Customer Satisfaction for Financial Services: The Role of Products, Services and Information Technology

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Abstract

In this paper, we study the drivers of customer satisfaction for financial services. We discuss a full Bayesian analysis based on data collected from customers of a leading financial services company. Our approach allows us to explicitly accommodate missing data and enables quantitative assessment of the impact of the drivers of satisfaction across the customer population. We find that satisfaction with product offerings is a primary driver of overall customer satisfaction. The quality of customer service with respect to financial statements and services provided through different channels of delivery such as new information technology enabled automated call centers, and traditional branch offices, are also important in determining overall satisfaction. However, our analysis indicates that the impact of these service delivery factors may differ substantially across customer segments. In order to facilitate managerial action, we discuss how specific operational quality attributes for designing and delivering financial services can be leveraged to enhance satisfaction with product offerings and service delivery. Our approach and findings have significant implications for managing customer satisfaction in the financial services industry.

(**Keywords:** Financial Services; Customer Satisfaction; Bayesian Analysis; Information Technology;)

1. Introduction

Deregulation and increased competition due to the entrance of banks, mutual fund companies, brokerage services, and insurance firms have revolutionized the financial services industry over the last decade. In the recent past, this industry has witnessed an average overall annual growth that exceeds 25%, with the traditional bank deposits at the lower end and investment products like mutual funds, annuities and trust services at the higher end. Advent of information technology and rapid changes in customer needs have also contributed to the growth in this industry through new product offerings such as on-line remote banking and electronic trading that were not possible a few years back (Kalakota and Whinston, 1997; Kalakota and Frei, 1996). The number of both national and foreign firms that offer financial services has also increased over the last decade.

With increased competition from new products and delivery channels, firms in the financial services industry strive to succeed by improving their performance. In order to improve performance, the focus is on both cost reduction and quality improvement. Firms try to improve their operational efficiency and enhance quality in the eyes of their customers. Due to the advent of new products and options for various channels of delivery thorough Information Technology (IT) applications, service delivery has emerged as an important attribute in satisfying customers (Heskett, et al, 1997). It has been reported that more than 70% of the defection of customers in the financial services sector is due to dissatisfaction with the quality of services delivered (Bowen and Hedges, 1993).

Managers in financial services firms are placing increased emphasis on customer satisfaction (Reichheld and Teal 1996) to enhance customer loyalty for long-term profitability and success (Fornell, Ryan and Westbrook, 1990). The basic argument is that satisfied customers of a firm decide to stay with the firm for future business (Heskett, et

al, 1997). More importantly, the cost of retaining existing customers by improving the products and services that are perceived as being important is significantly lower than the cost of winning new customers. Further, since a customer may do business with multiple investment companies, enhancing customer satisfaction can increase a firm's "share of portfolio" with its customers, and thereby its total revenues and long-term profitability. Thus, customer satisfaction can be managed not only from a defensive perspective of customer retention, but also to grow total customer revenues. Consequently managers in the financial services industry are placing increasing emphasis on listening to the "voice" of the customer and identifying the drivers of overall satisfaction. Feedback from customers enables firms to identify their specific needs and efficiently allocate resources to design products and services that maximize satisfaction (Kekre , Krishnan, and Srinivasan 1995).

In order to meet the needs of various segments of customers, firms in the financial services industry offer multiple products and services through different channels of delivery. For example, services on a brokerage account may be provided directly to a customer at a branch office and the same service may also be provided through an automated telephone call center, or more recently through other IT channels such as computerized trading services via home PC over the Internet. In this industry, the notion that the value of the products offered is shaped by the channel of delivery, suggests that firms should enhance their traditional view of cost control in managing their products and distribution channels. That is, cost control and improvement in quality of service delivery need to be addressed simultaneously. A key issue among managers in this industry concerns the impact of IT enabled electronic delivery of services versus traditional delivery through branches, on overall customer satisfaction.

In this paper, we provide a framework and approach to effectively manage firm performance measured in terms of overall customer satisfaction for financial services. Our framework entails two levels of analysis based on customer feedback. In the first level, we identify and assess the relative importance of various strategic drivers of overall customer satisfaction for a financial services firm. These drivers entail customer satisfaction for product design factors and channels of delivery offered by the firm. Our approach accommodates the uncertainty in the effect of the drivers of overall satisfaction across customers. Once the key strategic drivers of overall satisfaction are identified, we estimate a model at the second level for specific managerial action. In particular, we assess the impact of various quality attributes of the firm that might influence customer satisfaction with the firm's product offerings and channels of delivery. Together, our integrated analysis enables firms to understand what drives overall customer satisfaction, how their effects vary across customers, and what the firm could do to specifically influence these drivers of overall satisfaction and thus improve firm performance.

The contributions of this paper are both managerial and methodological. On the methodological front, this paper introduces a new Bayesian approach for estimating customer satisfaction models, using recent advances in statistical computation. A major advantage of the proposed approach is that we can handle the problem of missing data that is endemic to assessing customer satisfaction for firms in the financial services sector (Naumann and Giel, 1995). Moreover, our methodology allows us to estimate the distribution of the marginal effects of the drivers of satisfaction across the customer population. Thus our analysis provides a richer inference base for managerial decisions as compared to traditional models of customer satisfaction that estimate only average effects.

On the managerial front, our analysis of overall customer satisfaction indicates that satisfaction with product offerings is the most critical overall. Satisfaction with the quality of financial reports, branch services, and the quality of automated telephone service through call centers are also important, although their effects are substantially higher for specific types of customers. For instance, the effect of automated telephone service is higher for a segment of customers who trade heavily and have high investable assets. By means of such segment level analyses based on value of assets and trading behavior, we illustrate how satisfaction with various factors can be leveraged to both retain existing profitable customers and attract new business from other customers. Our findings underscores the importance of designing cost effective IT enabled delivery channels with easy to use features so that these channels of service delivery appeal to larger segment of customers. Thus, the results of our models provide insights for managers to deliver products and services that are appropriate for various customer segments.

In the second level of analysis, we focus on how to operationally improve customer satisfaction on the specific factors that drive overall satisfaction. We identify the specific quality attributes that influence satisfaction with product offerings, the primary driver of overall satisfaction, and assess their relative impacts. For instance, our results indicate that ease of opening and closing accounts, and customer education are major determinants of satisfaction with product offerings. Further, given our findings from the segment-level analyses, we also illustrate this quality attribute analysis for satisfaction with services delivered over automated systems. Our analysis identifies that functionality of the system is a primary determinant of satisfaction with automated delivery. Our results can thus be used to facilitate resource allocation decisions that maximize overall customer satisfaction with the firm.

The rest of this paper is organized as follows. In section two, we discuss the relevant background literature and motivate the focus of this paper. Our research design and model are discussed in section three. In the fourth section, we elucidate the methodological issues and discuss our full Bayesian analysis approach. We report our results and discuss the managerial implications in the subsequent section. Section six concludes the paper.

