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THE IMPACT OF SERVICE GUARANTEES ON SERVICE QUALITY, CUSTOMER SATISFACTION/LOYALTY AND FIRM PERFORMANCE

A THESIS
SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL
OF THE UNIVERSITY OF MINNESOTA
BY

JULIE MOUNTAIN HAYS

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

Arthur V. Hill, Adviser

December, 1999

UNIVERSITY OF MINNESOTA

This is to certify that I have examined this copy of a doctoral thesis by

Julie Mountain Hays

and have found that it is complete and satisfactory in all respects,
and that any and all revisions required by the final
examining committee have been made.

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GRADUATE SCHOOL

ACKNOWLEDGEMENTS

This research was supported by grants from the National Science Foundation Transformations to Quality Organizations (Grant SBR-9811047), Radisson Hotels Worldwide, and the Juran Center for Leadership in Quality at the University of Minnesota. I would like to thank Roger Schroeder, John Anderson, Ron Pruitt, and Paul Edelman of the University of Minnesota for both their time and helpful comments. I especially want to thank Professor Art Hill of the University of Minnesota for all his support, encouragement, and assistance, without which I would not have been able to complete this dissertation.

DEDICATION

To my family for their understanding and support during this long and sometimes grueling process. In particular, to my husband, Kevin, for the amazing amount of laundry he did. To my daughter, Jessica, who didn't complain too much when I forgot her confirmation. To my son Jake, who put off becoming a "terrible teen" until I was finished. And finally, to my daughter, Abby, who sat quietly next to me and colored while I studied.

I also thank my Dad for instilling in me the value of education and never doubting that I could accomplish anything I wanted. In memory of my Mom, who read more books than anyone I know and encouraged me to do the same. And finally, in memory of my friend, Ginny, whose life and death helped me to keep this process in perspective and remember what is really important in life.

ABSTRACT

Service guarantees are enthusiastically endorsed by both practitioners and academics as a means for service firms to transform themselves into quality-focused, customer-driven, learning organizations. There is a large base of anecdotal evidence supporting these claims, but some contradictory anecdotal evidence also exists. Additionally, no rigorous, theory-driven, empirical study of service guarantees has been conducted to date. As a result, we can only speculate how service guarantees might impact firm performance.

The dissertation proposes a theoretical framework that relates service guarantees (SG) to perceived service quality (PSQ), customer satisfaction, customer loyalty, and business performance via the intervening constructs of employee motivation/vision (EMV), learning through service failure (LTSF), defensive marketing/service recovery, and offensive marketing.

There are two parts to the dissertation research. First, a mathematical model was developed to investigate the effect of service failures and defensive marketing/service recovery strategies on market share. The Service Satisfaction/Market Share Model yields useful insights into the relationships between service system parameters and market share in equilibrium. The three service system parameters interact strongly with one another so that changing two or more parameters at one time has a synergistic effect. The primary contribution of this model is the intuitive insights that it gives to both researchers and practitioners.

Second, an empirical study of the relationships between SG, EMV, LTSF, and PSQ was conducted. Initially, a pilot study of the implementation of a service guarantee in a limited number of hotels was conducted. This study was aimed at preliminary testing of the theoretical framework proposed and provided a pilot test of the instrument developed. A cross-sectional analysis of this data revealed that both EMV and LTSF positively influence PSQ. However, EMV mediates the

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relationship between LTSF and PSQ.

Finally, a confirmatory study of the implementation of a service guarantee in a greater number hotels was conducted. A longitudinal analysis of this data revealed that the SG positively impacted both EMV and PSQ. Additionally, EMV was found to mediate the relationship between a SG and PSQ. However, the SG was found to have no effect on LTSF.

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CHAPTER 1

Problem Statement

1.1 Introduction

The focus on quality and quality management has spread from the manufacturing sector to the service sector. However, because services differ from manufacturing in many important characteristics, assuring quality in services is, in some ways, a more difficult proposition than assuring quality in manufacturing.

A service firm's product is largely intangible and therefore difficult to measure and control. Conformance to specifications is more easily measured for a manufactured product than a service. The "production process" of services involves the interaction of employees and customers. From both a production and consumption point of view, this "human factor" affects service firms to a greater degree than manufacturing firms. From a production point of view, employees are an integral part of the process and the resulting "product." Every service experience will be different because of the variation in employees. While it may be possible to standardize the procedures and processes, it is not possible to standardize human beings. From a consumption point of view, each individual customer comes to the service experience with different expectations and will perceive the service experience differently. Additionally, individuals desire various aspects of services to a differing degree and may or may not place the same amount of value on them.

Both customers and employees are an integral part of the service production process. Therefore, it is difficult (and probably unwise) to separate traditional functional activities. Marketing, operations, and human resources are intermingled (Collier 1994). The service literature is consistent in its view that superior service firms need marketing, operations, and human

resource strategies that are congruent with each other as well as consistent with the service (business) strategy of the firm (Albrecht and Zemke 1985; Czepiel, Solomon, and Surprenant 1985; Fitzsimmons and Fitzsimmons 1994; Heskett 1986; Lovelock 1994; Mills 1986; Murdick, Render, and Russell 1990; Norman 1984; Sasser, Olson, and Wycoff 1978; Schmenner 1995; Schneider 1980). One of the prescriptions offered by practitioners and academics alike to insure customer driven quality in services, as well as congruence between marketing, operations, and human resource functions is the service guarantee.

A service guarantee is a promise by a firm that they will perform at a certain level, if that level is not met, the firm also promises to compensate the customer in some way. A service guarantee can convey to customers the specific benefits they will get from using a service, convey to employees the results they are expected to produce for customers, and explicitly recognize and make amends for service failures (Harvey 1998). Chris Hart (1988), president of the Boston based TQM Group and a former examiner for the Malcolm Baldrige National Quality Award, states, "A guarantee is a powerful tool -- both for marketing service quality and achieving it." Hart (1990) also says, "Although offering perfect service is a risk, delivering it is a challenge that reshapes an entire organization and makes it stronger and more competitive." His associate at TQM, Dan Maher (1992), states,

> Promising perfect service motivates a company to identify and resolve the root causes of service-delivery problems. A service guarantee can be self-fulfilling. Firms often find that the guarantee drives the company and pushes service performance beyond previous expectations.

Other experts also tout the advantages of a service guarantee. Leonard Berry (Ettorre 1994), director of the Center for Retailing Studies and J.C. Penny Professor of Retailing Studies at Texas A. & M. University, says, "A well-conceived guarantee is, among other things, an act of fairness. While it is a tangible indication from a company to a customer, it can also be a powerful cultural shaper for employees." Berry goes on to say that a guarantee "puts teeth into management

rhetoric" about improving quality and is a positive reinforcer, contributing to the company culture that binds employees together.

Curt Reimann (Ettorre 1994), director for quality programs at the National Institute of Standards and Technology and director of the Baldrige award, states,

> The cost of getting and retaining a customer is so high that guarantees are part of the psychology of commitment. The retained customer has long-term value. Guarantees are a safety valve; they keep us on our toes and allow us to get a good snapshot of validated practices.

Karl Albrecht (1990), chairman of The TQS Group and author of 18 books, says,

> You can sell better when you can publicly promise your customers a level of treatment that your competitors are unwilling or unable to match. Moreover, even more importantly, a strong service promise may allow you to capture a larger share of your market or charge a higher price for your product.

Zeithaml, Parasuraman, and Berry (1990) say, "Excellent reliability and recovery represent a powerful one-two punch in service quality. Companies need to aspire to doing service right the first time and, on those occasions when this does not occur, doing the service very right the second time." Barbara Ettorre (1994), editor of *Management Review*, adds, "When first-rate service establishments began to put guarantees in writing as a marketing tool, they found that the idea revitalized their operations throughout."

Many executives of companies who have implemented service guarantees also believe that service guarantees are of great value to their companies. Timothy Firmstahl (1989), founder and CEO of Satisfaction Guaranteed Eateries, Inc. Seattle, says,

> To the extent that customers are satisfied, the company goal is fulfilled. A strategy for ensuring customer satisfaction that has worked well in the restaurant business, called the "ultimate strategy," can work well in other businesses. It begins with a guarantee that customers will be satisfied with their whole experience of the company's products and services. It moves on to a system that gives employees complete responsibility and authority for making the guarantee hold. It ends with a process for identifying failures. Every dollar invested in the strategy is a plus because it identifies a problem that can be corrected.

Clyde Culp (Gillette 1992) of Embassy Suites states, "People do not want their money back; they simply want to be satisfied. Having a service guarantee invites guests to let the hotel know if there is a problem so it can be corrected." Michael Rose (1990), chairman, president and CEO of The Promus Companies, says,

> If a company is doing its job well, the unconditional service guarantee becomes the ultimate point of differentiation in the service industry. The company can set standards of excellence and train personnel to meet them. Thus, the unconditional service guarantee becomes the tool by which a service culture is molded within the organization and success is measured on a daily basis.

It appears that service guarantees could affect firm performance in many ways. They could have both defensive and offensive marketing impact, influencing the firm's relationship with its customers by shaping customer expectations and affecting both customer complaints and customer recovery. They could shape corporate culture, strengthening the customer focus throughout the organization, thus impacting employee motivation and vision. They could encourage customer feedback, giving the firm information on both customer expectations and the firm's ability to consistently meet those expectations. They could affect perceived quality directly, as well as through learning and employee motivation and vision.

However, there are significant costs and risks associated with offering a strong service guarantee, in terms of both administration and payout. It is possible that these costs will be greater than any increased profit obtained from offering the guarantee. Indeed, Wirtz (1998) found that both overall costs and unit costs increased when firms implemented a service guarantee. However, the firms he studied felt that increased sales, through increased market share and/or premium pricing, resulted in an increase in profits even though costs increased. Additionally, a study by Nayyar (1995) found a significant positive reaction by the stock market for firms implementing a service guarantee.

Service guarantees are found in both large and small firms across a wide variety of service

industries (Appendix I), but the vast majority of US service firms do not emphasize service guarantees (Roth, Chase, and Voss 1997). In some cases, firms offering a service guarantee have superior financial performance, in other cases they do not. Some firms with service guarantees have superior customer satisfaction, some do not.

Several of the firms cited in the literature for the excellence of their service guarantee, Federal Express, The Promus Cos., and Sprint, had the highest American Customer Satisfaction Index rating in their industry sector during 1996 (Fornell, Johnson, Anderson, Cha, and Bryant 1996). The American Customer Satisfaction Index (ACSI) is a measure of customer satisfaction with a firm, measured as a function of perceived quality and expectations. The Promus Co. also had the highest return on equity in its industry sector.

However, several other firms also cited in the literature for their service guarantees (Wells Fargo Bank and Domino's) had some of the lowest ACSI ratings in their industry sector. The firms in these industry sectors with the highest ACSI ratings, Norwest and Wendy's, did not have explicit service guarantees. Additionally, Wells Fargo Bank had the lowest return on equity in its industry sector in 1996.

In the telecommunications and local telephone service industry, Ameritech and GTE Corporation both offer explicit guarantees. However, BellSouth Corporation had the highest ACSI rating in that industry sector as well as the lowest return on equity. GTE Corporation had the lowest ACSI rating in this industry sector, but the highest return on equity. Ameritech did not have outstanding ratings on either of these measures.

While the claims for the positive benefits of service guarantees seem to be logical and compelling, no rigorous academic study of service guarantees has been published to date. This lack of theory-driven, systematic, empirical research leaves both academics and practitioners in doubt as to what constitutes a "good" service guarantee and how that guarantee affects firm

performance. Therefore, the question that drives this research is:

> *How do service guarantees affect corporate culture, quality, marketing strength and, subsequently, firm success?*

1.2 Framework

Although anecdotal evidence exists for the positive effects of service guarantees on firm performance, no underlying theoretical foundation for how or why service guarantees affect firm performance has been published to date. The literature was reviewed, academics and practitioners were interviewed, and industry expert opinion was sought in order to formulate an initial framework. The theoretical development of the framework is outlined in Chapter 2 of this dissertation.

The Expanded Service Guarantee Strength/Business Performance Framework (Figure 1.1) relates service guarantees to perceived service quality, customer satisfaction, customer loyalty, and business performance via the intervening constructs of employee motivation/vision, learning through service failure, defensive marketing, and offensive marketing. The Service Guarantee/Business Performance Framework proposes:

1. **Service Guarantee Strength** positively affects aspects of *Quality, Culture,* and *Marketing.*

2. **Service Guarantee Strength** positively affects **Perceived Service Quality, Customer Satisfaction,** and **Customer Loyalty** through four intervening constructs:

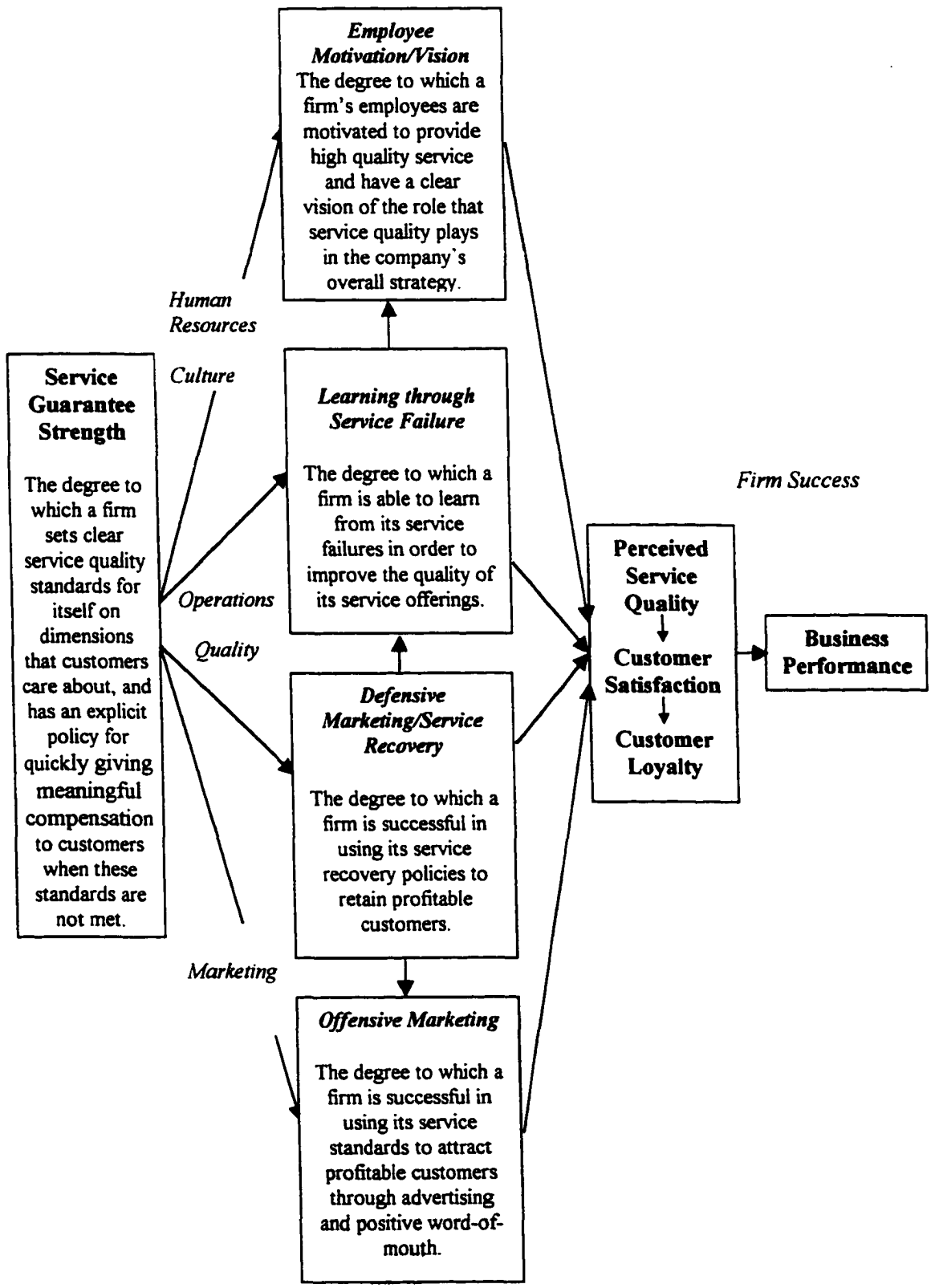
   Employee Motivation/Vision
   Learning through Service Failure
   Defensive Marketing/Service Recovery
   Offensive Marketing

3. ***Learning through Service Failure*** positively affects ***Employee Motivation/Vision***.

4. ***Defensive Marketing/Service Recovery*** positively affects ***Offensive Marketing*** and ***Learning through Service Failure***

5. **Perceived Service Quality, Customer Satisfaction,** and **Customer Loyalty** positively affect **Business Performance.**

Figure 1.1 Expanded Service Guarantee Strength/Business Performance Framework



1.3 Organizational Overview

Chapter 2 of this dissertation develops the theoretical framework with a review of the relevant literature. Chapter 3 provides a brief overview of the research conducted and places each piece of the research in the context of the Service Guarantee/Business Performance framework. Chapter 4 contains the paper "The Market Share Impact of Service Failures" (with Arthur V. Hill), published by *Production and Operations Management*. This paper develops a mathematical model to investigate the relationship between a firm's defensive marketing/service recovery strategies and business performance. Chapter 5 contains the paper, "An Empirical Study of the Relationship Between Employee Motivation/Vision, Service Learning, and Perceived Service Quality." This cross-sectional empirical study investigates the relationships between employee motivation/vision, learning through service failure, and perceived service quality (this paper is currently being revised for a second review by the *Journal of Operations Management*). Chapter 6 contains the paper, "A Longitudinal Empirical Study of the Effect of a Service Guarantee on Employee Motivation/Vision, Service Learning, and Perceived Service Quality." This is a longitudinal investigation of the relationships between a service guarantee, employee motivation/vision, learning through service failure, and perceived service quality. Chapter 7 summarizes the impact of this research on both theory and practice, outlines plans for the dissemination of the results of this research, and discusses directions for future research.

CHAPTER 2

Literature Review and Theory Development

2.1 Service Guarantee Strength

Service guarantees could be viewed as quality tools, similar to statistical process control, where standards are set, conformance to those standards is measured, and the process is adjusted to assure continued conformance. They could be viewed as marketing tools, combining both offensive and defensive marketing, used to attract high-margin customers and recover unsatisfied customers. Service guarantees could also be viewed as strategy tools, used to shape corporate culture and impart a strategic vision to the entire firm.

A service guarantee is a promise by a firm that they will perform at a certain level; if that level is not met, the firm also promises to compensate the customer in some way. When purchasing a service, customers have an expectation of what the quality of that service will be (the promise). The firm provides some level of quality (performance). If the customer or the firm is unsatisfied with the quality of the service provided, the firm may or may not do something to satisfy the customer (compensation). When viewed in this way, it is apparent that all firms have at least an implicit service guarantee ranging over a spectrum from "terrible" to "excellent."

The empirical dissertation research relates only the presence or absence of a service guarantee to the other constructs and does not include the construct of service guarantee strength. A National Science Foundation grant, funded by the Transformations to Quality Organizations program, will extend the dissertation research through the investigation of the contingent effects of service guarantee strength. Additionally, the empirical research summarized in this dissertation is based on the implicit assumption that the guarantee studied is a "strong" guarantee.

Therefore, for clarity, the construct of service guarantee strength is defined and the

dimensions distinguishing it identified. Hart (1988) believes that a "good" service guarantee should be unconditional, easy to understand and communicate, meaningful, easy (and painless) to invoke, and easy and quick to collect on. Timothy Firnstahl (1989) adds that companies offering effective service guarantees should be sure that their employees know how to use their authority and should make progress visible. Wirtz (1998) also emphasizes employee empowerment as a necessary condition in order to insure easy invocation and payout and adds that the guarantee should be credible.

In contrast to Hart's call for unconditional guarantees, Wirtz (1996) posits that customers may perceive unconditional guarantees as ambiguous and, therefore, less powerful than a specific guarantee. Some support for this viewpoint is provided by McDougall, Levesque, and VanderPlaat (1998). They found that respondents preferred a specific guarantee when they focused on the guarantee characteristics that relate to invocation (honored more often, more believable, and easier to invoke). They also argue that when all or part of customer satisfaction is derived from delivery quality, customers may prefer a specific guarantee because the judgmental nature of assessing delivery quality may make customers reluctant to invoke an unconditional guarantee. However, McDougall, Levesque, and VanderPlaat (1998) found that consumers preferred the unconditional guarantee to the conditional guarantee when selecting a service provider.

In order for a service guarantee to be effective, the attributes of the service which are guaranteed must be important to the customer. Tucci and Talaga (1997) emphasize that a guarantee must be matched to the needs and perceptions of customers. A specific guarantee may be weakened if the attribute guaranteed is not central to the customer's decision for purchasing the service (McDougall et al. 1998).

Tax, Brown, and Chandrashekaran (1998) found that customer satisfaction with complaint

handling is dependent on customer perceptions of distributive, procedural, and interactional justice. Distributive justice refers to the perceived fairness of the response and was found to be related to both the level of compensation and apology. Procedural justice refers to customer perceptions of the response and was found to be related to firm acceptance of responsibility for the failure, the convenience of the process, and the timeliness of the response. Interactional justice refers to courtesy and respect and was found to be related to politeness, concern, explanation, and effort in resolution.

Other researchers (Czepiel et al. 1985; Hoffman, Kelley, and Rotalsky 1995) have found similar relationships. Equity research consistently finds that people prefer greater rewards to lesser rewards (Walster, Berscheid, and Walster 1973). Goodwin and Ross (1992) found that customer voice and apology increased satisfaction with recovery efforts more effectively when accompanied by tangible restitution. In agreement with this, Smith, Bolton, and Wagner (1998) found that customers rated the level of compensation for a service failure as most important to their subsequent satisfaction. However, after the recovery effort, apology, immediate response, and firm-initiated recovery were found to have a substantially greater effect on customer satisfaction.

Service guarantee strength, then, is posited to depend on the *level of service guaranteed* (are there conditions attached to the guarantee, or is it unconditional?); *value to the customer* (does the firm promise to deliver something that the customer cares about?); *knowledge of the customer* (is the customer aware of the guarantee, is that guarantee understandable?); *ease of claiming the compensation* (is the compensation both quickly and easily obtainable?); and the *value of the compensation* (how valuable is the compensation the customer receives?).

Service guarantee strength, then, is defined as :

> *The degree to which a firm sets clear service quality standards for itself on dimensions that customers care about, and has an explicit policy for quickly giving meaningful compensation to customers when these standards are not met.*

Where a strong service guarantee is one that unconditionally promises to deliver a service the customer desires and delivers easily obtainable, valuable compensation if the customer is unsatisfied with the service.

2.1.1 Contingent Effect of Service Guarantees

The effects of service guarantees are thought by many to be contingent on market, consumer, firm, or service characteristics. For clarity, some of these contingencies are delineated in this section. Although the empirical dissertation research does not directly address any of these contingencies, future research may be aimed at investigating their effects.

Hart (1988) asserts that service guarantees are particularly effective when the price of service is high; the customer's ego is on the line; the customer's expertise is low; the consequences of failure are high; the industry's quality image is low; the firm depends on repeat purchases; and word-of-mouth is critical for business. Berry and Yadav (1996) hypothesize that service guarantees make the most sense for companies that market services perceived as high-risk, wish to capitalize on their superior service quality, or need a differentiating message for market entry.

In agreement with Berry and Yadav, Wirtz (1998) posits that consumer behavior will be positively affected to a greater degree when the guarantee is unique and there is higher perceived risk associated with the service. Tucci and Talaga (1997) provide empirical support for this viewpoint in a simulated study of service guarantees in the restaurant industry. They hypothesized that low priced meals are low risk and found that for low priced meals market share falls with service guarantee increases. For higher risk, medium and high priced meals, market share rises with a guarantee. Thus market, firm, and service characteristics can impact the effect of a service guarantee.

Bejou and Palmer (1998) observe that the magnitude of service failure and the length of customer relationship mediate the impact of a service guarantee. Tax, Brown, and Chandrashekaran (1998) found that prior positive experience largely mitigated the effects of a poorly handled complaint on commitment. Tucci and Talaga (1997) posit that service guarantees may not be appropriate if the service is not consistent with customer expectations. Indeed, Boulding and Kirmani (1993), in their work on warranties, found that high credibility firms benefited from offering high warranties, while low credibility firms did not. Thus, a customer's previous experiences and expectations can exert influence on the effect of a service guarantee.

2.2 *Firm Success*

2.2.1 Quantitative Measures of Business Performance

Within a particular market, market share can be used as a measure of firm success. Higher market share is generally associated with greater firm profitability (Capon, Farley, and Hoenig 1990). The mathematical model developed later in this dissertation relates market share to customer satisfaction with both the initial service and recovery efforts after a service failure.

