and security price fluctuations." Indeed, investors may interpret the firm-specific news (i.e., increase or decrease in consumer negative voice records) as signals of changes in the prospect of future cash flows (which then induces them to buy or sell stocks and thus drives stock price). Given the importance of firm-idiosyncratic returns to investors and financial analysts, it is useful to link this metric with marketing variables such as consumer negative voice.

Consumer Negative Voice

In this article, consumer negative voice is defined as a manifestation of consumer complaint responses to dissatisfaction, or the behavior of communicating the incidents of the unhappy product/service consumption experience. In the literature, consumer negative voice is typically regarded as a type of consumer reaction to service failure (Godes and Mayzlin 2004; Liu 2006; Mahajan, Muller, and Kerin 1984; Singh 1988) or observed product-related complaint actions of communicating negative experience (Anderson 1998; Richins 1983; Riley, Pearson, and Trompeter 2003; Wangenheim 2005). For example, in a comprehensive and widely accepted study, Singh (1988) acknowledges that consumer negative voice includes complaining to the firm, engaging in NWOM with other potential customers, and/or complaining to a third party.[2]

This definition of consumer negative voice implies that the communicated complaint responses (i.e., observed consumer complaints to government agencies about the dissatisfactory consumption experience) can be a proxy or surrogate for the construct of consumer negative voice.[3] This treatment is grounded in the literature. Just as Godes and Mayzlin (2004, p. 551) infer WOM with "observed conversations across newsgroups" regarding television ratings, the current study infers negative voice with observed consumer complaint responses in the context of airline ratings. Furthermore, Marquis and Filiatrault (2002, p. 273, emphasis added) specifically suggest that "a *manifestation* of consumer complaint is [NWOM] behavior [and consumer negative voice]." In addition, Singh and colleagues (Singh 1988, 1989; Singh and Wilkes 1996) suggest that some consumers tend to voice their negative experience in the form of engaging in complaining behaviors in response to service failures. Thus, it is reasonable to believe that consumer

[2]A person motivated to report a complaint may be far more likely to take the time to engage in negative voice or Internet-connected dialogue about his or her bad experience than someone who does not feel strongly enough to go through the effort of formally filing a complaint. In addition, reactions to dissatisfaction are not mutually exclusive. There could be halo effects among negative voice, NWOM, lawsuits, boycotts, blogs, published letters in newspapers, and other reactions.

[3]Two anonymous reviewers are gratefully acknowledged for this suggestion. In addition to inference, survey is an alternative method to measure WOM activity and customer voice (Godes and Mayzlin 2004, p. 548).

complaint behaviors can be a surrogate for consumer negative voice.[4]

The costs and damages of consumer negative voice can be substantial. First, according to the landmark work by the Technical Assistant Research Project (Richins 1983), on average, dissatisfied customers tell eight to ten friends and other people about the unhappy experience, and one of five angry consumers may tell 20 potential buyers.[5] Recently, Gerlsbeck (2006, p. 6) noted that "bad reputation can't be beat: 50% of consumers who were told of a poor shopping experience by a friend will not set foot in that store and won't be swayed by the retailer's ads." The damages due to negative voice and NWOM can exacerbate and add up easily through new technologies, such as Internet-connected dialogue and blogs, with the multiplicative networking effects (Ward and Ostrom 2006). For example, "with little constraints on airing grievances against corporations in blogosphere,… companies [e.g., Dell, Volkswagen, KFC] can get really *screwed* if they don't pay attention to bloggers and online forums" (Einhorn 2006, p. 39). Second, empirically, Harmon and Harmon (1994, p. 54) show that because of the dollar risk of negative voice, 26 dissatisfied customers can potentially induce a loss of more than $828,000 in future revenue. Thus, it seems that consumer negative voice should have direct, relevant implications for firms' stock values. Next, I go beyond this anecdotal evidence and offer a theory-based rationale on the link between consumer negative voice and firms' future idiosyncratic stock returns.

The Harmful Impact of Consumer Negative Voice on Firm-Idiosyncratic Stock Returns

Why does consumer negative voice hurt companies' future idiosyncratic stock returns? Conversely, why would less negative voice lead to higher returns? There are at least two lines of reasoning to justify this influence. First, customer equity theory is considered (Blattberg and Deighton 1996; Gupta, Lehmann, and Stuart 2004; Rust, Lemon, and Zeithaml 2004). This theory suggests that (1) a firm's customers, especially the satisfied ones, are valuable intangible assets, and (2) without a large and happy customer base, the firm will not have strong customer equity (defined as the expected sum of discounted future earnings of the customer base), and thus its expected future cash flows are not likely to be robust dynamically. Because higher incidents of consumer negative voice indicate intense frustration and dissatisfaction, firms with higher negative voice are likely to have a shrinking and less loyal customer base that reduces their future cash flows (e.g., Gupta, Lehmann, and Stuart 2004; Riley, Pearson, and Trompeter 2003; Singh 1988).[6] For example, airline customers or passengers may be so dissatisfied and frustrated that they choose to communicate the dissatisfaction and complaint to the regulatory agency of the U.S. Department of Transportation (DOT). This would likely generate less profitable situations over time (i.e., fewer customers in quantity and an inferior customer base in quality). As a result, the diminished customer intangible assets (i.e., reduced loyalty, low retention rate, and higher ratio of switching to competition) would signal lackluster future prospects of the companies' stocks to financial analysts (Luo and Homburg 2007; Riley, Pearson, and Trompeter 2003; Rose 1990), thus leading to less idiosyncratic excessive stock returns. Indeed, as theorized in the customer lifetime value (CLV) framework (Hogan, Lemon, and Rust 2002; Lewis 2006), more consumer negative voice would lead to higher retention costs, higher customer defection rates, and fewer profits, all of which diminish the calculated net present CLV and, thus, future cash flows.

Second, the logic behind the current study is based on the brand equity literature (Keller 2003; Keller and Aaker 1993). According to this literature, a firm's good brand image and strong public reputation represent another critical intangible asset that has financial content and long-term value. It is likely that in the competitive marketplace, a large amount of consumer negative voice would erode brand image and lead to diminished "reputational capital" of the firm (Day 1984; Richins 1983; Singh 1988). This is especially true in the case of negative voice in terms of observed complaints to regulatory agencies such as the DOT because (1) institutional legitimacy of the company would be harshly questioned and (2) the firm's social trust and brand reputation would be not only denigrated but also difficult to repair in the minds of customers and financial investors (e.g., Keller and Lehmann 2003; Luo and Bhattacharya 2006; Riley, Pearson, and Trompeter 2003). Indeed, according to the market-based asset theory (Srivastava, Shervani, and Fahey 1998, p. 6), brand equity implies financial strength in stock exchanges because it can "lead to higher stock value that may be tapped through price premiums or market share premiums [as well as cross- and up-selling]." Thus, by tarnishing brand image publicly and inducing higher future costs in customer acquisition and selling activities (i.e., to compensate for the damaged brand

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[4]Singh (1988, 1989) offers a comprehensive definition of consumer complaints, which include three main categories: voice, private, and third-party responses. Though not the most noble approach, it might be just cost effective and profitable to have some complaints in some industries and situations. Sometimes, the best suggestions and market intelligence may be phrased as consumer complaints (Bowman and Narayandas 2001; Tax, Brown, and Chandrashekaran 1998).