2. Background Literature

Research on the performance of financial institutions can be classified into two major streams. In the first stream of research, based on the feedback on quality of service from senior managers in financial services firms, benchmark studies have identified the drivers of firm performance (Roth and van der Velde, 1992; Heskett et al., 1994). These studies indicate that marketing, design of operations, organizational structure and human resource management significantly influence firm's performance. In line with these findings, researchers have developed the *operational capabilities-service quality-performance* (C-SQ-P) framework to facilitate managerial decisions to enhance firm performance (Roth and Jackson, 1995). This stream of literature on the service profit chain does not directly address the significance of efficient operations systems in enhancing firm performance (Heskett et al., 1997).

In the second stream of research, the focus is on operational efficiency of financial institutions. For example, Frei, Kalakota and Marx, (1997) study the efficiency of alternative delivery processes. Performance efficiency gains from environmental factors and human resource management are addressed in Athanassopoulos, Soteriou and

Zenios (1998) and Frei et al, (1998) respectively. These studies often adopt a production approach and focus on a specific firm performance measure and identify the various operational variables that contribute to the efficiency in improving that performance measure. This link between operational variables and the external performance measure is further explained in these studies with a discussion of organizational units that are found to be most efficient.

The first stream of research discussed above identifies strategic drivers of performance whereas the second stream of research provides insights to leverage the drivers through appropriate operational variables. However from a managerial decision perspective, while the questions addressed in both streams of research discussed above are important, managers often prefer an *integrated* analysis of both streams for the same financial institution. There is a paucity of research in linking the strategic drivers of performance identified through subjective customer feedback and objective financial and quality indicators, to business process attributes that contribute to operational efficiency. As a first step in this direction, Soteriou and Zenious (1998) benchmark operational designs in a financial service institution jointly with external measures such as profits and customer assessment of service quality.

Similar to Soteriou and Zenious (1998), our research is also an attempt to link strategic firm performance measures to various operational quality attributes. Overall customer satisfaction with the firm and satisfaction with various factors related to products and service delivery are the key performance variables in our study. In our research, we also capture the effect of an IT enabled electronic channel of delivery on overall customer satisfaction. Our research hinges on the assumption that higher customer satisfaction

leads to sustainable revenue growth and profitability. This claim is based on the arguments provided in Heskett et al., (1997) that profit and growth are stimulated primarily by customer loyalty, and loyalty is a direct result of customer satisfaction. Enhancing customer satisfaction in the financial services industry can increase a firm's share of portfolio with its customers, and thereby it's total revenues and long-term profitability. Our study may also be viewed in line with the body of research that links customer perceived measures of quality with attributes of quality that are operational (Collier, 1991). We next discuss specific issues in measuring customer satisfaction in the financial services industry.

3. Drivers of Customer Satisfaction for Financial Services

Financial services companies produce products such as checking and savings accounts, mutual funds and brokerage accounts, cash and margin accounts, and in some cases may also offer insurance policies. An interesting aspect of financial services companies is that they do not fully fit into the mold of full service industries such as hotel and travel agencies. They fall some where in between manufacturing industries, which offer tangible products, and full service industries.

The notion of quality in financial services firms is quite different from that in manufacturing companies. The nature of the financial services industry is such that its products are mostly intangible. For example, in an investment company, the product delivered is not the stock certificate but the investment it represents, as well as the peripheral services such as online account services and accurate periodic reports. Further, one of the unique features of the financial services industry is that many customers seldom use some of the products produced by the firms on a daily basis. Often, once a product is sold, it is never used again until it expires or matures. Since

customers do not view the actual product as a full product, the service accompanying the product is very important in determining the overall satisfaction with the firm. As a consequence, in modeling overall customer satisfaction for financial services companies, it is important to include both product and service attributes.

Prior research has identified specific attributes of quality that are linked to customer satisfaction in both manufacturing and service industries (Garvin, 1988; Zeithaml, Parasuraman, and Berry, 1990). While research on service quality has generally investigated the quality attributes of certain service encounters (Zeithaml, Parasuraman, and Berry, 1990), there is a paucity of research and guidance in understanding the drivers of overall customer satisfaction at the firm level. This is true especially for multi-channel firms that are increasingly becoming the norm in the financial services sector (Frei et. al, 1997). Roth and Jackson, (1995), in one of the few rigorous empirical studies on financial services industry identify the determinants of service quality in the banking industry. Their analysis indicates that the quality of customer interface positively influences service quality. However, they use a composite measure for the quality of customer interface that includes various factors such as responsiveness to customer inquiries, accuracy of account statements, timeliness of mailing account statements, customer complaints and processing errors.

In the financial services business, the notion of customer interface is multi-faceted and may vary depending upon the channel of service delivery. While all service encounters mostly involve the customer in one way or the other, the nature of personal interactions with customers at branches differs from that of IT enabled automated delivery channels. There is a need for a deeper understanding of this distinction for firms to leverage overall customer satisfaction. Different components of the customer interface may have varying impacts on satisfaction across the customer population. As a

consequence, in our study, we explore multiple facets of the customer interface and model the differential impact of customer's perceived quality of service provided through these interfaces, on overall satisfaction with the firm.

3.1 Research Design

Our research was sponsored by one of the leading firms in the USA providing retail financial services. The firm offers a number of products to its customers and provides services over automated telephone systems and other electronic channels, and a multitude of branch offices located throughout the nation. The product offerings include various types of savings, checking, credit card, and investment products and accounts. The firm has also started providing account services over the Internet through the World Wide Web. However, during our data collection, the service offered over the Internet was not fully operational. In the recent past, the management has focused on quality initiatives to improve customer satisfaction and profitability. Our research effort was aimed at providing an analytical framework to carefully identify the critical needs of its customers and support this quality initiative.

Exploratory Research

With the help of this leading multi-channel financial services firm, we first sought to identify the characteristics of products and services offered by the firm that are perceived as important by customers in determining overall satisfaction with the firm. Our exploratory research involved several focus groups with customers drawn from the firm's database. A major purpose of these focus groups was to identify the factors that were salient to customers in evaluating the firm's product offerings and delivery of services.

The focus groups revealed that customers in the financial services sector derive value from the quality of products, accounts, and services offered by the firm. The

various types of products and accounts offered by the firm allowed customers to select offerings based on their changing needs. It was apparent that since the actual products delivered was not fully viewed as a product by the customers, the service accompanying the product became an important factor that determined the overall satisfaction with the firm. It has been observed that financial services firms often lose customers due to poor service than poor products (Bowen and Hedges, 1993). The quality of customer service through multiple channels, such as traditional branches and electronic delivery, as well as accurate and timely statements of various accounts appeared to be critical to customers. As noted earlier, this exploratory finding from our study is also well grounded in the literature (Roth and Jackson, 1995).

Over the last decade, IT has revolutionized the concept of delivering financial services and redefined the customer interface. Firms find automated telephone service as a cost-effective tool for account inquiries and other transactions. Over 50% of the financial transactions are currently conducted over automated telephone systems and other electronic means (Kalakota and Frei, 1996). IT has also enabled firms to provide customized reporting of accounts in the financial services sector. Technology leadership in financial services firms is a significant variable that enhances organizational knowledge and improves overall service quality in the eyes of the customer (Roth and Jackson, 1995).