Financial measures such as EVA, MVA, ROI, ROE, ROA, profit margin, stock price, cash flow, and/or growth could all be used to differentiate firm performance. The dissertation research does not include financial measures of firm success. However, the larger NSF TQO research may include these types of financial measures of firm success.

2.2.2 Qualitative Measures of Business Performance

Qualitative measures of success for service firms include service quality, customer satisfaction, and customer loyalty. Quality has been found to be an important determinant of both market share and profitability in many markets (Buzzell and Gale 1987; Capon et al. 1990; Phillips, Chang, and Buzzell 1983). For service firms, the importance of customer satisfaction and service quality is evident (Oh and Parks 1997; Sasser et al. 1978). Service firms need to insure

that their customers perceive the firm's service quality to be at least adequate and at best exceptional (Zeithaml, Berry, and Parasuraman 1993). Service firms also need to insure that their customers are at least satisfied and, preferably, extremely satisfied (Jones and Sasser 1995). Perceived service quality, customer satisfaction, and customer loyalty are probably broader (in terms of time) measures of firm success than financial measures, because they are dependent on past performance and help to determine future performance.

Service quality, customer satisfaction, and customer retention/customer loyalty are intimately related and difficult to separate concepts. A customer's perception of superior service quality has been found to relate to increased customer satisfaction, which in turn leads to increased customer retention, and results in positive economic outcomes for the firm (Anderson, Fornell, and Lehmann 1994; Fornell 1992; Fornell 1994; Fornell et al. 1996; Ittner and Larcker 1996; Johnson and Fornell 1991). In addition to positively impacting customer retention, service quality has also been shown to positively impact likeliness to recommend, which in turn positively impacts customer attraction and usage rates (Danaher and Rust 1996).

The distinction between perceived service quality and customer satisfaction is blurred in the marketing research literature. While most authors agree that service quality and customer satisfaction are separate constructs (Anderson et al. 1994; Bolton and Drew 1991b; Zeithaml, Parasuraman, and Berry 1988) there is disagreement on whether service quality is an antecedent to customer satisfaction or customer satisfaction is an antecedent to service quality (Anderson et al. 1994; Bolton and Drew 1991b). Several factors contribute to this confusion. Both perceived service quality and customer satisfaction can be viewed as either transaction-specific or cumulative (Anderson et al. 1994; Boulding and Kirmani 1993; Zeithaml et al. 1988). Transition-specific customer satisfaction is viewed as an evaluation of a specific purchase event (Oliver 1993). Cumulative customer satisfaction is viewed as an overall evaluation of a good or service

over time (Fornell 1992; Johnson and Fornell 1991). Both service quality and satisfaction are thought to be affected by customer expectations, which are shaped by past experience, and both are perceived by the customer.

Harvey (1998) views quality of service as a result of both customer satisfaction and technical quality. Where customer satisfaction is measured inversely by the gap between expectations and perceptions of the quality of results (reliability) and perceptual process quality (empathy, responsiveness, assurance, and tangibles). Technical quality (state of the art in the field) is measured by the gap between ideal and achieved.

Zeithaml, Parasuraman, and Berry (1988) view perceived service quality as a cumulative global judgment and define it as the gap between expectations of service quality and delivered service quality (Zeithaml et al. 1993). Later research models expected service as a "zone of tolerance," ranging from adequate to desired. Desired service is determined by personal factors unique to the individual, explicit and implicit service promises, word-of-mouth, and past experience with both that type of service and other services. Adequate service is determined by the predicted level of service, unique situational factors, the role of the consumer in the service process as perceived by the consumer, and competitive service offerings (Zeithaml, Berry, and Parasuraman 1996).

Bolton and Drew (1991a; 1991b; 1992) suggest that transaction-specific satisfaction mediates prior perceptions of service quality (a cumulative global evaluation) to form the current perception of service quality. Service quality, therefore, is a function of the satisfaction in the current period and the service quality from the previous period. They argue further that satisfaction in a period is a function of the disconfirmation, expectations, and performance in that period.

In contrast to this, Anderson, Fornell and their associates (Anderson et al. 1994; Fornell

1992; Fornell 1994; Fornell et al. 1996; Johnson and Fornell 1991) embrace the cumulative definition of customer satisfaction and view customer satisfaction as the result of perceived quality, perceived value, and customer expectations. Their national, longitudinal survey (the American Customer Satisfaction Index, ACSI) measures customer satisfaction in seven industry sectors of the economy (based on one-digit SIC codes) and 34 specific industries (based on two-digit SIC codes and their contribution to GDP). The ACSI model was found generally applicable across firms, industries, and sectors of the economy. The model was found to be nomologically (a form of construct validity) valid (Fornell et al. 1996).

The ACSI perceived quality construct reflects the views of both Deming (1981) and Juran and Gryna (1988). Their perceived quality construct is a transition-specific judgment of a firm's current offering based on the degree of customization and reliability of that offering. Perceived value is the perceived level of product quality relative to the price paid. Perceived value was found to have a positive impact on customer satisfaction. Customer expectations capture a customer's prior consumption experience with a firm's products or services, as well as advertising and word-of-mouth information. Expectations are positively related to both perceived quality and perceived value, as well as to customer satisfaction. Both perceived quality and perceived value were found to have a positive impact on customer satisfaction.

However customer satisfaction and service quality are defined, the ultimate goal for a firm is customer retention or customer loyalty (Evans and Lindsay 1996; Fay 1994; Gerson 1993). Customer loyalty is the willingness of customers to repurchase from a particular firm. In anything other than a monopoly situation, it can be argued that customer loyalty (or intent to repurchase) is a measure of customer satisfaction and/or perceived service quality. Jones and Sasser (1995) argue that, "levels of satisfaction ... are a good indicator of the level of quality ... that they (customers) are receiving." They extend this argument by asserting that only completely satisfied customers

are loyal customers. Viewed from the opposite perspective, this implies that intent to repurchase is a measure of customer satisfaction and perceived service quality.

The empirical research makes no attempt to distinguish between the concepts of perceived service quality, customer satisfaction, and customer loyalty. Given the difficulty in separating these concepts, as well as data availability, the research was based on the premise that a customer who intends to repurchase is more than satisfied with the firm's offerings and, in the case of a service firm, perceives that the firm offers superior service quality.

Although the empirical study was focused on investigating the effect of a service guarantee on motivation, vision, and learning and their subsequent effect on customer satisfaction, it also has strong implications for the business performance of the firm. Higher levels of customer satisfaction have been found to be positively related to positive economic outcomes for the firm (Anderson et al. 1994; Fornell 1992; Fornell 1994; Fornell et al. 1996; Ittner and Larcker 1996; Johnson and Fornell 1991). Thus, the financial performance of the firm should be positively affected if a service guarantee is positively related to customer satisfaction.

2.3 *Intervening Constructs and Relationships*

2.3.1 Service Guarantee Strength – Perceived Service Quality – Customer Satisfaction/Loyalty

Service quality is different from quality in a manufacturing context. For tangible products (i.e., manufactured products), it is fairly easy to measure both performance (design) quality (how high the standards are set) and conformance quality (how often the standards are met). However, for intangible products (i.e., services), both performance and conformance quality are shaped by customer expectations and perceptions. This may be part of the reason that services have been found to have a greater incidence of dissatisfaction than tangible products (Best and Andreasen 1977).

In many manufacturing firms, increasing conformance quality can and often does result in

decreasing costs. A meta-analysis of strategy variables found twenty studies that support a positive relationship between quality and economic measures of business performance (Capon et al. 1990). However, increasing performance quality usually results in higher costs. Given the difficulty in separating performance and conformance quality in services, these cost relationships are not as obvious for services.

A review of the service quality literature highlights the important dimensions of service quality. Zeithaml, Parasuraman, and Berry (1990) define perceived service quality as related to the gap between expectations of service quality and delivered service quality. They found five key dimensions of service quality: reliability, assurance, tangibles, empathy and responsiveness. Later research found that reliability and empathy were the two most important dimensions of service quality (Boulding and Kirmani 1993).

Although some researchers question the gap theory (Cronin and Taylor 1992), as well as the distinction of the five dimensions (Carman 1990), most researchers support the validity of the individual performance scale items in capturing consumers' perceptions of service quality. The ACSI (Fornell et al. 1996) defines perceived quality as the degree to which a product or service provides key customer requirements (customization) and how reliably these requirements are delivered (reliability).

Service guarantees could have a positive effect on customer satisfaction by ensuring responsiveness, forcing the firm to attain a high level of reliability and providing tangible evidence of a firm's empathy. A guarantee requires the firm to identify the performance expectations of customers and continually focus on the perhaps changing expectations of customers. Indeed, Wirtz (1998) found support for the positive impact of a service guarantee on service design. A service guarantee provides economic incentive for the organization to continually improve its service delivery process. Additionally, a service guarantee makes non-

quality visible, an essential element for continuous improvement (Harvey 1998).

However, firms may also attempt to substitute a service guarantee for superior service quality. A firm could offer a strong service guarantee to compete with a higher quality firm without improving its own quality. In this case, customer satisfaction will likely suffer.

2.3.2 Service Guarantee Strength – Learning through Service Failure

In order to survive in an increasingly competitive and dynamic service economy, firms need the ability to quickly learn from their failures. In a manufacturing context, learning curve effects were found to be more closely related to the cumulative output of defective product than to the cumulative output of good product (Li and Rajagopalan 1997). Although organizations can learn in many ways, this study is focused on organizational learning through service failure (i.e., customer complaints).

Because of the intangible nature of services, customer complaints are an important means of detecting service failures and can provide a significant opportunity for organizational learning (Fornell 1976). Indeed, Argyris and Schon (1978) even define organizational learning as "the detection and correction of errors." Service guarantees encourage and even reward customer complaints, thus systematically providing specific, actionable, constructive feedback on service failures (Lewis 1993).

Learning has been conceptualized as a network of feedback loops (Marquardt and Reynolds 1994; Mellander 1993; Senge 1990; Stata 1989). Effective complaint management can provide important feedback on service failure for firms, resulting in more efficient learning. Wirtz (1998) found that firms introducing a guarantee discovered and eliminated fail points. Because service guarantees "punish" the firm for delivering less than quality service, they can stress the firm to find the roots of service delivery problems and improve service quality and customer satisfaction (Maher 1991).

2.3.3 Service Guarantee Strength – Employee Motivation/Vision

Often employee motivation and vision are not imparted by the strategic plan of the company. The typical strategic planning documents often mean nothing to the front-line worker, even when management tries to tie the reward system to the achievement of strategic goals. A service guarantee program can serve as an internal marketing program. Internal marketing has been shown to influence the motivation of employees (Piercy and Morgan 1991). Service guarantees can communicate to employees the level of service that the firm intends to offer to its customers (Cahill and Warshawky 1995). By "punishing" the firm for service quality lapses, they could provide tangible evidence to those employees of the importance of service quality to the firm. Thus, service guarantees can communicate to employees the level of management commitment to customer satisfaction (Wirtz 1998).

Motivational determinants include; the role of leadership processes and job characteristics, as well as person/system fit and situational constraints (Waldham 1994). Leadership theories are too numerous to even summarize here. However, five core leadership skills span these theories and are exhibited by effective leaders (Byrd 1987). They include; vision, empowerment, and value-congruence.

Although Hackman and Oldham's (1980) Job Characteristics Model applies to the impact of specific jobs on individuals, the theory underlying it is, to a certain extent, applicable here. The Job Characteristics Model can be summarized as follows: job characteristics (skill variety, task identity, task significance, autonomy, and feedback from job) impact critical psychological states that are positively related to internal work motivation, "growth" satisfaction, general job satisfaction, and work effectiveness. These critical psychological states are experienced meaningfulness (the feeling by workers that their work is a significant contribution to the organization and society); experienced responsibility; and knowledge of results. A job's

"motivating potential" can be enhanced by increasing the level of the core job characteristics and/or the critical psychological states (Oldham 1996).

Service guarantees can provide clear task identity, as well as emphasizing task significance resulting in higher experienced meaningfulness. Higher experienced responsibility can result from a service guarantee's explicit assumption of accountability. Service guarantees encourage and even reward customer feedback, possibly increasing workers' knowledge of results.

Goal theory provides another framework for the investigation of employee motivation and vision. The main finding of goal theory research is that difficult goals lead to higher levels of task performance than do easy or no-goals. However, goal achievement requires both goal commitment and ability (Locke and Latham 1990). Additionally, a goal can have no motivational effect without goal commitment (Locke, Latham, and Erez 1988). Performance was found to be positively related to goal commitment and negatively related to constraints (Klein and Kim 1998). A service guarantee can provide a difficult goal for employees to strive towards. The recovery side of the service guarantee can empower employees to satisfy customers and, therefore, eliminate some of the constraints on achieving that goal. Thus, service guarantees could positively influence the motivation and vision of employees. Indeed, Hampton Inn found that during the first three years after they implemented their service guarantee employee morale increased and employee turnover decreased from 117% to 50% (Greising 1994).

Alternately, a service guarantee could have no effect on employee motivation and vision and may even have a demotivating effect related to the constant flow of negative feedback from service guarantee invocations (Lewis 1993). Frontline service positions are typically low compensation positions and employees in those positions are minimally educated. A service guarantee may have no effect on those employees.

2.3.4 Employee Motivation/Vision – Learning through Service Failure

Employee motivation is an essential ingredient of the current view of learning organizations. Senge (1990), who popularized the concept of learning organizations, says:

> ...one cannot have a learning organization without shared vision. Without a pull toward some goal which people truly want to achieve, the forces in support of the status quo can be overwhelming. Vision establishes an overarching goal. The loftiness of the target compels new ways of thinking and acting. A shared vision also provides a rudder to keep the learning process on course when stresses develop ... shared vision fosters risk taking and experimentation.

Other experts also support the contention that vision (a concordant view of the company's activities and goals, and of the direction of future trends (Mellander 1993)) is needed to become a learning organization (Marquardt and Reynolds 1994). Thus, organizational learning could be posited to depend on the motivation and vision of the firm's employees, where higher levels of motivation and vision positively influence organizational learning.

An examination of Hackman and Oldham's (1980) Job Characteristics Model leads to an opposite perspective. Job characteristics (in this case, feedback from job) impact critical psychological states (in this case, knowledge of results) that are positively related to internal work motivation, "growth" satisfaction, general job satisfaction, and work effectiveness. However, the type of learning we plan to investigate is learning from service failure. The feedback employees obtain from customer complaints is negative rather than positive. Negative feedback may have a demotivating effect, rather than a motivating effect (Wirtz 1998). Thus, employee motivation and vision could also be posited to depend on learning, through feedback from job and knowledge of results, where learning could either positively or negatively influence employee motivation and vision.

2.3.5 Service Guarantee Strength – Defensive Marketing/Service Recovery

Defensive marketing reflects a company's ability to increase customer loyalty and customer satisfaction through customer retention and recovery. Customers who experience a

service failure cannot be recovered (restored to a good relationship with the firm) if the firm is not aware of the service failure. Customers who are not recovered are more likely to "defect" (switch to the competition) and "infect" other customers and potential customers with bad reports that negatively influence future market share.

The original TARP studies (1979; 1986), showing that as few as 4% of customers who are unhappy actually complain, highlighted the importance of complaint management and recovery. Not only have service guarantees been shown to increase the proportion of unhappy customers who complain (Rust, Subramanian, and Wells 1992), but they also have the potential to increase the proportion of customers who are recovered. Increasing the proportion of customers who complain as well as the proportion of customers who are recovered should decrease exit, decrease negative word-of-mouth, and increase positive word-of-mouth.

However, complaints can also be viewed in a negative way. Many firms tie employee compensation to complaints, where the goal is to reduce complaints. In this case, service guarantees could negatively affect employee motivation. Additionally, much of the value of complaints is in recovery, if the lapse in performance is too large, those customers are unrecoverable and money is wasted trying to recover them. If the cost of recovering customers is greater than the benefit, the firm will suffer financially.

2.3.6 Defensive Marketing/Service Recovery – Learning through Service Failure

Defensive marketing or service recovery could also have an effect organizational learning. A service guarantee can also empower frontline employees to satisfy customers after a service failure. Empowerment is critical in building a successful learning environment, because such action can "spark exceptional performance" (Vogt and Murrell 1993). Empowerment includes capacity and power and should be given as close as possible to the point of interaction with the customer or client. Empowerment permits learning to happen through responsibility (Marquardt

and Reynolds 1994).

Complaints can be viewed as opportunities for soliciting customer feedback (Plymire 1991). Huber (1991) relates organizational learning to knowledge acquisition, information distribution, information interpretation, and service memory. A service guarantee can increase the firm's level of knowledge acquisition by encouraging customer complaints, thus increasing the firm's knowledge of the causes of service failure. However, as Huber (1991) notes, in order for learning to occur the information obtained must be interpreted, distributed, and placed in organizational memory.

2.3.7 Service Guarantee Strength – Offensive Marketing

Offensive marketing reflects the company's ability to attract new customers and therefore increase its market share and/or profitability. A service guarantee can be advertised as an "insurance policy" to attract risk-sensitive, high-margin customers. For example, both Xerox and Federal Express can charge premium prices because they guarantee and deliver reliable service. A service guarantee can also be used by firms to proclaim the reliability of their high quality service and thus attract new customers and increase market share.

Service guarantees can also affect the offensive marketing potential of a firm through their effect on word-of-mouth. Word-of-mouth is a process of communication about a product or service in which the participants are not marketing sources. Word-of-mouth is both an input into the consumer purchase decision (Bloch, Sherrell, and Ridgeway 1986; Feick and Price 1987) and an output of the purchase process (Holmes and Lett 1977; Richins 1983). Word-of-mouth has been shown to influence product judgments (Bone 1995) and can be affected by other marketing efforts (Bayus 1985).

Word-of-mouth can be either positive or negative. For customers who do complain, positive word-of-mouth is associated with the customers' perception of distributive (fairness of

the response) and interactional (courtesy and respect) justice (Blodgett, Wakefield, and Barnes 1995). Service guarantees can increase positive word-of-mouth communication about a service through their positive influence on customers' perceptions of interactional and distributive justice.

However, in some cases, a service guarantee could actually discourage customers. They may feel that the firm has a problem if they need a guarantee in order to attract customers. A guarantee may be offered as proof of improved quality performance, however, customers may view this "proof" as confirmation of the existence of lingering problems (Tucci and Talaga 1997). Service guarantees may be seen by consumers as an acknowledgement that failures occur and therefore increase the perceived risk of potential customers (Wirtz 1998).

2.3.8 Offensive Marketing – Firm Success

Obviously, offensive marketing affects business performance. At first glance, the major benefit of service guarantees would seem to be in utilizing them to attract new customers through advertising. However, as this proposal highlights, there are many other possible benefits of service guarantees.

Service guarantees are thought to increase the likelihood of first time purchase and willingness to pay a premium price (Hart 1988). Wirtz (1998) posits that these benefits flow from the reduction of perceived risk to customers. A service guarantee can increase the perceived probability of a favorable outcome and decrease the potential negative benefits, resulting in reduced perceived risk for customers. Additionally, service guarantees can result in increased positive word-of-mouth and can be used to manage customer expectations (Cahill and Warshawky 1995; Czepiel et al. 1985).

Although some categories of products/services are more likely to be influenced by word-of-mouth than other categories (Walker 1995), in many cases consumers rely more on word-of-mouth than other marketing efforts when making actual purchase decisions (Arndt 1967b).

Positive word-of-mouth has been shown to increase the probability of purchase (Arndt 1967a). Service guarantees have been found to generate higher levels of positive word-of-mouth (Wirtz 1998).

A service guarantee could also be used to mange customer expectations, thus affecting customer satisfaction through their effect on customer expectations. Expectations are positively related to both perceived quality and perceived value, as well as to customer satisfaction (Fornell et al. 1996). Thus, a service guarantee can positively affect the financial performance of a firm by allowing the firm to charge a premium price for its service and/or positively influencing the market share of the firm.

2.3.9 Defensive Marketing/Service Recovery – Customer Satisfaction/Loyalty

Customer complaints have value to firms, both as a communication device and as a means of giving the firm a chance to turn a dissatisfied customer into a satisfied and loyal customer (Fornell 1976). Economic models (Fornell and Wernerfelt 1987; Fornell and Wernerfelt 1988) based on the "exit-voice" theory of Hirschman (1970), and case studies (Bell and Zemke 1987; Jones and Sasser 1995; Zemke and Bell 1989; Zemke and Bell 1990) of complaint management have shown that firms should attempt to maximize the number of complaints from dissatisfied customers. Complaint management can be a cost effective marketing strategy even when customer compensation exceeds the product's profit margin and customer retention has been found to be significantly more cost effective than attracting new customers (Hart, Heskett, and Sasser 1990; Heskett, Sasser, and Hart 1990; Reichheld and Sasser Jr. 1990).

Service failures and failure to recover lead directly to customer exit (Keaveney 1995). However, research suggests that it is possible to recover from a service failure provided that an effective recovery effort is executed (Kelley, Hoffman, and Davis 1993). A recent study of failures in the restaurant industry found that service personnel made no effort to execute a service

recovery in over one-fifth of the service failure incidents collected (Hoffman et al. 1995). A service guarantee, by making employees aware of the importance of service recovery and encouraging recovery efforts, can result in an increased proportion of satisfied customers, even when those customers experience a service failure.

Game theoretic studies have found that when personal expectations are violated, voluntary offers of penance, especially substantive penance, can be quite effective in enabling the process of reconciliation and the re-establishment of mutual trust (Bottom, Gibson, Daniels, and Murnighan 1996). Service recovery efforts are thought to have a disproportionately significant impact on customer satisfaction, because customers are often more involved in and aware of a service recovery encounter than a service encounter where there is no failure (Berry and Parasuraman 1991). Indeed, once a customer has experienced a service failure, the recovery effort has been found to have a direct effect on satisfaction, repurchase intentions, and word-of-mouth (Spreng, Harrell, and Mackoy 1995).

It has been shown that the more negative a consumer's perception of responsiveness to consumer complaints, the more likely that individual is to engage in negative word-of-mouth (Blodgett et al. 1995; Richins 1983) and/or exit (Singh 1990). Negative word-of-mouth decreases the probability of purchase (Arndt 1967a). Customer satisfaction with recovery efforts after a service failure has been found to be influenced by customer perceptions of procedural, interactional, and distributive justice (Smith et al. 1998). Negative word-of-mouth and exit were found to be associated with customer perceptions of distributive (fairness of the response) and interactional (courtesy and respect) justice (Blodgett et al. 1995) associated with the recovery effort.

Service guarantees, by increasing the proportion of customers who complain as well as the proportion of customers who are recovered, could both decrease negative word-of-mouth and/or

exit and increase customer satisfaction.

2.3.10 Learning through Service Failure – Perceived Service Quality and Customer Satisfaction/Loyalty

Firms need the ability to learn quickly from both their employees and customers in order to survive in an increasingly competitive and global economy. Senge (1990) go so far as to argue, "The rate at which organizations learn may become the only sustainable source of competitive advantage." If a firm can cultivate learning relationships with its customers where customers teach the firm about their preferences and needs, it will likely have a significant competitive advantage (Kotha 1995; Pine II, Peppers, and Rogers 1995). Aggressively seeking out and listening to customers is a prerequisite to becoming a "best-in-class" organization (1997).

Perceptions of service quality are shaped by customer expectations. Because customer expectations and perceptions change from customer to customer as well as over time, organizational learning is needed to achieve and maintain superior service quality. Therefore, it can be argued that, firms with a greater ability to learn from service failures will offer higher levels of service quality.

Service guarantees can provide a means for firms to build learning relationships with customers. They can also stress the firm to find the roots of service delivery problems and improve service quality. However, as Huber (1991) notes, learning does not always increase the learner's effectiveness. In other words, if the firm does not acknowledge and act on the feedback provided by the service guarantee, the firm's service quality will be unaffected.

2.3.11 Employee Motivation/Vision – Perceived Service Quality and Customer Satisfaction/Loyalty

Czepiel, Solomon, and Surprenant (1985) have argued that customer satisfaction in a service episode is dependent upon the ephemeral and intangible nature of the service worker-customer interaction itself. The courtesy, empathy, and responsiveness of service employees shape

quality perceptions, particularly in service industries (Zeithaml et al. 1990). In service encounters, employees' feelings about their jobs will spill over to affect how customers feel about the service that they get (Bowen and Lawler 1992). Employee satisfaction with their overall work experience was found to be significantly correlated to customer perceptions of service quality (Parkington and Schneider 1979). Employee perceptions of the level of service quality offered by the firm have been shown to be significantly affected by corporate culture (Klein, Masi, and Weidner 1995). Motivated, empowered employees who have a clear vision of the importance of service quality to the firm should provide superior service and increased customer satisfaction.

