Actual Purchase as a Proxy for Share of Wallet

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Share of wallet is a concept that is growing in popularity among satisfaction researchers. There is no empirical research, however, examining the relationship between satisfaction, retention, and share of wallet. This is largely the result of the inherent difficulty collecting true share of wallet information in most business categories. If the impact of satisfaction on share of wallet is the same as satisfaction on retention, then managers can simply substitute more easily obtainable retention data. Therefore, this research examines the appropriateness of using actual purchase as a proxy for the more difficult to attain share of wallet in two distinct industries, Class 8 trucks and pharmaceuticals. The findings indicate that the top performance attributes in terms of predictive ability are the same and in the same order for each outcome, suggesting that for some firms, actual purchase may represent an acceptable proxy for share of wallet when deriving opportunities for service improvement.

Keywords: *customer satisfaction; share of wallet; retention; loyalty; consumer behavior*

Much has been written about the importance of customer satisfaction and retention to a company's bottom line. With articles proclaiming that customer retention is 5 times more cost-effective than customer acquisition (Hart, Heskett, and Sasser 1990), to the now famous *Harvard Business Review* article claiming that companies can boost their profits by anywhere from 35% to 95% by retaining just 5% more of their current customers (Reichheld and Sasser 1990), firms the world over have adopted large-scale customer relationship strategies in the hopes of improving customer retention rates.

Early research identified customer dissatisfaction as a primary cause of customer defections (Crosby and Stephens 1987; Goodman and Ward 1993). As a result, managers have looked to the customer satisfaction movement to help them better understand the drivers of repeat purchasing.

Researchers have conducted numerous studies linking satisfaction with metrics related to positive financial outcomes for firms: in particular, repurchase intention, retention, revenue, and/or profitability. Researchers have confirmed that customer satisfaction does have a measur-

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able impact on future intentions to repurchase (Bolton and Drew 1991; LaBarbera and Mazursky 1983; Mittal, Kumar, and Tsiros 1999; Mittal, Ross, and Baldasare 1998; Varki and Colgate 2001; Zeithaml, Berry, and Parasuraman 1996). Researchers have also linked customer satisfaction directly to customer retention (Anderson and Sullivan 1993; Bolton 1998; Jones and Sasser 1995; Loveman 1998; Mittal and Kamakura 2001; Rust and Zahorik 1993).

Improving customer retention rates has been shown to increase revenue and/or profits across firms in a number of industries (Hogan, Lemon, and Libai 2003; Reichheld 1993, 1996; Reichheld, Markey, and Hopton 2000; Reichheld and Sasser 1990). Similarly, numerous studies have directly tied customer satisfaction levels to financial metrics.

Carr (1999) uncovered a positive relationship between satisfaction levels and bank balances for PNC Bank. Ittner and Larcker (1998) also studied the banking industry. They too found that satisfaction was positively related to retention and revenues. They did not, however, find any relationship between satisfaction and return on sales (i.e., profit margins). Keiningham et al. (1999) found a positive relationship between customer satisfaction and profitability for Roche Diagnostics. Bernhardt, Donthu, and Kennett (2000) found a positive relationship between changes in customer satisfaction and changes in performance for a national chain of fast food restaurants. In addition, national satisfaction indices from Sweden (Anderson, Fornell, and Lehmann 1994) and the United States (Anderson, Fornell, and Rust 1997) found a positive relationship between customer satisfaction and profitability across industries.

Because satisfaction has been linked to retention, retention to profits, and satisfaction to profits, researchers have proposed models designed to both conceptualize and operationalize the chain of effects from satisfaction to business outcomes. Rust, Zahorik, and Keiningham (1995) conceptualized the return on quality (ROQ) framework, which tied attribute performance to overall satisfaction, customer retention, market share, and profits. Initial tests of the model were reported for the hotel industry. Other tests of ROQ were conducted in the financial services industry (Keiningham, Zahorik, and Rust 1994-1995; Kudernatsch 1999; Rust et al. 1999). In addition, in a cross-industry study of managers, Rust, Moorman, and Dickson (2002) examined whether the benefits of the ROQ approach are largely driven by revenue expansion or cost reductions, finding that those firms that focus on revenue expansion perform better than those that either try to lower costs or do both revenue expansion and cost reduction at the same time.

Similarly, Heskett et al. (1994; Heskett, Sasser, and Schlesinger 1997) conceptualized the service profit chain (SPC) framework, which linked internal service quality to employee satisfaction and retention. This in turn led to external service value, customer satisfaction, customer loyalty, revenue growth, and profitability. Rucci, Kirn, and Quinn (1998) and Hallowell and Schlesinger (2000) specifically applied SPC at retailer Sears, examining the impact on sales and revenues. Loveman (1998) presented perhaps the most comprehensive application of SPC, examining the impact of service quality on duration of stay, cross-purchasing, and average balance for a regional bank. Silvestro and Cross (2000) examined the SPC linkages for a major U.K. supermarket chain. Their results found positive correlations between customer satisfaction, customer loyalty, and profitability. Their findings challenged, however, a core tenet of SPC known as the "satisfaction-mirror" effect, which, simply put, states that satisfied employees lead to satisfied customers, which in turn leads to profits. Their results revealed the opposite: Employee dissatisfaction was correlated to profitability. Likewise, Kamakura et al. (2002) tested SPC at a Brazilian bank. They found that for a branch to achieve superior profitability, a branch manager must be able to efficiently translate customer attitudes into relevant behaviors in addition to achieving superior satisfaction.

CONTRIBUTION TO LITERATURE

Both the ROQ and SPC frameworks define the primary path to revenue growth and profits as going through customer retention. Recently, however, there has been a growing disenchantment with using retention as the ultimate measure of loyalty or as the best means of projecting profitability from service improvement efforts (Carroll 1991-1992a, 1991-1992b; Carroll and Rose 1993; Coyles and Gokey 2002; Reinartz and Kumar 2002). Rust, Lemon, and Zeithaml (2004) noted that researchers have frequently treated customers who defect as "lost for good." They argue that a "more realistic scenario" is that customers may leave and return and be either serially monogamous or polygamous in terms of the number of firms with which they conduct business in the category.

In addition, managers have discovered that for most firms, more customers change their spending patterns with a company than completely stop doing business. Therefore, efforts designed to manage customers' spending patterns with a firm tend to represent far greater opportunities to a firm than does simply trying to maximize customer retention rates. In fact, a study by McKinsey & Company found that focusing on both customers' spending patterns to improve customers' share of wallet (SOW) and customer retention can have as much as 10 times greater value to a company than focusing on retention alone (Coyles and Gokey 2002).

As a result, there is now "growing popularity of the concept of share-of-wallet" among satisfaction researchers (Zeithaml 2000). Currently, however, there is no empirical research examining the relationship between satisfaction, retention, and SOW. This is largely the result of the inherent difficulty in collecting true SOW information in most business categories.