Financial services firms in general also provide direct services to their customers through a large number of branch offices. Though routine transactions may be provided over the telephone or other electronic means, important services such as opening an account, changing account information and investment advice are provided through direct contact with customers in the branch offices. In addition, an industry survey finds that not all customers prefer online delivery of services (Morrall, 1996).

Survey Research

After careful review of the findings from the exploratory research and extant literature, four key factors were identified to be included in a comprehensive survey. These included the quality of the types of products and accounts offered by the firm, quality of financial reports and account statements, quality of service rendered through automated telephone systems, and the quality of service offered through direct contact with customers at their branch offices. For the subsequent phase of survey research, a questionnaire was designed and pre-tested with a pool of customers. The questionnaire was revised and mailed to a representative sample of customers from the firm's customer database. Besides questions pertaining to customer satisfaction, the firm also sought to obtain information on customers' usage patterns and behaviors, as well as some descriptive background characteristics of its customers. The response rate was 44% of the total surveys mailed. Our analysis is based on responses from 1280 current customers.

Details of the measure of overall satisfaction and other factors used in our analysis are given below.

Overall Satisfaction (OVSAT): In the survey, customers were asked to provide an overall satisfaction measure of their experience with the firm on a seven point ordinal scale ranging from very satisfied (7) to very dissatisfied (1), typical of studies of service quality (Zeithaml, Parasuraman, and Berry, 1990). A mid-level score of four indicated neutral evaluation by the customers. Other anchor points on the scale were satisfied (6), somewhat satisfied (5), somewhat dissatisfied (3), and dissatisfied (2). The same scale was also used for the four key factors discussed below.

Branch Service Satisfaction (BRSAT): Companies in the financial services industry have traditionally operated through a large number of branch offices and this is one of the major capital investments for these firms. A certain segment of customers still

visit branch offices for core services such as opening new accounts, though the number of such customers is decreasing due to the advent of other channels of service. In addition, a large number of customers often visit branch offices for more complex services such as financial advice, information about products to meet their needs, and resolution of problems. Although the financial services industry has been consolidating, the number of branches has been increasing (Morrall, 1996). In order to provide an important contact point and retain profitable customers, firms try to provide the best service at their branch offices through right people and processes. Hence this factor measures customers' perception of overall quality of service provided at the branch office.

Automated Telephone Service Satisfaction (AUSAT): Financial services firms view automated telephone systems and other electronic channels of service delivery as an effective alternative to improve customer service at a much lower capital cost. It is expected that the volume of financial services business conducted over automated channels of delivery such as telephone and the Internet will increase substantially in the future (Business Week, May 25, 1998). These automated systems provide convenient access to rich market information and enable customers to trade on-line. The quality of automated channel of delivery may be improved through better system design and interactivity to facilitate customers in effective transactions. Firms invest significantly in IT infrastructure with secure and easy to use features over Internet and Intranets to improve the quality of service delivered through automated channels (Krishnan and Ramaswamy, 1998). Hence it is important to assess the relative effect of automated channels in determining overall customer satisfaction. In our study, this factor captures customer's perception of quality of service provided by the firm over automated telephone systems.

Product Line Satisfaction (PLSAT): This variable measures customer's satisfaction with the types of products and accounts offered by the firm. The products offered by the firm include different kinds of accounts offered to meet investment needs of customers. Firms provide a variety of products and services to provide a one stop option to satisfy the investment needs of their customers. In our analysis, this factor is also influenced by customers' perception of interest rates and fees for the firm's products. Hence, customers' evaluation of this factor is influenced by multiple operational quality attributes of the firm's product offerings.

Financial Report Satisfaction (FRSAT): Periodic statements and reports on account transactions and summaries are valuable to customers. The accuracy of these statements directly affects overall service quality perceived by the customer (Roth and Jackson, 1995). For financial products such as retirement accounts, quarterly reports are the only source of information that customers in certain segments review. Firms have significantly invested in IT applications to design account reports to meet individual customer needs and make their account statements accurate and timely in order to better serve their customers. This factor in our model gauges the satisfaction of the firm's customers with the account statements and reports provided by the firm.

3.2 The Model

The dependent variable in the first level of our analysis is overall satisfaction with the firm. As discussed earlier, the ratings by customers are on a seven-point ordered scale. It may be noted that in such a scale, though level seven is higher than level six and the latter is higher than level five, the difference in satisfaction between levels five and six is not necessarily the same as that between levels six and seven. Since the dependent variable is discrete (a rank-ordered ordinal variable) and not continuous, the classical regression model is not appropriate (Greene, 1995). A more appropriate model

specification is one which recognizes that the dependent variable is not merely categorical but is inherently ordered, such as an ordered probit model (Zavoina and McElvey 1975; Kekre, Krishnan, and Srinivasan, 1995).

In an ordered probit model, we define a latent (unobserved) continuous variable that measures the continuous (cardinal) value of overall satisfaction. For the i-th customer, the latent variable Z_i is specified as a linear function of the explanatory variables:

$$Z_i = \tilde{X}_i' \tilde{\beta} + \varepsilon_i \qquad (1)$$

where $\tilde{X}_i$ is a vector of explanatory variables (**BRSAT, AUSAT, PLSAT, FRSAT**) for the i-th customer, $\tilde{\beta} = (\beta_1, \beta_2, \beta_3, \beta_4)$ is the respective vector of parameters associated with these drivers of overall satisfaction, and ε_i is a randomly distributed error term that follows a standard normal distribution across observations. For each customer, this unobserved cardinal value Z_i is mapped to the observed overall satisfaction rating Y_i as follows:

$$\Pr(Y_i = j) = \Pr(\delta_{j-1} < Z_i \leq \delta_j) \qquad (2)$$

where $\Pr(Y_i = j)$ is the (ordered) probability that the observed rating, **OVSAT**, for the i-th customer is the j-th level of the overall satisfaction scale (j = 1,...,J), and δ_j is the threshold value (j = 0 ,..., J+1) such that $\delta_0 < \delta_1 ... < \delta_J < \delta_{J+1}$. Note that the thresholds are also parameters to be estimated; δ_0 and δ_N,are set equal to -∞ and ∞, respectively, and $\delta_1 = 0$ for identification purposes.

4. A Full Bayesian Analysis

Several methodological complexities arise in the present context that led us to utilize a full Bayesian approach for model estimation. Bayesian inference combines information contained in the data with prior knowledge about model parameters

$\tilde{\theta} = \{\tilde{\beta}, \tilde{\delta}\}$ to arrive at the posterior distribution $\pi(\tilde{\theta}|\tilde{Y})$, given the observed data $\tilde{Y}$ (Gelman et al., 1996):

$$\pi(\tilde{\theta}|\tilde{Y}) \propto \ell(\tilde{Y}|\tilde{\theta})\ \pi(\tilde{\theta}), \qquad (3)$$

where π denotes a probability density function, $\pi(\tilde{\theta})$ is a prior distribution of the parameters $\tilde{\theta}$, and $\ell(\tilde{Y}|\tilde{\theta})$ denotes the likelihood of the observed data given the model parameters.