[5]It is widely agreed that there is a significant impact of positive consumer voice and WOM on consumer attitudes, purchase intensions, and decision making (Bowman and Narayandas 2001; Herr, Kardes, and Kim 1991). This impact has recently been confirmed in online and offline contexts (Chevalier and Mayzlin 2006; Liu 2006). For an excellent, general review of the drivers, nature, and outcomes of WOM, see Godes and Mayzlin (2004). Nevertheless, the WOM literature points out an important issue; that is, "negative WOM is more influential [harmful] than positive WOM" (Wangenheim 2005, p. 68).

[6]By and large, people who publicly complain to the DOT (negative voice) are not highly likely to repurchase. Indeed, prior studies on consumer postpurchase decision making have found that the most important variable to consider when predicting defection (the opposite of loyalty) is whether the consumer has engaged in negative voice, such as NWOM, about the firm (e.g., Tax and Chandrashekaran 1992). In addition, given the cost and effort required to voice complaints, consumers tend to do so only when the issue is important to them or has angered them sufficiently. This adds to the support for the notion that complaints to the DOT will also be shared with fellow consumers.

reputation and contagious public outcry), consumer negative voice would lead to lower levels of anticipated cash flows. This would ultimately lead to reduced future idiosyncratic stock returns.

In summary, companies with more consumer negative voice could feel the "pinch." That is, because of the harmed customer and brand equity, consumer negative voice (as manifested in DOT records of consumer complaint responses) could negatively influence airline companies' future idiosyncratic stock returns. Formally,

> H_1: All else being equal, airline companies' current consumer negative voice, as manifested in the number of DOT complaints, will have a negative influence on their future idiosyncratic stock returns.

Model Specification

The models are carefully specified to test the hypothesized influence of consumer negative voice on firm-idiosyncratic stock returns. Two particular points are noteworthy. First, finance fundamentals are included. This is because prior finance studies have suggested that firm-idiosyncratic excessive return is a function of the firm's fundamental variables, such as its profitability, size, and leverage (Campbell et al. 2001; Fama and French 1993, 2005); a battery of other accounting and financial control variables is also considered, as discussed subsequently. Then, consumer negative voice is entered into the model to assess the additional explanatory power of negative voice in predicting idiosyncratic stock returns beyond finance fundamentals. In line with the work of Rust, Moorman, and Dickson (2002), a time lag between the dependent variable (time t + 1) and its predictors (time t) is introduced to ensure the causal direction and to match the hypothesis; that is, current consumer negative voice reduces a firm's future idiosyncratic stock returns. As a result, the baseline model is as follows:

$$(1) \quad \text{FIR}_{it+1} = \lambda_0 + \lambda_1 \text{NVOI}_{it} + \lambda_2 \text{PROFIT}_{it} + \lambda_3 \text{SIZE}_{it}$$
$$+ \lambda_4 \text{LEVERAGE}_{it} + \sum_{k=5}^{31} \lambda_k \text{QUARTER}_k + \varepsilon_{it+1},$$

where FIR_{it} = firm-idiosyncratic stock returns; NVOI_{it} = consumer negative voice; PROFIT_{it} = firm profitability; SIZE_{it} = firm size; LEVERAGE_{it} = firm leverage; i = 1, 2, …, I firms; and t = 1, 2, …, T months. The time dummy variables QUARTER_k (27 dummies for 28 quarters) are also entered into the model because of the possible influences of different event shocks (i.e., the bursting of the dot.com bubble and September 11).

Second, latent heterogeneity in the impact of consumer negative voice is accommodated because other than observed firm differences in fundamentals, there are some firm-specific differences that are not observed in the data (or are unobservable, such as implicit cultures and personal values that are subtle and deeply embedded within a specific firm). Thus, latent heterogeneity is modeled with the random parameters modeling approach (Baltagi 2001; Brown 1999). In particular, this modeling approach allows for the possibility that firms can have different idiosyncratic

stock returns due to latent differences in both the constants (random intercepts) and the association between consumer negative voice and firm-idiosyncratic stock returns (random slopes). The resultant random parameters model is specified as follows:

$$(2) \quad \text{FIR}_{it+1} = \psi_{0i} + \psi_{1i} \text{NVOI}_{it} + \psi_2 \text{PROFIT}_{it} + \psi_3 \text{SIZE}_{it} +$$
$$\psi_{4i} \text{LEVER}_{it} + \sum_{k=5}^{31} \psi_k \text{QUARTER}_k + \varepsilon_{it+1},$$

where

$$\psi_{0i} = \pi_{00} + \varpi_{00i} \text{ (random intercepts)},$$
$$\psi_{1i} = \pi_{10} + \varpi_{10i} \text{ (random slopes)},$$
$$\varepsilon_{it+1} \sim \text{Normal } (0, \nu^2),$$
$$\varpi_{00i} \sim \text{Normal } (0, \zeta_{0i}^2), \text{ and}$$
$$\varpi_{10i} \sim \text{Normal } (0, \zeta_{1i}^2).$$

The intercept (ψ_{0i}) has a fixed grand mean (π_{00}), with a random deviation of (ϖ_{00i}) for each airline company from this grand mean constant. Similarly, the slope (ψ_{1i}) has a fixed grand mean (π_{10}), with a random deviation of (ϖ_{10i}) for each airline company.[7] The Hildreth–Houck method was used to correct autocorrelation and heteroskedasticity biases in cross-section time-series data. The log-likelihood function of this random parameters model is as follows (Baltagi 2001):

$$(3) \quad \text{LogL} = \sum_i \log L_i$$
$$= \sum_1^N \log \left\{ \frac{1}{R} \sum_{r=1}^R \left[\prod_{t=1}^{T_i} f(y_{it}, \beta_{ir}' X_{it}) \right] \right\}.$$

As H_1 predicts, the coefficient of ψ_{1i} should be negative. That is, the higher the current consumer negative voice rates, the lower are firms' future idiosyncratic stock returns.

Data and Measures

Consumer Negative Voice

A unique data set of archival complaint records from the airline industry is used to infer consumer negative voice. This archival data set captures consumer complaints (by the rate of complaints per 100,000 passengers) filed with the DOT. Since 1999, consumers, or passengers, of airline companies have been able to file complaints with the DOT in writing, by telephone, by e-mail, or in person. The DOT

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[7]Because this study examines firm-level latent heterogeneity and how negative voice affects firm-idiosyncratic returns, the specified random parameter models capture firm-specific (rather than time-specific) random deviations of the constants and coefficients. In line with the work of Rao, Agarwal, and Dahlhoff (2004, p. 133), only the coefficient (ψ_{1i}) related to the key variable (NVOI_{it}) is specified as a firm-specific random parameter in equation 2. Nevertheless, the results are robust when all coefficients (other ψ_{si}) are modeled as random parameters. Furthermore, no significant interactions were found between time dummies and consumer negative voice in the data set.

categorizes consumer complaints into 12 subcategories, including flight problems, oversales, baggage, customer service, refunds, advertising, discrimination, and animals, among others.[8]

The DOT measure of consumer negative voice is appropriate and innovative for several reasons. First, it is not self-reported by airline companies but rather is filed directly with the DOT. Thus, this measure is not subject to concerns, such as social desirability downward bias, that would exist if the complaints were reported directly by airlines themselves. Second, it is the most comprehensive and exhaustive measure because the DOT has data related to all U.S. airlines, including major airlines (e.g., American, United, Continental, Delta, Northwest, Southwest [the DOT defines an airline as major if it has at least 1% of total U.S. domestic passenger revenues]) and nonmajor regional airlines (e.g., Alaska Airlines, Spirit Airlines). Third, the DOT's reporting and filing procedures are systematic and consistent over time. Since 1999, the DOT has not changed its reporting practices, except for minor adjustments.[9] Therefore, this objective DOT measure seems to have high reliability and face validity and is deemed to be "the broadest measure available" (Lapré and Scudder 2004, p. 125).[10]

For the modeling analyses, the monthly DOT data from January 1999 to December 2005 are used. In a departure from prior studies that lump all 12 subcategories of the DOT records together (e.g., Lapré and Tsikriktsis 2006), specific dimensions of consumer negative voice are used in the spirit of uncovering more nuanced results. However, because the DOT data set has many subcategories that do not have sufficient incidents filed, on balance, the data are reorganized with fewer dimensions. In particular, for all these months, the subcategories with higher consumer negative voice rates (flight problems, baggage, and customer service) are kept, and the rest of the subcategories are treated as others. As a result of this procedure, there are four specific dimensions—consumer negative voice related to

flight problems, baggage, customer service, and others—for the DOT data.