As a result, managers have little insight into how to effectively manage efforts to improve satisfaction aimed at improving SOW. If the impact of satisfaction on SOW is the same as satisfaction on retention, then managers can simply substitute more easily obtainable retention data. Mittal and Kamakura (2001), however, found that the relationship between satisfaction and repurchase intention versus satisfaction and repurchase was significantly different. In addition, Keiningham, Perkins-Munn, and Evans (2003) examined the relationship between satisfaction and SOW for a financial institution. Because their research was a cross-sectional examination of current clients of the firm, however, it is implicit from the sample selection criteria that in this case, customer retention drivers are not a relevant construct for examination (i.e., retention rate = 100%). Therefore, it is imperative that the drivers of retention not be assumed to be the same as drivers of SOW.

This research addresses this need by examining the relationship between satisfaction for various performance attributes and repurchase and SOW for two industries: fleet trucking companies in the United States and Canada and a pharmaceutical company. The purpose of this research is to examine a group of key factors for similarities and differences in terms of their influence on actual purchase/repurchase (yes or no) and SOW.

Such a linkage between repurchase and SOW appears to be supported by current theory. Zeithaml (2000) conceptualized several ways that customer retention leads to profits. In this model, customer retention is viewed as resulting in lower costs, increased volume of purchases (SOW), the ability to charge premium prices, and/or increased word of mouth. Research by Reinartz and Kumar (2000, 2002), however, finds that customer retention does not result in loyal customers' costing less to serve, paying higher prices for the same bundle of services, or their marketing the company (through word of mouth). This implies that the primary path from retention to profitability using the Zeithaml model is through increased SOW. Therefore, on the basis of the theoretical frameworks proposed by Zeithaml (2000); Rust, Zahorik, and Keiningham (1995; i.e., ROQ); and Heskett et al. (1994; i.e., SPC), in conjunction with the research by Reinartz and Kumar (2000, 2002), that address key linkages in the retention to profit path, customer retention and SOW, although not the same, would necessitate high correlation.

Furthermore, both ROQ and SPC imply a chain of effects from (a) attribute performance to (b) satisfaction to (c) retention to (d) profits (referred to as the "satisfaction profit chain" by Anderson and Mittal 2000). Combining the satisfaction profit chain with Zeithaml's (2000) theoretical model and Reinartz and Kumar's (2000, 2002) research would yield an added link in the chain: (a) attribute performance to (b) satisfaction to (c) retention to (d) SOW to (e) profits. Such a chain of effects implies that those attributes that drive retention should also have an impact on SOW. Therefore, this research tests whether repurchase/purchase and SOW, although not redundant variables, are similar enough so that repurchase can be used as a proxy for the more difficult to attain SOW.

THE SAMPLE

There were two samples used in this study. The first sample used in the analyses was made up of purchase decision makers of fleet trucking companies in the United States and Canada who had purchased a Class 8 heavy-duty truck between June 1999 and March 2001 from one of the eight brands that make up 97% of all Class 8 trucks sold in the United States and Canada. The survey itself was conducted in February and March 2001 and covered all eight brands (respondents answering those questions related to the brands purchased within the above time frame). Repurchase data were for the time period between April 2001 and June 2002 and represent actual purchase of any of the eight brands discussed above. There was a 60% response rate to the survey.

The second sample consisted of physicians in the United States who prescribe medication for the treatment of arthritis and pain management. Doctors had to prescribe at least 19 prescriptions for pain and inflammation for the treatment of arthritis. In total, 172 surveys were completed. The response rate to the survey was 11%. Although this response rate may seem low, discussions with highly experienced research practitioners in this industry indicate the response rate is typical of physician research in the United States.

RESEARCH FOCUS

Commercial and academic studies typically vary in their approach to and the importance of variability in attribute-level ratings of satisfaction. Managers are concerned with attribute-level variation as it relates to the derivation of attribute weights (measures of strength of association) in an effort to determine the relative importance of potential issues for service improvement (Mittal, Ross, and Baldasare 1998; Rust, Zahorik, and Keiningham 2000). In estimating attribute weights, it is common practice to look at simple pairwise correlations or regres-

TABLE 1
Descriptive Statistics of Performance Attributes, Share of Wallet, and Repurchase (Truck Data)

	n	*Minimum*	*Maximum*	M	SD
Actual repurchase	267	0 (no)	1 (yes)	NA	NA
Share of wallet	267	0%	100%	71%	42%
Brand image	267	1.00	5.00	3.88	0.96
Brand overall satisfaction	267	1.00	5.00	3.78	0.90
Likelihood to repurchase	264	1.00	5.00	4.13	1.06
Costs Scale	264	1.20	5.00	3.13	0.72
Costs/purchase price	241	1.00	5.00	3.05	0.89
Costs/resale value	231	1.00	5.00	2.88	1.09
Costs/unscheduled repair	242	1.00	5.00	3.20	0.97
Design Scale	267	1.67	5.00	3.79	0.79
Design/ease of access for service components	261	1.00	5.00	3.56	1.12
Design/truck has been designed and built to last	262	1.00	5.00	3.50	0.79
Design/well matched for work performed	266	1.00	5.00	3.98	0.86
Driving Scale	262	1.63	5.00	3.69	0.69
Driving/clutch effort	247	1.00	5.00	3.68	0.83
Interior Scale	265	1.00	5.00	3.42	0.78
Parts Scale	267	1.33	5.00	3.32	0.62
Parts/availability	146	1.00	5.00	3.26	1.08
Reliability Scale	267	1.80	5.00	3.82	0.76
Safety Scale	267	1.40	5.00	3.60	0.72
Service Scale	265	1.00	5.00	3.40	0.92
Service/aftersales service at dealer	258	1.00	5.00	3.34	1.11
Service/dealer network	263	1.00	5.00	3.40	1.09
Service/value versus cost	172	1.00	5.00	3.22	1.04
Terms Scale	267	1.50	5.00	3.40	0.62
Terms/value for money	151	1.00	5.00	3.38	0.95
Workmanship Scale	266	1.00	5.00	3.55	0.89
Workmanship/materials used	264	1.00	5.00	3.67	0.91

NOTE: Data are disguised by altering labels. NA = not applicable.