2.3.12 Perceived Service Quality and Customer Satisfaction/Loyalty – Business Performance

Quality, customer satisfaction, and customer loyalty have all been shown to positively affect firm performance. Quality is an important determinant of both market share and profitability in many markets (Buzzell and Gale 1987; Capon et al. 1990; Phillips et al. 1983). Customer satisfaction has been shown to have a positive effect customer loyalty (Anderson and Sullivan 1993). Increased customer loyalty has been shown to increase company profitability (Ittner and Larcker 1996; Reichheld and Sasser Jr. 1990). Both high quality and customer satisfaction (Ittner and Larcker 1996) were found to positively affect a firm's return on investment (Anderson et al. 1994). A customer's perception of superior service quality has been found to relate to increased customer satisfaction, which in turn leads to increased customer retention and results in positive economic outcomes for the firm (Anderson et al. 1994; Fornell 1992; Fornell 1994; Fornell et al. 1996; Johnson and Fornell 1991).

While it seems likely that a firm offering a strong service guarantee would have high customer satisfaction, only anecdotal evidence exists to support this contention. A firm offering high quality service for free will have highly satisfied customers, but ROI will suffer. In the short term, if a firm eliminates employees and maintenance, in addition to charging exorbitant prices for

its product, their ROI will be high, but their customers will be unsatisfied and more than likely disloyal. Obviously, these are extremes. However, even if a strong service guarantee results in high customer satisfaction, this does not necessarily insure greater firm profitability, unless the financial benefits reaped from it are greater than the costs associated with offering that guarantee.

2.3.13 Summary

The Expanded Service Guarantee Strength/Business Performance Framework (Figure 1.1) summarizes the hypothesized relationships between service guarantees and firm performance. It should be noted that, although the dissertation research relates only the presence or absence of a service guarantee to the other constructs, the Service Guarantee Strength/Business Performance Framework posits that the magnitude of the effects of a service guarantee will be contingent on the "strength" of that service guarantee. A strong service guarantee is one that unconditionally promises to deliver a service the customer desires and delivers easily obtainable, valuable compensation if the customer is unsatisfied with the service. An underlying assumption of the empirical dissertation research is that the guarantee of the empirical research is a strong guarantee.

A service guarantee can impact both offensive and defensive marketing efforts. Offensively, a service guarantee can reduce customer perceptions of risk and increase positive word-of-mouth, allowing the firm to charge premium prices or increase their market share. Defensively, a strong service guarantee, because it provides meaningful compensation for service failures, can increase both the proportion of customers who complain when they experience a service failure and the proportion of customers who are recovered when they are dissatisfied with the service provided.

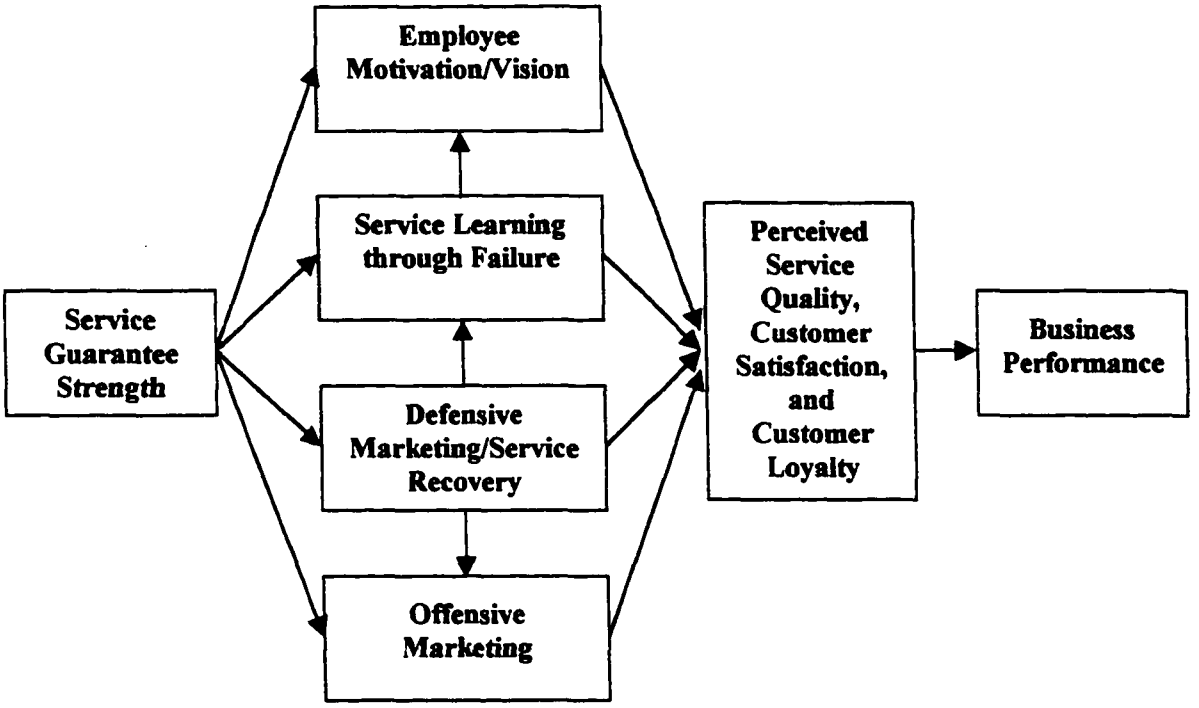
A service guarantee can affect both the culture and operations of the firm. A strong service guarantee makes a powerful statement about the importance of service quality to the firm and empowers employees to insure customer satisfaction. Empowered employees with a strong

vision of the goals of the firm are likely to be motivated employees. A service guarantee also highlights the economic importance of continual improvement in service quality to the firm. It motivates the firm to learn and to improve service quality, in order to assure that customers are satisfied with the quality of the firm's offerings.

Higher levels of employee motivation and vision, increased learning through service failure, and improved marketing efforts result in superior service quality and higher levels of customer satisfaction. When customers are satisfied with a firm's service offering they are more likely to repurchase and generate positive word-of-mouth. Thus, a strong service guarantee can positively affect the business performance of the firm.

The Service Guarantee/Business Performance Framework (Figure 2.1) is based on discussions with academics and practitioners, as well as theoretical insights acquired from the literature. However, little of the literature addresses service guarantees specifically. The portion of the literature that does address service guarantees is based on anecdotal evidence rather than theory-driven empirical research. The purpose of this research, therefore, was to investigate the effect of service guarantees on employee motivation/vision; learning through service failure; defensive marketing/service recovery; offensive marketing; and perceived service quality, customer satisfaction and loyalty, as well as, the relationships between these concepts, in a rigorous academic manner.

Figure 2.1 Service Guarantee Strength/Business Performance Framework



CHAPTER 3

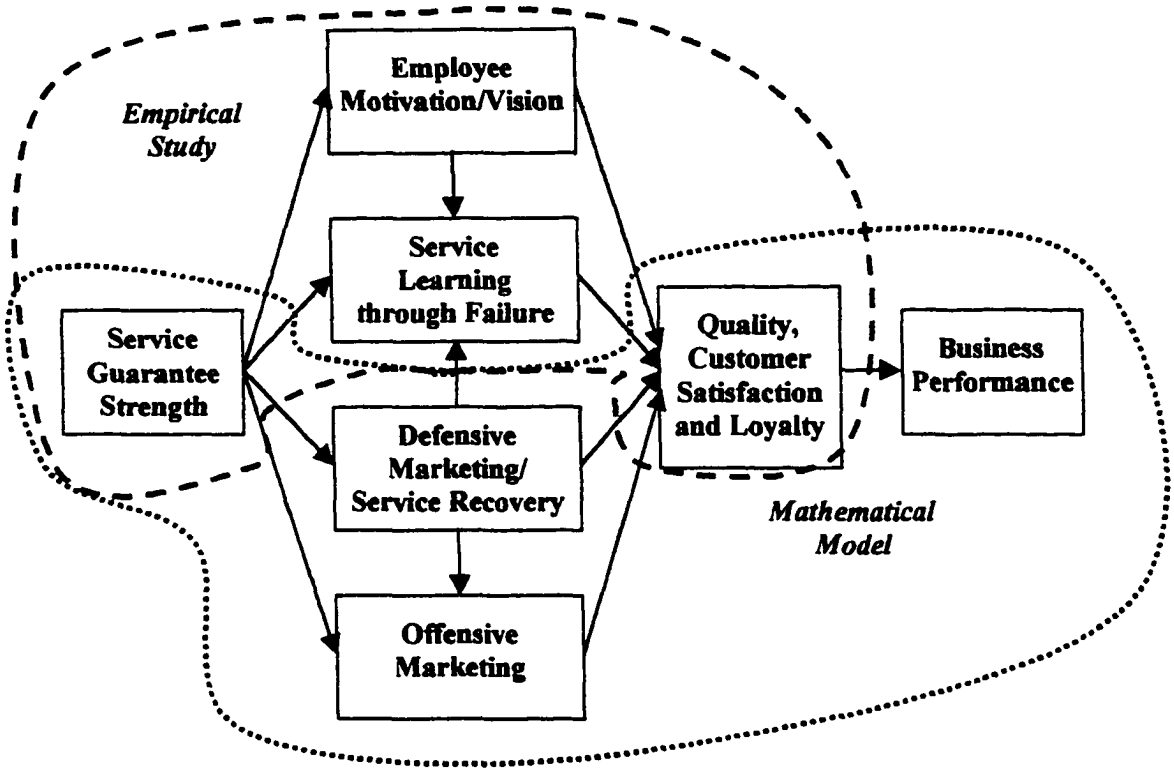
Research Overview

3.1 Introduction

The initial theoretical framework proposed (Figure 2.1) is too broad and far-reaching to be addressed in a single proposal or study. Therefore, the dissertation research addresses only a portion of the theoretical framework. A National Science Foundation grant, which addresses the entire framework, has been funded by the Transformations to Quality Organizations program. The studies proposed in the NSF grant will extend the dissertation research by measuring the effect of service guarantee strength on both financial and non-financial measures of firm success through pilot studies and a large random survey of US service firms, using the measures and theoretical framework developed in this research. The dissertation research, therefore, forms an integral part of the larger NSF TQO research.

The dissertation research was divided into two segments (Figure 3.1), because of the scope of the theoretical framework and data limitations. Each segment of the research addresses only a portion of the theoretical framework proposed and tested with this research. First, a mathematical model was developed and refined to aid in the investigation of the effect of service failures and defensive marketing/service recovery strategies on firm market share. The second segment of this research consisted of an empirical study of the relationships between a service guarantee, employee motivation/vision, learning through service failure, and perceived service quality. This segment of the research was based on empirical data obtained from Radisson Hotels Worldwide. The empirical study was further divided into two phases. Phase 1 of the empirical study consisted of a pilot study of the implementation of a service guarantee in a limited number (22) of Radisson hotels. This initial empirical study was aimed at preliminary testing of the

Figure 3.1 Service Guarantee Strength/Business Performance Framework Studies



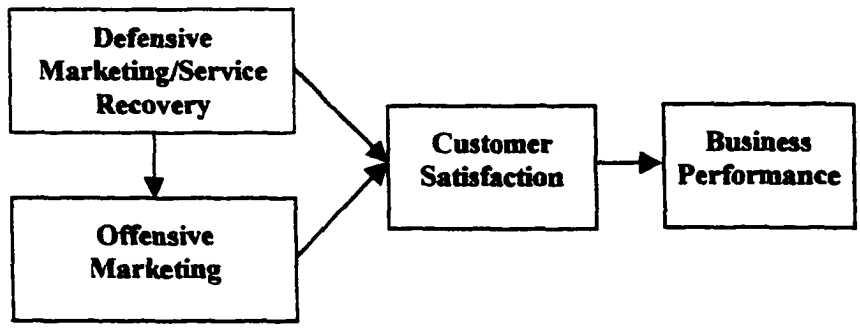
theoretical framework proposed and also provided a pilot test of the instrument developed to measure the constructs of employee motivation/vision and learning through service failure. Phase 2 of the empirical research consisted of a confirmatory study of the implementation of a service guarantee in a larger number (18-53) of Radisson hotels, using the validated measurement instrument developed in the initial empirical study.

3.2 The Market Share Impact of Service Failures

A mathematical model was developed and refined to investigate the hypothesis that a firm's defensive marketing/service recovery strategies can impact the firm's performance through their effect on customer satisfaction and customer loyalty, as well as their affect on both positive and negative word-of-mouth. Figure 3.2 illustrates the portion of the Service Guarantee/Business Performance framework that is addressed with the mathematical model. The paper "The Market Share Impact of Service Failures" (with Arthur V. Hill), published in *Production and Operations Management*, develops the Service Quality/Market Share Model. This paper is Chapter 4 of this dissertation.

The Service Quality/Market Share Model provides support for the hypothesis that defensive marketing/service recovery strategies (e.g., a service guarantee) can play an important role in market share growth through increased customer satisfaction, customer loyalty, and positive word-of-mouth. However, it does not address the effects of employee motivation/vision and learning through service failure on perceived service quality or the effect of a service guarantee on employee motivation/vision, learning through service failure, and perceived service quality. Therefore, an empirical study was undertaken with Radisson Hotels Worldwide to investigate these relationships.

Figure 3.2 Service Guarantee/Business Performance Framework Mathematical Model



3.3 *Empirical Research*

The empirical research was done in two phases. The initial exploratory empirical research (Phase 1) was aimed at refining the theory and developing an instrument to be used in the confirmatory (or theory validation) portion of the research (Phase 2). Representatives from firms with service guarantees, other industry experts, and academic experts were consulted on an ongoing basis during the exploratory phase of the research to further develop both the theoretical model and the measurement instrument. The academic and practitioner literature was reviewed for advances in relevant theory, empirical findings, state-of-the-art practices, and validated measurement instruments.

The confirmatory portion (Phase 2) of the research consisted of a larger empirical study which allowed for more sophisticated statistical analyses, aimed at validating the theory. Both the exploratory and confirmatory empirical research generated papers for submission to high quality academic journals.

Much of the evidence supporting the effects of service guarantees on the corporate cultural aspects of employee motivation and vision and organizational learning is anecdotal rather than systematic, theory-driven, empirical research. Therefore, the research must necessarily begin with exploration and theory building, rather than theory confirmation (Flynn, Sakakibara, Schroeder, Bates, and Flynn 1990). For exploration and theory building the case study method is appropriate. Yin (1989) suggests exemplar or revelatory cases.

Radisson Hotels Worldwide implemented a "100% Guest Satisfaction Guarantee" (Figure 3.3) and allowed us to collect both archival and questionnaire data from their hotels before and after the implementation of this program. Both management and frontline personnel perceptions of employee motivation, employee vision, and learning through service failure were surveyed prior to the implementation of the service guarantee as well as after the service guarantee had been

Figure 3.3 Radisson 100% Guest Satisfaction Guarantee

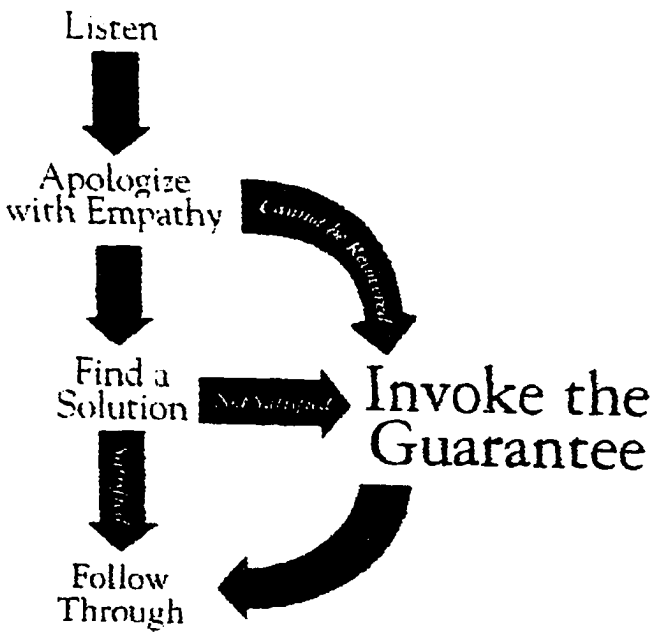
100% Guest Satisfaction Guarantee

Our goal at Radisson is 100% guest satisfaction. If you aren't satisfied with something, please let us know and we'll make it right or you won't pay.

THE THREE CONDITIONS OF INVOKING THE RADISSON GUARANTEE

- When something happens that the guest sees as high in severity, and
- From the guest's point of view, the hotel has a high level of responsibility for the problem, and
- You can't make it right in any other way that will satisfy the guest.

FIVE STEPS TO INVOKING THE GUARANTEE



Step 1. Explain that Radisson has a 100% Guest Satisfaction Guarantee and offer to the guest that they not pay for that night's stay or for the service in question.

Step 2. Ask if that would be satisfactory.

Step 3. Fill out the voucher form and ask the guest to sign.

Step 4. Refund or credit the amount.

Step 5. Ask the guest to return.

in place for 4-6 months. Radisson also provided their internal customer satisfaction data and customer satisfaction data collected for them by the Gallup Corporation.

3.3.1 Radisson Hotels Worldwide "100% Guest Satisfaction Program"

3.3.1.1 Company Background

Radisson Hotels Worldwide and its parent, Carlson Hospitality Worldwide, include more than 500 lodging locations in 49 countries, as well as four cruise ships sailing worldwide . Founded in 1938 by Mr. Curtis L. Carlson, Carlson Companies, Inc. is one of America's largest privately owned corporations with total system sales of $13.4 billion in 1996 and $20 billion in 1997. Carlson Companies employs about 130,000 people worldwide, including those who work in franchised and managed operations.

3.3.1.2 Strategic Context

In the early to mid 1990's, Radisson's strategy focused on growth and the firm added hotels at the rate of about one hotel every seven days. By 1997, Radisson's "growth at any cost" strategy left Radisson with a significant diversity in hotel quality and an "unfocused" brand image. Alignment with hotel owners (more than hotel guests) also seemed to cause Radisson's customer service and hotel management expertise to atrophy (Hill, Geurs, Hays, John, Johnson, and Swanson 1998).

In 1997 and 1998, Radisson took several initiatives to drive the organization towards becoming a more customer-focused brand. These initiatives included a service guarantee, a guest satisfaction measurement program, an employee satisfaction measurement program, and an information technology initiative.

3.3.1.3 The Service Guarantee Design

Hart (1993) prescribes an "unconditional satisfaction" guarantee where the firm responds to any and all service failures with some sort of immediate compensation. In focus groups

conducted by Radisson, however, customers found it uncomfortable to receive a full refund for a minor complaint; Radisson's management believed that giving away room-nights too freely actually discouraged customers from voicing their complaints. Radisson's management decided that a more appropriate guarantee would be a two-step guarantee that allowed Radisson to "make it right" before the hotel offered the customer a refund. Focus groups confirmed that this was a good balance between encouraging customers to voice their complaints and assuring customers that their complaints would be taken seriously.

3.3.1.4 Employee Training and Program Evaluation

A comprehensive training program, complete with training manuals and videotapes, was developed to support the guarantee program. Radisson managers and employees were required to participate in the training program before the hotel could implement the guarantee program.

3.3.1.5 Program Implementation

In order to test the "100% Guest Satisfaction Program," Radisson selected twenty-eight hotels for a pilot test of the 100% Guest Satisfaction Program. These hotels represented a wide variety of hotel types, locations, and sizes. The initial exploratory empirical research (Phase 1), aimed at refining the theory and developing an instrument to be used in the confirmatory (or theory validation) portion of the research (Phase 2), was conducted during Radisson's pilot test of the 100% Guest Satisfaction Program.

Evaluation of Radisson's internal data from room comment cards showed that the guarantee program had a positive effect on service quality. Evaluation of the employee survey data obtained during the initial empirical study found that the guarantee program had a positive effect on employee motivation/vision. Radisson also reported significant reduction in labor turnover in many hotels. This was particularly significant because of the tight labor supply during this period of time. Additionally, Radisson found increased utilization and profitability for pilot

hotels compared to non-pilot hotels.

Encouraged by these positive results, Radisson's senior management decided to "roll out" the "100% Guest Satisfaction Program" to all Radisson hotels in North America beginning in early 1998. The confirmatory portion (Phase 2) of this research was conducted during the "roll out" of the 100% Guest Satisfaction Program.

3.3.2 An Empirical Investigation of the Relationships between Employee Motivation/Vision, Service Learning, and Perceived Service Quality

The paper "An Empirical Investigation of the Relationships between Employee Motivation/Vision, Service Learning and Perceived Service Quality" (Chapter 5 of this dissertation) is based on data obtained in the initial empirical study during Radisson's pilot test of the service guarantee program. Figure 3.4 illustrates the portion of the Service Guarantee/Business Performance framework that is addressed in this paper. This portion of the dissertation research provides a cross-sectional analysis of the relationships between employee motivation/vision, learning through service failure, and perceived service quality.

3.3.3 A Longitudinal Empirical Study of the Effect of a Service Guarantee on Employee Motivation/Vision, Service Learning, and Service Quality

This phase of the research was based on the results of the preceding research and extended that research. After the successful completion of the pilot study, approximately 130 hotels in the Radisson system began to implement the service guarantee. Radisson again allowed data collection, before and after the implementation of the service guarantee, and made their customer satisfaction data available. Figure 3.5 illustrates the portion of the Service Guarantee/Business Performance Framework that was investigated during this confirmatory phase of the empirical research.

A revised survey was used to collect data from both management and frontline personnel in all Radisson hotels before and after the implementation of the service guarantee. Participation

Figure 3.4 Service Guarantee/Business Performance Framework Initial Study

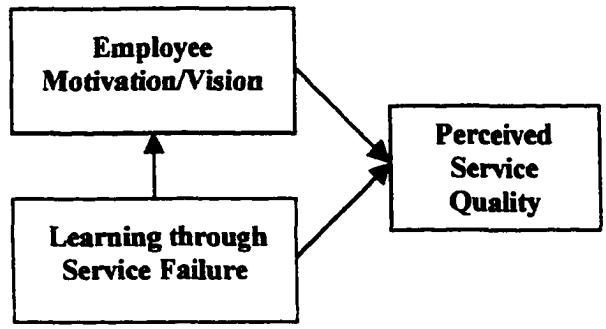
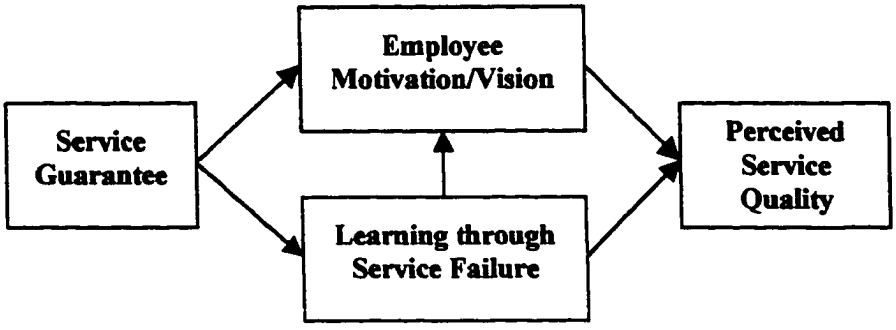


Figure 3.5 Service Guarantee/Business Performance Framework Confirmatory Study



in the survey was solicited by means of telephone contact and personal letter contact, and was aided by Radisson's top management support for this research. Follow-up was done by telephone and mail, to insure high response rates. The larger sample size of this phase of the research allowed for more powerful and complex longitudinal analyses than the exploratory phase. A variety of statistical techniques were employed to investigate the relationships between a service guarantee, learning through service failure, employee motivation/vision, and customer satisfaction.

The paper, "A Longitudinal Empirical Study of the Effect of a Service Guarantee on Employee Motivation/Vision, Service Learning, and Service Quality," (Chapter 6 of this dissertation) is based on data obtained in the in final empirical studies and provides a longitudinal analysis of the effects of a service guarantee on employee motivation/vision and learning through service failure and their subsequent effects on perceived service quality.

CHAPTER 4

The Market Share Impact of Service Failure

4.1 Introduction

Customer satisfaction and service quality are important determinants of both market share and profitability in many markets (Buzzell and Gale 1987; Capon et al. 1990; Phillips et al. 1983). Cronin and Taylor (1992) assert that "There even appears to be executive consensus in the United States that service quality is one of the most important problems facing management today." The importance of customer satisfaction and service quality in service industries is quite clear (Oh and Parks 1997; Sasser et al. 1978). As manufacturing firms move to "just-in-time" manufacturing and "quick-response distribution" (Fisher, Hammond, Obermeyer, and Raman 1994) customer satisfaction and service quality are becoming an increasingly important means of differentiation for manufacturing firms as well.

Many books and articles have focused on how firms can improve customer satisfaction (Zeithaml et al. 1990), service quality (Albrecht and Zemke 1985; Collier 1994; Lovelock 1994; Schmenner 1985), and customer loyalty (Jones and Sasser 1995; Reichheld and Sasser Jr. 1990). Customer loyalty models have been developed (Fay 1994; Gerson 1993) where assumptions about the lifetime income stream for a customer are used to determine how much revenue or profit is lost if a customer is lost, possibly for life, due to poor service quality and customer satisfaction.