According to the DOT definitions, consumer negative voice related to flight problems refers to observed complaints due to flight cancellations, delays, or any other deviations from schedule, whether planned or unplanned. Consumer negative voice related to baggage refers to observed complaints due to claims for lost, damaged, or delayed baggage; charges for excess baggage; or carry-on baggage problems. Consumer negative voice related to customer service refers to observed complaints due to rude or unhelpful employees, inadequate meals or cabin service, or mistreatment of delayed passengers. Other consumer negative voice refers to observed complaints due to problems of oversales, reservations/ticketing/boarding, fares, refunds, disability, advertising, discrimination, animals, frequent flyer, smoking, tours credit, cargo problems, airport facilities, claims for bodily injury, and anything else not classified in the previous three categories.

Although a comprehensive DOT data set of consumer negative voice for all U.S. airlines (e.g., the whole population of 20 airlines in December 2005) was available, stock price data for some of the airline companies were not obtainable. This was the case for many reasons: Such airline companies can be private, not public at the time, public but with too few stock-pricing data points, or bankrupted within the 84-month span (e.g., Air Wisconsin, AirTran, Independence Air, Spirit Airlines, USA3000 Airlines, Trans World Airlines, US Airways). As a result, there are 756 observations (756 = 9 firms × 12 months × 7 years) spanning from January 1999 to December 2005. Collectively, these nine airline companies account for more than 95% of revenues for all US airlines. Table 1 summarizes the statistics for consumer negative voice variables, along with other variables used in this study. Figure 1 illustrates the time-series movements of the monthly negative voice data for several airline companies.

Firm-Idiosyncratic Stock Returns and Control Variables

The DOT records were matched with other secondary sources (Center for Research in Security Prices, COMPUSTAT, and company financial reports). Data from these secondary sources were used to measure the dependent variable of idiosyncratic stock returns and control variables.

Particularly, consistent with the finance literature (i.e., Ang et al. 2006; Campbell et al. 2001; Xu and Malkiel 2003), a typical firm's realized daily stock returns (SR_{it}) were modeled with two components—the marketwide return ($\beta_{im}MR_{mt}$) and the firm-idiosyncratic stock return (FIR_{it}). That is, $SR_{it} = \beta_{im}MR_{mt} + FIR_{it}$, where i = 1, 2, …, I firms and t = 1, 2, …, T trading days. Essentially, FIR_{it} captures the deviation from (excessive to) the average portfolio returns of the New York Stock Exchange or American Stock Exchange. That is, $FIR_{it} = SR_{it} - \hat{\beta}_{im}MR_{mt}$ (Bansal and Clelland 2004; Campbell et al. 2001; Fama and French 1993). To ensure parsimonious and rigorous results, daily securities pricing data from Center for Research in Security Prices were used to calculate individual firms' idiosyncratic

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[8]The DOT data do not incorporate safety complaints (which are handled separately by the Federal Aviation Administration) or security complaints (which are handled by a different agency of the Transportation Security Administration).

[9]That is, beginning with the October 2000 report, a new category labeled "Animals" was added (as discussed subsequently, this adjustment does not change the results because of the nature of the specified categories of these DOT data).

[10]Although the DOT data set has not been applied in the marketing field, it has been successfully applied outside of marketing, particularly in the accounting, management science, operations, and political economy literature (e.g., Haunschild and Sullivan 2002; Lapré and Scudder 2004; Lapré and Tsikriktsis 2006). In general, the highly competitive airline industry offers an interesting setting (Gimeno and Woo 1999; Riley, Pearson, and Trompeter 2003; Rose 1990; Rust, Lemon, and Zeithaml 2004) because the more competitive the industries, the more important and relevant consumer negative voice may become. It has been noted that because of the 1978 Airline Deregulation Act, airlines can individually set ticket prices and freely enter or exit the industry. This deregulation reform fosters fierce competition and constant shake-ups (e.g., bankruptcy, mergers and acquisitions) in the airline industry (Gimeno and Woo 1999).

TABLE 1
**Variables and Summary Statistics Results**

Variables	Data Source	Data Frequency	V1	V2	V3	V4	V5	V6	V7	V8
V1. Consumer negative voice: customer service	DOT	Monthly (January 1999–December 2005)	1							
V2. Consumer negative voice: flight problems	DOT	Monthly (January 1999–December 2005)	.596	1						
V3. Consumer negative voice: baggage	DOT	Monthly (January 1999–December 2005)	.388	.465	1					
V4. Consumer negative voice: others	DOT	Monthly (January 1999–December 2005)	.473	.313	.347	1				
V5. Firm-idiosyncratic stock returns	Center for Research in Security Prices	Daily (January 4, 1999–December 30, 2005)	–.155	–.139	–.093	–.125	1			
V6. Firm leverage	COMPUSTAT	Quarterly (Quarter 1, 1999–Quarter 4, 2005)	–.177	–.106	–.179	–.193	.049	1		
V7. Firm size	COMPUSTAT	Quarterly (Quarter 1, 1999–Quarter 4, 2005)	.394	.237	.320	.278	–.121	–.236	1	
V8. Firm profitability	COMPUSTAT	Quarterly (Quarter 1, 1999–Quarter 4, 2005)	–.122	–.061	–.084	–.079	.296	–.007	–.263	1
M			7.54	14.765	7.768	15.122	–.00198	.023	8.354	–.012
SD			12.758	32.797	11.858	15.379	.0152	.051	1.495	.126