TABLE 2
Descriptive Statistics of Performance Attributes, Share of Wallet, and Purchase (Pharma Data)

	N	*Minimum*	*Maximum*	M	SD
Actual purchase	172	0 (no)	1 (yes)	NA	NA
Share of wallet	172	0%	100%	29%	27%
Brand overall satisfaction	172	3.00	5.00	4.21	0.77
Repurchase intentions	172	0 (no)	1 (yes)	NA	NA
Efficacy Scale	172	3.80	10.00	7.32	1.33
Overall efficacy measure	172	3.00	5.00	3.97	0.84
Efficacy/acute pain relief	172	1.00	10.00	7.16	1.89
Efficacy/speed of pain relief	172	2.00	10.00	6.69	1.70
Efficacy/improve ability to perform daily activities	172	3.00	10.00	7.39	1.56
Efficacy/chronic pain relief	172	2.00	10.00	7.26	1.55
Efficacy/dual properties	172	1.00	10.00	8.13	1.65
Safety Scale	172	1.40	10.00	6.85	1.59
Overall safety measure	172	2.00	5.00	4.46	0.68
Safety/low risk of complications	172	1.00	10.00	6.68	2.04
Safety/similar to placebo	172	1.00	10.00	6.53	2.39
Safety/long-term use tolerated well	172	1.00	10.00	7.37	1.86
Safety/appropriate for use with other drugs	172	1.00	10.00	6.39	2.43
Safety/appropriate for elderly patients	172	1.00	10.00	7.29	1.68
Other attributes					
Dosing convenience	172	1.00	10.00	7.93	2.31
Multiple forms of drug	172	1.00	10.00	1.56	1.69
Recommended in publications	172	1.00	10.00	7.09	2.10
Reimbursement	172	1.00	10.00	5.18	2.24

NOTE: Data are disguised by altering labels. NA = not applicable.

sion coefficients (Rust et al. 1996; Rust, Zahorik, and Keiningham 1998).

Academic studies, on the other hand, typically strive to establish relationships between constructs with a high degree of internal validity. As a result, attribute-level ratings of satisfaction are normally used to construct multi-item scales of global constructs (Mittal and Kamakura 2001). Therefore, to be relevant to each audience, both approaches were used in this investigation.

METHODS

The truck survey included owner satisfaction questions for one of the truck brands purchased by the fleet. In addition, respondents were asked to rate their image of each of the eight brands comprising the Class 8 trucking market. The pharmaceutical survey contained doctors' satisfaction with one of the five brands prescribed in the category. Satisfaction questions related to efficacy, safety, and convenience. In addition to these questions, doctors were asked about the number of prescriptions that they issue for each of the five brands.

The variables used in the analyses are described in Table 1 (Truck) and Table 2 (Pharma) along with the descriptive statistics. The tables include all of the scales and only those subattributes that were significantly correlated to both SOW and actual repurchase/purchase.[1]

The repurchase/purchase dependent variable that measures actual repurchases/purchases is dichotomous. "Yes" is equal to 1 if the respondent has made an actual repurchase/purchase and 0 otherwise. Because the dependent variable is discrete, the logistic regression model is used to estimate the factors that influence repurchase (Greene 1993). Typically, repurchase data are merely one

1. Because the pharmaceutical data were not longitudinal, instead of a repurchase metric, a dichotomous actual purchase measure was calculated. Anyone who prescribed the brand examined was coded as 1 for actual purchase; those who did not prescribe were coded as 0.

variable out of a myriad that services can use to model change in the purchase and business activities among their customers.

For the truck data, the SOW dependent variable is defined as the percentage allocated to each manufacturer of total Class 8 heavy-duty trucks purchased by transportation fleet owners between April 2001 and June 2002. An independent, third-party source collects this information in this industry. For the pharmaceutical data set, SOW was defined as percentage of prescriptions for a specific brand of medication (for a particular procedure) divided by percentage of prescriptions of all brands (for that same procedure). This information was collected as part of the survey.

Because logistic regression is not amenable to missing data, each missing independent variable data point was replaced with the series mean. This substitution avoids the loss of data through listwise deletion and should not have any adverse effects on the outcome, as less than 10% of data were missing.

RESULTS

Preliminary analyses included the creation of 10 scales for the truck data and 2 scales for the pharmaceutical data. In the truck data, each scale was composed of multiple items related to the various aspects of products and services for Class 8 heavy-duty trucks, such as design, workmanship, parts, service, and so forth. The scales, along with the brand image and overall satisfaction question, ranged from 1 to 5 points, with 1 representing poor. One scale, service, consisted of nine items. In the pharmaceutical data, each scale was composed of multiple items related to respondents' perceptions of a particular brand on various outcomes, such as how effective it is for acute pain and chronic pain, risk to patient, and so on. Tables 3 (Trucks) and 4 (Pharma) list the scales along with a description of each and their corresponding Cronbach alphas. Cronbach's alpha is well above the acceptable range (i.e., greater than .70) for all scales (Nunnally 1967).

Class 8 Trucks

For the truck data, correlation analyses of these scales, along with overall satisfaction, brand image, actual repurchase, and SOW were conducted, indicating that both actual repurchase and SOW are significantly correlated with four variables: (a) likelihood to repurchase[2] ($r = .44$ for repurchase and $r = .47$ for SOW; $p < .001$ for both outcomes), (b) brand image ($r = .19$, $p < .01$ for both outcomes), (c) overall satisfaction ($r = .24$ for repurchase and $r = .27$ for SOW; $p < .001$ for both outcomes), and (d) only one scale, Design ($r = .14$, $p < .02$ for repurchase and $r = .16$, $p < .01$ for SOW). However, repurchase—alone—is also significantly correlated to the Parts Scale ($r = .19$, $p < .05$). SOW—alone—is significantly correlated to the Terms Scale ($r = .26$, $p < .02$) and to the Cost Scale ($r = .15$, $p < .02$). As satisfaction with each of these composite services improves, so does SOW and actual repurchase.

2. Likelihood to repurchase is a 5-point question, ranging from 1 = *definitely not* to 5 = *definitely would*.

TABLE 3
Description and Reliability of Scales (Truck Data)

Scale Name	*Cronbach's Alpha*	*Description*
Cost	.80	A 5-item scale that assesses satisfaction with purchase price, resale value, fuel, repair, and routine costs
Design	.78	A 3-item scale that assesses ease of access for service components and exterior design
Driving	.92	An 8-item scale that assesses various aspects of ride quality and performance (such as steering and handling, shifting gears, climbing hills, etc.)
Interior	.85	A 5-item scale that assesses various aspects of interior performance and quality
Parts	.75	A 3-item scale that assesses various aspects of parts, such as ease of access and functionality
Reliability	.85	A 5-item scale that assesses systems reliability, such as transmission, engine, braking, electrical, etc.
Safety	.90	A 5-item scale that assesses various aspects of safety, such as visibility from cab, crash protection, braking, and road holding
Service	.95	A 9-item scale that assesses various aspects of service, such as friendliness, value versus cost, hours of operation, and quality of work
Terms	.90	A 5-item scale that assesses financing, warranty, and delivery time
Workmanship	.89	A 3-item scale that assesses materials, attention to details, and quality of assembly

NOTE: Data are disguised by altering labels.

TABLE 4
Description and Reliability of Scales (Pharma Data)

Scale Name	*Cronbach's Alpha*	*Description*
Efficacy	.85	A 5-item scale that assesses efficacy in relief of acute and chronic pain, speed of pain relief, improving patient's ability to perform activities, and having dual pain-relief properties
Safety	.82	A 5-item scale that assesses safety regarding risk to patient, ability to be tolerated well, safe for use with other drugs, and use with elderly patients

NOTE: Data are disguised by altering labels.