There are three distinct advantages to using Bayesian inference in the present context. Foremost, it provides a natural framework for utilizing *all* the data that have been collected and avoid the potential biases and inefficiencies in using traditional approaches based on complete responses (Schafer, 1997). In the Bayesian approach, the missing data can be accommodated through the idea of data augmentation (Tanner and Wong, 1987). In principle, we can specify $\tilde{\theta} = \{\tilde{\beta}, \tilde{\delta}, \tilde{X}_{(m)}\}$ where $\tilde{X}_{(m)}$ denotes the missing values of the explanatory variables. In our data, less than 25% of the respondents provided complete responses to the variables defined above. While almost all of the respondents gave their overall satisfaction rating, a majority of the respondents had some form of missing data pattern in their responses to the remaining four factors. For instance, on the factors pertaining to satisfaction with service delivery through automated telephone and branch services, there is as much as 36% and 39% of missing responses respectively. Hence, using traditional approaches that rely on a rectangular data file would result in severe loss of information.

A second advantage of a Bayesian analysis is that since the parameters in our model are random variables, the marginal effect is also a random variable. One of the limitations of earlier customer satisfaction models is that the impact of the drivers is typically estimated to be linear and is interpreted based only on mean effects. In our approach, the effects of the drivers of satisfaction are nonlinear in nature. Unlike

traditional methods of assessing marginal effects only at the mean level (cf. Greene, 1995), the Bayesian approach allows us to compute the distribution of the marginal effects for each of the factors across the customer population. For effective managerial actions to improve overall satisfaction, it is important to target factors that exhibit higher marginal effects and lower variability in their impact on overall satisfaction across the customer population.

A third advantage of the Bayesian approach, in principle, is that it offers the flexibility to incorporate prior managerial knowledge and place natural constraints on the model parameters. For example, we constrain the parameters associated with the explanatory variables to be positive, consistent with our model of overall satisfaction.

With a diffuse prior for (δ, β), the posterior distribution is given by (Albert and Chib 1993):

$$\pi(\beta, \delta, Z, X_{(m)} | Y) \propto \prod_{i=1}^{N} [exp(-(Z_i - X'_i \beta)^2/2) \times \{ \sum_{j=1}^{J} I_{(j)}(Y_i) I_{(\delta_{j-1}, \delta_j)}(Z_i) \}], \qquad (4)$$

where I(·) is the indicator function. Note that the posterior distributions of the parameters do not have a tractable closed form. Recent advances in Markov Chain Monte Carlo methods of estimation (Gilks, Richardson, and Spiegelhalter, 1996) allow draws to be simulated from non-standard posterior distributions, given the knowledge of the full conditional distributions. In particular, implementation of the Gibbs sampler (e.g., Smith and Roberts, 1993) requires knowledge of only the full conditionals, up to proportionality. The derivation of the full conditionals for the specification in (4), is given in the Appendix. These full conditional densities take the form of truncated multivariate normals (for $\beta, X_{(m)}$, and Z), and a uniform distribution restricted to an easily identifiable set (for δ_j).

Until recently there have been few well-known efficient algorithms to simulate from a truncated multivariate normal density (see Devroye, 1986, Robert, 1995). In this paper, we utilize a new sampler called the *Slice sampler* (Damien, Walker, and Wakefield, 1997) that can be set up as a general Gibbs sampler so that the full conditional distributions, following the introduction of auxiliary variables, will *all* be uniform densities. This greatly simplifies computation and also has superior convergence properties compared to other methods (Damien and Walker 1996). Details of our implementation of the Slice sampler are provided in Krishnan, Ramaswamy, Meyer, and Damien (1997). For the analyses described in this paper, the Gibbs sampler was run for 10,000 iterations: the first 8000 iterates were the "burn in" samples. Inferences are based on the last 2000 iterates.

5. Results and Discussion

Using the full Bayesian procedure discussed above, we estimated the posterior distributions of all the parameters in our model. For the firm in our study, the customers were distributed on the overall satisfaction scale as follows: 25% very satisfied, 55% satisfied, 15% somewhat satisfied, 3% neutral, and 2% dissatisfied. The relatively small number of dissatisfied customers is not surprising for a high-performance firm in the financial services sector (Peterson and Wilson 1992). Consequently, for our analysis, we combined the dissatisfied customers into a single category. In fact, the firm in our study had stated goals of total satisfaction, and is focusing its quality initiatives on shifting customers to the very satisfied category to ensure long-term loyalty.

Figure 1 depicts the posterior distribution of the effects of the drivers of overall satisfaction (i.e. $\tilde{\beta}$ in equation 1). Note that product offerings (β_3) exhibits the highest average impact. Among the remaining drivers of overall satisfaction, the quality of services provided at the branch offices (β_2) and satisfaction with financial reports and

account statements (β_4) appear to have a somewhat larger impact than automated telephone systems (β_1). However, for formulating effective managerial actions to improve overall satisfaction, it is important to conduct a marginal effect analysis as discussed next.

5.1 Marginal Effect Analysis

We conducted a marginal effect analysis to assess the relative payback for the firm in terms of *gains* in very satisfied customers from improving each of these factors. We first tabulated the initial frequency of the customers across the various levels of satisfaction. Since the firm was primarily interested in enhancing the number of very satisfied customers, for ease of presentation of the marginal effects, we combine all the levels of satisfaction below "Very Satisfied" to one group called "Not Very Satisfied Customers". Keeping all the other factors at their current levels, we increased the score of a specific factor by one level across all customers who are not fully satisfied with that factor. Subsequently with the enhanced level of satisfaction in that specific factor and the parameter estimates from the model, we computed the new frequency of customers across various levels of satisfaction. The difference in the new number of very satisfied customers and the initial number of very satisfied customers is the *net* increase in the number of very satisfied customers from enhancing the specific factor by one level across all customers. We conducted this marginal effect analysis for all the four factors in our model.

As noted earlier, an advantage of the full Bayesian analysis is that it allows us to compute the distribution of the marginal effects for each of the factors across the population. The distributions of the marginal effects (defined in terms of increase in number of very satisfied customers) for all the four factors in our model are depicted in

the top row of Figure 2. In the bottom row of Figure 2, we provide the mean percentage increase in very satisfied customers.

In order to compare the pertinent impacts of the four factors in our models, we define a relative impact index ρ for the marginal effects of these factors. This index incorporates both the average effects of the factors and variability in these effects across the population. The relative impact index ρ for a particular factor is defined as the ratio of its mean value of marginal effect over its standard deviation across the population. Thus for effective managerial actions, firms need to ideally target factors that exhibit relatively large effects on average, as well as a higher value of ρ. The relative index for the marginal effect distributions depicted in Figure 2 are 6.97, 4.31, 10.25 and 7.26 for **BRSAT, AUSAT, PLSAT,** and **FRSAT** respectively. Here, **PLSAT** has the highest average effect, and also the highest relative index. Hence it is clear that the firm needs to focus on satisfaction with its product offerings in order to reap the maximum gains in overall satisfaction.