Notes: Consumer negative voice: customer service refers to rude or unhelpful employees, inadequate meals or cabin service, and mistreatment of delayed passengers. Consumer negative voice: flight problems refer to cancellations, delays, or any other deviations from flight schedule, whether planned or unplanned. Consumer negative voice: baggage refers to claims for lost, damaged, or delayed baggage; charges for excess baggage; and carry-on baggage problems. Consumer negative voice: others refers to oversales, reservations/ticketing/boarding, fares, refunds, disability, advertising, discrimination, animals, frequent flyer, smoking, tours credit, cargo, airport facilities, claims for bodily injury, and anything not classified above. Consumer negative voice variables are the rate of complaints per 100,000 passengers, firm leverage is the ratio of total debt to total asset, firm size is the log of total assets, and firm profitability is the ratio of firm net income after extraordinary items to total assets. Entry values (correlation r) greater than .07 are significant at $p < .05$.
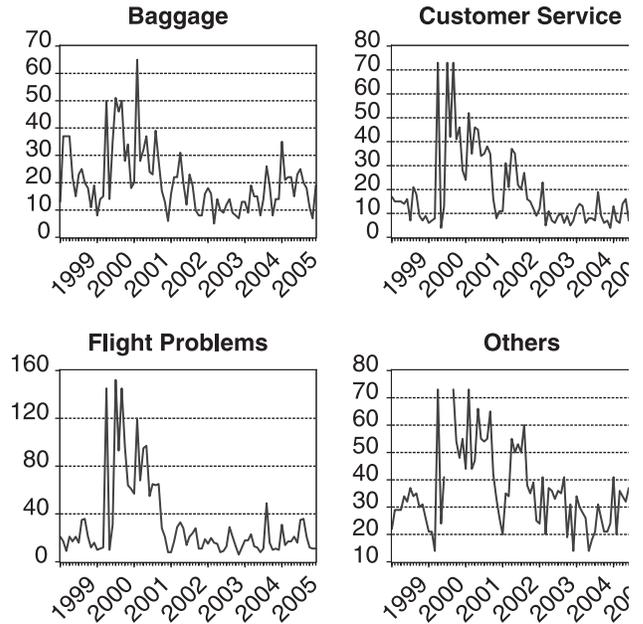
FIGURE 1
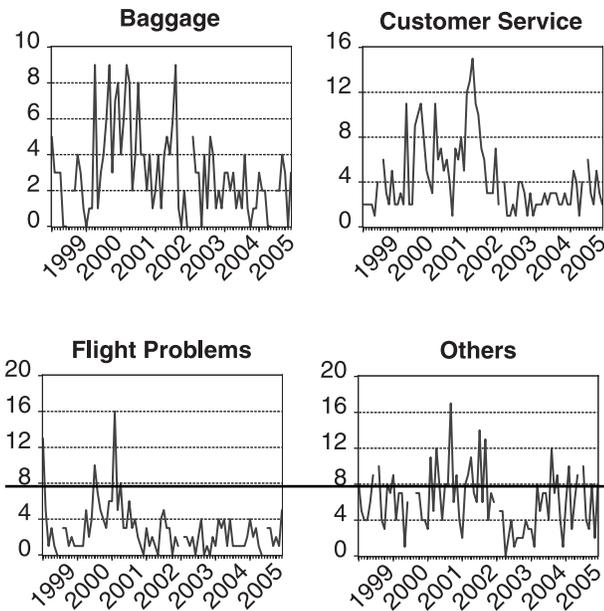## Time-Series Movements of Monthly Consumer Negative Voice (January 1999–December 2005)

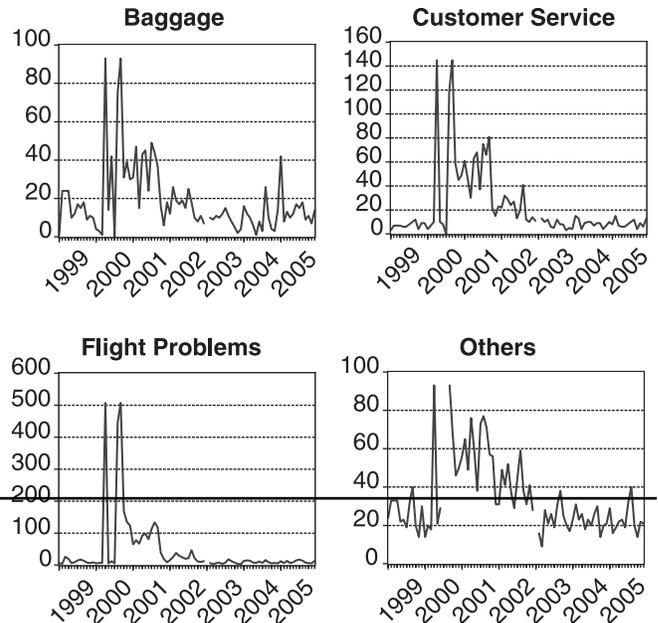**A: Alaska Airlines' Monthly Consumer Negative Voice Dimensions**

Baggage

Customer Service

Flight Problems

Others
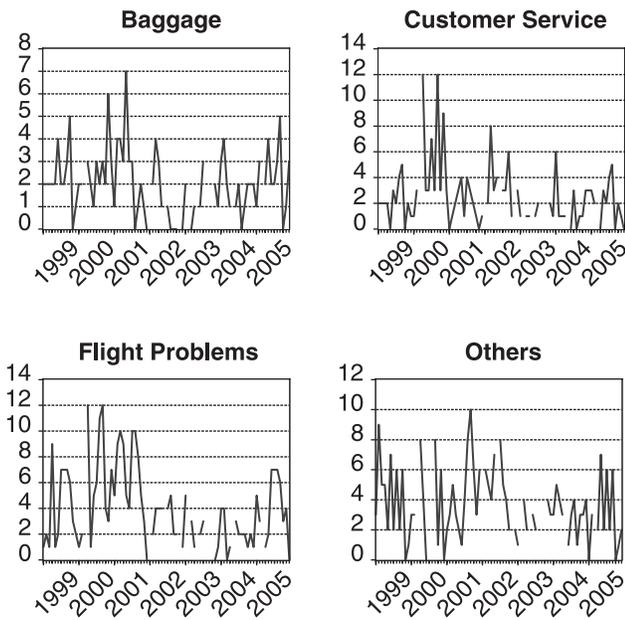
B: American Airlines' Monthly Consumer Negative Voice Dimensions

Baggage

Customer Service

Flight Problems

Others

C: Southwest Airlines' Monthly Consumer Negative Voice Dimensions

Baggage

Customer Service

Flight Problems

Others

D: United Airlines' Monthly Consumer Negative Voice Dimensions

Baggage

Customer Service

Flight Problems

Others

excessive returns. A total of 15,876 stock pricing data points ($15,876 = 9$ firms $\times$ 7 years $\times$ 252 trading days) were pulled out. Individual firms' idiosyncratic excess stock returns were then calculated against the average market portfolio returns and aggregated from the daily to the monthly level for hypothesis testing. Note that the finance literature suggests that the methodology of firm-idiosyncratic stock return already controls for and teases out marketwide confounding effects (i.e., the uncontrollable, macroeconomic factors, such as interest rates and inflation shocks).

For the controlled financial fundamentals (profitability, size, leverage), quarterly data from COMPUSTAT and company financial reports filed with the Securities and Exchange Commission and the Bureau of Transportation Statistics were used.[11] Quarterly data were relied on because monthly data were not available from COMPUSTAT, the Securities and Exchange Commission, or the Bureau of Transportation Statistics. In addition, yearly data are too aggregated in nature to match monthly consumer negative voice data. Thus, quarterly data were assigned for all the three months involved. The profitability (return on assets) is the ratio of a firm's net income after extraordinary items to its book value of total assets. Because profitability signals financial information, it influences stock price movements (Chauvin and Hirschey 1993; Luo and Donthu 2001, 2006). Furthermore, data for firm size were obtained from COMPUSTAT; these were measured as the log of total assets. Data for firm leverage (book debt/total asset) were also derived from COMPUSTAT (e.g., Rao, Agarwal, and Dahlhoff 2004).