TABLE 5
Logistic Regression for Scales, Satisfaction, and Image as Predictors of Repurchase (Truck Data)

	B	*Wald*	*Exp(B)*	*95% CI Lower*	*95% CI Upper*	*Model* χ^2	*Significance*	*Nagelkerke* R^2
Likelihood to repurchase	0.940	37.94	2.57	1.90	3.47	46.30	.00	.25
Overall satisfaction	0.622	13.72	1.86	1.34	2.59	14.37	.00	.08
Brand image	0.451	8.74	1.57	1.16	2.12	8.81	.00	.05
Design Scale	0.439	5.43	1.55	1.07	2.24	5.48	.02	.03

NOTE: CI = confidence interval. Data are disguised by altering labels. Only significant predictors shown ($p < .05$). Sorted in order of predictive power. The Wald statistics are distributed chi-square with 1 degree of freedom.

A predictive model was tested by conducting logistic regression analyses for the actual repurchase outcome and by conducting linear regression analyses for the SOW outcome.[3] Initially, all of the scales were entered on one step. The R^2 (or effect size) for this model was .15 for repurchase (logistic regression) and .07 for SOW (linear regression). However, for each of the outcomes, many of the regression weights were inexplicably negative or not at all in sync with the preliminary correlations. This could be due to multicollinearity or due to inadequate sample size for including 12 independent variables. Therefore, we conducted further investigation into the feasibility of including all 12 items in one step in a multiple regression analysis given the sample size of 267. We used Cohen's (1992) specifications to determine appropriate power, effect sizes, and sample sizes when doing a multiple regression that includes 8 or more independent variables. Cohen argued that

> statistical power analysis exploits the relationships among the four variables involved in statistical inference: sample size (N), significance criterion (α), population effect size (ES), and statistical power. For any statistical model, these relationships are such that each is a function of the other three. . . . For research planning, it is most useful to determine the N necessary to have a specified power for given α and ES. (p. 156)

The first step was to determine the effect size index of the linear regression analysis,[4] using the following formula:

$$f^2 = R^2/(1 - R^2), \quad (1)$$

where f^2 represents the effect size index, which in our sample is equal to .08, indicating that an effect size index between small to medium should be used according to Cohen's (1992) classification of small, medium, and large as .02, .15, and .35, respectively.

The next piece of Cohen's (1992) specification is the determination of power. Power is calculated as $1 - \beta$, or the probability of rejecting a false null hypothesis, also known as Type II error. Thus, the standard requirement of power is .80. Smaller specifications of power substantially increase Type II risk. Large values increase the sample size that is needed. Therefore, the standard power specification at the standard p value of .05 is .80. This provides an acceptable β:α ratio of 4:1 (Type II error:Type I error).

Finally, using an ES of .08 (between small and medium), a power of .80, and an α of .05, Cohen (1992) specified that for a small effect size with 8 variables (the largest number of independent variables included in Cohen's analysis), a sample size of 757 is required. With a medium effect size, a sample of 107 is required. Approximating Cohen's gradations of sample size increase based on the addition of an independent variable at each step, for 12 independent variables, the estimated sample size will be approximately 850 for a medium effect size and approximately 130 for a small effect size. Thus, our sample of 267 does not appear to be robust enough to include the 12 items in a multiple regression analysis in one step. Therefore, our next step was to analyze each of the scales separately to determine their contribution to the outcomes.

The findings from the truck data, listed in Table 5, indicate that likelihood to repurchase, overall satisfaction, brand image, and the Design Scale are the significant predictors of actual repurchase. Similarly, as illustrated in Table 6, likelihood to repurchase, overall satisfaction, brand image, and the Design Scale are also the significant predictors of SOW. However, the Cost Scale is also a significant predictor of SOW.

Next, to shed light on the specific attributes for which it is appropriate to use actual repurchase as a proxy for SOW, correlation analyses were conducted between actual repurchase, SOW, and those subattributes of the scales that were significant predictors of both repurchase and SOW. The descriptive statistics for these subattributes can be

3. We tested several different model specifications (such as Cubic, S, Logistic, etc.), examining the strongest predictors (likelihood to repurchase and repurchase intentions) of share-of-wallet, both transformed (where appropriate) and as a continuous variable from 0% to 100% (when appropriate). The linear specification was the best, based on assessment of R2s, standard error, and significance levels.

4. The linear regression analysis instead of the logistic regression is used to determine effect size because Cohen's (1992) formulas are based on the former. Also, there is no one-to-one logistic regression analog to the linear regression R^2.

TABLE 6
Linear Regression for Scales, Satisfaction, and Image as Predictors of Share of Wallet (Truck Data)

	B	*95% CI Lower*	*95% CI Upper*	F	t	*Significance*	R^2
Likelihood to repurchase	0.186	–0.235	0.12	75.91	8.71	.00	.22
Overall satisfaction	0.127	0.073	0.18	21.63	4.65	.00	.08
Brand image	0.083	0.031	0.14	10.04	3.17	.00	.04
Design Scale	0.082	0.019	0.15	6.66	2.58	.01	.03
Costs Scale	0.080	0.006	0.15	4.51	2.12	.03	.02

NOTE: CI = confidence interval. Data are disguised by altering labels. Only significant predictors shown ($p < .05$). Sorted in order of predictive power.

TABLE 7
Correlations Between Share of Wallet/Actual Repurchase and Significant Scale Attributes (Truck Data)

Variable Label	*Share of Wallet*	*Repurchase*
Likelihood to repurchase	.473	.439
"Brand surveyed" overall satisfaction	.275	.235
Terms/value for money	.268	.272
Service/value versus cost	.210	.178
Costs/purchase price	.208	.200
"Brand surveyed" brand image	.191	.186
Costs/resale value	.184	.131
Design/ease of access for service components	.178	.161
Design/well matched for work performed	.173	.148
Service/dealer network	.169	.145
Parts/availability	.168	.211
Costs/unscheduled repair	.155	.136
Workmanship/materials used	.153	.156
Service/aftersales service at dealer	.146	.147
Design/truck has been designed and built to last	.137	.127
Driving/clutch effort	.136	.131

NOTE: Data are disguised by altering labels. Sorted by share of wallet strength. Only significant correlations shown ($p < .05$).

found in Table 1. The correlations, presented in Table 7, suggest that there are similarities in the specific attribute-level predictor variables that influence actual repurchase and SOW.[5] If the logistic regression and linear regression support this implication, then there is some support for using actual repurchase as a proxy for SOW, when the latter is unavailable.

Furthermore, the high correlation between actual repurchase and SOW ($r = .89$) supports the need for further investigation into predictive similarities of performance attributes on the two outcomes. Conversely, neither the relationship between repurchase intentions and SOW ($r = .473$) nor between repurchase intentions and actual repurchase ($r = .439$) appears to warrant the use of repurchase intention as a proxy for either actual repurchase or SOW.