Several authors have suggested that two of the key management control parameters for improving customer satisfaction are the percent of customer complaints voiced to the firm (Fornell and Wernerfelt 1987; Sampson 1996) and the percent of customers recovered after they experience service problems (Hart 1993; Kordupleski, Roland T. Rust, and Zahorik 1993; Reichheld and Sasser Jr. 1990). Customers who experience a service failure cannot be recovered

(restored to a good relationship with the firm) if the firm is not aware of the service failure. Customers who are not recovered are more likely to "defect" (switch to the competition) and "infect" other customers and potential customers with bad reports that negatively influence future market share.

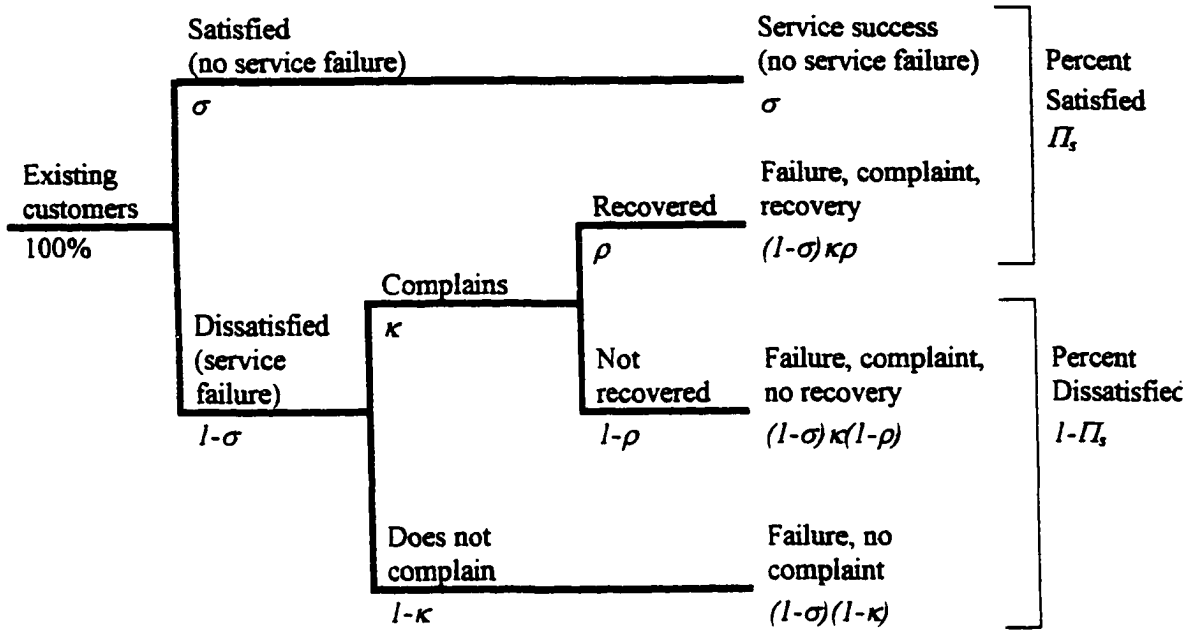
This chapter presents a Service Satisfaction Framework that relates three service system parameters (service success rate, complaint rate, and recovery rate) to customer satisfaction and dissatisfaction. This static framework is then extended to an intuitive dynamic model that reflects how satisfied and dissatisfied customers affect market share over time. The Service Satisfaction/Market Share Model which relates customer satisfaction to market share is derived from the equilibrium condition for this dynamic model.

This chapter is organized as follows. Section 4.2 presents the Service Satisfaction Framework and a review of the relevant literature. Section 4.3 presents the Service Satisfaction/Market Share Model along with graphs and sensitivity analysis. Section 4.4 discusses implementation issues and presents a hypothetical example. Section 4.5 presents limitations and extensions and Section 4.6 concludes the chapter.

4.2 The Service Satisfaction Framework

The Service Satisfaction Framework presented in Figure 4.1 unifies many of the concepts from the literature. This framework is similar to the "Problem Impact Tree" found in Rust, Subramanian, and Wells (1992). The figure shows that σ percent of customers are satisfied and $(1-\sigma)$ are dissatisfied. We define a service failure as a service encounter that results in a dissatisfied customer. Customer satisfaction (or dissatisfaction) is viewed as a transaction-specific evaluation of the specific service encounter, similar to Bolton and

Figure 4.1 The Service Satisfaction Framework



Drew (1991a; 1991b) and Zeithaml, Parasuraman, and Berry (1988).

The Service Satisfaction Framework shows that of the customers who are dissatisfied, κ percent voice their complaints and $(1-\kappa)$ percent do not. We define κ as the complaint rate parameter. Many authors, including Fornell and Wernerfelt (1988), Hirschman (1970), and Hill (1995), have argued that increasing "voice" from complaining customers helps the firm to recover "at risk" customers and learn about opportunities for improvement so that service delivery systems can be improved. Therefore, the complaint rate parameter, κ, is an important management control parameter for retaining customers and learning about opportunities for improving the service delivery system.

Of those who complain, ρ percent are recovered and $(1-\rho)$ percent are not. We define ρ as the recovery rate parameter. Customer loyalty is strongly influenced by how well the firm manages customer complaints (Rust et al. 1992). Effectively resolving customer complaints can result in customers who are even more loyal than those consistently satisfied with the firm's service (Bolton and Drew 1992). The more negative a customer's perception of responsiveness to customer complaints, the more likely that individual is to engage in negative word-of-mouth (Blodgett et al. 1995; Richins 1983) and/or exit (Singh 1990). Many researchers and practitioners have argued that customer retention strategies such as complaint resolution are more cost effective than attracting new customers (Bell and Zemke 1987; Hart et al. 1990; Heskett et al. 1990; Ittner and Larcker 1996; Reichheld and Sasser Jr. 1990; Zemke and Bell 1989; Zemke and Bell 1990). The recovery rate parameter, ρ, therefore, is an important management control parameter for improving customer retention.

Figure 4.1 shows that Π_s percent of customers are satisfied and $(1-\Pi_s)$ are not satisfied, where

$$\Pi_s = \sigma - (1-\sigma)\kappa\rho, \tag{4.1}$$

and

$$(1-\Pi_s) = (1-\sigma)\kappa(1-\rho) + (1-\sigma)(1-\kappa) = (1-\sigma)(1-\kappa\rho) \quad (4.2)$$

Although this framework could be applied to tangible products as well as to services, it makes greater sense in a service context. Customer retention for tangible products is often dependent entirely on tangible product attributes, whereas, customer retention for services is often a matter of interpersonal relationships where recovery and "repentance" (Bottom et al. 1996) are more important.

This Service Satisfaction Framework can support some simple analyses of customer retention economics (Heskett, Jones, Loveman, Sasser Jr., and Schlesinger 1994; Rust et al. 1992; Schlesinger 1991). However, this simple and intuitive model is a static (one-period) model and only considers defections. If this model is applied over multiple periods, it implies that the firm's market share will go to zero as long as $\Pi_s < 1$. The next section extends the model to a dynamic context and considers "additions" as well as "defections."

4.3 The Service Satisfaction/Market Share Model

In order to develop a dynamic model from the static framework above, we consider the fact that market share is influenced negatively not only by dissatisfied customers who defect, but also through the impact of their negative word-of-mouth on potential customers. Similarly, market share is influenced positively both by satisfied customers who do not defect and through the impact of their positive word-of-mouth on potential customers. The negative influence diminishes as the firm's market share approaches zero and the positive influence diminishes as the firm's market share approaches 100%.

We develop two intuitive models to reflect the defection rate and the addition rate in each period. Our Service Satisfaction/Market Share Model is then derived from the equilibrium condition for the defection and addition rate models.

4.3.1 Defection Rate Model

Clearly, dissatisfied customers are at risk of defecting to the competition (assuming that competition exists). Intuitively, it would seem that the number of customers who defect at the end of period t is proportional to the number of dissatisfied customers in period t. We posit, therefore, that $d(t)$, the defection rate at the end of period t, is:

$$d(t) = \delta(1-\Pi_s)m(t) = \delta[(1-\sigma)(1-\kappa) + (1-\sigma)\kappa(1-\rho)]m(t) \quad (4.3)$$

where $m(t)$ is the number of customers in period t and the defection parameter, δ, is in the range $(0,1)$. The defection parameter is the proportion of dissatisfied customers who defect in one period. A high defection parameter suggests very low switching costs; a low defection parameter indicates very loyal customers, very high switching costs, or a monopoly situation. The model assumes that customer expectations, service delivery systems, and prices do not change and, therefore, do not affect the defection rate. This model is extended in a later section of the chapter to consider how the defection rate is affected by customer satisfaction for competitors as well.

4.3.2 Addition Rate Model

The number of customers added at the end of period t is dependent on how positive and negative word-of-mouth from current customers influence the $M-m(t)$ potential customers in the market in period t. (M is defined as the market size measured in terms of number of customers who might purchase the service.) If all current customers are satisfied ($\Pi_s=1$), word-of mouth is completely positive and the firm will add α percent of the $M-m(t)$ non-customers in the next period. When 100% of customers are dissatisfied, word-of-mouth is completely negative and the firm will add zero percent of the $M-m(t)$ non-customers in the next period. We posit, therefore, that $a(t)$, the number of customers added at the end of period t, is:

$$a(t) = \alpha\,\Pi_s[M-m(t)] \quad = \alpha\,[\sigma + (1-\sigma)\kappa\rho][M-m(t)] \quad (4.4)$$

where the addition parameter, α, is in the range (0,1). In this model, the percent satisfied (Π_s)

reflects the character of the word-of-mouth messages being sent by the current customer population. A high value of Π_s indicates a high percentage of positive word-of-mouth; a low value of Π_s indicates a high percentage of negative word-of-mouth. The α parameter reflects the impact of these positive (and negative) messages on the switching behavior of the non-customer population in the market. This model is extended in a later section of the chapter to consider how the addition rate is affected by customer satisfaction for competitors as well.

4.3.3 Market Share Equilibrium

The number of customers in period $t+1$ is then:

$$m(t+1) = m(t) + a(t) - d(t) \tag{4.5}$$

The firm's market share will reach an equilibrium when the addition rate equals the defection rate, $a(t) = d(t)$. Substituting from above, we find that:

$$\begin{aligned} a(t) = d(t) \quad &\Rightarrow \quad \alpha \Pi_s [M-m(t)] = \delta (1-\Pi_s) m(t) \\ &\Rightarrow \quad m(t)/M = 1/[1 + (\delta/\alpha)(1-\Pi_s)/\Pi_s] \\ &\Rightarrow \quad \Pi_{Mt} = 1/(1 + \beta R) \end{aligned} \tag{4.6}$$

where $\Pi_{Mt}=m(t)/M$ is the equilibrium market share, $\beta=\delta/\alpha$ is the ratio of the defection and addition parameters, and $R=(1-\Pi_s)/\Pi_s$ is the Dissatisfaction/Satisfaction ratio which is equal to:

$$R=(1-\sigma)(1-\kappa\rho)/[\sigma+(1-\sigma)\kappa\rho] \tag{4.7}$$

We now have a simple yet powerful model for relating changes in the three service system parameters in the Service Satisfaction Framework to changes in the equilibrium market share.

4.3.4 Interpretation and Sensitivity Analysis

The β parameter reflects the sensitivity of the firm's market share to changes in customer satisfaction. Figures 4.24.5 show how the Dissatisfaction/Satisfaction ratio affects market share for a range of β values. When $\beta=0.1$, the firm's market share is quite insensitive to R which suggests a near monopoly or at least a situation with a very high switching cost. The firm still has an 83% market share even when the ratio of dissatisfied to satisfied customers is $R=2$ (i.e., 2/3 of

customers are dissatisfied). When $\beta=1$, market share is more sensitive to R, but the firm still has a 33% market share when the ratio of dissatisfied to satisfied customers is $R=2$. When $\beta=100$, market share is very sensitive to R, and the firm must have extremely good customer satisfaction ($R=.04$) to earn a 20% market share. High values of β suggest a situation where the switching cost is low and customer satisfaction is very important to market share. As the Dissatisfaction/Satisfaction ratio, R, approaches infinity, market share approaches zero and as R approaches zero, market share approaches one. approaches zero, market share approaches one. It is interesting to note that the length of the period (i.e., weeks, months, quarters, etc.) is irrelevant to the model in equilibrium. Neither the addition parameter, α, nor the defection parameter, δ, needs to be estimated; only their ratio $\beta=\delta/\alpha$ needs to be estimated. As a ratio of the defection and addition parameters, β reflects the propensity for current customers to defect and/or potential customers to switch based on the firm's Dissatisfaction/Satisfaction ratio. The β parameter, therefore, captures much of the information about the willingness of customers (and potential customers) to switch from (or to) the firm's service offering based on customer satisfaction. It is interesting to note that the Bolton and Drew (1991a; 1991b) model is also based on the ratio R (or R^{-1}). This implies that the ratio of the percent dissatisfied and satisfied is a more meaningful variable than the percent satisfied alone.

The partial derivatives of the market share with respect to each of the three service system parameters are:

$$\partial \Pi_{M,t} / \partial \sigma = \beta(1-\kappa\rho)/\tau^2 \tag{4.8}$$

$$\partial \Pi_{M,t} / \partial \kappa = \beta(1-\sigma)\rho/\tau^2 \tag{4.9}$$

$$\partial \Pi_{M,t} / \partial \rho = \beta(1-\sigma)\kappa/\tau^2 \tag{4.10}$$

Figure 4.1 Market share versus R for β=0.1

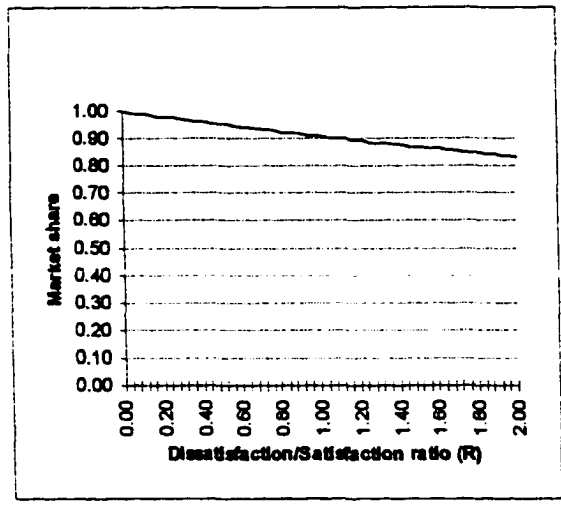


Figure 4.2 Market share versus R for β=1

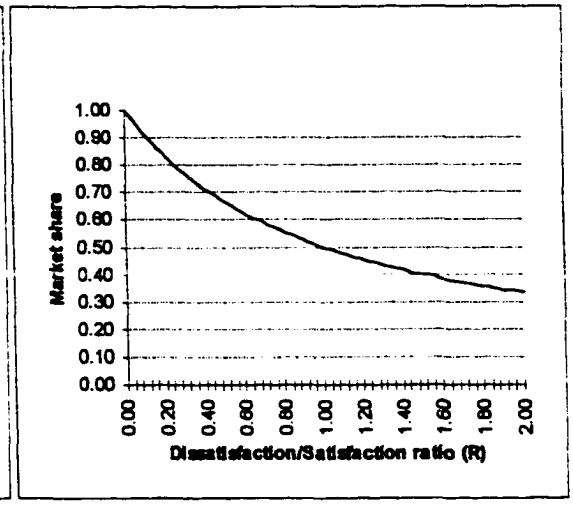


Figure 4.3 Market share versus R for β=10

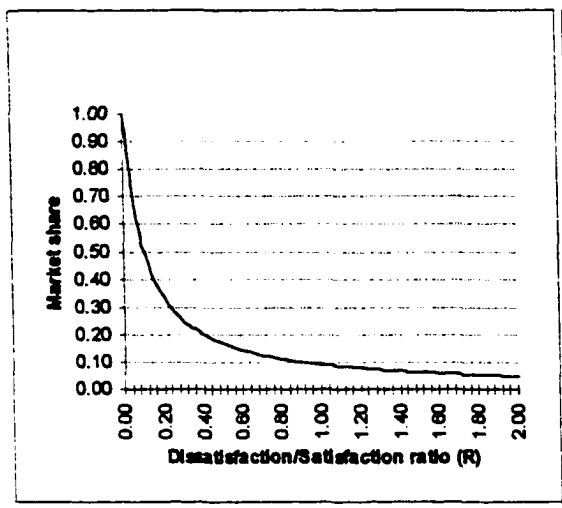
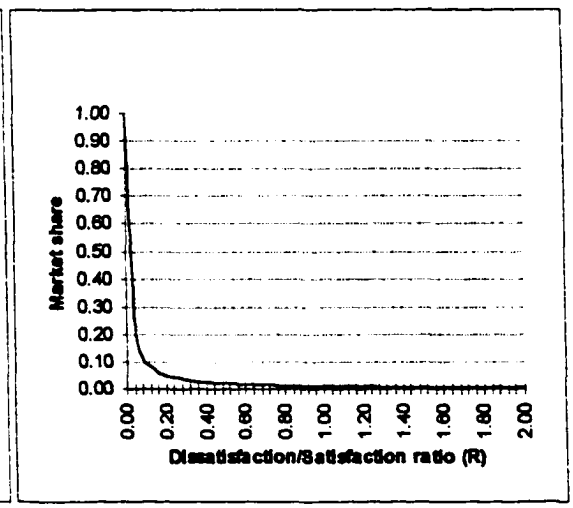


Figure 4.4 Market share versus R for β=100



where $\tau = \sigma + \kappa\rho - \kappa\rho\sigma + \beta - \beta\kappa\rho - \beta\sigma + \beta\kappa\rho\sigma$. Given that the partial derivatives are monotonically increasing with the three service system parameters, there are increasing returns to improving the parameters. The service system parameters interact strongly with each another, which suggests that improving more than one parameter at a time will have a synergistic effect on market share.

Given that market share (Π_M) increases monotonically with each of the three service system parameters (σ, κ, and ρ), the optimal value for the parameters can only be found by considering the tradeoff between the costs of increasing the parameters and the economic benefits of corresponding increase in market share.

Figure 4.6 shows the response surface for the Service Satisfaction/Market Share Model as a function of σ, the service success rate, and $\kappa\rho$, the percent of customers who complain and are recovered. The figure shows that market share increases monotonically with both σ and $\kappa\rho$ with increasing returns. Increasing the complaint rate increases market share just as much as a proportional increase in the service recovery rate. The symmetry between the two parameters implies that increasing the complaint rate is just as important as increasing the recovery rate. (A different conclusion will be drawn later in the chapter from an extension to this base model.)

4.4 Implementation and Example

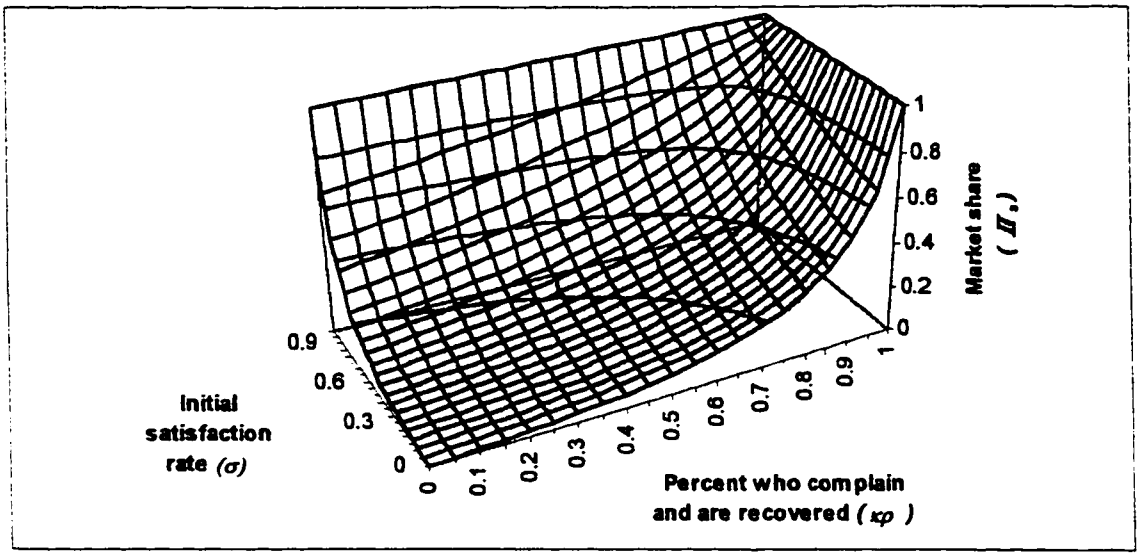
4.4.1 Implementation Issues

One surprising result of the Service Satisfaction/Market Share Model is that it has only one parameter, β, and one input variable, the Dissatisfaction/Satisfaction ratio, R. Given that most firms already know their market share Π_M from industry data and their Dissatisfaction/Satisfaction ratio R from customer satisfaction surveys and market research, we rewrite the model to solve for the β parameter:

$$\beta = (1/\Pi_M - 1)/R \tag{4.11}$$

Estimating β, therefore, does not require two data points and can easily be estimated from

Figure 4.6 The Response Surface for the Service Satisfaction/Market Share Model for $\beta = 10$



data readily available to the firm. Once β has been estimated, the Service Satisfaction/Market Share Model can be used to estimate a change in market share due to a change in any of the three service system parameters (σ, κ, and ρ), one at a time or in combination.

4.4.2 Hypothetical Example

We illustrate the application of the model with a hypothetical example. From customer satisfaction survey data on a large number of customer transactions, a firm estimates that about 90% of its customers are satisfied (Π_S=.9) with their service encounters. The Dissatisfaction/Satisfaction ratio, therefore, is $R=(1-.9)/.9=.111$. The firm currently has a 20% market share (Π_M = .2) and we find from equation (4.11) that β = 36.

From customer satisfaction surveys, management estimates the firm's service success rate to be σ=.8 and the service recovery rate to be ρ=.8. However, management is not sure what percent of complaints are being voiced. Fortunately, this can be computed from equation (4.1) which can be rewritten to show that $\kappa = (\Pi_S-\sigma)/[(1-\sigma)\rho] = (.9-.8)/[(1-.9).8] = .625$. In other words, only about 62.5% of customers are "voicing" their complaints to the firm. (The κ parameter could also have been estimated from a market research study.)

Management believes that it can implement a new service guarantee to increase both the complaint and the service recovery rates by 10% (κ will increase from 62.5% to 68.75% and ρ will increase from 80% to 88%). With β=36, κ_{new}=68.75, and ρ_{new}=.88, the model predicts that customer satisfaction will increase from Π_S=.9 to $\Pi_{S\text{-}new}$ = .921 and that, as a result, market share will increase from Π_M = .2 to $\Pi_{M\text{-}new}$ = .245.

The additional profit per period is the additional contribution to profit due to the increase in market share less the payout given to complaining customers:

$$\mu M(\Pi_{M\text{-}new} - \Pi_M) - \nu(1-\sigma)\kappa_{new}\Pi_{M\text{-}new}M \qquad (4.12)$$

where μ is the contribution margin per customer per period and ν is the average payout per

customer complaint. (This assumes that the firm is not paying out anything to customers before the new service guarantee.) Management can compare the additional profit associated with the increased market share with the cost of the service guarantee program and make an appropriate decision regarding the service guarantee program. For $M=1000$, $\mu=\$1000$, and $v=\$500$, the service guarantee costs the firm $16,818 per period, but increases the firm's profit by $27,804 (from $200,000 per period to $227,804) per period, a net increase of 13.9% per period.

4.5 Limitations and Extensions

4.5.1 Limitations

Following Fornell and Wernerfelt (1988), the model assumes that customers have one transaction per period on average. If this is not true, frequency of purchase variables could be added to model this more precisely. The model assumes that satisfaction is a discrete variable with only two states (satisfied and dissatisfied) and that service recovery has only two states (recovered and not recovered). The base model also assumes that customers who experience no service failure are just as satisfied as customers who experience a service failure, complain, and are recovered. Similarly, the base model assumes that customers who experience a service failure, complain and are not recovered are just as dissatisfied as customers who experience a service failure and do not complain. The model treats customer expectations, service system design, and prices as exogenous variables and assumes that they do not change over time; the only endogenous variables that affect system performance are the service success rate, complaint rate, and recovery rate. The model also assumes that equilibrium will be reached quickly after changes in the three service parameters (σ, κ, ρ), competitive response does not influence the equilibrium result, and the percent satisfied (Π_s) does not change over time. It is likely that competitive moves with respect to the service system parameters (σ, κ, ρ) will be met by similar moves from competitors which would not allow the firm to achieve the full market share benefits suggested by

the model. Lastly, it should be pointed out that the model is a theoretical model with little or no empirical support. (The authors are currently in the process of conducting such an empirical test with a number of firms.)