An advantage of our Bayesian methodology is that we can empirically isolate customers for whom the marginal effects of the various factors are relatively higher than the rest of the customer population. In the present context, managers at the research site also emphasized that they wished to target customers with a higher asset base in terms of their cash savings, mutual funds, stocks, bonds, IRAs and other types of investments, that are most attractive to the firm. Of these customers, those with a relatively smaller proportion of their investable assets with the firm are attractive prospects for increasing share of portfolio and total revenues. In contrast, those customers with a relatively larger proportion of their assets already invested with the firm are targets for customer retention efforts. Further, managers at our research site postulated that the marginal effects of the factors might vary among customers depending upon their extent of

trading. We therefore adopted a hybrid segmentation approach that combined the managers' a priori segmentation scheme based on their target criteria with the empirical classification of customers with above-average marginal effects of the factors. By this approach, we derived four segments that not only exhibit relatively larger marginal impacts of the key drivers, but are also related to managerially relevant criteria such as asset size, the proportion of these assets that are invested with the firm, and trading behavior.

Segment 1, comprising 14% of the sample, has an average of over 60% of their investable asset size of $370,000 with the firm, and over 30 trades with the firm in the past year. About 27% of the gains in very satisfied customers from improving the quality of financial reporting emerged from this particular segment. This segment offers potential for fostering customer loyalty long-term via targeted operational activities (e.g., specialized account statements that offer advice and points towards frequent trader programs). The firm can capitalize upon advances in information technology for managing customer accounts in this segment.

Customers in Segment 2 also have sizeable assets and a high share of portfolio with the firm. Unlike Segment 1 however, these customers exhibited an average of only 13 trades in the past year. Although this segment constituted 13% of the sample, almost 23% of the gains in very satisfied customers from improving the quality of traditional branch services emerged from this particular segment. About 60% of the customers in Segment 2 had obtained quotes only 2-3 times in the recent quarter, and had relatively more visits to branches on average than Segment 1. We suspect that these customers rely more on consultation, trading, and assessment of their investment portfolio via their branch visits. This segment offers opportunities for fostering customer relationships

through personal interactions at its branches and potentially increasing transactional usage long-term.

While Segments 1 and 2 are targets for customer retention strategies, Segments 3 and 4 offer considerable potential for growth through increasing share of customers' investment portfolios. Segment 3 comprised of customers with an average investable asset size of about half a million dollars. However, these customers have less than 40% of these assets invested with the firm, but conduct an average of 36 trades in the past year. They have a high frequency of electronic interactions with the firm (e.g., over half of this segment had eleven or more interactions with the firm in the recent quarter to obtain investment quotes). Although constituting 14% of the total sample, we found about 25% of the gains in very satisfied customers from improving the quality of automated telephone service emerged from this specific segment. This segment offers considerable growth potential for the firm through investments in IT that reap the benefits of electronic trading for these customers.

Segment 4 with average asset size of almost half a million dollars with the firm and less than 30% with the firm resembles Segment 3 in terms of growth potential, but averages only 19 trades in the past year. Although Segment 4 comprised 18% of the sample, about 30% of the gains in very satisfied customers from improving the quality of product offerings emerged from this particular segment. Thus, while satisfaction with product offerings is the primary driver of satisfaction overall, the firm is also likely to increase its share of portfolio from the competition if it channels its resources to improve product offerings.

In summary, the general managerial implications based on these findings are twofold. First, the firm in our study needs to channel its resources to improve product offerings. Second, the firm can target specific customer segments to reap the full benefits

of improving customer satisfaction through service delivery. In particular, improving the quality of both product offerings and of automated telephone services offer considerable growth potential for the firm. Following Roth and Jackson (1995), although our findings confirm that the quality of customer interface is a key driver of customer satisfaction, our results further illustrate the differential effects of the multiple facets of the customer interface, across different types of customers. In the next section, we discuss the analysis of specific operational quality attributes that might be leveraged to enhance customer satisfaction with product offerings and automated service delivery.

5.2 Quality Attribute Analysis

It is clear that in order to improve overall customer satisfaction, a major priority for the firm is the allocation of resources to increase the perceived quality of their product offerings. This raises the need for specific direction for improving the firm's product offerings. It should be noted that the four strategic factors defined in our model are directly affected by multiple operational quality attributes. As noted earlier, firms need to identify and understand the relative effects of these operational quality attributes on the customer ratings of the four factors (Soteriou and Zenios, 1998; Armstrong and Harker, 1995). We illustrate this next for the most important factor in our model, i.e. customer ratings of the firm's product offerings.

Our exploratory research also identified the different quality attributes that are perceived important by customers in determining their satisfaction with product offerings and service delivery. After careful review, we identified four quality attributes as being critical to determining satisfaction with product offerings: ease of opening and closing of accounts (**QATR1**); product variety which enables customers to consolidate services one place (**QATR2**); competitive interest rates and fees (**QATR3**); and lucid information on all products and services (**QATR3**).

Hence, in the second level of our analysis, we measured customer satisfaction with the four quality attributes identified above. Thus, similar to our model of overall satisfaction, in this level we specify a model for satisfaction with product offerings as a function of these four quality attributes:

$$\mathbf{PLSAT} = f(\mathbf{QATR1}, \mathbf{QATR2}, \mathbf{QATR3}, \mathbf{QATR4}). \quad (5)$$

The parameter estimates of this model enable managers to assess the relative impacts of these quality attributes. We utilized the methodology discussed earlier to estimate this model, enabling assessment of variability in these impacts across the sample. We also computed the marginal effects of each of these attributes as discussed earlier. The distributions of these marginal effects are depicted in Figure 3.

Note that in Figure 3, the average value of the marginal effect from improvements in customer education of product offerings (**QATR4**) is substantially higher than the average value of marginal effects from the rest of the three attributes. On the surface, this may appear as the most important attribute for improving satisfaction with firm's product offerings. However, an interesting finding is that the variability in the marginal effect from **QATR4** is also the highest among all four attributes. We conclude that the firm's customer base is heterogeneous with respect to familiarity and expertise with financial services. Some customers may be very sophisticated, while others may be naïve and need to be educated about financial goals and product options (Ramaswamy, Chatterjee, and Cohen 1996). This underscores the importance of computing a relative index ρ for the marginal effect as defined earlier.

The computed values of ρ based on the distributions of marginal effects of the four attributes **QATR1**, **QATR2**, **QATR3** and **QATR4**, are 8.32, 7.58, 5.90 and 5.53 respectively. Note that ease of opening and closing of accounts exhibits the highest relative index. Hence in order to improve satisfaction with product offerings across the

customer population, managers may also need to focus on improving the process of opening and closing accounts. Interestingly, this attribute has also been identified as being important in bank process efficiency studies (Frei and Harker, 1996). In general, managers must consider both the average effects and the relative impact index ρ, in assigning priority to the attributes and allocating organizational resources. Further, it should be noted that the cost incurred in improving each of the four quality attributes might differ substantially.

We also conducted a similar quality attribute analysis for improving satisfaction with automated service delivery. Our exploratory research had identified five key factors in this regard: system accessibility (availability and ability to get through), functionality (providing needed functions and instructional ease), information accessibility (market information and quotes), human assistance (support via live reps), and speed of execution (allowing quick trades and confirmations). These factors are also grounded in the prior frameworks of quality in IT applications (Kekre, Krishnan and Srinivasan, 1995). The marginal effect analysis revealed that functionality had the largest average impact on satisfaction with quality of automated service delivery. Its effect was about twice that of the other attributes, except for human assistance whose impact was small. The relative impact index was also largest for the functionality of the automated system. Hence, customers seem to be receptive to the potential benefits offered by an electronic system such as speed and convenience, provided it addressed all their trading needs and was easy to use. Interestingly, this finding is consistent with a recent industry report (Business Week, May 25, 1998). From the firm's perspective, the costs of maintaining automated systems may be lower over the long run than using human assistance. Hence, improving customer satisfaction with easy to use automated service delivery features can augment the firm's revenue growth and its long-term profits as well.