Logistic regression results using each subattribute as a predictor are presented in Table 8 and are sorted from strongest to weakest predictive ability. The objective of these analyses was to assess the influence of specific predictor variables on actual repurchase. To this end, several model specifications were tested. As an initial step, all variables were entered on one step into one model. However, due to the loss of power related to the multiple predictors, it was impossible to ascertain the relative impact of each subattribute on the dependent variable because the model yielded no significant attributes. Therefore, the model for each predictor variable is included in the table. Each model assesses whether respondents will make an actual repurchase of a specific Class 8 heavy-duty truck based on a specific aspect of the service experience. The corresponding specification of the logistic regression model is

$$P = \exp(b_0 + b_1x_1 + \ldots b_n x_n)/ (1 + \exp(b_0 + b_1x_1 + \ldots b_n x_n)), \quad (2)$$

where P is the probability of the actual repurchase = "yes," exp is the exponential function and is written as $\exp(x)$ or $e^{(x)}$ (where e is the base of the natural logarithm and is approximately equal to 2.7183), b_0 is the intercept, $b_1 \ldots _n$ is the coefficient for the predictor variable, and $x_1 \ldots _n$ is the value of the predictor variable.

The coefficient estimates, the Wald statistic, and the model chi-square statistic are presented to examine overall model fit. Because several model specifications are being compared, the odds ratio (i.e., exponential beta) and the Nagelkerke R^2 (Nagelkerke 1991) statistics are presented to compare model performance.[6] Goodness of fit of each logistic equation was evaluated with the Hosmer and

5. Discrepancies in the results of the composite scales and the individual attributes are due to the fact that all attributes were used in creating the composite whereas only those attributes that were significant predictors of both outcomes were considered in the specific attribute analysis.

6. Nagelkerke's R^2 is the most reported of the R^2 estimates. It is a modification of the Cox and Snell coefficient to ensure that it can vary from 0 to 1. That is, Nagelkerke's R^2 divides Cox and Snell's R^2 by its maximum to achieve a measure that ranges from 0 to 1. Therefore, Nagelkerke's R^2 will normally be higher than the Cox and Snell measure (Nagelkerke 1991).

TABLE 8
Logistic Regression for Performance Attributes as Predictors of Repurchase (Truck Data)

	B	*Wald*	*Exp(B)*	*95% CI Lower*	*95% CI Upper*	*Model* χ^2	*Significance*	*Nagelkerke* R^2
Likelihood to repurchase	0.940	37.94	2.57	1.90	3.47	46.30	.00	.25
Overall satisfaction	0.622	13.72	1.86	1.34	2.59	14.37	.00	.08
Costs/purchase price	0.556	9.21	1.74	1.22	2.50	9.63	.00	.06
Terms/value for money	0.665	8.74	1.94	1.25	3.02	9.38	.00	.05
Brand image	0.451	8.74	1.57	1.16	2.12	8.81	.00	.05
Design/ease of access	0.338	6.44	1.40	1.08	1.82	6.46	.01	.04
Workmanship/materials used	0.413	6.25	1.51	1.09	2.09	6.37	.01	.04
Design/well matched	0.406	5.68	1.50	1.08	2.10	5.70	.02	.03
Parts/availability	0.438	5.34	1.55	1.07	2.25	5.46	.02	.03
Service/dealer network	0.316	5.26	1.37	1.05	1.80	5.30	.02	.03
Service/service	0.313	5.25	1.37	1.05	1.79	5.30	.02	.03
Service/value versus cost	0.415	5.14	1.51	1.06	2.17	5.26	.02	.03
Costs/unscheduled repair	0.341	4.31	1.41	1.02	1.94	4.38	.04	.03
Design/built to last	0.397	4.15	1.49	1.02	2.18	4.25	.04	.02
Driving/clutch effort	0.375	4.04	1.45	1.01	2.10	4.08	.04	.02
Costs/resale value	0.292	3.79	1.34	1.00	1.80	3.86	.05	.02

NOTE: CI = confidence interval. Data are disguised by altering labels. Only significant predictors are shown ($p < .05$). Sorted in order of predictive power. The Wald statistics are distributed chi-square with 1 degree of freedom.

TABLE 9
Linear Regression for Performance Attributes as Predictors of Share of Wallet (Truck Data)

	B	*95% CI Lower*	*95% CI Upper*	F	t	*Significance*	R^2
Likelihood to repurchase	0.186	–0.24	0.12	75.91	8.71	.00	.22
Overall satisfaction	0.127	0.03	0.44	21.63	2.22	.03	.08
Costs/purchase price	0.097	0.24	0.60	10.68	4.48	.00	.04
Terms/value for money	0.109	0.11	0.58	9.68	2.83	.00	.04
Brand image	0.083	0.18	0.60	10.04	3.72	.00	.04
Design/ease of access	0.066	0.31	0.65	8.30	5.66	.00	.04
Design/well matched	0.381	0.15	0.62	8.17	3.19	.00	.03
Costs/resale value	0.069	0.37	0.66	7.79	6.79	.00	.03
Service/value versus cost	0.084	0.25	0.64	7.65	4.39	.00	.03
Service/dealer network	0.064	0.33	0.66	7.55	5.96	.00	.03
Workmanship/materials used	0.070	0.25	0.66	6.33	4.34	.00	.02
Costs/unscheduled repair	0.066	0.32	0.68	5.80	5.51	.00	.02
Service/after sales service	0.054	0.37	0.70	5.38	6.56	.00	.02
Design/built to last	0.072	0.23	0.69	4.96	3.99	.00	.02
Driving/clutch effort	0.067	0.23	0.70	4.49	3.92	.00	.02
Parts/availability	0.060	0.31	0.73	3.63	4.85	.00	.01

NOTE: CI = confidence interval. Data are disguised by altering labels. Only significant predictors shown ($p < .05$). Sorted in order of predictive power.

Lemeshow goodness-of-fit test, which compares the observed to the predicted distribution of outcomes (Menard 2002).

Table 8 illustrates that the best attribute-level predictors of actual repurchase are (a) likelihood to repurchase, (b) overall satisfaction, (c) cost/purchase price, (d) terms/value for money, (e) brand image, and (f) design/ease of access for service components. These results also illustrate the variety of attitudinal and service issues that are interrelated and ultimately determine whether a customer will repurchase.

Linear regression results are presented in Table 9 and are sorted from strongest to least predictive ability. The objective of these analyses was to assess the influence of each predictor variable on SOW, independently, to compare results to the logistic regression results. Therefore, the model for each predictor variable is included in the table. Each model assesses whether SOW for Class 8 heavy-duty trucks is predicted to increase or decrease based on each specific aspect of the service experience. The corresponding specification of the linear regression model is

$$SOW_{ij} = \alpha + \beta_x X_{ij} + \varepsilon_{ij}, \quad (3)$$

TABLE 10
Logistic Regression for Scales, Satisfaction, and Image as Predictors of Purchase (Pharma Data)

	B	*Wald*	*Exp(B)*	*95% CI Lower*	*95% CI Upper*	*Model* χ^2	*Significance*	*Nagelkerke* R^2
Repurchase intention	3.276	56.18	26.47	11.24	62.35	75.73	.00	.50
Brand overall satisfaction	0.608	7.92	1.84	1.20	2.80	8.16	.00	.07

NOTE: CI = confidence interval. Data are disguised by altering labels. Only significant predictors shown ($p < .05$). Sorted in order of predictive power. The Wald statistics are distributed chi-square with 1 degree of freedom.