4.5.2 Extensions

4.5.2.1 Economic Model

The base model can be extended to consider the costs and benefits of a complaint management (Fornell & Wernerfelt 1987, 1988) or service guarantee program (Hart 1988, Hill 1995). This same economic model can also be used to find a near-optimal value of the compensation paid to recover customers. The costs include the compensation paid to customers and the fixed cost needed to setup the program. The benefits relate the profit associated with the change in market share. Assuming that the complaint rate is a function of compensation paid to customers, v, we could use the model:

$$\kappa(v) = \kappa_0 + (1-\kappa_0)\,w(v+\gamma_1) \tag{4.13}$$

where κ_0 is the complaint rate when no compensation is paid and γ_1 is a shape parameter for the curve where $\gamma_1>0$. The compensation paid to customers, v, also affects the recovery rate. The higher the compensation rate, the greater the recovery rate:

$$\rho(v) = \rho_0 + (1-\rho_0)\,w(v+\gamma_2) \tag{4.14}$$

where ρ_0 is the recovery rate when no compensation is paid and γ_2 is a shape parameter for the curve where $\gamma_2>0$. With a contribution margin of μ dollars per customer per period, the total profit per period is $\mu\Pi_{A,t}M$ less the compensation to customers who experience a service failure, $v(1-\sigma)\kappa(v)\Pi_{A,t}M$. A simple economic analysis can be applied to evaluate if the benefits of a program exceed the setup costs. Standard non-linear optimization techniques can be applied to optimize this profit function to find the optimal compensation, v^*, that should be offered to recover customers. Given that v^* affects *both* the complaint and recovery rates, this model is consistent

with the arguments made by Fornell and Wernerfelt (1987; 1988), Hart (1988), and Hill (1995) that compensation to customers should be significant.

4.5.2.2 Relative Satisfaction Model

It can be argued that the addition and defection models above should be extended to explicitly consider the firm's percent satisfaction rate *relative* to satisfaction for competing firms. To extend the base model to handle this, the percent satisfied term (Π_s) in both the addition and defection rate models could be replaced by $c\Pi_s$, where c is a factor that "normalizes" customer satisfaction relative to competition. One approach to do this would be to set $c=\Pi_s/\Pi_{s*}$, where Π_{s*} is the satisfaction rate for the best competitor in the market. This model is identical to the base Service Satisfaction/Market Share Model except that R is defined as $(1-c\Pi_s)/c\Pi_s$. This extension is not needed when $c \approx 1$ (a likely situation for many firms).

4.5.2.3 Asymmetric Word-of-Mouth Model

Unrecovered complaining customers tend to be "terrorists" who communicate more negative word-of-mouth than customers who are dissatisfied and do not complain (Blodgett et al. 1995). Similarly, recovered complaining customers tend to be "evangelists" who communicate more positive word-of-mouth than customers who experience no service failure (Bolton and Drew 1992). (It should be noted that we have found no empirical evidence for this commonly held belief and that recovery probably becomes more difficult with each service failure experienced by a particular customer.) To model these relationships, we give more weight to complaining customers and less weight to non-complaining customers in both the defection and addition rate models. Using a linear combination with a parameter λ where $(0 \le \lambda \le 1)$, the defection rate model becomes:

$$d(t) = \delta[(1-\lambda)(1-\sigma)(1-\kappa) + \lambda(1-\sigma)\kappa(1-\rho)]m(t) \qquad (4.15)$$

The addition rate model can be extended in a similar way:

$$a(t) = \alpha\,[(1-\lambda)\sigma - \lambda(1-\sigma)\kappa\rho][M-m(t)] \qquad (4.16)$$

This model assumes that the word-of-mouth impact of "terrorists" is $\lambda/(1-\lambda)$ times that of "failure, no complaint" customers; similarly, the word-of-mouth impact of "evangelists" is $\lambda/(1-\lambda)$ times that of "no service failure" customers. The equilibrium market share model is:

$$\Pi_M = 1/(1 + \beta R') \qquad (4.17)$$

where $R' = [(1-\lambda)(1-\sigma)(1-\kappa) + \lambda(1-\sigma)\kappa(1-\rho)]/[(1-\lambda)\sigma + \lambda(1-\sigma)\kappa\rho]$. When $\lambda=.5$, this model for Π_M is identical to the base model (equation 4.6). When $\lambda>.5$, the extended model gives more weight to complaining customers (both "terrorists" and "evangelists"). Note that with this extension, increasing the complaint rate (κ) with a low recovery rate can *increase* the number of "terrorists" and, therefore, *reduce* market share. Increasing the recovery rate (ρ) is always beneficial. As λ increases, the benefits of increasing the recovery rate also increase. This model shows that, in some situations, it may be beneficial to the firm to increase the recovery rate before increasing the complaint rate.

4.5.2.4 Learning Model

Hill (1995) argued that increasing the complaint rate, κ, could provide useful information for the firm's product and process improvement efforts, therefore, increasing the service success rate, σ. With this model, the service success rate, σ, is a function of the complaint rate, κ, and a "learning rate" parameter θ which defines how quickly the firm learns from complaints. In period t, $1-\sigma(t)$ percent of the customers experience a service failure with κ percent of them voicing complaints to the firm. The firm fixes θ percent of these problems so that they never occur again. The recursive relationship for the service success rate is then $\sigma(t+1) = \sigma(t) + \theta\kappa[1-\sigma(t)]$. This extension would cause changes in the complaint rate parameter, κ, to be amplified. This extension is not pursued further here.

The first three extensions (the economic, asymmetric word-of-mouth, and relative satisfaction models) are completely developed in this chapter and could be combined with the basic model to create a much more sophisticated model.

4.6 Conclusions

This chapter presents a new Service Satisfaction/Market Share Model that predicts changes in market share based on changes to three service system parameters, the service success rate, complaint rate, and service recovery rate. The model is developed from a simple static Service Satisfaction Framework that relates the three service system parameters to the customer satisfaction rate. To make the model dynamic, the chapter posits intuitive dynamic defection and addition rate models that are a function of customer satisfaction. The Service Satisfaction/Market Share Model is then derived from the equilibrium conditions for the dynamic model.

The resulting Service Satisfaction/Market Share Model is surprisingly simple and intuitive and yet yields useful insights into the relationships between the service system parameters and market share in equilibrium. The three service system parameters interact strongly with one another so that changing two or more parameters at one time has a synergistic effect. Several extensions of the base model are offered to deal with more complex issues.

The model's only parameter, β, reflects the sensitivity of the firm's market share to the Dissatisfaction/Satisfaction ratio. Surprisingly, β can be estimated from only the firm's current market share and current Dissatisfaction/Satisfaction ratio. Given that β plays an important role in the Service Satisfaction/Market Share Model and is easy to measure, it may be a useful variable in future research dealing with customer satisfaction and service quality issues.

While the primary contribution of this model is the intuitive insights that it gives to both researchers and practitioners, with empirical support this model might prove itself to be a useful tool for managers make customer service system design decisions. The authors are currently

pursuing further empirical work.

The implication of this research for marketing managers is that it emphasizes the importance of "defensive marketing" in a marketing strategy. The model may be able help marketing managers evaluate investments in systems to encourage customers to voice their complaints to the firm and/or investments to improve a service delivery system to improve the service success rate. As Rust, Zahorik, and Keiningham (1995) argue, it is important for firms to be able to make these decisions on the basis of financial analysis.

The implication of this research for operations managers is that operations should carefully design complaint handling and service recovery processes for every service delivery process that has significant customer contact (Chase 1978; Chase 1981; Chase and Aquilano 1992; Chase and Prentis 1987; MacMillan and McGrath 1997). Clearly when a customer does voice a complaint, it is important that operations managers fix the customer's problem, fix the customer relationship, and fix the system (improve service processes so that the problem is not repeated). The model proposed in this research may be able to help operations managers evaluate investment in systems for complaint handling and service recovery.

If the marketing function provides incentives for customers to complain (such as a service guarantee), the operations function must be careful that the service success rate and the recovery rate are high in order to avoid "terrorist" activities from customers who experience failure, complain, and are not recovered. Over time, the service failure rate should decrease as both the operations and marketing functions "learn" from information drawn from both customer complaints and the service recovery process.

The Service Satisfaction/Market Share Model helps us to better understand the relationships between the three service system parameters and market share, and, therefore, should offer an important contribution to the customer satisfaction literature.

CHAPTER 5

An Empirical Investigation of the Relationships between Employee Motivation/Vision, Service Learning, and Perceived Service Quality

5.1 Introduction

Many firms have been able to achieve significant competitive advantage by offering superior service quality (Albrecht and Zemke 1985; Collier 1994; Lovelock 1994; Schmenner 1995; Zeithaml et al. 1990). However, assuring quality in services is, in some ways, a more difficult proposition than assuring quality in manufacturing. Two factors, in particular, contribute to this difficulty. The "production process" of services involves the interaction of employees and customers, making it difficult to insure consistency and reliability in the service process and resulting "product." Additionally, quality judgements of an intangible service are determined by individual customer's perceptions and expectations, making it difficult to discover and correct service failures. Thus, both the employees and the learning ability of the firm are thought to play a critical role in achieving superior service quality.

Most experts agree that a learning organization whose employees have a clear vision of the importance of service quality to the organization and are motivated to provide that quality will achieve superior service quality. As Albrecht and Zemke (1985) assert, "Excellent service companies: have a strong vision, ... market service internally, measure service and publish results." In other words, both employee motivation/vision and organizational learning are thought to positively affect perceived service quality. However, little research has been conducted to determine the magnitude of those effects. Additionally, the nature of the relationship between

organizational learning and employee motivation/vision is not well understood. Some experts posit that the motivation and vision of employees is positively affected by organizational learning, while other experts posit that organizational learning is positively affected by the motivation and vision of employees. The lack of theory-driven, systematic, empirical research leaves both academics and practitioners in doubt as to both why and how these constructs affect service quality.

This empirical study, therefore, investigated both the nature and the magnitude of these relationships. The empirical study uses survey data obtained from customers, management employees, and frontline employees of a multi-national hotel firm to measure the constructs of employee motivation/vision (EMV), learning through service failure (LTSF) and perceived service quality (PSQ) and to investigate the nature of the inter-relationships among those constructs. Figure 5.1 illustrates the scope of this research.

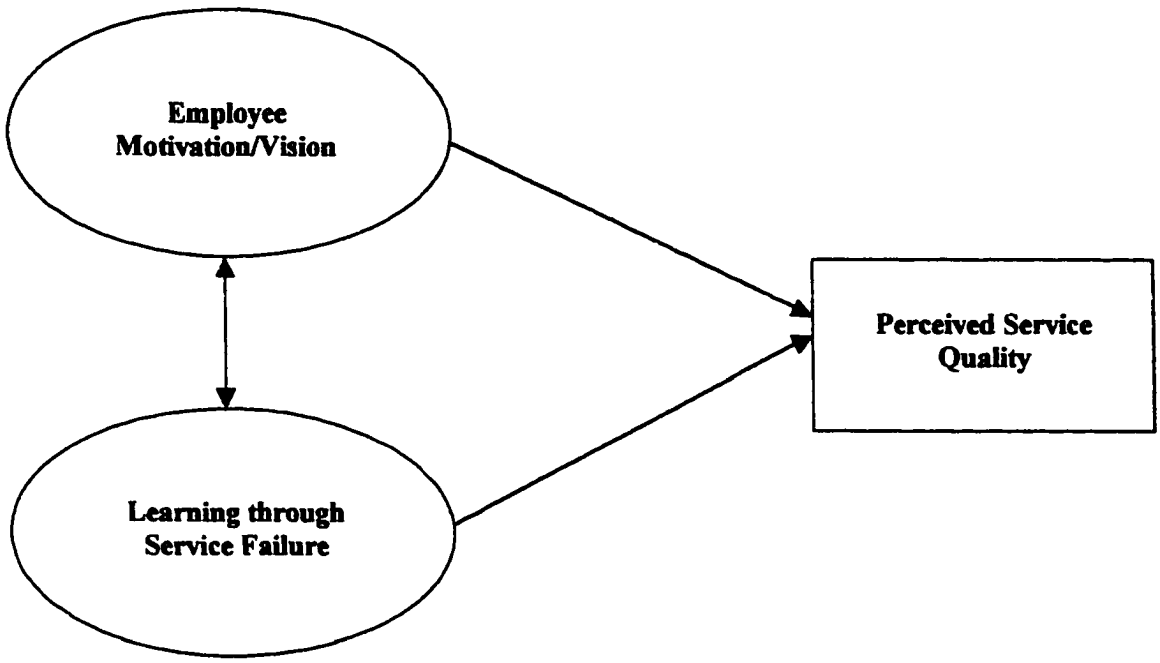
We first review the relevant literature and develop the theoretical foundation of this research. We then present the research methodology followed by an analysis the results obtained from the empirical study. We conclude the chapter with a discussion of the implications of this research.

5.2 Literature Review and Theory Development

5.2.1 Perceived Service Quality

Quality is an important predictor of both market share and profitability in many markets (Buzzell and Gale 1987; Capon et al. 1990; Phillips et al. 1983). The importance of customer satisfaction and service quality to service firms is evident (Jones and Sasser 1995; Oh and Parks 1997; Sasser et al. 1978; Zeithaml et al. 1993). It is generally accepted that attributes associated with a service firm's personnel play a key role in the determination of customer satisfaction and customer perceptions of service quality. However, almost all of the work done in this area has

Figure 5.1 Research Scope



been focused outside of the organization, based on customer perceptions of employee attributes rather than employee perceptions. See, for example, Mohr and Bitner (1995) or Zeithaml, Parasuraman, and Berry (1988). Schneider (Schneider, Ashworth, Higgs, and Carr 1996; Schneider and Bowen 1985; Schneider, Parkington, and Buxton 1980) is one of the few who has attempted to relate internal employee perceptions to external customer perceptions. This study represents an important attempt to relate internal drivers of service quality to external customer perceptions of service quality.

Although, this empirical study is focused on investigating the effect of employee motivation/vision and learning through service failure on customer perceptions of service quality, it also has strong implications for the business performance of the firm. Customer perceptions of superior quality have been found to relate to increased customer satisfaction, which in turn leads to increased customer retention and results in positive economic outcomes for the firm (Anderson et al. 1994; Fornell 1992; Fornell 1994; Fornell et al. 1996; Ittner and Larcker 1996; Johnson and Fornell 1991). Thus, if employee motivation/vision and organizational learning are positively related to perceived service quality, they should also positively affect the financial performance of the firm.

5.2.2 The Effect of Employee Motivation/Vision on Perceived Service Quality

The service literature highlights the importance of employees, particularly the motivation and vision of those employees, in successful service firms (Lovelock 1994). Some experts emphasize the importance "commitment" (Farber and Wycoff 1991), others emphasize the importance of "culture" (Collier 1994), and still others emphasize "climate" (Schneider 1980). They are all in agreement with Hostage (Hostage 1975), who states, "Service quality begins with people."

The courtesy, empathy, and responsiveness of service employees all combine to influence

quality perceptions of customers (Parasuraman, Zeithaml, and Berry 1988). Czepiel, Solomon, and Suprenant (1985) argue that, "Employees not only deliver and create the service, but are actually part of the service in the customers' view." Motivated, empowered employees who have a clear vision of the importance of service quality to the firm should provide superior service (Bowen and Lawler 1992). Therefore, we hypothesize:

H5.1: Higher levels of employee motivation/vision (EMV) will have a positive effect on perceived service quality (PSQ).

5.2.3 The Effect of Learning through Service Failure on Perceived Service Quality

The ability to learn quickly from both employees and customers is thought by some experts to be necessary for organizational success and survival (Marquardt and Reynolds 1994). Senge (1990) goes so far as to argue, "The rate at which organizations learn may become the only sustainable source of competitive advantage."

Quality control is one of the primary ways in which organizations learn. Indeed, Argyris and Schon (1978) even define organizational learning as "the detection and correction of errors," which could also be a definition of quality control. In order to survive in an increasingly competitive and dynamic service economy, firms need the ability to quickly learn from their failures. Because of the intangible nature of services, customer complaints are an important means of detecting service failures and can provide a significant opportunity for organizational learning (Fornell 1976). Although organizations can learn in many ways, this study is focused on learning through service failure.

Perceptions of service quality are shaped by customer expectations. Because customer expectations and perceptions change from customer to customer, as well as over time, organizational learning is needed to achieve and maintain superior service quality. We believe that firms with a greater ability to learn from service failures will offer higher levels of service quality.

Therefore, we hypothesize:

H5.2: Higher levels of learning through service failure (LTSF) will have a positive effect on perceived service quality (PSQ).

5.2.4 The Effect of Employee Motivation/Vision on Learning through Service Failure

Employee motivation is thought to be essential ingredients of learning organizations (Marquardt and Reynolds 1994). Senge (1990), who popularized the concept of learning organizations, states,

> ... one cannot have a learning organization without shared vision. Without a pull toward some goal which people truly want to achieve, the forces in support of the status quo can be overwhelming. Vision establishes an overarching goal. The loftiness of the target compels new ways of thinking and acting. A shared vision also provides a rudder to keep the learning process on course when stresses develop ... shared vision fosters risk taking and experimentation.

Thus, learning through service failure could be posited to depend on the motivation and vision of the firm's employees, where higher levels of motivation and vision positively influence learning.

An opposite perspective is taken by some behaviorists. Motivational determinants include the role of leadership processes, job characteristics, person/system fit, and situational constraints (Waldham 1994). Although Hackman and Oldham's (1980) job characteristics model applies to the impact of specific jobs on individuals, we believe that the theory underlying it is applicable here. The job characteristics model can be summarized as follows: job characteristics (skill variety, task identity, task significance, autonomy, and feedback from job) impact critical psychological states (experienced meaningfulness, experienced responsibility, and knowledge of results) that are positively related to internal work motivation, "growth" satisfaction, general job satisfaction, and work effectiveness. A job's "motivating potential" can be enhanced by increasing the level of the core job characteristics and/or the critical psychological states (Oldham 1996). This assumes that feedback and knowledge will positively affect motivation.

However, this study is focused on learning through service failure. The feedback employees

obtain from service failure is negative rather than positive. Wirtz (1998) asserts that negative feedback may have a demotivating effect, rather than a motivating effect. Thus, employee motivation/vision could be posited to depend on learning, through feedback from job and knowledge of results, where learning could either positively or negatively influence employee motivation/vision.

Although there is theoretical support for the positive effect of employee motivation/vision and learning through service failure on perceived service quality, little empirical evidence exists to support these relationships. Additionally, the nature of the relationship between employee motivation/vision (EMV) and learning through service failure (LTSF) is ambiguous in the literature. This study is aimed at resolving this ambiguity. Assuming that H5.1 and H5.2 are supported in this study leads to the following competing hypotheses concerning the nature of their relationship and their subsequent effect on perceived service quality. We hypothesize:

H5.3A: Employee motivation/vision (EMV) and learning through service failure (LTSF) are not related to each other.

H5.3B: Learning through service failure (LTSF) moderates the relationship between employee motivation/vision (EMV) and perceived service quality (PSQ).

H5.3C: Employee motivation/vision (EMV) moderates the relationship between learning through service failure (LTSF) and perceived service quality (PSQ).

H5.3D: Learning through service failure (LTSF) mediates the relationship between employee motivation/vision (EMV) and perceived service quality (PSQ).

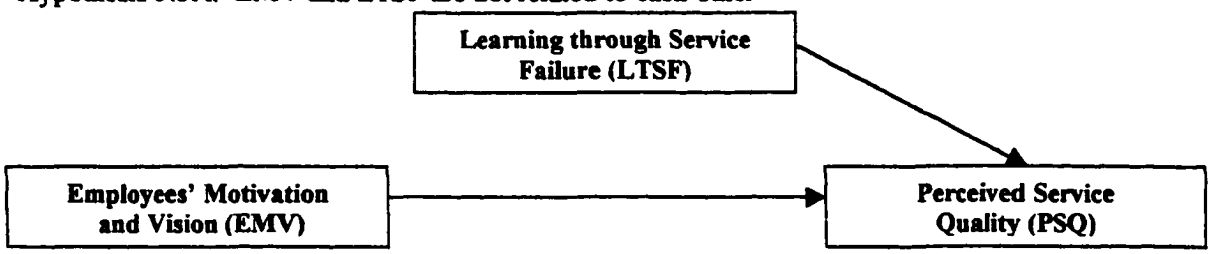
H5.3E: Employee motivation/vision (EMV) mediates the relationship between learning through service failure (LTSF) and perceived service quality (PSQ).

H5.3F: Employee motivation/vision (EMV) and learning through service failure (LTSF) are non-recursively related to each other and both affect perceived service quality (PSQ).

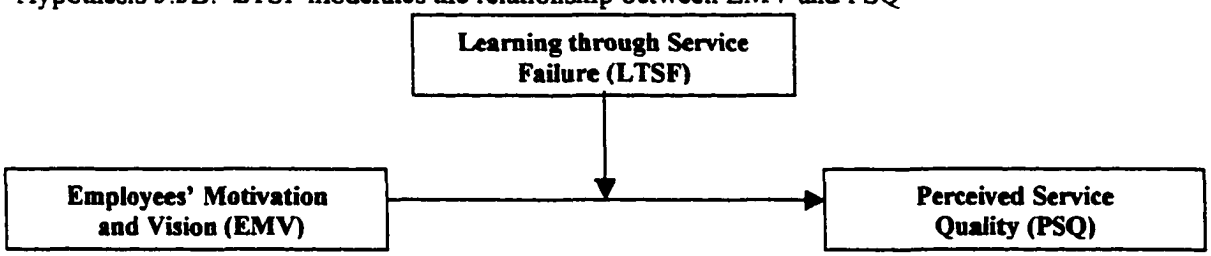
These hypothesized relationships are illustrated in Figure 5.2.

Figure 5.2 Hypotheses

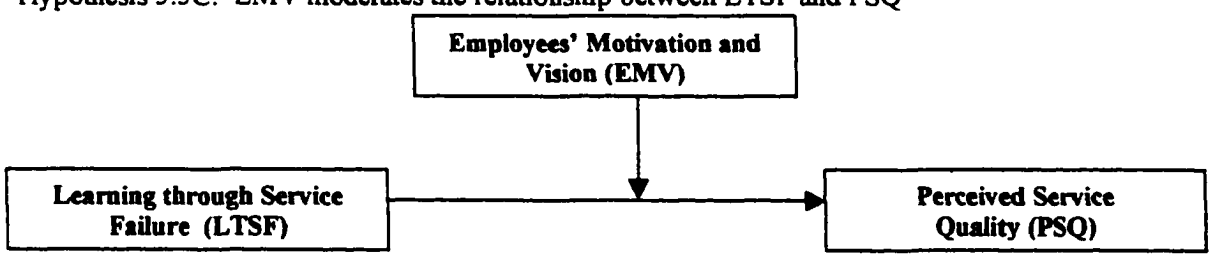
Hypothesis 5.3A: EMV and LTSF are not related to each other



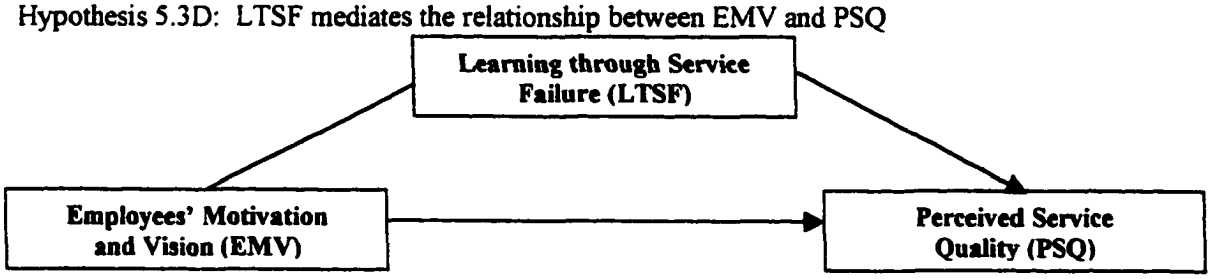
Hypothesis 5.3B: LTSF moderates the relationship between EMV and PSQ



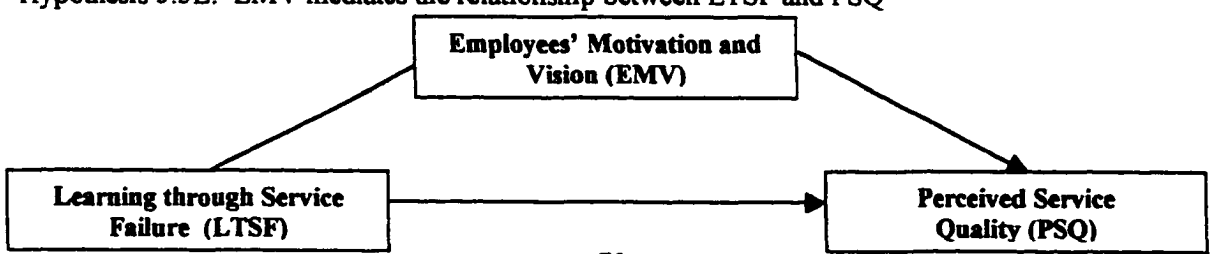
Hypothesis 5.3C: EMV moderates the relationship between LTSF and PSQ



Hypothesis 5.3D: LTSF mediates the relationship between EMV and PSQ



Hypothesis 5.3E: EMV mediates the relationship between LTSF and PSQ



5.3 Research Methodology

5.3.1 Data Collection

Data was collected from a multi-national hotel corporation to investigate the above hypotheses. A mail survey was sent to a sample of 25 North American hotels. These hotels represented a wide variety of hotel types, locations, and sizes. Both management and frontline personnel perceptions of employee motivation, employee vision, and learning through service failure were surveyed. Only one hotel did not respond (a response rate of 96%) and over 250 responses were received. The corporation also provided their monthly and yearly perceived service quality data for most of these hotels. The purpose of this study was to examine the relationships between employee motivation/vision, learning through service failure, and perceived service quality. Future work is planned to validate this study with larger, more diverse sampling frames. Therefore, we also assessed the validity and reliability of the specific constructs, dimensions, and the items used to measure them.