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[11]As discussed subsequently, the results are robust to other firm-level accounting and financial control variables (e.g., revenue passenger miles, an airline's experience of on-flight distance, advertising and publicity expense, passenger service expense). Although industry-level factors (e.g., industry turbulence, uncertainty, competition) may influence firm stock returns (e.g., Chan, Lakonishok, and Sougiannis 2001; Fornell et al. 2006), these variables do not need to be controlled for here, because all firms sampled are from a single industry (airlines) in this study. Furthermore, in agreement with an anonymous reviewer, a major challenge to event-based studies in general is the difficulty in controlling for many macro and micro biases (i.e., other confounding extraneous news and moving-time-windows subjectivity biases; for alternative finance techniques other than the event-based method, see Madden, Fahle, and Fournier [2006, pp. 225–56] or consult finance studies, such as that of Ang et al. [2006] and Campbell et al. [2001]). With this in mind, instead of relying on basic event-based methodology, this study employed advanced random parameters models and Monte Carlo simulations to derive the main results. We also checked the robustness of the results with Fama and French's (1993, 2005) multifactor market model. In this model, firm-idiosyncratic stock return is excessive to multiple marketwide common factors. That is, $SR_{it} = \beta_{im}MR_{mt} + \beta_{ihml}HML_{mt} + \beta_{ismb}SMB_{mt} + \beta_{imom}UMD_{mt} + FIR_{it}$, where SMB is Fama and French's size factor, HML is Fama and French's book-to-market factor, and UMD is the marketwide return momentum factor.

Results

The Negative Impact of Consumer Negative Voice on Firm-Idiosyncratic Stock Returns

The correlation results reported in Table 1 suggest that firm-idiosyncratic stock returns are negatively correlated with all dimensions of consumer negative voice (i.e., smallest correlation $r = -.09$, $p < .05$). This provides preliminary evidence that the relationship between customer negative voice and idiosyncratic stock returns is significant and negative, as expected.

Table 2 reports the estimated results regarding the aggregated impact of consumer negative voice on firm-idiosyncratic stock returns. The results indicate that three dimensions of negative voice (flight problem, customer service, and others) significantly reduce firm-idiosyncratic stock returns. Note that the negative impact of consumer negative voice on firm-idiosyncratic stock returns is significant even after the influences of fundamentals, such as profitability, size, and firm leverage (Ang et al. 2006; Xu and Malkiel 2003), are controlled for. Thus, it seems that the data lend some support to H_1. Airline companies' current consumer negative voice indeed has a negative influence on their future idiosyncratic stock returns. This finding implies that reducing consumer negative voice could lead to enhanced shareholder wealth for the airline companies. Indeed, the "dollar" effects of the negative impact of consumer negative voice are substantial and managerially meaningful. For Southwest Airlines, which has a $12 billion market value, a 1% increase in DOT complaints could lead to a $262 million loss in market capitalization, all else being equal. Furthermore, for American Airlines, which has a $6.5 billion market value, a 1% decrease in DOT complaints could help the airline gain $138 million in market capitalization, a substantial increase in shareholder wealth.

Notably, consumer negative voice related to customer service has the strongest effect size compared with other dimensions. That is, inferred negative voice as a result of rude or unhelpful employees, inadequate meals or cabin service, and mistreatment of delayed passengers has the most detrimental impact on airlines' stock prices. In other words, customer service–related negative voice is more harmful financially than other dimensions of negative voice related to flight cancellations, delays, damaged or delayed baggage, or other problems (e.g., oversales, fares, refunds, disability, advertising, discrimination, frequent flyer, airport facilities). The implications of this finding are insightful and are discussed subsequently.

Robustness of the Results

Various additional analyses were conducted to check the robustness of the findings. First, the specified random parameter models assess the heterogeneity in the negative financial impact of consumer negative voice across firms. The results reported in Table 3 indicate that the coefficients are indeed different across the airlines, ranging from the weakest negative impact of $b = -.74E\text{-}04$ (Alaska Airlines, followed by Southwest Airlines) to the strongest negative impact of $b = -1.96E\text{-}04$ (United Airlines, followed by

TABLE 2
Aggregated Results on the Impact of Consumer Negative Voice on Firms' Future Idiosyncratic Stock Returns

Variables	Random Parameter Modeling Results with One Dimension of Consumer Negative Voice			Random Parameter Modeling Results with Four Dimensions of Consumer Negative Voice			Monte Carlo Simulations of Random Parameter Modeling Results	
	Coefficient	t-Statistic	p Value (One-Tailed)	Coefficient	t-Statistic	p Value (One-Tailed)	Coefficient	p Value (One-Tailed)
Consumer negative voice: customer service	−.00023	−2.966	<.01	−.00018	−2.411	<.01	−.00019	<.01
Consumer negative voice: flight problems				−.00017	−2.215	<.05	−.00017	<.05
Consumer negative voice: baggage				−.00005	−1.046	n.s.	−.00004	n.s.
Consumer negative voice: others				−.00015	−2.139	<.05	−.00015	<.05
Constant	−.0261	−3.805	<.01	−.0279	−3.656	<.01	−.02177	<.01
Firm profitability	.000587	3.652	<.01	.000595	3.688	<.01	.00060	<.01
Firm leverage	3.83E-07	.392	n.s.	3.22E-07	.309	n.s.	3.43E-07	n.s.
Firm size	−3.29E-06	−2.086	<.05	−3.32E-06	−2.091	<.05	−3.31E-06	<.05
Quarter dummies[a]	Yes			Yes			Yes	
Akaike information criterion	6.208			6.183				
Schwarz Bayesian information criterion	5.975			5.962				
Log-likelihood	−809.43			−882.79				
Durbin–Watson statistics	1.878			1.871				

[a]Quarter dummies are modeled here to match the quarterly data of financial fundamentals (profitability, size, leverage) from COMPUSTAT. An alternative modeling approach with monthly dummies (which consumes more degrees of freedom) yields robust results.

Notes: n.s. = not significant.

Delta Airlines). Figure 2 illustrates this heterogeneity in the negative financial impact of consumer negative voice across different airlines. Nevertheless, all negative firm-specific coefficients are significant ($p < .05$). Thus, these results lend further support to the robustness of the negative impact of consumer negative voice on airline companies' idiosyncratic returns.

Second, the customer service dimension of consumer negative voice alone was entered, and the other three dimensions were left out. The results appear in Table 2. The findings unambiguously show an even more significant, negative influence of consumer negative voice on firm-idiosyncratic stock returns ($p < .01$); this is more significant than when other dimensions of negative voice are included

TABLE 3
Heterogeneous Impact of Consumer Negative Voice on Firms' Future Idiosyncratic Stock Returns: Random Parameters Modeling Results

Company	Deviation from the Grand Mean Slope	Company-Specific Impact on Idiosyncratic Stock Excessive Return	p Value (One-Tailed)
Alaska Airlines	.611	−.743	<.05
American Airlines	.132	−1.232	<.01
Continental Airlines	−.168	−1.518	<.01
Delta Airlines	−.293	−1.651	<.01
Mesa Airlines	.197	−1.163	<.05
Northwest Airlines	−.263	−1.629	<.01
SkyWest Airlines	−.095	−1.455	<.01
Southwest Airlines	.217	−1.147	<.05
United Airlines	−.591	−1.956	<.01

Notes: Coefficients are multiplied by 10,000 and for the customer service dimension of consumer negative voice.