TABLE 11
Linear Regression for Scales, Satisfaction, and Image as Predictors of Share of Wallet (Pharma Data)

	B	*95% CI Lower*	*95% CI Upper*	F	t	*Significance*	R^2
Repurchase intention	0.263	0.19	0.34	44.03	6.64	.00	.21
Brand overall satisfaction	0.135	0.08	0.18	27.10	5.21	.00	.14
Efficacy Scale	0.032	0.00	0.06	4.13	2.03	.04	.02

NOTE: CI = confidence interval. Data are disguised by altering labels. Only significant predictors shown ($p < .05$). Sorted in order of predictive power.

where SOW_{ij} is the estimated SOW by customer i at truck fleet j, X_{ij} is the satisfaction rating for customer i at company j, α is the SOW when $X = 0$, β_x is the regression coefficient for the corresponding predictor term in the model, and ε is the residual or error term for the model.

The F statistic and its corresponding significance level are presented to examine overall model fit. Because several model specifications are being compared, the t statistic and the R^2 statistics are presented to compare model performance.

Table 9 illustrates that the best attribute-level predictors of SOW are (a) likelihood to repurchase, (b) overall satisfaction, (c) cost/purchase price, (d) terms/value for money, (e) brand image, and (f) design/ease of access for service components. The results of the linear analysis also illustrate the variety of issues that work in conjunction to determine whether a customer will repurchase, such as the overall experience, the image of the brand, and issues related to cost, terms, and design.

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Correlation analyses of these scales, along with overall satisfaction, actual purchase, and SOW were conducted, indicating that the two variables with which actual purchase[7] and SOW[8] have the strongest correlations are (a) repurchase intention ($r = .65$, $p < .01$ for purchase and $r = .45$, $p < .01$ for SOW) and (b) overall efficacy ($r = .32$ for purchase and $r = .47$ for SOW; $p < .001$ for both outcomes). As repurchase intention increases and overall efficacy improves, so does SOW and actual purchase.

As with the fleet trucking data, a predictive model was tested by conducting logistic regression analyses for the actual purchase outcome and by conducting linear regression analyses for the SOW outcome. The findings, listed in Table 10, indicate that repurchase intention and overall satisfaction are the significant predictors of actual purchase. Similarly, as illustrated in Table 11, repurchase intention, overall satisfaction, and the Efficacy Scale are the significant predictors of SOW.

Next, to shed light on the specific attributes for which it is appropriate to use actual purchase as a proxy for SOW, correlation analyses were conducted between actual purchase, SOW, and those subattributes of the scales that were significant predictors of both purchase and SOW. The descriptive statistics for these subattributes can be found in Table 2. The correlations, presented in Table 12, suggest that there are similarities in the specific attribute-level predictor variables that influence actual purchase and SOW.[9] If the logistic regression and linear regression support this implication, then there is some support for using actual purchase as a proxy for SOW, when the latter is unavailable.

Similar to the truck data, the high correlation between actual purchase and SOW ($r = .72$) supports the need for further investigation into predictive similarities of performance attributes on the two outcomes. Conversely, the relationship between repurchase intention and SOW ($r = .45$) does not appear to warrant the use of repurchase intention as a proxy for SOW.

Logistic regression results using each subattribute as a predictor are presented in Table 13 and are sorted from

7. Actual purchase and repurchase intention are dichotomous variables, where 0 (no) = no purchase/repurchase and 1 (yes) = purchase/repurchase.

8. Share of wallet ranges from 0% to 100%.

9. See Note 5.

TABLE 12
Correlations Between Share of Wallet/Purchase and Significant Scale Attributes (Pharma Data)

Variable Label	*Share of Wallet*	*Purchase*
Overall efficacy measure	.46*	.32*
Repurchase intention	.45*	.65*
Brand overall satisfaction	.37*	.22*
Efficacy/chronic pain relief	.20*	.20*
Overall safety measure	.17*	.02
Recommended in publications	.15*	.12
Reimbursement	.14	.07
Multiple forms of drug	.14	.11
Efficacy/speed of pain relief	.13	.05
Efficacy/ability to perform daily activities	.12	.13
Efficacy/acute pain relief	.12	.04

NOTE: Data are disguised by altering labels. Sorted by share of wallet strength.
*Statistically significant correlation ($p < .05$).

strongest to weakest predictive ability. Table 13 illustrates that the best attribute-level predictors of actual purchase are (a) repurchase intention, (b) overall efficacy, (c) overall satisfaction, and (d) efficacy/pain relief. Similar to the truck results, these results also illustrate the variety of service issues that are interrelated and ultimately determine whether a customer will make a purchase.

Linear multiple regression results are presented in Table 14 and are sorted from strongest to least predictive ability. Table 14 illustrates that the best attribute-level predictors of SOW are (a) overall efficacy, (b) repurchase intention, (c) overall satisfaction, (d) efficacy/chronic pain relief, (e) overall safety, and (e) recommended in publications. The results of the linear analysis also illustrate the variety of issues that work in conjunction to determine whether a customer will purchase, such as the overall experience, issues related to efficacy, and published information.

SUMMARY OF FINDINGS

This research sought to examine the appropriateness of using actual repurchase or actual purchase as a proxy for the more difficult to attain SOW in two different industries. The results of these analyses suggest that actual repurchase may be useful as a proxy for SOW.

The comparison within and across logistic models (for actual repurchase) and linear models (for SOW) in the truck data indicate that likelihood to repurchase, overall satisfaction, brand image, and the design scale are the four strongest predictors of both outcomes. In addition, the top six performance attributes in terms of predictive ability are the same and in the same order for each outcome, suggesting that in this case, actual repurchase can, in fact, be used as a proxy for SOW.

In the pharmaceutical data, a similar phenomenon was uncovered. Repurchase intention, overall satisfaction, and overall efficacy were predictors of both actual purchase and SOW.

Most important to the practitioner, however, this research highlights the ease with which different interpretations of findings can happen if focus is directed to

TABLE 13
Logistic Regression for Performance Attributes as Predictors of Purchase (Pharma Data)

	B	*Wald*	*Exp(B)*	*95% CI Lower*	*95% CI Upper*	*Model* χ^2	*Significance*	*Nagelkerke* R^2
Repurchase intention	3.276	56.18	26.47	11.24	62.35	75.73	.00	.50
Overall efficacy measure	0.875	15.85	2.39	1.56	3.69	17.74	.00	.14
Brand overall satisfaction	0.608	7.92	1.84	1.20	2.80	8.16	.00	.07
Efficacy/chronic pain relief	0.282	6.66	1.33	1.07	1.64	6.98	.01	.06

NOTE: CI = confidence interval. Data are disguised by altering labels. Only significant predictors shown ($p < .05$). Sorted in order of predictive power. The Wald statistics are distributed chi-square with 1 degree of freedom.