This is a quasi-experimental cross-sectional design for studying a variance theory. The unit of observation for perceived service quality is the hotel customer as an informant. The unit of observation for both the employee motivation/vision construct and the learning through service failure construct is the hotel employee as an informant. However, the unit of theoretical analysis is the individual hotel.

The research design reflects an attempt to balance the threats to internal, statistical, external, and construct validity, given the availability of data. Construct and internal validity should result from careful definition of constructs and relationships as well as the design of the survey instrument and the use of multiple types of respondents and multiple measures for this survey (Yin 1989). Some statistical and practical validity should result from the regression analyses, as

well as the other statistical analyses. Statistical validity is also increased through our choice of sampling frame, multiple outlets of a single firm. Random irrelevancies in experimental settings (the units of theoretical analysis are subject to various environmental factors and systematic influences) are reduced by limiting the study to a single firm.

5.3.2 Independent Constructs

5.3.2.1 Definition and Operationalization of Constructs

The constructs of employee motivation/vision and learning through service failure were measured with a survey instrument developed for this research. The development of a survey instrument consists of defining constructs and their dimensions, operationalizing those dimensions with specific items, designing the form itself, pilot testing the instrument, and redesigning where necessary.

Academics and practitioners were consulted and the literature was reviewed to define the constructs of employee motivation/vision and learning through service failure and to identify the dimensions of these constructs. Additionally, the literature was searched for existing valid and reliable measurement instruments/items (Hackman and Lawler 1971; Lawler and Hall 1970; Oldham 1996; Price 1972). Although none of the existing measurement instruments/items was felt to be appropriate for this study, some of the underlying concepts were applied in the design of the items.

Motivation can be defined as the desire to achieve some goal. Vision is described by Mellander (1993) as "a concordant view of the company's activities and goals, and of the direction of future trends." The employee motivation/vision construct reflects employee motivation to provide high quality service and the existence of a company-wide, all encompassing vision of the importance of high quality service. This construct is defined as:

> *The degree to which a firm's employees are motivated to provide high quality service and have a clear vision of the role that service quality plays in the company's overall strategy.*

The two dimensions associated with this construct are defined as:

Motivation: *The degree to which a firm's employees are motivated to provide high quality service.*

Vision: *The degree to which management has communicated priorities clearly and the firm's employees (managers through frontline workers) have an awareness of the key role that service quality plays in the company's strategy.*

Huber (1991) relates organizational learning to knowledge acquisition, information distribution, information interpretation, and organizational memory. Nevis, DiBella, and Gould (1995) condense these dimensions to knowledge acquisition, dissemination, and utilization. Although organizations can learn in many ways, this study was focused on learning through service failure. Therefore, this construct is defined as:

The degree to which a firm is able to learn from its customers by: discovering dissatisfied customers; collecting information from these customers; and improving their systems based on the information collected in order to improve the quality of its offerings.

Three dimensions were identified for this construct. They are defined as:

Discovery: *The degree to which a firm is able to detect service failures.*

Data: *The degree to which a firm collects and communicates information on service failures.*

Improvement: *The degree to which a firm uses the failure information to improve quality.*

The identified dimensions of the EMV and LTSF constructs were operationalized with specific items (Table 5.1). Following Schneider, Ashworth, Higgs, and Carr (1996), we focus on employee perceptions of practices within the organization, rather than individual employee attitudes. The responses were seven-point, anchored, agree-disagree Likert scales. The items were evaluated by experts, subjected to a small-scale pilot test, and revised where necessary. The small-scale pilot test revealed that respondents had difficulty with reverse-scaled items. Therefore, all

Table 5.1 Constructs, Dimensions, and Items

Construct: Employee Motivation and Vision (EMV)

Dimension: Motivation

EMVM1	Our employees always make customer satisfaction their top goal.
EMVM2	Our employees go out of their way to listen when customers complain.
EMVM3	Our employees try very hard to fix customer problems when they know about them.
EMVM4	Our employees feel a strong sense of accountability and ownership for service quality.
EMVM5*	Customer satisfaction is an extremely important part of my job.

Dimension: Vision

EMVV1*	Our service quality priorities are always clear to our employees.
EMVV2	Our employees have a clear understanding of the role that service quality plays in helping our company compete in our market.
EMVV3	We have very well-defined standards for service quality.

Construct: Learning Through Service Failure (LTSF)

Dimension: Discovery

LTSFDIS1	When a service problem occurs, we are almost always aware of the problem.
LTSFDIS2	Our employees are very aware of customer complaints and why they occur.
LTSFDIS3*	Customers with a service problem almost always complain to us.

Dimension: Data

LTSFDATA1	We have accurate information on how many complaints we receive.
LTSFDATA2	We have accurate information on why our customers complain.
LTSFDATA3	Information on customer satisfaction trends is communicated to all of our employees.

Dimension: Improvement

LTSFIMP1*	Collecting customer feedback helps us to regularly improve our service quality.
LTSFIMP2*	We have improved our service quality over the past year based on customer complaint information.

**The exploratory factor analysis resulted in elimination of these items from the final analysis.*

items in the mail survey were positively worded. Items were randomized on the actual survey form.

5.3.2.2 Construct Content Validity

Content validity represents the adequacy with which the content domain has been covered (Nunnally 1978). Construct content validity is insured, in part, through the careful design of a survey instrument. Item generation was grounded in theory through careful definition of both the constructs and their dimensions after an extensive literature review and many discussions with both academics and practitioners. The various dimensions of these constructs were operationalized with specific items (Table 5.1). The survey form itself was designed, pilot tested, and redesigned where necessary after being evaluated by industry and academic experts. Although the determination of content validity is subjective and judgmental, these procedures should help to insure content validity (Emory 1980).

5.3.2.3 *Factor Analysis*

Exploratory factor analysis was used to assess both the convergent and discriminant construct validity. Factor analysis requires an approximate ratio of respondents/items of 10:1 (Tinsley and Tinsley 1987). With over 250 response and 12 items, this requirement is met.

The suitability of the data for factor analysis was assessed with various tests. Bartlett's test of sphericity was significant at the 0.001 level. The overall measure of sampling adequacy was 0.893 and individual measures were all above 0.8. All anti-image correlations were less than 0.3. Thus, this data meets the fundamental requirements for factor analysis (Hair, Anderson, Tatham, and Black 1998). The results reported here were obtained using principal components as the means of extraction and varimax as the method of rotation. Common factor extraction and/or oblique rotation gave similar results.

5.3.2.3.1 Outliers, Standardization and Purification

Although exploratory factor analysis does not require that the responses follow a normal distribution, departures from normality reduce the correlations between items. Therefore, responses for each item were transformed to obtain distributions that were closer to normal distributions (generally, most responses were squared). The responses were standardized and examined for outliers. A few outliers were eliminated. Items were purified before being factor analyzed, as recommended by Churchill (Churchill 1979), to improve the interpretation of results. Four items (EMVM5, LTSFDIS3, LTSFIMP1, and LTSFIMP2) were eliminated from the subsequent analysis because their corrected item-total correlation was below 0.45. Table 5.2 contains a listing of all items and corrected item-total correlations for the management data set, the frontline data set, and the combined data set.

5.3.2.3.2 Convergent and Discriminant Validity

An exploratory factor analysis was conducted on the 12 items that remained after purification. Two factors with eigenvalues greater than one (Nunnally 1978) were identified. All of these items loaded on their theoretically predicted factor to a greater extent than they cross-loaded on the other factor. However, removal of the item EMVV1 resulted in a "cleaner" solution with all items loading on their theoretical construct at greater than 0.5 and cross-loadings of less than 0.5. Therefore, to increase discriminant validity, this item was removed from further analysis. Additionally, the cumulative percent of variance explained was greater when this item was removed (see Table 5.3).

Convergent validity was tested by factor analyzing the individual constructs to determine whether all items in that construct load on a single factor, again using the eigenvalue greater than one rule (Nunnally 1978). Table 5.3 contains the loadings for individual constructs for the entire data set, as well as management only and frontline only data sets. Both constructs exhibited

Table 5.2 Cronbach's Alpha and CITC's

Item	Corrected Item-Total Correlation			Corrected Item-Total Correlation	Corrected Item-Total Correlation		
	Management and Frontline	Management Only	Frontline Only	Management and Frontline	Management and Frontline	Management Only	Frontline Only
EMV							
EMVM1	0.6875	0.6559	0.7033	0.6886	0.7010	0.6697	0.7153
EMVM2	0.6432	0.6303	0.6413	0.6469	0.6547	0.6323	0.6744
EMVM3	0.5863	0.5209	0.6721	0.5839	0.6078	0.5489	0.6808
EMVM4	0.5845	0.5721	0.6074	0.5724	0.5599	0.5446	0.5918
EMVM5	0.2603	0.2121	0.3936				
EMVV1	0.6014	0.6016	0.5622	0.6021			
EMVV2	0.5993	0.5607	0.6608	0.5969	0.5719	0.5379	0.6159
EMVV3	0.6537	0.6401	0.6597	0.6659	0.6202	0.6084	0.6200
Cronbach's Alpha	0.8443	0.8287	0.8588	0.8547	0.8376	0.8199	0.8526
n	281	174	102	281	281	174	102
LTSF							
LTSFDIS1	0.5592	0.5636	0.5857		0.5435	0.5235	0.5794
LTSFDIS2	0.4966	0.4699	0.5195		0.4737	0.4572	0.4908
LTSFDIS3	0.3441	0.3994	0.3104				
LTSFDATA1	0.5270	0.5530	0.5600		0.5387	0.4893	0.6238
LTSFDATA2	0.5461	0.4710	0.6523		0.5473	0.4790	0.6246
LTSFDATA3	0.5315	0.4718	0.6017		0.5097	0.4139	0.6451
LTSFIMP1	0.2892	0.2082	0.3952				
LTSFIMP2	0.3635	0.3108	0.4665				
Cronbach's Alpha	0.7528	0.7337	0.7938		0.7528	0.7112	0.8047
n	270	169	96		281	172	104

Table 5.3[1] Factor Loadings

Item	Rotated Component Matrices All Items				Component Matrix Individual Scales		
	Initial Analysis		Final Analysis		Management and Frontline	Management Only	Frontline Only
	1	2	1	2			
EMV							
EMVM1	**0.79**	0.19	**0.79**	0.20	0.81	0.79	0.82
EMVM2	**0.73**	0.26	**0.73**	0.27	0.80	0.77	0.83
EMVM3	**0.78**	0.03	**0.79**	0.04	0.77	0.72	0.81
EMVM4	**0.60**	0.30	**0.61**	0.30	0.69	0.66	0.75
EMVV1	**0.54**	0.47					
EMVV2	**0.70**	0.18	**0.69**	0.17	0.71	0.66	0.78
EMVV3	**0.70**	0.26	**0.69**	0.24	0.74	0.73	0.74
Eigenvalue					3.40	3.15	3.72
% of Variance					56.74	52.44	62.02
LTSF							
LTSFDIS1	0.20	**0.69**	0.21	**0.71**	0.73	0.72	0.76
LTSFDIS2	0.41	0.49	0.42	**0.50**	0.68	0.66	0.69
LTSFDATA1	0.12	**0.76**	0.12	**0.75**	0.71	0.68	0.78
LTSFDATA2	0.10	**0.78**	0.10	**0.79**	0.75	0.72	0.80
LTSFDATA3	0.43	**0.55**	0.42	**0.53**	0.69	0.59	0.81
Eigenvalue	3.81	2.72	3.55	2.53	2.55	2.29	2.95
% of Variance	31.77	22.69	32.24	22.98	50.94	45.79	58.96
Cumulative % of Variance	31.77	54.45	32.24	55.22			

[1] *Bold highlights factor loadings greater than 0.50.*

convergent validity.

5.3.2.3.3 Measurement Bias

Factor analysis was also used to test for common respondent (all respondents are from a single firm), common method, and percept-percept bias. Podsakoff and Organ (1986) suggest that if a single factor explains most of the variance in the data when a factor analysis is performed on items with common respondents and/or common methods, the threat of bias is high. However, if a single factor does not explain a large portion of the variance, the threat of bias is small. The above factor analysis identified more than a single factor, indicating that the threat of these biases is small.

The high response rate of 96% allows us to assume that non-respondent bias is not an issue in this study. The use of multiple types of respondents eliminates common respondent bias within the organization.

5.3.2.4 Additional Tests for Convergent and Discriminant Validity

Convergent validity was also evaluated by testing the lowest within group correlation to determine if it is significant at $p < 0.05$. The 11 remaining items all passed this test.

Discriminant validity also exists if the average variance extracted for a construct is substantially higher than the squared correlation between that construct and the other constructs (Fornell and Larker 1981). The squared correlation between the two constructs was 0.36, which is considerably lower than the average variance extracted (~0.5) for either construct (Table 5.3).

5.3.2.5 Reliability

The reliability of both scales was evaluated with Cronbach's alpha. A sample size of 30 or more is statistically significant for calculating coefficient alpha, but our larger sample gives greater confidence in the accuracy of alpha values. Alpha of 0.70 or greater (Nunnally 1978) should insure reliability. Both scales had alpha values of 0.70 or greater for the entire data set, as

well as the management and frontline subsets (Table 5.2).

Reliability can also be evaluated with the average variance extracted for a scale; a reliable scale will exceed 0.50 (Bagozzi and Yi 1988). Table 5.3 shows the average variance extracted for both scales. The management subset of the organizational learning scale did not pass this test.

Reliability was also evaluated by comparing management responses to frontline personnel responses. Although a multivariate analysis of the responses found significant differences between management and frontline personnel perceptions, a profile analysis revealed that the response lines for management and frontline personnel were parallel within constructs. This indicates reliability across different types of respondents.

5.3.2.6 Formation of Summated Factor Scores

Simple summated factor scores for each construct (employee motivation/vision, learning through service failure) were formed from the items identified by this analysis. Although both the factor and reliability analysis identified identical constructs for both management and frontline personnel, a multivariate analysis found significant differences between management and frontline perceptions. In general, management perceptions of employee motivation/vision were lower than frontline perceptions and management perceptions of learning through service failure were higher than frontline perceptions. Therefore, the mean of each item for both management and frontline personnel was calculated for every hotel. The mean management score and the mean frontline score were averaged to form an average item score for each hotel. The item scores were then summed and standardized to form two simple factor scores (one for each construct) for each hotel. The employee motivation/vision factor score was obtained from the following items: EMVM1, EMVM2, EMVM3, EMVM4, EMVV2, and EMVV3. The learning through service failure construct was formed from the following items: LTSFDIS1, LTSFDIS2, LTSFDATA1, LTSFDATA2, and LTSFDATA3. These summated factor scores were used in the subsequent test

of the research hypotheses.

5.3.3 Dependent Variable

Hensley (1999) argues, "if the research is focused on an OM measure that is available from the organization, then the obvious choice should be to use the measure already developed by the organization." For this study, perceived service quality data was provided by the organization.

The perceived service quality data provided by the organization was obtained from customer comment cards placed in hotel rooms. It is based on customer response to the following question, "How willing are you to return to a Radisson hotel?" The response is a five point anchored scale with 1 = not at all willing, 3 = neutral, and 5 = definitely willing.

This is certainly a measure of intent to repurchase. However, in anything other than a monopoly situation, it can be argued that customer loyalty (or intent to repurchase) is a measure of customer satisfaction and/or perceived service quality. Jones and Sasser (1995) argue that, "levels of satisfaction ... are a good indicator of the level of quality ... that they (customers) are receiving." They extend this argument by asserting that only completely satisfied customers are loyal customers. Viewed from the opposite perspective, this implies that intent to repurchase is a measure of perceived service quality.

Data was available for 22 of the hotels surveyed in both the previous year and current year for several months on either side of the data collection period. The number of customer respondents for each hotel in each month ranged from 20 to 700 with an average of 230.

The perceived service quality construct was operationalized in different ways depending on the type of analysis used to investigate the hypotheses. First the proportions of customers in each response category during the year prior to the implementation were averaged. Then a trend was estimated for the current year using the previous year's average as the initial point. From this, an estimate of the proportion of customers in each of the five categories during the month the

employee data was collected was obtained. For the MANOVA-type regressions, the natural logarithm of the proportion of customers in each response category formed the multivariate response vector (Johnson and Wichern 1992). For the path analyses, only the natural logarithm of the proportion of customers in the "definitely willing to return" category was used to operationalize the perceived service quality construct.

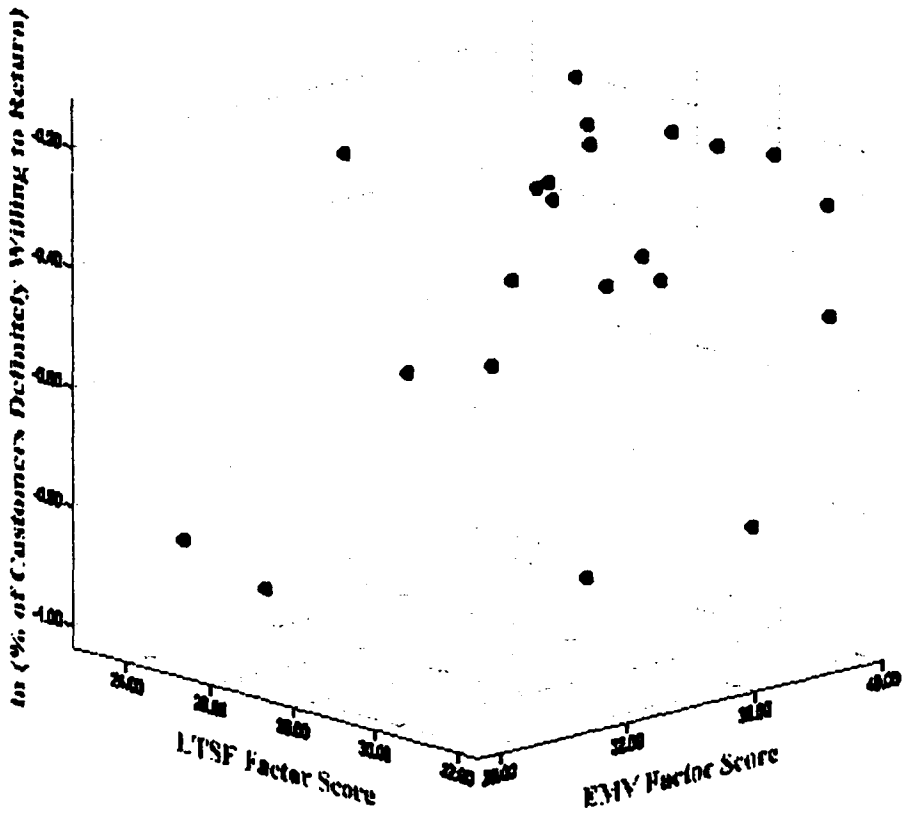
Construct validity of the dependent measure is obtained, in part, by using the firm's customer response data. This measure should be both more reliable and valid than other commonly employed measures such as employees' ratings of the quality of their service offering.

5.3.4 Statistical Validity

While this investigation into the effects of employee motivation/vision on organizational learning and perceived service quality for a particular firm will have value to both practitioners and academics, there are threats to both statistical validity and external validity. Statistical validity is threatened by the small sample size of this study. Only a few of the hotels had low scores on all of the measures (see Figure 5.3) and, therefore, exert significant leverage on the regression equations. The authors are currently in the process of conducting a larger study using the validated instrument to address this problem.

Statistical validity is also threatened by both random irrelevancies in experimental settings (individual outlets are subject to various environmental factors, systematic individual influences) and the random heterogeneity of respondents (all of the respondents are from a single firm). Attempting to generalize the results of this study to other firms and/or other types of firms would be premature. Future work will be aimed at ensuring greater external validity by using the validated instrument across a range of firms. However, this study does offer important insights for both academics and practitioners.

Figure 5.3 Scatter Plot of EMV, LTSF, and PSQ



5.4 Results

Regression analyses and path analyses were conducted to analyze the relationships among the constructs.

5.4.1 Regression Analyses

A series of regressions were used to test most of the hypotheses. For clarity, we summarize the hypotheses presented earlier:

H5.1: Higher levels of employee motivation/vision (EMV) will have a positive effect on perceived service quality (PSQ).

H5.2: Higher levels of learning through service failure (LTSF) will have a positive effect on perceived service quality (PSQ).

H5.3A: Employee motivation/vision (EMV) and learning through service failure (LTSF) are not related to each other.

H5.3B: Learning through service failure (LTSF) moderates the relationship between employee motivation/vision (EMV) and perceived service quality (PSQ).

H5.3C: Employee motivation/vision (EMV) moderates the relationship between learning through service failure (LTSF) and perceived service quality (PSQ).

H5.3D: Learning through service failure (LTSF) mediates the relationship between employee motivation/vision (EMV) and perceived service quality (PSQ).

H5.3E: Employee motivation/vision (EMV) mediates the relationship between learning through service failure (LTSF) and perceived service quality (PSQ).

H5.3F: Employee motivation/vision (EMV) and learning through service failure (LTSF) are non-recursively related to each other and both affect perceived service quality (PSQ).

Hypothesis H5.1 is supported if EMV has a significant effect on PSQ when regressing PSQ on EMV. Hypothesis H5.2 is supported if LTSF has a significant effect on PSQ when regressing PSQ on LTSF. As discussed previously, perceived service quality was operationalized as a

multivariate count response. Therefore, multivariate regressions were estimated using the following general linear models:

$$ln(\text{proportion of customers choosing each category}) = Y = Z\beta + \varepsilon$$

$$Y = Z_1\beta_1 + \varepsilon \tag{5.1}$$

$$Y = Z_2\beta_2 + \varepsilon \tag{5.2}$$

Where Z, Z_1, and Z_2 are the design matrices; β_1 is the matrix of coefficients for main effects of EMV; β_2 is the matrix of coefficients for main effects of LTSF; and ε is the error matrix. Table 5.4 contains the relevant data for all the regressions. Employee motivation/vision was found to have a significant effect on perceived service quality (Hotelling's trace = 1.20, $p \leq 0.10$). Learning through service failure was found to have a significant effect on perceived service quality (Hotelling's trace = 0.76, $p \leq 0.10$). Examination of the standardized β_i shows that in both cases the proportion of customers who are definitely willing to return increases, while the proportion of customers in all other categories decreases.

It is important to note that 25% of the variance in the proportion of customers who are definitely willing to return can be explained by the motivation and vision of the employees. While perceptions of service quality are affected by many things other than the motivation and vision of employees, this result highlights the magnitude of the effect of employee motivation/vision on perceived service quality.