FIGURE 2
Harmful Impact of Consumer Negative Voice on Firm-Idiosyncratic Stock Returns
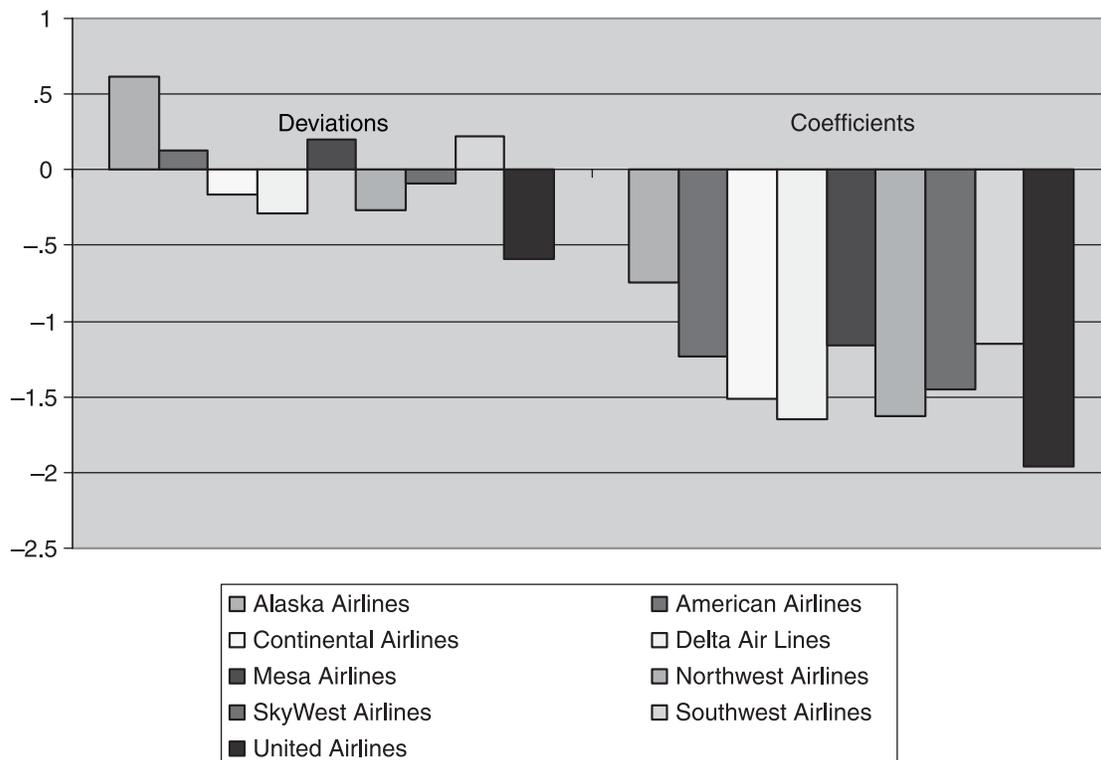
in the function ($p < .05$). The Monte Carlo simulation approach, using Train's method with 3000 random draws for each firm (Baltagi 2001), was also applied. These results also appear in Table 2. Again, the results support the significant, negative financial impact of consumer negative voice related to customer service, flight problems, and other complaints on airline companies' idiosyncratic returns ($p < .05$).

In addition, the results were checked for robustness to other accounting and financial control variables. Thus, more quarterly data were collected from COMPUSTAT and company financial reports filed with the Securities and Exchange Commission and the Bureau of Transportation Statistics. In particular, additional control variables, such as revenue passenger miles, an airline's experience of on-flight distance, advertising and publicity expense, passenger service expense, earnings per share, available seats, freight transported, and mail transported (Haunschild and Sullivan 2002; Lapré and Tsikriktsis 2006; Riley et al. 2003; Rose 1990), were considered. Again, the additional data analyses show that the key findings on the negative impact of consumer negative voice on firm-idiosyncratic stock return are still statistically significant (i.e., $p < .05$) for three of the four dimensions of consumer negative voice. Thus, the results are robust to these additional accounting and financial control variables.

Granger causality tests were also conducted to check the time-based causal direction from consumer negative voice to firm-idiosyncratic stock returns (Hamilton 1994, pp. 304–305).[12] The resultant Wald F-test statistics (F = 21.066, 18.538, and 15.417 for customer service, flight problems, and others, respectively; $p < .01$) confirm that higher consumer negative voice Granger causes decreases in idiosyncratic returns. This finding indicates that greater problems of customer negative voice may indeed contribute to (and represent a "culprit" of) the downturns of airline companies' stock market performance. Moreover, the possible curvilinear impact of consumer negative voice on the financial metric of firm-idiosyncratic stock returns was tested. In particular, the quadratic terms of the four dimensions of consumer negative voice were entered into the model. However, none of these higher-order terms were significant ($p > .05$). Thus, the data fail to support the argument for nonlinearity here. Overall, these additional analyses show that the findings are reasonably credible and robust.

Implications

The goal of this research was to examine the relationships between consumer negative voice and firm share prices. Using an archival data set from the airlines industry, this study found significant influences of current consumer negative voice (manifested by DOT complaints) on reducing firms' future idiosyncratic stock returns.

The findings offer several implications for marketing scholarship. Extant literature has repeatedly called for more research on consumer negative voice. In particular, Richins (1983, p. 68) notes that "much less attention was given to consumers' reactions to dissatisfaction." Echoing this call, Wangenheim (2005, p. 68) warns that "research on NWOM [and negative voice] is somewhat limited in scope, although NWOM is more influential." The current research not only directly responds to these calls but also represents an initial, innovative effort that uses securities prices data to uncover harmful outcomes of consumer negative voice. In this context, the unique data set helps relieve two criticisms in the consumer negative voice and complaint literature. First, prior studies often rely on soft data that are survey based and cross-sectional, and there is a dearth of corroborating evidence with hard data that are record based and longitudinal (for a review, see Godes and Mayzlin 2004). Second, the impact of consumer negative voice and NWOM on stock returns has been assumed but not supported empirically with firm market value (Homburg and Fürst 2005; Maxham and Netemeyer 2003; Richins 1983). In alleviating these criticisms, this research assembles such an urgently needed real-world data set and finds robust support for this assumption. This support allows for more faith in the survey-based findings accumulated in the literature. Accordingly, this work motivates more research to theorize further on how and why reducing consumer negative voice should promote firms' long-term shareholder wealth.

In addition, this research helps extend customer equity and CLV theories. In particular, these theories have typically focused on the positive side of customer experience management (i.e., the benefits of customer satisfaction on driving up stock prices). This research explores the much-less-addressed negative side (i.e., the harms of consumer negative voice on driving down stock prices), thus helping enhance the validity of customer equity theory and CLV practices. Coupled with prior research (i.e., Lewis 2006; Rust, Lemon, and Zeithaml 2004), this study calls for future customer and brand equity efforts that progressively move forward academic understanding about marketing's "wealth effects" under the umbrella of total customer experience management. In addition, prior equity literature has acknowledged an implicit role of negative voice in CLV models (Hogan, Lemon, and Rust 2002). I agree and add explicitly that firms may increase CLV and their stock value with less negative voice (i.e., through cost of acquisition, retention rate, and margin per purchase). On a related note, this study also extends the results of two pioneer studies on "valuing" the customer with stock prices. Rust, Lemon, and Zeithaml's (2004) work is based on cross-sectional surveys, and Gupta, Lehmann, and Stuart's (2004, p. 18) study is subject to a small sample with merely "several quarters of data." In contrast, the current results of valuing consumer voice are based on (1) a large-scale, time-series data set at the monthly level and (2) rigorous modeling methods after considering unobserved heterogeneity and finance fundamentals.

Furthermore, the finding related to the stronger relative effects of the customer service dimension of consumer negative voice supports the services marketing literature

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[12]For technical details of the Granger causality model, consult Granger (1969), Hamilton (1994, pp. 304–305), and Luo and Homburg (2007).

and the service-logic paradigm (Vargo and Lusch 2004). Indeed, as Vargo and Lusch (2004, p. 1) argue, "all economy is evolving into service economy," and customer service provision, rather than goods production and operations, more likely drives firm shareholder value (Bitner 1992; Keller 2003). The current results based on stock prices data help quantify this paradigm. Thus, further service research should acknowledge the strategic role of reducing consumer negative voice and help marketing organizations develop superior service provision and recovery capabilities. For example, if data are available, additional research efforts should be devoted to the direct examination of the impact of customer service–related factors (i.e., values and attitudes of frontline service employees; organic process and mechanistic rules [Homburg and Fürst 2005]; and procedural, distributive, and interactional justice in customer service [Singh 1988]) on companies' stock prices.