TABLE 14
Linear Regression for Performance Attributes as Predictors of Share of Wallet (Pharma Data)

	B	*95% CI Lower*	*95% CI Upper*	F	t	*Significance*	R^2
Overall efficacy measure	0.155	0.11	0.20	46.95	6.85	.00	.22
Repurchase intention	0.263	0.19	0.34	44.03	6.64	.00	.21
Brand overall satisfaction	0.135	0.08	0.18	27.10	5.21	.00	.14
Efficacy/chronic pain relief	0.036	0.01	0.06	7.26	2.70	.01	.04
Overall safety measure	0.071	0.01	0.13	5.48	–2.34	.02	.03
Recommended in publications	0.020	0.00	0.04	4.18	2.04	.04	.02

NOTE: CI = confidence interval. Data are disguised by altering labels. Only significant predictors shown ($p < .05$). Sorted in order of predictive power.

composite variables or scales versus examination of specific attributes. Results of the two types of analyses revealed very different conclusions in terms of the relationship between satisfaction and SOW and/or repurchase. Therefore, managers should be comfortable with their approach to examining the relationship between satisfaction and customer purchase behavior before committing resources aimed at improving customer satisfaction.

LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

This study, although unique in that it is among the few studies to focus on SOW as the outcome of interest, has some limitations. First, because this study focuses on only two industries, Class 8 heavy-duty trucks and pharmaceuticals, it has limited generalizability. Although these industries are very diverse, further research needs to be conducted to ascertain the appropriateness of using actual purchase/repurchase as a proxy for SOW (or vice versa) across a number of industries. Second, there are industries for which SOW is the only relevant outcome. For example, clients in the institutional securities industry rarely completely defect. Therefore, attempting to ascertain a measure of actual repurchase in this industry would be futile. Only a measure of SOW will be relevant to this and similarly structured industries. Third, although our study is not rigidly cross-sectional in that for the fleet trucking data, it examines the relationship between satisfaction at one point in time, to a future purchase or future SOW, it is not traditionally longitudinal. It will be important to model changes and shifts in similarities between actual purchase/repurchase and SOW over time. For example, research might uncover that these two outcomes track well over 1 year but begin to track less and less over subsequent years. This would suggest that one is a proxy for the other only within a certain period of time. Finally, we have examined the relationship between satisfaction attributes and purchase/SOW for an entire sample of Class 8 buyers and physicians in their treatments of only one illness. However, future analyses might reveal that the relationship varies by population segment, making satisfaction for some segments more important in future purchase decisions than for other segments.

Despite these limitations, this research offers valuable insight and information as to whether it may be appropriate to use purchase/repurchase and SOW as proxies for each other. Our findings suggest that in some industries, managers can substitute the more easily attainable repurchase for SOW data when examining the relationship between attribute-level satisfaction and customer purchasing behavior. The authors are not suggesting, however, that actual repurchase or purchase be used as a general substitute for SOW but rather that by examining the predictors of purchase/repurchase—when SOW data are not obtainable—we may be able to infer the variables that are most important to increases or decreases in SOW.

REFERENCES

Anderson, Eugene W., Claes Fornell, and Donald R. Lehmann (1994), "Customer Satisfaction, Market Share, and Profitability: Findings from Sweden," *Journal of Marketing*, 58 (3), 53-66.

———, ———, and Roland T. Rust (1997), "Customer Satisfaction, Productivity, and Profitability: Differences between Goods and Services," *Marketing Science*, 16 (2), 129-45.

——— and Vikas Mittal (2000), "Strengthening the Satisfaction-Profit Chain," *Journal of Service Research*, 3 (2), 107-20.

——— and Mary W. Sullivan (1993), "The Antecedents and Consequences of Customer Satisfaction for Firms," *Marketing Science*, 12 (2), 125-43.

Bernhardt, Kenneth L., Naveen Donthu, and Pamela A. Kennett (2000), "A Longitudinal Analysis of Satisfaction and Profitability," *Journal of Business Research*, 47 (2), 161-71.

Bolton, Ruth N. (1998), "A Dynamic Model of the Duration of the Customer's Relationship with a Continuous Service Provider: The Role of Satisfaction," *Marketing Science*, 17 (1), 45-65.

——— and James H. Drew (1991), "A Longitudinal Analysis of the Impact of Service Changes on Customer Attitudes," *Journal of Marketing*, 55 (1), 1-10.

Carr, Nicholas G. (1999), "Marketing: The Economics of Customer Satisfaction," *Harvard Business Review*, 77 (2), 15-18.

——— (1991-1992a), "The Fallacy of Customer Retention," *Journal of Retail Banking* 13 (4), 15-20.

——— (1991-1992b), ". . . And Peter Carroll Rejoins," *Journal of Retail Banking* 13 (4), 25.

——— and Sanford Rose (1993), "Revisiting Customer Retention," *Journal of Retail Banking*, 15 (1), 5-13.

Cohen, Jacob (1992), "Quantitative Methods in Psychology: A Power Primer," *Psychological Bulletin*, 115 (1), 155-59.

Coyles, Stephanie and Timothy C. Gokey (2002), "Customer Retention Is Not Enough," *The McKinsey Quarterly*, 2, 81-89.

Crosby, Lawrence A. and Nancy Stephens (1987), "Effects of Relationship Marketing on Satisfaction, Retention, and Prices in the Life Insurance Industry," *Journal of Marketing Research*, 24 (4), 35-58.

Goodman, John A., and Dianne S. Ward (1993), "The Importance of Customer Satisfaction," *Direct Marketing*, 56 (8), 23-26.

Greene, William H. (1993), *Econometric Analysis*, 2nd ed. New York: Prentice Hall.

Hallowell, Roger and Leonard A. Schlesinger (2000), "The Service Profit Chain: Intellectual Roots, Current Realities, and Future Prospects," in *Handbook of Services Marketing & Management*, Teresa A. Swartz and Dawn Iacobucci, eds. Thousand Oaks, CA: Sage, 203-21.

Hart, Christopher W. L., James L. Heskett, and W. Earl Sasser Jr. (1990), "The Profitable Art of Service Recovery," *Harvard Business Review*, 68 (4), 148-56.

Heskett, James L., Thomas O. Jones, Gary W. Loveman, W. Earl Sasser Jr., and Leonard A. Schlesinger (1994), "Putting the Service-Profit Chain to Work," *Harvard Business Review*, 72 (2), 164-74.

———, W. Earl Sasser Jr., and Leonard A. Schlesinger (1997), *The Service Profit Chain: How Leading Companies Link Profit and Growth to Loyalty, Satisfaction and Value*. New York: Free Press.