Hypothesis H5.3A and hypotheses H5.3B, H5.3C, H5.3D, H5.3E, and H5.3F are competing hypotheses, i.e. accepting hypothesis H5.3A would force us to reject hypotheses H5.3B, H5.3C, H5.3D, H5.3E, and H5.3F. In other words, if EMV and LTSF are not related to each other they cannot have a moderating or a mediating relationship. To test hypothesis H5.3A the following standardized regression equations were estimated:

Table 5.4 Regression Statistics

Dependent Variable (Equation Number)	Standardized β_i			F	r^2
	EMV	LTSF	EMV*LTSF		
EMV (5.3)		0.71***		20.45***	0.50
PSQ (5.1)					
5 = ln(def will)	0.50*			7.20*	0.26
4 = ln(prb will)	-0.53**			7.98**	0.28
3 = ln(neutral)	-0.49*			6.67*	0.24
2 = ln(prb nw)	-0.16			0.52	0.02
1 = ln(def nw)	-0.29			1.97	0.09
Hotellings T^2	1.20*				
PSQ (5.2)					
5 = ln(def will)		0.33		2.57	0.11
4 = ln(prb will)		-0.20		0.91	0.04
3 = ln(neutral)		-0.40*		4.10*	0.16
2 = ln(prb nw)		-0.11		0.26	0.01
1 = ln(def nw)		-0.12		0.32	0.02
Hotellings T^2		0.76*			
PSQ (5.6)					
5 = ln(def will)	0.55*	-0.06		3.46*	0.26
4 = ln(prb will)	-0.77***	0.34		5.00**	0.33
3 = ln(neutral)	-0.41	-0.11		3.28*	0.25
2 = ln(prb nw)	-0.15	-0.00		0.25	0.02
1 = ln(def nw)	-0.47	0.18		1.13	0.10
Hotellings T^2	0.82*	0.46			
PSQ (5.5)					
5 = ln(def will)	0.39	0.01	-0.20	2.83*	0.31
4 = ln(prb will)	-0.62**	0.28	0.18	3.85**	0.38
3 = ln(neutral)	-0.39	-0.15	0.11	2.25	0.26
2 = ln(prb nw)	-0.07	-0.04	0.11	0.26	0.04
1 = ln(def nw)	-0.36	0.15	0.07	0.77	0.11
Hotellings T^2	0.55	0.42	0.11		

*$p \leq 0.10$, **$p \leq 0.05$, ***$p \leq 0.01$ $n=22$

$$Z_{EMV} = \beta_3 Z_{LTSF} + \varepsilon \tag{5.3}$$

$$Z_{LTSF} = \beta_4 Z_{EMV} + \varepsilon \tag{5.4}$$

Where Z_{EMV} and Z_{LTSF} are the standardized observations for EMV and LTSF, respectively; β_3 and β_4 are the standardized regression coefficients; and ε is the error term. Learning through service failure was found to have a significant positive effect on employee motivation/vision, thus hypothesis H5.3A was rejected and the remaining hypotheses could be tested.

Evidence of moderation is provided when there is a significant interaction between two predictor variables (Baron and Kenny 1986). To test hypotheses H5.3B and H5.3C, multivariate regression was estimated using the following general linear model:

$$ln(proportion\ of\ customers\ choosing\ each\ category) = \boldsymbol{Y} = \boldsymbol{Z\beta} + \boldsymbol{\varepsilon}$$

$$\boldsymbol{Y} = \left[\boldsymbol{Z_1}\middle|\boldsymbol{Z_2}\middle|\boldsymbol{Z_5}\right]\begin{bmatrix}\boldsymbol{\beta_{1A}}\\ \hline \boldsymbol{\beta_{2A}}\\ \hline \boldsymbol{\beta_5}\end{bmatrix} + \boldsymbol{\varepsilon} = \boldsymbol{Z_1\beta_{1A}} + \boldsymbol{Z_2\beta_{2A}} + \boldsymbol{Z_5\beta_5} + \boldsymbol{\varepsilon} \tag{5.5}$$

Where Z, Z_1, Z_2, and Z_5 are the design matrices; β_{1A} is the matrix of coefficients for main effects of EMV; β_{2A} is the matrix of coefficients for main effects of LTSF; β_5 is the matrix of coefficients for interaction effects between EMV and LTSF; and ε is the error matrix. There is no significant interaction between employee motivation/vision and learning through service failure (Hotelling's trace = 0.11, $p \geq 0.10$), thus hypotheses H5.3B and H5.3C were rejected.

To establish mediation the following criteria must be met (Baron and Kenny 1986; Judd and Kenny 1981): first, the independent variable must have a significant effect on the mediator, when regressing the mediator on the independent variable; second, the independent variable must have a significant effect on the dependent variable when regressing the dependent variable on the

independent variable and; third, the mediator must have a significant effect on the dependent variable when regressing the dependent variable on both the independent variable and the mediator. If these conditions all hold in the predicted directions and the effect of the independent variable on the dependent variable is less in the third regression than the second regression, the mediation hypothesis is supported.

The test of hypothesis H5.3D utilized regression equations 5.4 (criteria 1), 5.1 (criteria 2), and a multivariate regression estimated using the following general linear model (criteria 3):

$$ln(\text{proportion of customers choosing each category}) = \boldsymbol{Y} = \boldsymbol{Z\beta} + \boldsymbol{\varepsilon}$$

$$\boldsymbol{Y} = \left[\boldsymbol{Z_1}\middle|\boldsymbol{Z_2}\right]\begin{bmatrix}\boldsymbol{\beta_{1B}}\\ \boldsymbol{\beta_{2B}}\end{bmatrix} + \boldsymbol{\varepsilon} = \boldsymbol{Z_1\beta_{1B}} + \boldsymbol{Z_2\beta_{2B}} + \boldsymbol{\varepsilon} \qquad (5.5)$$

Where Z, Z_1, and Z_2 are the design matrices; β_{1B} is the matrix of coefficients for main effects of EMV; β_{2B} is the matrix of coefficients for main effects of LTSF; and ε is the error matrix. While employee motivation/vision was found to have a significant effect on learning through service failure and employee motivation/vision was found to have a significant effect on perceived service quality, the effect of employee motivation/vision on perceived service quality was not reduced when the effect of learning through service failure was added. Thus, hypothesis H5.3D is rejected.

The test of hypothesis H5.3E used regression equations 5.3 (criteria 1), 5.2 (criteria 2), and 5.5 (criteria 3). Learning through service failure was found to have a significant positive effect on employee motivation/vision and learning through service failure was found to have a significant positive effect on perceived service quality. And finally, when we account for the effect of employee motivation/vision, the effect of learning through service failure on perceived service quality essentially disappears (Hotelling's trace = 0.49, $p \geq 0.10$). Thus supporting our hypothesis (H5.3E) that employee motivation/vision mediates the effect of learning through service failure on perceived service quality.

5.4.2 Path Analyses

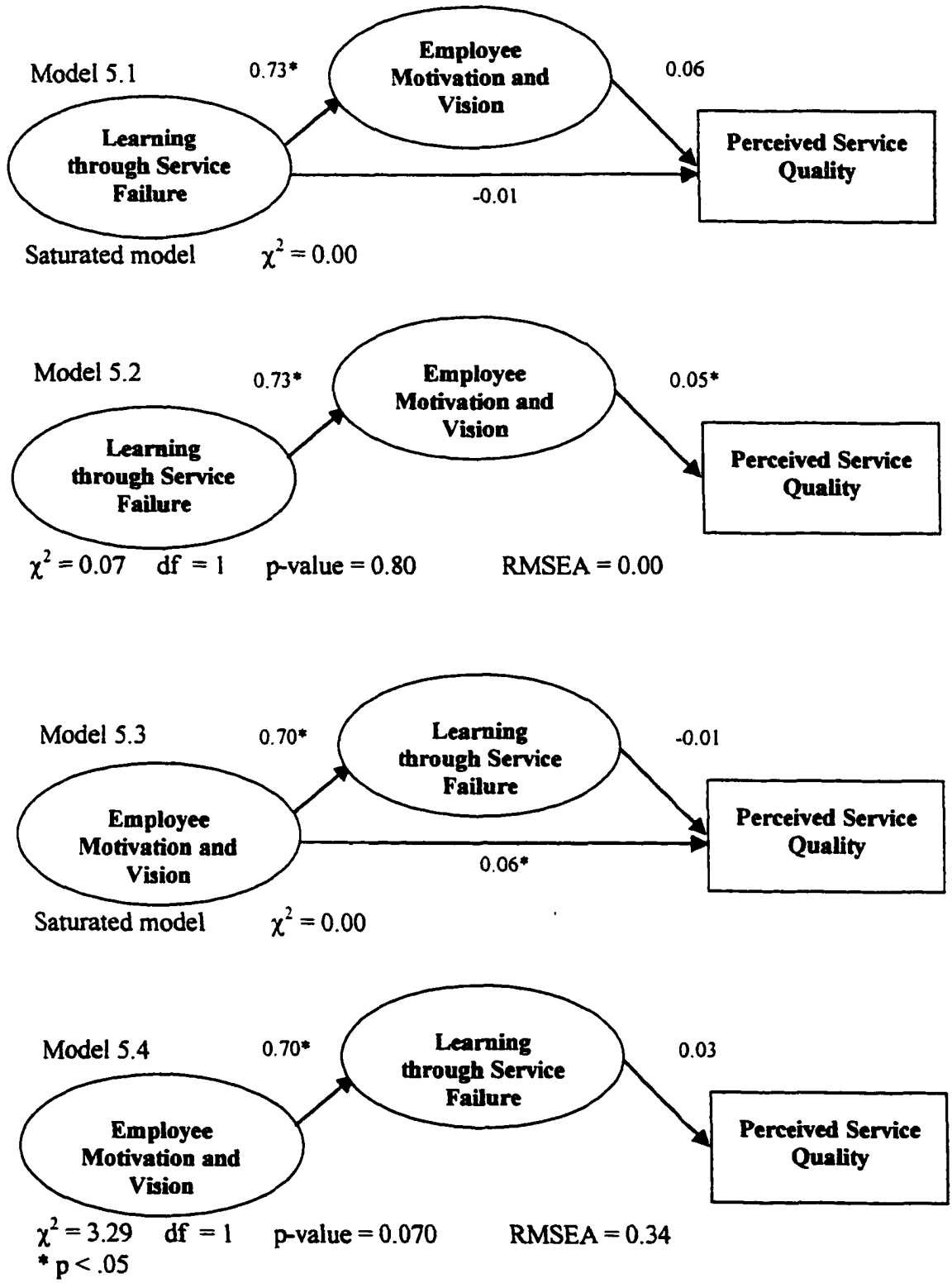
Structural equation modeling can be used to identify a nonrecursive relationship such as the one proposed by H5.3F. However, at least one predictor for each of the variables involved in the nonrecursive relationship must be unique (Marcoulides and Hershberger 1997). The small sample size of this study poses an additional problem; a maximum of only four parameters can reasonably be estimated. This makes the identification of a nonrecursive relationship impossible in this case. However, path models can be used to assess the plausibility of Hypothesis H5.3E by examining the level of fit obtained.

Figure 5.4 illustrates the path models that were estimated. Comparison of all the models shows that only in Model 5.2, where employee motivation/vision completely mediates the relationship between learning and quality, does learning through service failure significantly affect (directly or indirectly) perceived service quality. Because there is a strong theoretical basis for predicting that learning will significantly affect quality, only Model 5.2 is acceptable (Marcoulides and Hershberger 1997). Additionally, Model 5.2 evidences a high level of fit. Thus, the path analyses provide considerable support for accepting Hypothesis H5.3E employee motivation/vision mediates the effect of learning through service failure on perceived service quality.

5.5 Conclusions

Learning through service failure (LTSF) was found to have a significant positive effect on perceived service quality (PSQ), highlighting the importance of customer complaints to service firms. In many cases, customer complaints are viewed in a negative manner, as a reflection of poor service quality. This study illustrates the importance of complaints as a means of learning and improving service quality. Service firms would be wise to implement systems and procedures that not only encourage customer complaints, but also capture and employ the information

Figure 5.4 Path Analyses



contained in those complaints. Service firms with a greater ability to learn from their service failures will be able to achieve higher levels of service quality than their competitors.

Employee motivation/vision was not only found to have a significant positive effect on perceived service quality, it was also found to mediate the effect of learning through service failure on perceived service quality. Particularly in service firms, because of the interaction of customers and employees in the service process, the motivation and vision of employees drives perceived service quality. This research provides important empirical verification for both the effect of employee motivation/vision on service quality and the magnitude of that effect. Additionally, this research provides strong support for the mediating effect of employee motivation/vision in the relationship of learning through service failure to perceived service quality. Not only do service firms need to insure that their employees know the importance of service quality to the firm and are motivated to provide that quality in order to provide superior quality, the motivation and vision of the firm's employees also affects the success of procedures and systems designed to insure learning.

Academics need to be aware of and account for the effects of employee motivation/vision in any studies of organizational learning and/or service quality that they conduct. Practitioners and managers need to insure that continuing attention is paid to insuring that employees are motivated and have a clear vision of the importance of service quality to the firm, both to increase the effectiveness of organizational learning and to achieve high levels of perceived service quality.

CHAPTER 6

A Longitudinal Empirical Study of the Effect of a Service Guarantee on Employee Motivation/Vision, Service Learning, and Service Quality

6.1 Introduction

Service guarantees are endorsed by both practitioners (Ettorre 1994; Hart 1988) and academics (Albrecht 1990; Zeithaml et al. 1990) as a means for service firms to transform themselves into quality-focused, customer-driven, learning organizations. Service guarantees are claimed to strengthen both defensive and offensive marketing (Rust et al. 1992), positively impact corporate culture (Ettorre 1994), and speed organizational learning (Hill 1995). All of these, in turn, are claimed to drive service quality, customer satisfaction, customer loyalty, and, ultimately, financial performance.

Service guarantees are thought to have both offensive and defensive marketing impact (Hart 1993; Wirtz 1998). Offensive marketing reflects a company's ability to attract new customers and therefore increase its market share and profitability. Defensive marketing reflects a company's ability to increase customer loyalty and retention through customer satisfaction and recovery. Offensively, a service guarantee can reduce customer perceptions of risk and increase positive word-of-mouth, allowing the firm to charge premium prices or increase their market share (Albrecht 1990; Hart 1993; Wirtz 1998). Defensively, a strong service guarantee can increase both the proportion of customers who complain when they experience a service failure (Rust et al. 1992) and the proportion of customers who are recovered when they do complain (Fornell and Wernerfelt 1987; Fornell and Wernerfelt 1988; Hays and Hill 1999).

Service guarantees are also thought to positively affect both the culture and operations of the firm. Berry and Parasuraman (1991) and Hart (1990) assert that a service guarantee can effectively shape the culture of the organization. A strong service guarantee makes a powerful statement about the importance of service quality to the firm and empowers employees to insure customer satisfaction. Empowered employees with a clear vision of the goals of the firm are likely to be motivated employees (Marquardt and Reynolds 1994).

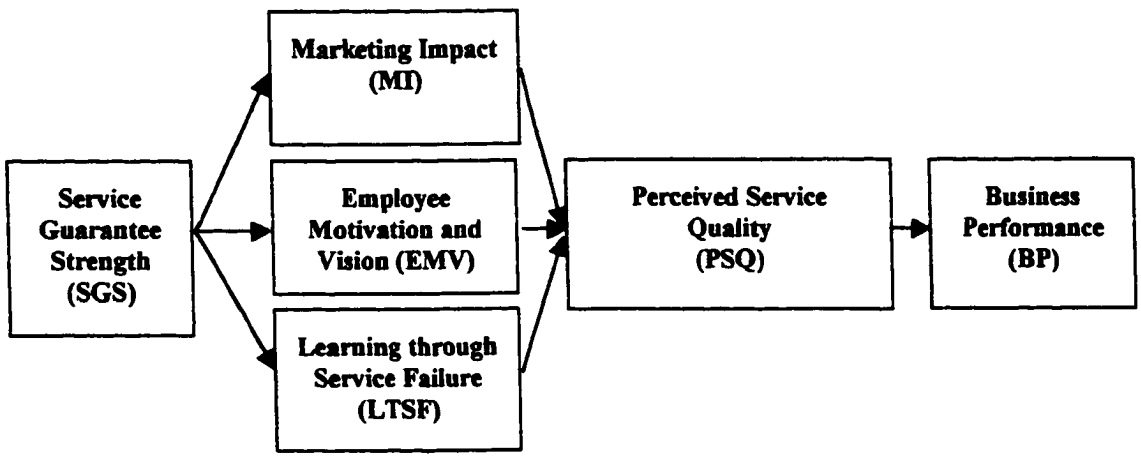
Hill (1995) argues that a service guarantee is a means to accelerate service quality improvement. A service guarantee can motivate the firm to learn and to improve service quality, in order to assure that customers are satisfied with the quality of the firm's offerings by highlighting the economic importance of continual improvement in service quality (Harvey 1998).

Improved marketing efforts, higher levels of employee motivation and vision, and increased service learning should result in higher levels of service quality and customer satisfaction. When customers are satisfied with a firm's service offering they are more likely to repurchase and generate positive word-of-mouth (Jones and Sasser 1995). Thus, a service guarantee can positively affect the performance of the firm.

Although some research suggests that a service guarantee might not improve service quality or performance (Roth et al. 1997), many firms claim their service guarantee programs have provided a tremendous boost to both service quality and financial performance (Appendix I). However, because no rigorous, theory-driven, empirical study of service guarantees has been conducted to date, academics and practitioners can only speculate as to how service guarantees might impact service quality and firm performance. This research represents an important first step towards empirical validation of the hypothesized positive effects of a service guarantee.

We have developed a framework (Figure 6.1) to illustrate how service guarantees affect service quality and business performance. In this model, we argue that a strong service guarantee

Figure 6.1 Service Guarantee/Business Performance Framework



service quality and business performance. In this model, we argue that a strong service guarantee improves Perceived Service Quality (PSQ) through three intervening variables: Marketing Impact (MI), Employee Motivation and Vision (EMV), and Learning through Service Failure (LTSF).

Although the model posits a positive effect of service guarantee strength on the marketing impact of the firm, the empirical research summarized in this paper does not directly address that relationship. This paper, instead, focuses on the effects of a service guarantee on employee motivation and vision and learning through service failure and their subsequent effect on perceived service quality (Figure 6.2). A more complete validation of the more inclusive framework is planned for future research.

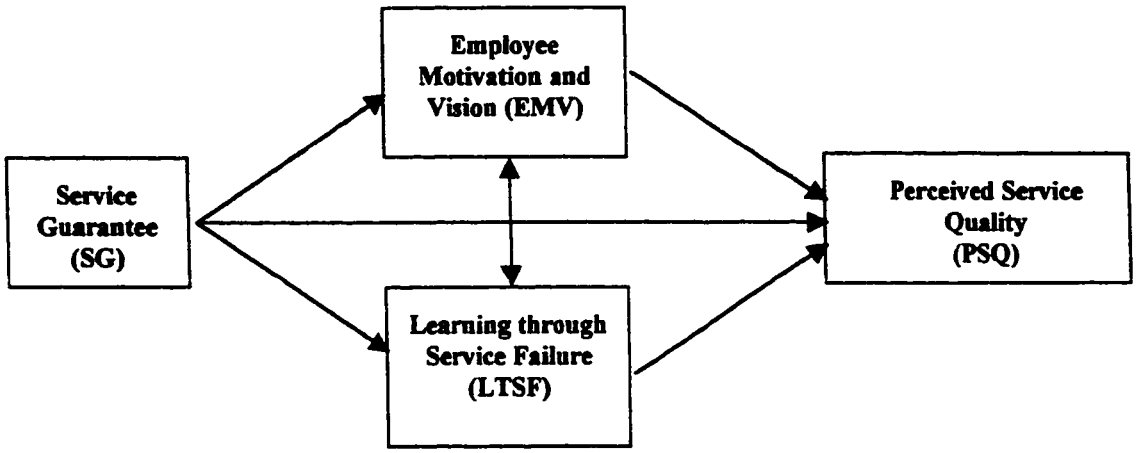
This paper, first, establishes a theoretical basis for the Service Guarantee/Business Performance Framework and hypotheses related to the empirical study are presented. The empirical study is then delineated, including the operationalization of the constructs and the psychometric properties of the measures of these constructs. The results of the hypotheses testing are presented. Finally, the implications of this research are discussed and directions for future research are considered.

6.2 Theoretical Development

6.2.1 Perceived Service Quality

A review of the service quality literature highlights the important dimensions of service quality. Zeithaml, Parasuraman, and Berry (1988) define perceived service quality as the gap between expectations of service quality and delivered service quality. They found five key dimensions of service quality: reliability, assurance, tangibles, empathy, and responsiveness (Zeithaml et al. 1990). Later research found that reliability and empathy were the two most important dimensions of service quality (Boulding and Kirmani 1993). The ACSI (Fornell et al. 1996) defines perceived quality as the degree to which a product or service provides key customer

Figure 6.1 Service Guarantee Empirical Study



requirements (customization) and how reliably these requirements are delivered (reliability).

Service guarantees could have a positive effect on customer satisfaction by managing customer expectations (Cahill and Warshawky 1995), ensuring responsiveness, forcing the firm to attain a high level of reliability, and providing tangible evidence of a firm's empathy. A guarantee makes non-quality visible (Harvey 1998), requires the firm to identify the performance expectations of customers, and continually focus on the changing expectations of customers. Additionally, higher levels of employee motivation and vision, increased service learning, and improved marketing efforts should also have a positive effect on perceived service quality. We state the hypothesis formally as follows:

H6.1: A Service Guarantee (SG) will have a positive effect on Perceived Service Quality (PSQ).

6.2.2 Employee Motivation and Vision

Motivational determinants include the role of leadership processes and job characteristics, as well as person/system fit, and situational constraints (Waldham 1994). Leadership theory, job characteristics, and goal theory all provide frameworks within which to evaluate the possible effects of a service guarantee on the motivation and vision of a firm's employees. Leadership theories are too numerous to even summarize here. However, five core leadership skills span these theories and are exhibited by effective leaders (Byrd 1987). They include vision, value-congruence, and empowerment.

Service guarantees can provide vision and value-congruence by communicating to employees the level of service that the firm intends to offer to its customers (Cahill and Warshawky 1995). A service guarantee provides tangible evidence to all employees of the importance of service quality to the firm by "punishing" the firm for service quality lapses. The recovery side of the service guarantees can empower employees to satisfy customers.

The Job Characteristics Model (Hackman and Oldham 1980) can be summarized as

follows: job characteristics (skill variety, task identity, task significance, autonomy, and feedback from job) impact critical psychological states that are positively related to internal work motivation, "growth" satisfaction, general job satisfaction, and work effectiveness. These critical psychological states are experienced meaningfulness (the feeling by workers that their work is a significant contribution to the organization and society); experienced responsibility; and knowledge of results. A job's "motivating potential" can be enhanced by increasing the level of the core job characteristics and/or the critical psychological states (Oldham 1996).

Service guarantees can provide clear task identity, as well as emphasizing task significance resulting in higher experienced meaningfulness. Higher experienced responsibility can result from a service guarantee's explicit assumption of accountability. Service guarantees encourage and even reward customer feedback, possibly increasing workers' knowledge of results.

The main finding of goal theory research is that difficult goals lead to higher levels of task performance than do easy goals or no goals (Locke and Latham 1990). However, goal achievement requires both goal commitment and ability. Additionally, a goal can have no motivational effect without goal commitment (Locke et al. 1988). Performance was found to be positively related to goal commitment and negatively related to constraints (Klein and Kim 1998). A service guarantee can communicate to employees the level of management commitment to customer satisfaction (Wirtz 1998) and can provide a difficult goal for employees to strive towards. A service guarantee can empower employees to satisfy customers and, therefore, eliminate some of the constraints on achieving that goal. Thus, service guarantees could positively influence the motivation and vision of employees.

H6.2: A Service Guarantee (SG) will have a positive effect on Employee Motivation and Vision (EMV).

Alternately, a service guarantee could have no effect on employee motivation and vision. Many frontline service positions are low compensation positions and employees in those positions

may have minimal education. A service guarantee may have no effect on those employees. A service guarantee may even have a demotivating effect due to the constant flow of negative feedback from service guarantee invocations (Lewis 1993).

The courtesy, empathy, and responsiveness of service employees shape quality perceptions, particularly in service industries (Zeithaml et al. 1990). Motivated, empowered employees who have a clear vision of the importance of service quality to the firm should provide superior service quality.

H6.3: Higher levels of Employee Motivation and Vision (EMV) will have a direct positive effect on Perceived Service Quality (PSQ).

6.2.3 Learning through Service Failure

Organizations need the ability to learn quickly from both their employees and customers in order to survive in an increasingly competitive economy. If a firm can cultivate learning relationships with its customers, where customers teach the firm about their preferences and needs, it will likely have a significant competitive advantage (Federal Benchmarking Consortium 1997; Kotha 1995; Pine II et al. 1995). Indeed, Senge (1990) goes so far as to argue, "The rate at which organizations learn may become the only sustainable source of competitive advantage."

Argyris and Schon (1978) define organizational learning as "the detection and correction of errors." Although organizations can learn in many ways, this study is focused on organizational learning through service failure (i.e., customer complaints). Because of the intangible nature of services, customer complaints are an important means of detecting service failures and can provide a significant opportunity for organizational learning (Fornell 1976).

Empowerment is critical in building a successful learning environment (Vogt and Murrell 1993), because it permits learning to happen through responsibility (Marquardt and Reynolds 1994). A service guarantee can empower frontline employees to satisfy customers after a service failure.