The current research implies that corporate managers should budget and allocate capital resources for marketing investments in reducing consumer negative voice. Given that financial executives are increasingly demanding that marketers "measure up" marketing investments and "show the numbers" (Luo and Donthu 2006; Rust, Lemon, and Zeithaml 2004), the results demonstrate to chief financial officers that investments in reducing consumer negative voice could indeed make financial sense; if consumer negative voice is not decreased delicately and effectively, it could significantly harm firms' future idiosyncratic stock returns (though this harmful impact may be more or less salient among individual airlines). Indeed, in today's high-tech environment, the damage caused by negative voice and dissatisfied customers can be huge (Chevalier and Mayzlin 2006; Godes and Mayzlin 2004). For example, through new technologies, such as blogs (Ward and Ostrom 2006), the social networking effects of consumer negative voice can exponentially air grievances about corporate behavior, which can have tremendous financial impacts on firms.

> Mad as hell in China's blogosphere. Opinionated Netizens are unleashing a flood of complaints against corporations…. In thousands of Internet forums, the mainland's millions freely point out poor customer service [by Dell], misleading ad campaigns [by Volkswagen, KFC], and shoddy safety standards [by Häagen-Dazs brands of General Mills]. (Einhorn 2006, p. 39)

Furthermore, though limited by the single-industry setting, the findings of this study uncover a possible way to help financial analysts and investors make their decisions—that is, all else being equal, to rate downward (perhaps even sell) the stocks of firms that are shadowed by harmful consumer negative voice. In addition, because investors are risk avoiding for gains (they sell winning stocks too quickly in the interest of profit taking) but risk taking for losses (they often hold losing stocks too long in the interest of not declaring losses) (Kahneman and Tversky 1979; see also Dhar and Zhu 2006), the findings offer two implications in this regard. First, investors may sensibly sell winning stocks if the companies are burdened with consumer negative voice because of its negative impact on stock prices uncovered here. Second, investors may wisely hold losing stocks if the firms are immune to harmful negative voice because of the elimination of one culprit of inferior future idiosyncratic stock returns—consumer negative voice.

REFERENCES

Anderson, Eugene W. (1998), "Customer Satisfaction and Word of Mouth," *Journal of Service Research*, 1 (1), 5–17.

———, Claes Fornell, and Sanal K. Mazvancheryl (2004), "Customer Satisfaction and Shareholder Value," *Journal of Marketing*, 68 (October), 172–85.

Ang, Andrew, Robert J. Hodrick, Yuhang Xing, and Xiaoyan Zhang (2006), "The Cross-Section of Volatility and Expected Returns," *Journal of Finance*, 61 (January), 259–99.

Baltagi, Badi (2001), *Econometric Analysis of Panel Data*. New York: John Wiley & Sons.

Bansal, Pratima and Iain Clelland (2004), "Talking Trash: Legitimacy, Impression Management, and Unsystematic Risk in the Context of the Natural Environment," *Academy of Management Journal*, 47 (January), 93–103.

Bitner, Mary Jo (1992), "Servicescapes: The Impact of Physical Surroundings on Customers and Employees," *Journal of Marketing*, 56 (April), 57–71.

Blattberg, Robert C. and John Deighton (1996), "Manage Marketing by the Customer Equity Test," *Harvard Business Review*, 74 (July–August), 136–44.

Bowman, Douglas and Das Narayandas (2001), "Managing Customer-Initiated Contacts with Manufacturers: The Impact on Share of Category Requirements and Word-of-Mouth Behavior," *Journal of Marketing Research*, 38 (August), 281–97.

Brown, Christina L. (1999), "Do the Right Thing: Diverging Effects of Accountability in a Managerial Context," *Marketing Science*, 18 (3), 230–46.

Campbell, John, Martin Lettau, Burton Malkiel, and Yexiao Xu (2001), "Have Individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk," *Journal of Finance*, 56 (January), 1–43.

Carter, Adrienne (2006), "Companies in the Crossfire," *BusinessWeek*, (April 17), 30–33.

Chan, Louis, Josef Lakonishok, and Theodore Sougiannis (2001), "The Stock Market Valuation of Research and Development Expenditures," *Journal of Finance*, 56 (6), 2431–56.

Chauvin, Keith W. and Mark Hirschey (1993), "Advertising, R&D Expenditures, and the Market Value of the Firm," *Financial Management*, 22 (Winter), 128–40.

Chevalier, Judith A. and Dina Mayzlin (2006), "The Effect of Word of Mouth on Sales: Online Book Reviews," *Journal of Marketing Research*, 43 (August), 345–59.

Day, Ralph (1984), "Modeling Choices Among Alternative Responses to Dissatisfaction," in *Advances in Consumer Research*, Vol. 11, Thomas Kinnear, ed. Ann Arbor, MI: Association for Consumer Research, 496–99.

Dhar, Ravi and Ning Zhu (2006), "Up Close and Personal: Investor Sophistication and the Disposition Effect," *Management Science*, 52 (May), 726–40.

Einhorn, Bruce (2006), "Mad as Hell in China's Blogosphere," *BusinessWeek*, (August 3), 39.

Fama, Eugene F. and Kenneth R. French (1993), "Common Risk Factors in the Returns on Stocks and Bonds," *Journal of Financial Economics*, 33 (January), 3–56.

——— and ——— (2005), "Financing Decisions: Who Issues Stock?" *Journal of Financial Economics*, 76 (June), 549–82.

Fornell, Claes, Sunil Mithas, Forrest V. Morgeson III, and M.S. Krishnan (2006), "Customer Satisfaction and Stock Prices: High Returns, Low Risk," *Journal of Marketing*, 70 (January), 3–14.

Gerlsbeck, Rob (2006), "Bad Reputation Can't Be Beat," *Marketing Magazine*, 111 (April), 6.

Gimeno, Javier and Carolyn Y. Woo (1999), "Multimarket Contact, Economies of Scope, and Firm Performance," *Academy of Management Journal*, 42 (June), 239–59.

Godes, David and Dina Mayzlin (2004), "Using Online Conversations to Study Word-of-Mouth Communication," *Marketing Science*, 23 (Fall), 545–60.

Granger, C.W. (1969), "Investigating Causal Relations by Econometric Models and Cross-Spectral Methods," *Econometrica*, 37 (3), 424–38.

Gupta, Suni, Donald Lehmann, and Jennifer Stuart (2004), "Valuing Customers," *Journal of Marketing Research*, 41 (February), 7–18.

Hamilton, James D. (1994), *Time Series Analysis*. Princeton, NJ: Princeton University Press.

Harmon, Laurence C. and Kathleen McKenna Harmon (1994), "The Hidden Costs of Resident Dissatisfaction," *Journal of Property Management*, 54 (May–June), 52–54.

Haunschild, Pamela and Bilian Sullivan (2002), "Learning from Complexity: Effects of Prior Accidents and Incidents on Airlines' Learning," *Administrative Science Quarterly*, 47 (4), 609–643.