In summary, our quality attribute analysis facilitates managerial action by identifying specific quality attributes and assessing their relative impacts on key drivers of customer satisfaction. These quality attribute analyses can also provide insights on the cost-benefit tradeoff in enhancing customer satisfaction. For instance, although we find that **BRSAT** and **FRSAT** exhibit similar marginal effects in increasing the number of very satisfied customers, the cost incurred by the firm to improve satisfaction with branch services and financial reports may differ substantially. Our research is an initial step towards linking operational variables to firm performance. Since we only have subjective measures of quality attributes at the operational level, this limits us in quantifying the cost implications. In this paper, we do not address the cost issues in these attributes.

However, managers must recognize the relative tradeoffs in costs and benefits in improving customer ratings in each of the quality attributes identified in our study so as to effectively deploy resources towards improving customer satisfaction with the firm. This tradeoff has also been addressed in recent research. For example, Soteriou and Zenios (1998) provide a framework for linking strategic benchmarking with operational benchmarking of the services offered by bank branches. Armstrong (1994) has also provided a technique to identify cost drivers of quality attributes in service satisfaction. We speculate that the cost to improve current quality attributes may substantially vary across attributes (Krishnan et. al, 1996). In order to quantitatively assess the cost-benefit tradeoff in enhancing customer satisfaction, a detailed framework as proposed in Armstrong and Harker (1995) and Athanassopoulos (1998) is needed.

Further, the results from our marginal effect analysis focus on very satisfied customers for a high-performance firm in the financial services industry. While this is appropriate for a market leader in general, it may be argued that a marginal effect analysis of dissatisfied customers may be more relevant for low-performance firms,

particularly if these effects vary across the factors. A marginal effect analysis of dissatisfied customers in our sample revealed the relative index for the marginal effect distributions to be 8.1, 5.2, 13.1 and 8.9 for **BRSAT**, **AUSAT**, **PLSAT**, and **FRSAT** respectively. However, given the lack of representation of dissatisfied customers in our data due to the high-performance nature of the firm, these results on dissatisfied customers need to be interpreted with caution.

Finally, although measurement errors are a potential problem in any survey research, we attempted to minimize such errors by using a pilot study to design the survey instrument. As noted earlier, missing data is endemic to customer satisfaction surveys in financial services and other service industries. Given the difficulty of obtaining complete customer satisfaction data, our approach attempts to fully exploit all the available information.

6. Conclusion

In this paper, we have provided a framework and approach for translating customer feedback into managerial actions for improving overall customer satisfaction with financial services. In summary, our model at the strategic level allows managers to understand the specific factors that significantly impact overall customer satisfaction with financial services, and quantitatively assess the relative impacts of these factors. Our approach also helps managers to target the right customer segments to obtain the maximum value from addressing each of these factors. In addition, our analysis at the operational level enables managers in financial services firms to recognize the explicit quality attributes that need to be improved to enhance customer satisfaction.

Based on customer feedback on various products and services offered in the financial services sector, we identified four factors that affect customer satisfaction. Our full Bayesian analysis allows us to explicitly accommodate missing data and enables a

quantitative assessment of the average effects and variability in the impact of these factors across customers. While customer satisfaction may also be affected by firm-specific factors such as advertising and corporate reputation, we have partially controlled for these factors since our analysis is conducted for a given firm.

Our results indicate that satisfaction with product offerings is the primary driver of overall customer satisfaction. Satisfaction with the quality of automated telephone and branch services, as well as financial reporting, also have a significant impact on overall satisfaction, particularly for different customer segments. Since most transaction data in the financial services sector including deposits into investment accounts are stored electronically, firms can use information technology applications to monitor customer's service usage and identify specific customer segments. Once the customer segments are identified, firms can then target the appropriate factors such as product offerings and automated delivery to enhance overall satisfaction.

The financial services firm in our study has channeled its resources to improve product offerings overall, as well as target specific customer segments so as to reap the full benefits of improving customer satisfaction on specific factors such as the quality of automated service delivery. In the recent past, advances in IT have enabled financial services firms to innovate their product offerings and service delivery. The number of customers who engage in electronic commerce for financial transactions has increased considerably in the past year (Business Week, May 25, 1998). Due to the dynamic changes in the financial services industry, achieving high levels of customer satisfaction may be more like a moving target. Hence it is important for firms to continually assess customer segments and identify the drivers of satisfaction so as to retain their profitable customers.

Appendix A

To motivate the Gibbs sampler (see Gelfand and Smith, 1990 for a detailed discussion), consider a simple case involving two random variables A and B whose observed values are denoted by a and b. Let [A, B] denote the joint density of A and B, [A | B] the conditional density of A given B, and [B] the marginal density of B. Assuming that the conditional distributions [A | B] and [B | A] are known, and it is feasible to draw random variates from these distributions, the Gibbs sampling procedure follows an iterative process such that:

$$A^s \sim [A \mid B = b^s], \quad B^{s+1} \sim [B \mid A = a^s], \tag{A1}$$

thereby generating a sequence $b^0, a^0, b^1, a^1, \ldots, b^s, a^s$. It has been shown that under reasonably general conditions, the distribution of $\{b^s, a^s\}$ converges to the joint distribution [A,B] as $s \to \infty$. Computing appropriate sample statistics from the posterior distribution is straightforward, given the draws that have been generated (after ignoring the initial "burn-in" iterations).

However, as discussed, several modeling complexities arise for the model formulation in our paper. We now show how a Gibbs sampler can be set up so that the full conditional distributions, following the introduction of auxilliary variables, will *all* be uniform densities. The major advantage with the resulting sampler, known as the *Slice sampler* (Damien, Walker, and Wakefield, 1997), is two-fold: (i) it is computationally very easy to code; and (ii) has superior convergence properties compared to other methods (Damien and Walker 1996; Polson 1996; Roberts 1997). The goals here are to develop a *general* Gibbs sampler which can be readily adapted to encapsulate special cases; for example, the case of an informative prior, as well as bypass rejection sampling while simulating from, in our context, truncated multivariate normals.