Hogan, John E., Katherine N. Lemon, and Barak Libai (2003), "What Is the True Value of a Lost Customer?" *Journal of Service Research*, 5 (3), 196-208.

Ittner, Christopher and David F. Larcker (1998), "Are Non-financial Measures Leading Indicators of Financial Performance? An Analysis of

Customer Satisfaction," *Journal of Accounting Research*, 36 (Supplement), 1-35.

Jones, Thomas O. and W. Earl Sasser Jr. (1995), "Why Satisfied Customers Defect," *Harvard Business Review*, 73 (6), 88-99.

Kamakura, Wagner, Vikas Mittal, Fernado de Rosa, and José Afonso Mazzon (2002), "Assessing the Service Profit Chain," *Marketing Science*, 21 (3), 294-317.

Keiningham, Timothy L., Melinda K. M. Goddard, Terry G. Vavra, and Andrew J. Iaci (1999), "Customer Delight and the Bottom-Line," *Marketing Management*, 8 (3), 57-63.

———, Tiffany Perkins-Munn, and Heather Evans (2003), "The Impact of Customer Satisfaction on Share-of-Wallet in a Business-to-Business Environment," *Journal of Service Research*, 6 (1), 37-50.

———, Anthony J. Zahorik, and Roland T. Rust (1994-1995), "Getting Return on Quality," *Journal of Retail Banking*, 16 (4), 7-12.

Kudernatsch, Daniella (1998), *Return on Quality: Ein Ansatz zur monetären Betertung von Qualitätsverbesserungsmassnahmen—kritische Darstellung und empirische Anwendung im Call Center.* Munich: FGM Verlag.

LaBarbera, Pricilla A. and David Mazursky (1983), "A Longitudinal Assessment of Consumer Satisfaction/Dissatisfaction: The Dynamic Aspect of the Cognitive Process," *Journal of Marketing Research*, 20 (4), 393-404.

Loveman, Gary W. (1998), "Employee Satisfaction, Customer Loyalty, and Financial Performance: An Empirical Examination of the Service Profit Chain in Retail Banking," *Journal of Service Research*, 1 (1), 18-31.

Menard, Scott (2002), *Applied Logistic Regression Analysis*, 2nd ed. Quantitative Applications in the Social Sciences Series, No. 106. Thousand Oaks, CA: Sage, 67-101.

Mittal, Vikas and Wagner Kamakura (2001), "Satisfaction, Repurchase Intent and Repurchase Behavior: Investigating the Moderating Effect of Customer Characteristics," *Journal of Marketing Research*, 38 (February), 131-42.

———, Pankaj Kumar, and Michael Tsiros (1999), "Attribute-Level Performance, Satisfaction, and Behavioral Intentions over Time: A Consumption-System Approach," *Journal of Marketing*, 63 (2), 88-101.

———, William T. Ross Jr., and Patrick M. Baldasare (1998), "The Asymmetric Impact of Negative and Positive Attribute-Level Performance on Overall Satisfaction and Repurchase Intentions," *Journal of Marketing*, 62 (1), 33-47.

Nagelkerke, N. J. D. (1991), "A Note on a General Definition of the Coefficient of Determination," *Biometrika*, 78 (3), 691-92.

Nunnally, Jum C. (1967). *Psychometric Theory.* New York: McGraw-Hill.

Reichheld, Frederick F. (1993), "Loyalty-Based Management," *Harvard Business Review*, 71 (2), 64-73.

——— (1996), "Learning from Customer Defections," *Harvard Business Review*, 74 (2), 56-69.

———, Robert G. Markey Jr., and Christopher Hopton (2000), "The Loyalty Effect: The Relationship between Loyalty and Profits," *European Business Journal*, 12 (3), 134-39.

——— and W. Earl Sasser Jr. (1990), "Zero Defections: Quality Comes to Services," *Harvard Business Review*, 68 (5), 105-11.

Reinartz, Werner and V. Kumar (2000), "On the Profitability of Long-Life Customers in a Noncontractual Setting: An Empirical Investigation and Implications for Marketing," *Journal of Marketing*, 64 (4), 17-35.

——— and ——— (2002), "The Mismanagement of Customer Loyalty," *Harvard Business Review* 80 (7), 86-94.

Rucci, Anthony J., Steven P. Kirn, Richard T. Quinn (1998), "The Employee-Customer Profit Chain at Sears," *Harvard Business Review*, 76 (1), 82-97.

Rust, Roland T., Timothy L. Keiningham, Stephen Clemens, and Anthony J. Zahorik (1999), "Return on Quality at Chase Manhattan Bank," *Interfaces*, 29 (2), 62-72.

———, Katherine N. Lemon, and Valarie A. Zeithaml (2004), "Return on Marketing: Using Customer Equity to Focus Marketing Strategy," *Journal of Marketing*, 68 (1), 109-27.

———, Christine Moorman, and Peter R. Dickson (2002), "Getting Return on Quality: Revenue Expansion, Cost Reduction, or Both?" *Journal of Marketing*, 66 (4), 7-24.

———, Greg L. Stewart, Heather Miller, and Debbie Pielack (1996), "The Satisfaction and Retention of Frontline Employees: A Customer Satisfaction Measurement Approach," *International Journal of Service Industry Management*, 7 (5), 62-80.

——— and Anthony J. Zahorik (1993), "Customer Satisfaction, Customer Retention, and Market Share," *Journal of Retailing*, 69 (2), 193-215.

———, ———, and Timothy L. Keiningham (1995), "Return on Quality (ROQ): Making Service Quality Financially Accountable," *Journal of Marketing*, 59 (2), 58-70.

———, ———, and ——— (1998), "Determining the Return on Quality (ROQ)," in *Handbuch Dienstleistungsmanagement*, Manfred Bruhn and Heribert Meffert, eds. Wiesbaden, Germany: Gabler Verlag, 865-90.

———, ———, and ——— (2000), "Estimating the Return on Quality: Providing Insights into Profitable Investments in Service Quality," in *Handbook of Services Marketing & Management*, Teresa A. Swartz and Dawn Iacobucci, eds. Thousand Oaks, CA: Sage.

Silvestro, Rhian and Stuart Cross (2000), "Applying the Service Profit Chain in a Retail Environment," *International Journal of Service Industry Management*, 11 (3), 244-68.

Varki, Sajeev and Mark Colgate (2001), "The Role of Price Perceptions in an Integrated Model of Behavioral Intentions," *Journal of Service Research*, 3 (3), 232-40.

Zeithaml, Valarie A. (2000) "Service Quality, Profitability, and the Economic Worth of Customers: What We Know and What We Need to Learn," *Journal of the Academy of Marketing Science*, 28 (1), 67-85.

———, Leonard L. Berry, and A. Parasuraman (1996), "The Behavioral Consequences of Service Quality," *Journal of Marketing*, 60 (2), 31-46.

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