Herr, Paul M., Frank Kardes, and John Kim (1991), "Effects of Word-of-Mouth and Product-Attribute Information on Persuasion: An Accessibility–Diagnosticity Perspective," *Journal of Consumer Research*, 17 (March), 454–58.

Ho, Tech H., Noah Lim, and Colin F. Camerer (2006), "Modeling the Psychology of Consumer and Firm Behavior with Behavioral Economics," *Journal of Marketing Research*, 43 (August), 307–331.

Hogan, John E., Katherine N. Lemon, and Roland T. Rust (2002), "Customer Equity Management: Charting New Directions for the Future of Marketing," *Journal of Service Research*, 5 (August), 4–12.

Homburg, Christian and Andreas Fürst (2005), "How Organizational Complaint Handling Drives Customer Loyalty: An Analysis of the Mechanistic and the Organic Approach," *Journal of Marketing*, 69 (July), 95–114.

———, Nicole Koschate, and Wayne D. Hoyer (2005), "Do Satisfied Customers Really Pay More? A Study of the Relationship Between Customer Satisfaction and Willingness to Pay," *Journal of Marketing*, 69 (April), 84–97.

Kahneman, Daniel and Amos Tversky (1979), "Prospect Theory: An Analysis of Decision Under Risk," *Econometrica*, 47 (February), 263–91.

Keller, Kevin (2003), *Strategic Brand Management*. Upper Saddle River, NJ: Prentice Hall.

——— and David Aaker (1993), "The Effects of Sequential Introduction of Brand Extensions," *Journal of Marketing Research*, 29 (February), 35–50.

——— and Donald R. Lehmann (2003), "How Do Brands Create Value?" *Marketing Management*, 12 (May–June), 26–31.

Lapré, Michael A. and Gary D. Scudder (2004), "Performance Improvement Paths in the U.S. Airline Industry: Linking Trade-Offs to Asset Frontiers," *Production & Operations Management*, 13 (June), 123–34.

——— and Nikos Tsikriktsis (2006), "Organizational Learning Curves for Customer Dissatisfaction: Heterogeneity Across Airlines," *Management Science*, 52 (March), 352–66.

Lewis, Michael (2006), "Customer Acquisition Promotions and Customer Asset Value," *Journal of Marketing Research*, 43 (May), 195–203.

Liu, Yong (2006), "Word of Mouth for Movies: Its Dynamics and Impact on Box Office Revenue," *Journal of Marketing*, 70 (July), 74–89.

Luo, Xueming and C.B. Bhattacharya (2006), "Corporate Social Responsibility, Customer Satisfaction, and Market Value," *Journal of Marketing*, 70 (October), 1–18.

——— and Naveen Donthu (2001), "Benchmarking Advertising Efficiency," *Journal of Advertising Research*, 41 (6), 7–18.

——— and ——— (2006), "Marketing's Credibility: A Longitudinal Study of Marketing Communication Productivity and Shareholder Value," *Journal of Marketing*, 70 (October), 70–91.

——— and Christian Homburg (2007), "Neglected Outcomes of Customer Satisfaction," *Journal of Marketing*, 71 (April), 133–49.

Madden, Thomas, Frank Fahel, and Susan Fournier (2006), "Brands Matter: An Empirical Demonstration of the Creation of Shareholder Value Through Branding," *Journal of the Academy of Marketing Science*, 34 (2), 224–35.

Mahajan, Vijay, Eitan Muller, and Roger Kerin (1984), "Introduction Strategy for New Products with Positive and Negative Word-of-Mouth," *Management Science*, 30 (December), 1389–15.

Marquis, Marie and Pierre Filiatrault (2002), "Understanding Complaining Responses Through Consumers' Self-Consciousness Disposition," *Psychology and Marketing*, 19 (3), 267–25.

Maxham, James G. and Richard Netemeyer (2003), "Firms Reap What They Sow: The Effects of Shared Values and Perceived Organizational Justice on Customers' Evaluations of Complaint Handling," *Journal of Marketing*, 67 (January), 46–62.

Minton, Bernadette A. and Catherine Schrand (1999), "The Impact of Cash Flow Volatility on Discretionary Investment and the Costs of Debt and Equity Financing," *Journal of Financial Economics*, 54 (3), 423–60.

Mittal, Vikas, William Ross, and Patrick Baldasare (1998), "The Asymmetric Impact of Negative and Positive Attribute-Level Performance on Overall Satisfaction and Repurchase Intentions," *Journal of Marketing*, 62 (January), 33–47.

Nixon, H. (1936), "Notes on the Measurement of Consumers' Attitudes," *Journal of Marketing*, 1 (January), 13–19.

Rao, Vithala, Manoj K. Agarwal, and Denise Dahlhoff (2004), "How Is Manifest Branding Strategy Related to the Intangible Value of a Corporation?" *Journal of Marketing*, 68 (October), 126–41.

Richins, Marsha L. (1983), "An Analysis of Consumer Interaction Styles in the Marketplace," *Journal of Consumer Research*, 10 (June), 73–82.

Riley, Richard, Timothy Pearson, and Greg Trompeter (2003), "The Value Relevance of Non-Financial Performance Variables and Accounting Information: The Case of the Airline Industry," *Journal of Accounting and Public Policy*, 22 (3), 231–54.

Rose, Nancy L. (1990), "Profitability and Product Quality: Economic Determinants of Airline Safety Performance," *Journal of Political Economy*, 98 (5), 944–64.

Rust, Roland, Katherine Lemon, and Valarie A. Zeithaml (2004), "Return on Marketing: Using Customer Equity to Focus Marketing Strategy," *Journal of Marketing*, 68 (January), 109–124.

———, Christine Moorman, and Peter R. Dickson (2002), "Getting Return on Quality: Cost Reduction, Revenue Expansion, or Both?" *Journal of Marketing*, 66 (October), 7–24.

Singh, Jagdip (1988), "Consumer Complaint Intentions and Behavior: Definitional and Taxonomical Issues," *Journal of Marketing*, 52 (January), 93–107.

——— (1989), "Determinants of Consumers' Decisions to Seek Third Party Redress," *Journal of Consumer Affairs*, 23 (2), 329–64.

——— and Robert Wikes (1996), "When Consumers Complain: A Path Analysis of the Key Antecedents of Consumer Complaint Response Estimates," *Journal of the Academy of Marketing Science*, 24 (4), 350–65.

Srivastava, Rajendra, Tasadduq Shervani, and Liam Fahey (1998), "Market-Based Assets and Shareholder Value: A Framework for Analysis," *Journal of Marketing*, 62 (January), 2–18.

Tax, Stephen, Stephen Brown, and Murali Chandrashekaran (1998), "Customer Evaluations of Service Complaint Experiences: Implications for Relationship Marketing," *Journal of Marketing*, 62 (April), 60–76.

——— and Murali Chandrashekaran (1992), "Consumer Decision Making Following a Failed Service Encounter: A Pilot Study," *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, 5 (1), 55–68.

Vargo, Stephen and Robert Lusch (2004), "Evolving to a New Dominant Logic for Marketing," *Journal of Marketing*, 68 (January), 1–17.

Wangenheim, Florian V. (2005), "Postswitching Negative Word of Mouth," *Journal of Service Research*, 8 (August), 67–78.

Ward, James and Amy Ostrom (2006), "Complaining to the Masses: The Role of Protest Framing in Customer-Created Complaint Web Sites," *Journal of Consumer Research*, 33 (September), 220–30.

Xu, Yexiao and Burton G. Malkiel (2003), "Investigating the Behavior of Idiosyncratic Volatility," *Journal of Business*, 76 (4), 613–44.