Consider the posterior distribution of interest in the present context. From expression (4):

$$\beta,\delta,Z,X_{(m)}|Y \propto \prod_{i=1}^{N} [exp(-(Z_i - X'_i\beta)^2/2)\times\{\sum_{j=1}^{J} 1(Y_i = j)\,1(\delta_{j-1} < Z_i < \delta_j)\}]. \quad \text{(A2)}$$

We state first, the full conditionals as follows:

$$\delta_j|. \sim U(a,b),\ j = 1,\cdots,J, \quad \text{(A3}$$

$$Z_i|. \sim N(X'_i\beta,1)\,I_{(\delta_{j-1},\delta j)}(Z_i), i = 1,\cdots,N; \quad \text{(A4)}$$

$$\beta|. \sim MVN((X'X)^{-1}(X'Z),(X'X)^{-1})\,I_{(0,\infty)}(\beta); \quad \text{(A5)}$$

$$X_{i(m)}|. \sim N((Z_i - X_i'\beta_{(k_0)})/|\beta_{(k_0)}|),|\beta_{(k_0)}|^{-1})\,I_{(1,7)}(X_{i(m)}); \quad \text{(A6)}$$

where the m-th missing data point is indexed by i and k_0, I denotes the indicator function, *"MVN"* denotes the multivariate normal distribution, *"U"* denotes the uniform distribution, $a = max\{max\{Z_i : Y_i = j\},\delta_{j-1}\}$, and $b = min\{min\{Z_i : Y_i = j+1\},\delta_{j+1}\}$.

Following Damien and Walker (1996), simulation from the above conditional densities is easily accomplished via uniform random variables. Let f be a continuous density function defined on the real line. Damien and Walker (1996) address the problem of generating a random variate A from f. The basic idea is to introduce an auxilliary variable Q, construct the joint density of Q and A with marginal density for A given by f, and to use the Gibbs sampler to generate random variates from f. This is done by simulating a Markov chain $\{A_n\}$ where given $A_n = a, Q$ is taken from $f(q|a)$ and then A_{n+1} is taken from $f(a|Q = q)$. Under mild regularity conditions $A_n \to_d A \sim f$. Additionally, we are interested in conditional distributions which can be sampled directly. (For an overview of Markov chain methods and the use of auxilliary variables, the reader is referred to Besag and Green, 1993 and Higdon, 1996). In particular, the approach described here is a consequence of the original idea introduced by Edwards and Sokal (1988) and highlighted by Besag and Green (1993). Damien and Walker (1996) prove that if:

$$f(a) \propto h(a) \prod_{l=1}^{L} g_l(a), \tag{A7}$$

where the g_l are nonnegative invertible functions (not necessarily densities), that is, if $g_l(a) > u$ so that the set $T_l(u) = \{a : g_l(a) > u\}$, and $h(.)$ is a density of known type, then it is possible to implement a Gibbs sampler for generating random variates from f in which all the full conditionals are of known types. Additionally, all but one of these full conditionals will be uniform densities.

Damien and Walker's (1996) approach provides an elegant means of sampling from the full conditionals in our model (A3 to A6) within the context of a Gibbs sampler — via the introduction of auxilliary variables which has the effect of extending the Gibbs loop by the number of auxiliary variables introduced. The Gibbs sampler that can be constructed wherein all the full conditionals are uniform densities is called the *Slice sampler* (Neal and Roberts, 1997). The reason for this description is that the density from which a sample is desired has been "sliced" into sections by uniform partitions of each of the coordinate axes. Details on our implementation of this Slice sampler are discussed in Appendix B.

Appendix B

We provide details on implementing the Slice sampler discussed in Appendix A. Expression A5 requires sampling from a truncated multivariate normal distribution, while expressions A4 and A6 involve univariate normals. We first discuss the general problem of sampling from a truncated multivariate normal distribution. Consider the Gibbs sampler proposed by Robert (1995) for this purpose. We can greatly simplify this algorithm using the idea of auxilliary variables. Therefore, consider:

$$f_{x_1,\ldots,x_p}(x_1,\ldots,x_p) \propto \exp\left(-0.5\,(x-\mu)'\Sigma^{-1}(x-\mu)\right) I(x \in A), \qquad \text{(B1)}$$

where $f(.)$ is a multivariate normal density. We assume, as does Robert (1995), that the bounds for x_i given x_{-i} are available and given by, say, (a_i, b_i). Therefore

$$f_{x_i|x_{-i}}(x_i \mid x_{-i}) \propto \exp\left(-0.5\,(x_i - v_i)^2 / \sigma_i^2\right) I(x_i \in (a_i, b_i)), \qquad \text{(B2)}$$

for $i = 1,\ldots,p$, are the full conditionals, and $v_i = \mu_i - \sum_{j \neq i}(x_j - \mu_i)e_{ij}/e_{ii}$ and $\sigma_i^2 = 1/e_{ii}$, where e_{ij} is the ij th element of Σ^{-1}. Robert uses his rejection algorithm for sampling these truncated univariate normal densities. However, since we are already in a Gibbs sampler it seems appropriate to implement the auxilliary variable idea.

We do not need to introduce p auxilliary variables — only one is sufficient. Therefore, we define the joint density of $(X_1,\ldots,X_p,Y)$ by

$$f_{X_1,\ldots,X_p,Y}(x_1,\ldots,x_p,y) \propto \exp(-y/2)\, I\left(y > (x-\mu)'\Sigma^{-1}(x-\mu)\right) I(x \in A). \qquad \text{(B3)}$$

The full conditional distributions are given by

$$f_{X_i|X_{-i},Y}(x_i \mid x_{-i}, y)\, \alpha\, I(x_i \in A_i), \qquad \text{(B4)}$$

where $A_i = (a_i, b_i) \cap B_i$, and B_i is the set $\{x_i \mid x_{-i} : (x-\mu)'\Sigma^{-1}(x-\mu) < y\}$ and so the bounds for B_i are obtained by solving a quadratic equation. The full conditional for (Y | X) is a truncated exponential distribution which can be sampled using the cdf inversion technique (see Devroye, 1986). Therefore, we have a Gibbs sampler which runs on $p+1$ full

conditionals which can all be sampled directly using uniform variates, rather than p full conditionals sampled via rejection algorithms.

To illustrate sampling from truncated univariate normals, consider the specific case of sampling from the full conditional in expression A4:

$$Z_i \mid . \sim N(X'_i \beta, 1)\, I_{(\delta_{j-1}, \delta_j)}(Z_i), i = 1, \cdots, N. \qquad \text{(B5)}$$

We sample from a standard normal truncated on $(a,b) = (\delta_{j-1} - X_i'\beta,\ \delta_j - X_i'\beta)$ as follows. Define Y such that:

$$f(x,y) \propto e^{-y/2} \mathrm{I}\{ y > x^2, a < x < b)\}. \qquad \text{(B6)}$$

Then, the marginal density for x is the desired density, and the conditionals are:

$$f(x \mid y) = U(x_1, x_2), \qquad \text{(B6)}$$

where $x_1 = \max(a, -\sqrt{y}), x_2 = \min(b, \sqrt{y})$, and

$$f(y \mid x) = e^{-0.5y} I_{(x^2, \infty)}(y),$$

so that if V ~ U(0,1),

$$y = x^2 - 2\, log(1\text{-}V).$$

In summary, the Slice Sampler we have discussed above is computationally very efficient and should be of immense benefit to researchers in solving business problems, especially when faced with sampling from nonstandard or truncated functions and additional complexities imposed by real-world constraints.

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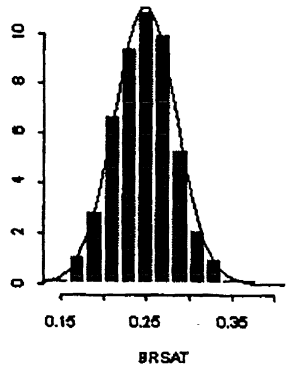
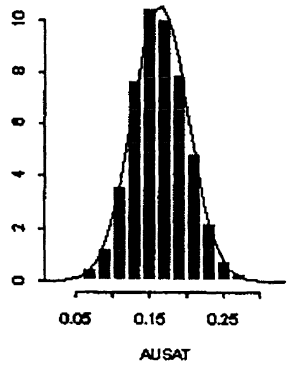
FIGURE 1: DISTRIBUTION OF FACTOR IMPACTS ON OVERALL SATISFACTION



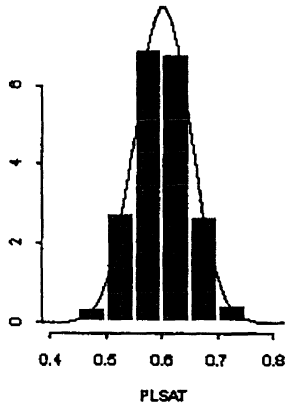
BRANCH SERVICE

Mean = 0.25
Std. Dev. = 0.04



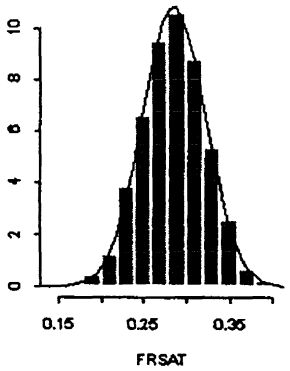
AUTOMATED
TELEPHONE SERVICE

Mean = 0.16
Std. Dev. = 0.04



PRODUCT LINE

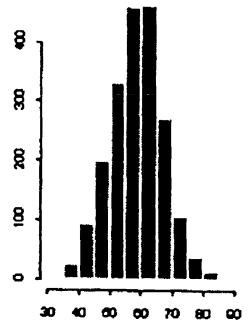
Mean = 0.60
Std. Dev. = 0.05



FINANCIAL REPORT

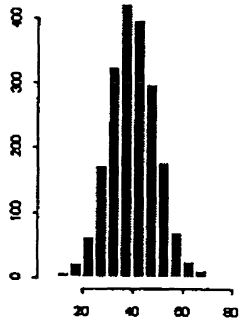
Mean = 0.29
Std. Dev. = 0.04

FIGURE 2: MARGINAL EFFECT OF FACTOR IMPACTS ON OVERALL SATISFACTION



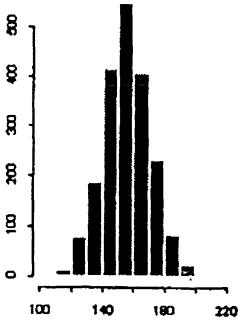
BRANCH SERVICE

Mean = 58.6
Std. Dev. = 8.4



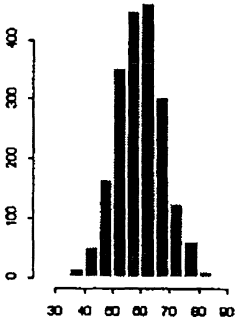
AUTOMATED TELEPHONE SERVICE

Mean = 40.1
Std. Dev. = 9.3



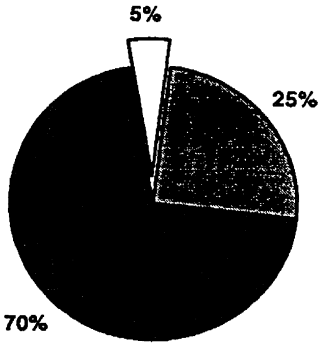
PRODUCT LINE

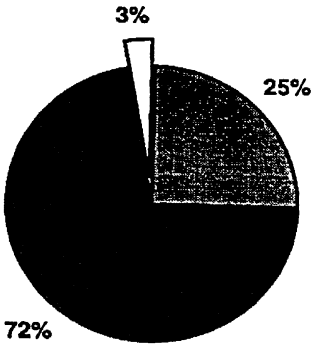
Mean = 155.8
Std. Dev. = 15.2

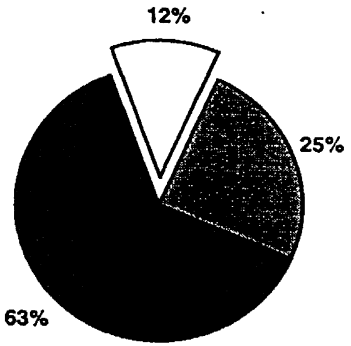


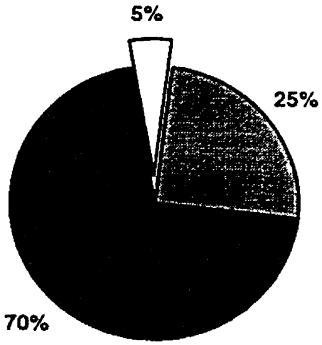
FINANCIAL REPORT

Mean = 59.6
Std. Dev. = 8.2







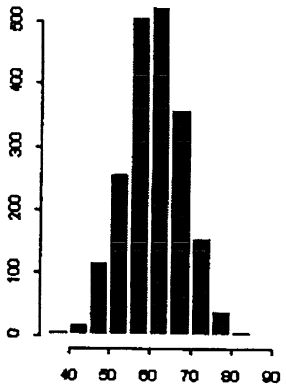


Very Satisfied Customers

Gains in Very Satisfied Customers

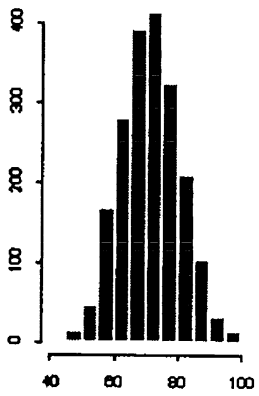
Not Very Satisfied Customers

FIGURE 3: MARGINAL EFFECT OF QUALITY ATTRIBUTES ON SATISFACTION WITH PRODUCT OFFERINGS



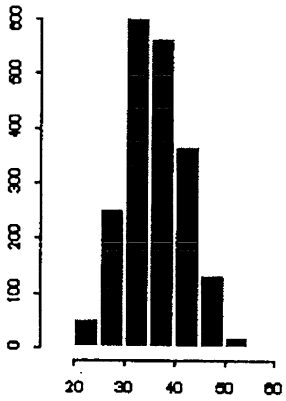
EASE OF OPENING & CLOSING OF

Mean = 60.9
Std. Dev. = 7.3



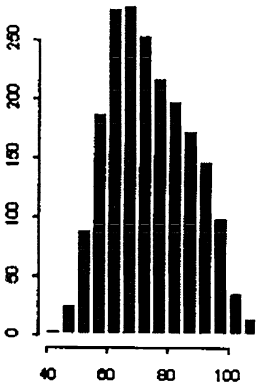
ONE-STOP SERVICES

Mean = 71.3
Std. Dev. = 9.4



COMPETITIVE RATES & FEES

Mean = 36.1
Std. Dev. = 6.1



CUSTOMER EDUCATION OF PRODUCT OFFERINGS

Mean = 74.1
Std. Dev. = 13.4