Learning has been conceptualized as a network of feedback loops (Marquardt and Reynolds 1994; Mellander 1993; Senge 1990; Stata 1989). Complaints can be viewed as opportunities for soliciting customer feedback (Plymire 1991). Service guarantees encourage and even reward customer complaints, thus systematically providing feedback on service failures (Lewis 1993). Indeed, Wirtz (1998) found that firms introducing a guarantee discovered and eliminated fail points.

H6.4: A Service Guarantee (SG) will have a positive effect on Learning through Service Failure (LTSF).

Perceptions of service quality are shaped by customer expectations. Because customer expectations and perceptions change from customer to customer as well as over time, organizational learning is needed to achieve and maintain superior service quality. Service guarantees, by "punishing" the firm for delivering poor service quality, can stress the firm to find the roots of service delivery problems and improve service quality and customer satisfaction (Maher 1991). Therefore, it can be argued that, firms with a greater ability to learn from service failures will offer higher levels of service quality.

H6.5: Higher levels of Learning through Service Failure (LTSF) will have a direct positive effect on Perceived Service Quality (PSQ).

However, as Huber (1991) notes, learning does not always increase the learner's effectiveness. In other words, if the firm does not acknowledge and act on the feedback provided by the service guarantee, perceived service quality will be unaffected.

6.2.4 Employee Motivation and Vision – Learning through Service Failure

Many experts (Senge 1990; Mellander 1993; Marquardt and Reynolds 1994)contend that employee motivation is an essential ingredient of learning organizations. Thus, service learning through failure could be posited to depend on the motivation and vision of the firm's employees,

where higher levels of motivation and vision positively influence organizational learning.

H6.6a: Employee Motivation and Vision (EMV) will have a positive effect on Perceived Service Quality (PSQ) through its effect on Learning through Service Failure (LTSF).

An examination of Hackman and Oldham's (1980) Job Characteristics Model leads to an opposite perspective. Job characteristics (in this case, feedback from job) impact critical psychological states (in this case, knowledge of results) that are positively related to internal work motivation, "growth" satisfaction, general job satisfaction, and work effectiveness. However, the type of learning we plan to investigate is learning from service failure. The feedback employees obtain from customer complaints is negative rather than positive. Negative feedback may have a demotivating effect, rather than a motivating effect (Wirtz 1998). Thus, employee motivation and vision could also be posited to depend on learning, through feedback from job and knowledge of results, where learning could either positively or negatively influence employee motivation and vision.

H6.6b: Learning through Service Failure (LTSF) will have a positive effect on Perceived Service Quality (PSQ) through its effect on Employee Motivation and Vision (EMV).

6.2.5 Marketing Impact

Service guarantees are thought to increase the likelihood of first time purchase and willingness to pay a premium price (Hart 1988), possibly because of the reduction of customer's perceptions of risk (Wirtz 1998). Additionally, service guarantees can result in increased positive word-of-mouth (Cahill and Warshawky 1995; Czepiel et al. 1985; Wirtz 1998). Thus, a service guarantee can positively affect the performance of a firm by allowing the firm to charge a premium price for its service and/or positively influencing the market share of the firm.

Economic models (Fornell and Wernerfelt 1987; Fornell and Wernerfelt 1988; Hays and Hill 1999) based on the "exit-voice" theory of Hirschman (1970), and case studies (Bell and

Zemke 1987; Jones and Sasser 1995; Zemke and Bell 1989; Zemke and Bell 1990) of complaint management have shown that firms should attempt to maximize the number of complaints from dissatisfied customers. Not only have service guarantees been shown to increase the proportion of unhappy customers who complain (Rust et al. 1992), but they also have the potential to increase the proportion of customers who are recovered (Fornell 1976; Hays and Hill 1999).

Once a customer has experienced a service failure, the recovery effort has been found to have a direct effect on satisfaction, repurchase intentions, and word-of-mouth (Kelley et al. 1993; Spreng et al. 1995). It has been shown that the more negative a consumer's perception of responsiveness to consumer complaints, the more likely that individual is to engage in negative word-of-mouth (Blodgett et al. 1995; Richins 1983) and/or exit (Singh 1990).

Service guarantees, by increasing the proportion of customers who complain, as well as the proportion of customers who are recovered, could both decrease negative word-of-mouth and/or exit and increase positive word-of-mouth and customer perceptions of service quality. Thus a service guarantee could positively impact the marketing strength of the firm.

However, because the marketing impact of the service guarantee was not measured in this research, there is no way to separate the direct effect of the service guarantee on perceived service quality from the indirect effect through marketing impact. Therefore, the hypotheses related to the marketing impact of the service guarantee are confounded with the direct effect of the service guarantee on perceived service quality.

> H6.7: A Service Guarantee (SG) will have a direct positive effect on Perceived Service Quality (PSQ) and/or an indirect positive effect on Perceived Service Quality (PSQ) through Marketing Impact (MI).

Alternately, a service guarantee could have no effect on the marketing strength of the firm. Much of the value of encouraging customer complaints is in recovery, but customers who experience a critical service failure may be unrecoverable. Additionally, a service guarantee could

actually discourage customers. A service guarantee may be seen by consumers as an acknowledgement that failures occur and therefore increase the perceived risk of potential customers (Wirtz 1998). A guarantee may be offered as proof of improved quality performance; however, customers may view this "proof" as confirmation of the existence of lingering problems (Tucci and Talaga 1997).

6.2.6 Business Performance

Although this empirical study was focused on investigating the effect of a service guarantee on motivation, vision, and learning and their subsequent effect on perceived service quality it also has strong implications for the business performance of the firm. Higher levels of quality (Buzzell and Gale 1987; Capon et al. 1990; Fornell et al. 1996; Ittner and Larcker 1996; Phillips et al. 1983) have been found to be positively related to positive economic outcomes for the firm. Thus, the financial performance of the firm should be positively affected if a service guarantee is positively related to service quality.

6.3 Research Methodology

6.3.1 Data Collection

For theory building, Yin (1989) suggests the case study method consisting of exemplar or revelatory cases. A multi-national hotel chain implemented a service guarantee and allowed us to collect data from hotels in their system. Perceived service quality, employee motivation/vision, and learning through service failure were measured before and after the implementation of the service guarantee program. Both management and frontline personnel perceptions of employee motivation/vision and learning through service failure were surveyed. The firm also provided perceived service quality data, obtained from a large random sampling of hotel guests.

This is a quasi-experimental longitudinal design for studying a variance theory. This design

reflects an attempt to balance the threats to internal, external, statistical, and construct validity, given the availability of data. Construct and internal validity should result from the careful definition of constructs and relationships, as well as the design of the survey instrument (multi-item measurement of constructs, pilot testing and item reduction) and the use of multiple types of respondents and multiple measures for this study.

Although statistical validity is threatened by both random irrelevancies in experimental settings (individual outlets are subject to various environmental factors, systematic individual influences) and the random heterogeneity of respondents (all of the respondents are from a single firm), a multi-facility study within a single company is one means to control for specification error. While this approach has some costs in terms of external validity, specification error is controlled to a certain extent because the selected sample is homogeneous with respect to some potential omitted variables (Becker and Gerhart 1996). Additionally, the use of multiple raters within an organization can reduce random measurement error, unreliability, and method bias (Becker and Gerhart 1996).

Attempting to generalize the results of this study to other firms would be premature. Future work will be aimed at ensuring greater external validity by using the validated instrument across a range of firms. However, this research will enable us to refine both the instrument and the theory for further investigation.

6.3.2 Definition and Operationalization of Constructs

6.3.2.1 Service guarantee

The service guarantee construct was operationalized as a 0-1 variable. Data was collected before and after the implementation of the service guarantee.

Perceived service quality data was available in both the quarter prior to the implementation of the service guarantee and the quarter after the implementation of the service

guarantee for 53 hotels. The number of customer respondents for each hotel in each quarter ranged from 20 to 175, with an average of 125.

Employee motivation/vision and learning through service failure data from both management and frontline personnel was available both before and after the implementation of the service guarantee for 41 hotels. The number of employee respondents for each hotel before and after ranged from 3 to 55, with an average of 13.

However, because some hotels were not surveyed for employee motivation/vision and some hotels were not surveyed for customer satisfaction, data on customer satisfaction and employee motivation/vision both before and after the implementation of the service guarantee was available for only 18 of the hotels. Because the path analyses of this small (but adequate) data set gave us important insight into the relationships among the constructs, we do report the results with this subset of data. Where possible, results obtained from analyses of both of the larger and smaller data sets are reported. The larger data sets give very similar results to the small data set, providing additional support for our results.

6.3.2.2 Employee motivation/vision and learning through service failure

The constructs of employee motivation/vision and learning through service failure were measured with a survey instrument developed for this research. Academics and practitioners were consulted and the literature was reviewed to define the constructs of EMV and LTSF and to identify the dimensions of these constructs. Additionally, the literature was searched for existing valid and reliable measurement instruments/items (Hackman and Lawler 1971; Lawler and Hall 1970; Oldham 1996; Price 1972). Although none of the existing measurement instruments/items were found to be appropriate for this study, some of the underlying concepts were applied in the design of the items.

Motivation can be defined as the desire to achieve some goal. Mellander (1993) describes

vision as "a concordant view of the company's activities and goals, and of the direction of future trends." The employee motivation/vision construct reflects employee motivation to provide high quality service and the existence of a company-wide, all encompassing vision of the importance of high quality service. This construct is defined as:

> *The degree to which a firm's employees are motivated to provide high quality service and have a clear vision of the role that service quality plays in the company's overall strategy.*

The two dimensions associated with this construct are defined as:

Motivation: *The degree to which a firm's employees are motivated to provide high quality service.*

Vision: *The degree to which management has communicated priorities clearly and the firm's employees (managers through frontline workers) have an awareness of the key role that service quality plays in the company's strategy.*

Huber (1991) relates organizational learning to knowledge acquisition, information distribution, information interpretation, and organizational memory. Nevis, DiBella, and Gould (1995) condensed these dimensions to knowledge acquisition, dissemination, and utilization. Although organizations can learn in many ways, this study was focused on learning through service failure. Therefore, this construct is defined as:

> *The degree to which a firm is able to learn from its customers by discovering dissatisfied customers, collecting information from these customers, and improving their systems based on the information collected in order to improve the quality of its offerings.*

Three dimensions were identified for this construct:

Discovery: *The degree to which a firm is able to detect service failures.*

Data: *The degree to which a firm collects and communicates information on service failures.*

Improvement: *The degree to which a firm uses the failure information to improve quality.*

The identified dimensions of the EMV and LTSF constructs were operationalized with specific items (Table 6.1). Following Schneider et al. (1996), we focus on employee perceptions of practices within the organization, rather than individual employee attitudes. The responses were seven-point, anchored, agree-disagree Likert scales. In an attempt to increase the reliability of the scales, several items were reverse-scaled and items were randomized on the actual survey form.

A total of 1745 completed surveys were received from 90 different hotels. The hotel response rate for the "before" mailing was 85% and 91% of those hotels returned surveys for the "after" mailing. However, one third of those hotels had either implemented the guarantee prior to completing the "before" surveys or not yet implemented the service guarantee when completing the "after" surveys, reducing the number of hotels for which we had both before and after data to 41. A factor analysis of the data from only the 41 hotels gives similar results to the analysis reported below.

6.3.2.2.1 Construct Content Validity

Content validity represents the adequacy with which the content domain has been covered (Nunnally 1978). Construct content validity is insured, in part, through the careful design of a survey instrument. Item generation was grounded in theory through careful definition of both the constructs and their dimensions after an extensive literature review and many discussions with both academics and practitioners. The survey form itself was designed, pilot-tested, and redesigned where necessary. Although the determination of content validity is subjective and judgmental, these procedures should help to insure content validity (Emory 1980).

6.3.2.2.2 Factor Analysis

Exploratory factor analysis was used to assess both convergent and discriminant construct validity. Prior to performing the factor analyses, the suitability of the data for factor analysis was assessed. Factor analysis requires an approximate ratio of respondents/items of 10:1 (Tinsley and

Table 6.1 Constructs, Dimensions, and Items

Construct: Employee Motivation and Vision (EMV)

Dimension: Motivation

EMVM1	Our employees always make customer satisfaction their top goal.
EMVM2	Our employees go out of their way to listen when customers complain.
EMVM4	Our employees feel a strong sense of accountability and ownership for service quality.
EMVM5rs*	Customer satisfaction is not very important to my co-workers.

Dimension: Vision

EMVV1*	Our service quality priorities are always clear to our employees.
EMVV2	Our employees have a clear understanding of the role that service quality plays in helping our company compete in our market.
EMVV3*	We have very well-defined standards for service quality.

Construct: Learning Through Service Failure (LTSF)

Dimension: Discovery

LTSFDIS1	When a service problem occurs, we are almost always aware of the problem.
LTSFDIS2*	Our employees are very aware of customer complaints and why they occur.
LTSFDIS3rs*	Customers with a service problem **seldom** complain to us.
LTSFDIS4	Our systems catch all of our customers' complaints.

Dimension: Data

LTSFDATA1	We have accurate information on how many complaints we receive.
LTSFDATA2*	We have accurate information on why our customers complain.
LTSFDATA3*	Information on customer satisfaction trends is communicated to all of our employees.

Dimension: Improvement

LTSFIMP1*	Collecting customer feedback helps us to regularly improve our service quality.
LTSFIMP2	We have improved our service quality over the past year based on customer complaint information.
LTSFIMP3	Customer complaint information is used to help us eliminate future service problems.
LTSFIMP4*	When a customer complains to us, the cause of the problem is found and fixed quickly.
LTSFIMP5rs*	Customer complaints at our hotel occur over and over again for the **same** reasons.
LTSFIMP6	Our service quality is improving rapidly.

**The exploratory factor analysis resulted in elimination of these items from the final analysis.*

Tinsley 1987). With over 1745 respondents and 20 items, this requirement was met. Bartlett's test of sphericity was significant at the 0.001 level. The overall measure of sampling adequacy was 0.945 and individual measures were all above 0.91. All anti-image correlations were less than 0.3. Thus, this data met the fundamental requirements for factor analysis (Hair et al. 1998). The results reported here were obtained using principal components as the means of extraction and varimax as the method of rotation. Common factor extraction and/or oblique rotation gave similar results.

6.3.2.2.3 Outliers, Standardization and Purification

Although exploratory factor analysis does not require that the responses follow a normal distribution, departures from normality reduce the correlations between items. Therefore, responses for each item were transformed to obtain distributions that were closer to normal distributions (generally, most responses were squared). The responses were standardized and examined for outliers. To improve the interpretation of results, items were purified before being factor analyzed (Churchill 1979). Four items (LTSFDIS2, LTSFDIS3, LTSFDATA2, and LTSFIMP5) were eliminated from the subsequent analysis because their corrected item-total correlation was below 0.45.

6.3.2.2.4 Convergent and Discriminant Validity

An exploratory factor analysis was conducted on the 16 items that remained after purification. Two factors with eigenvalues greater than one (Nunnally 1978) were identified. All of these items loaded on their theoretically predicted factor to a greater extent than they cross-loaded on the other factor. However, removal of the items EMVM5, EMVV1, EMVV3, LTSFDATA3, LTSFIMP1, and LTSFIMP4 resulted in a "cleaner" solution with all items loading on their theoretical construct at greater than 0.55 and cross-loadings of less than 0.45. Therefore, to increase discriminant validity, these items were removed from further analysis. Additionally, the cumulative percent of variance explained was greater when these items were removed (Table

6.2).

Convergent validity was tested by factor analyzing the individual constructs for the entire data set, as well as before only and after only data sets, to determine whether all items in that construct load on a single factor (Table 6.2), again using the eigenvalue greater than one rule (Nunnally 1978). Both constructs exhibited convergent validity.

6.3.2.2.5 Measurement Bias

Factor analysis was also used to test for common respondent (all respondents are from a single firm), common method, and percept-percept bias. Podsakoff and Organ (1986) suggest that if a single factor explains most of the variance in the data when a factor analysis is performed on items with common respondents and/or common methods, the threat of bias is high. However, if a single factor does not explain a large portion of the variance, the threat of bias is small. The above factor analysis identified more than a single factor, indicating that the threat of these biases is small.

6.3.2.2.6 Additional Tests for Convergent and Discriminant Validity

Convergent validity was also evaluated by testing the lowest within group correlation to determine if it is significant at $p < 0.05$. The 10 remaining items all passed this test.

Discriminant validity exists if the average variance extracted for a construct is substantially higher than the squared correlation between that construct and the other constructs (Fornell and Larker 1981). The squared correlation between the two constructs was 0.36, considerably lower than the average variance extracted for either construct (Table 6.2).

6.3.2.2.7 Reliability

The reliability of both scales was evaluated with Cronbach's alpha. Both scales exhibited reliability with alpha values of 0.75 or greater for the entire data set (Nunnally 1978), as well as the before and after subsets (Table 6.2).

Table 6.2 Factor Loadings and Cronbach's Alpha for EMV and LTSF Scales

Item	Rotated Component Matrices All Items				Component Matrix Individual Scales		
	Initial Analysis		Final Analysis		Before & After	Before Only	After Only
	Factor 1	Factor 2	Factor 1	Factor 2			
EMV							
EMVM1	**0.77**	0.28	**0.82**	0.25	0.86	0.86	0.84
EMVM2	**0.71**	0.25	**0.78**	0.20	0.80	0.81	0.80
EMVM4	**0.72**	0.22	**0.76**	0.22	0.79	0.81	0.77
EMVM5	**0.66**	0.02					
EMVV1	**0.59**	0.49					
EMVV2	**0.70**	0.35	**0.75**	0.30	0.81	0.82	0.80
EMVV3	**0.58**	0.41					
% of Variance	26.28		28.67		66.92	68.30	64.48
Cronbach's Alpha					0.83	0.85	0.82
LTSF							
LTSFDIS1	0.14	**0.60**	0.19	**0.60**	0.62	0.62	0.62
LTSFDIS4	0.13	**0.70**	0.19	**0.70**	0.70	0.70	0.69
LTSFDATA1	0.08	**0.70**	0.08	**0.72**	0.65	0.64	0.66
LTSFDATA3	0.47	0.52					
LTSFIMP1	0.38	0.45					
LTSFIMP2	0.26	**0.54**	0.24	**0.57**	0.64	0.66	0.62
LTSFIMP3	0.36	**0.57**	0.36	**0.56**	0.69	0.70	0.67
LTSFIMP4	0.46	**0.59**					
LTSFIMP6	0.39	**0.64**	0.43	**0.64**	0.79	0.78	0.80
% of Variance		24.33		26.62	46.87	46.85	46.42
Cronbach's Alpha					0.77	0.77	0.76
Cumulative % of Variance		50.61		55.29			

***Bold** highlights factor loadings greater than 0.54.*

Reliability can also be evaluated with the average variance extracted for a scale; a reliable scale will exceed 0.50 (Bagozzi and Yi 1988). The employee motivation/vision scale passed this test (Table 6.2). Although the learning scale does not pass this test, it was very close to this threshold.

6.3.2.2.8 Formation of Summated Factor Scores

Simple summated factor scores for each construct (EMV and LTSF) were formed from the items identified by this analysis. Although both factor and reliability analyses identified identical constructs for both management and frontline personnel, a multivariate analysis found significant differences between management and frontline perceptions. In general, management perceptions of employee motivation/vision were lower than frontline perceptions and management perceptions of learning through service failure were higher than frontline perceptions. Therefore, the mean of each item for both management and frontline personnel was calculated for every hotel. The mean management score and the mean frontline score were averaged to form an average item score for each hotel. The item scores were then summed to form two simple factor scores (one for each construct) for each hotel. The employee motivation/vision factor score was obtained from the following items: EMVM1, EMVM2, EMVM4, and EMVV2. The learning through service failure construct was formed from the following items: LTSFDIS1, LTSFDIS4, LTSFDATA1, LTSFIMP2 LTSFIMP3, and LTSFIMP6. These summated factor scores were used in the subsequent tests of the research hypotheses.

6.3.2.3 Perceived Service Quality

Service quality, customer satisfaction, and customer retention/customer loyalty are intimately related and difficult to separate concepts. In anything other than a monopoly situation, it can be argued that customer loyalty, or intent to repurchase and willingness to recommend, are measures of customer satisfaction and/or perceived service quality. Jones and Sasser (1995) argue

that, "levels of satisfaction ... are a good indicator of the level of quality ... that they (customers) are receiving." They extend this argument by asserting that only completely satisfied customers are loyal customers. Viewed from the opposite perspective, this implies that intent to repurchase, willingness to recommend, and customer satisfaction are all reflections of perceived service quality.

Additionally, Hensley (1999) argues, "if the research is focused on an OM measure that is available from the organization, then the obvious choice should be to use the measure already developed by the organization." Given the difficulty in separating the concepts of perceived service quality, customer satisfaction, and customer loyalty, as well as data availability, the research was based on the premise that a customer who intends to repurchase, is willing to recommend, and is more than satisfied with the firm's offerings perceives that the firm offers superior service quality.

The perceived service quality construct, therefore, is based on customer response to the following questions:

WTRT "How willing are you to return to a *Brand* hotel?" The response is a five point anchored scale with 1 = definitely would not, 3 = undecided, and 5 = definitely would not.

WTR "How willing are you to recommend this hotel to others?" The response is a ten point anchored scale with 8-10 = excellent/good, 5-7 = fair, and 1-4 = poor.

OSS "In general, how satisfied were you with your experience at this hotel?" The response is a ten point anchored scale with 8-10 = excellent/good, 5-7 = fair, and 1-4 = poor.

The hotel organization commissioned a third party survey firm to collect this data via telephone surveys of a random sampling of hotel guests. Data was available for 139 hotels in 633 quarters. The number of customer respondents for each hotel in each month ranged from 20 to

180 with an average of 125. The response rate was not reported to us by the organization.

6.3.2.3.1 Construct Content Validity

Content validity represents the adequacy with which the content domain has been covered (Nunnally 1978). Construct content validity is insured, in part, through the use of multiple items and multiple raters. Additionally, this measure should be both more reliable and valid than other commonly employed measures, because it is based on *customer* perceptions of service quality rather than *employee* perceptions of service quality.

6.3.2.3.2 Convergent Validity

Exploratory factor analysis was used to assess convergent construct validity. Prior to performing the factor analyses the suitability of the data for factor analysis was assessed. Bartlett's test of sphericity was significant at the 0.001 level. The overall measure of sampling adequacy was 0.73 and individual measures were all above 0.66. Thus, this data meets the fundamental requirements for factor analysis (Hair et al. 1998). The results reported here were obtained using principal components as the means of extraction and varimax as the method of rotation. Common factor extraction and/or oblique rotation gave similar results.

All three items in this construct load on a single factor with eigenvalue greater than one (Table 6.3). Thus, this construct exhibits convergent validity (Nunnally 1978).

6.3.2.3.3 Reliability

The reliability of this scale was evaluated with Cronbach's alpha. This scale had alpha value of 0.97 (Table 6.3). The average variance extracted for this scale was 0.93, greatly exceeding the reliability level of 0.50 (Bagozzi and Yi 1988). Thus, this construct exhibits reliability.

6.3.2.3.4 Formation of Summated Factor Score

A simple summated factor score for this construct (PSQ) was formed from the three items

Table 6.3 Factor Loadings and Cronbach's Alpha for PSO Scale

Item	Factor Loadings
WTR	0.97
OSS	0.91
WTRT	0.93
Eigenvalue	2.82
% of Variance Explained	93.94
Cronbach's Alpha	0.97

analyzed above. The mean item scores were summed to form a simple factor score for each hotel in each quarter.

6.4 Results

Paired t-tests and repeated measures MANOVA analyses were used to test some of the hypothesis. Regression analysis was performed to test additional hypotheses as well as to obtain input for path analyses. Prior to the regression analyses all of the data was evaluated for normality and examined for outliers. The LTSF scale suffered from departures from normality; however, no reasonable transformation could be found to obtain normality. All of the other scales were normally distributed. One outlier was found for PSQ and it was eliminated. Residual analysis was performed for all regressions and no departures from the linear regression model were found.

6.4.1 Service Guarantee – Perceived Service Quality

To investigate the effect of the service guarantee (SG) on perceived service quality (PSQ) the PSQ summated factor score was plotted against time (Figure 6.3). It is apparent from this graph that perceived service quality increased with the implementation of the service guarantee.

Paired t-tests of PSQ were performed to test hypothesis H6.1. PSQ scores were compared for the quarter before the guarantee was implemented and the quarter after the guarantee was implemented; the two quarters prior to the implementation of the guarantee; and the two quarters after the guarantee was implemented (Table 6.4). The test is significant ($p < 0.01$) for the before and after comparison. Additionally, the test was not significant when comparing before to before and after to after. Thus, hypothesis H6.1 was not rejected and we conclude that the service guarantee had a positive effect on perceived service quality.

Regression analysis was performed on both the large (53 hotel) data set and the smaller (18 hotels) subset for which employee data is available (Table 6.5). It is important to note that,

Figure 6.3 PSQ versus Time

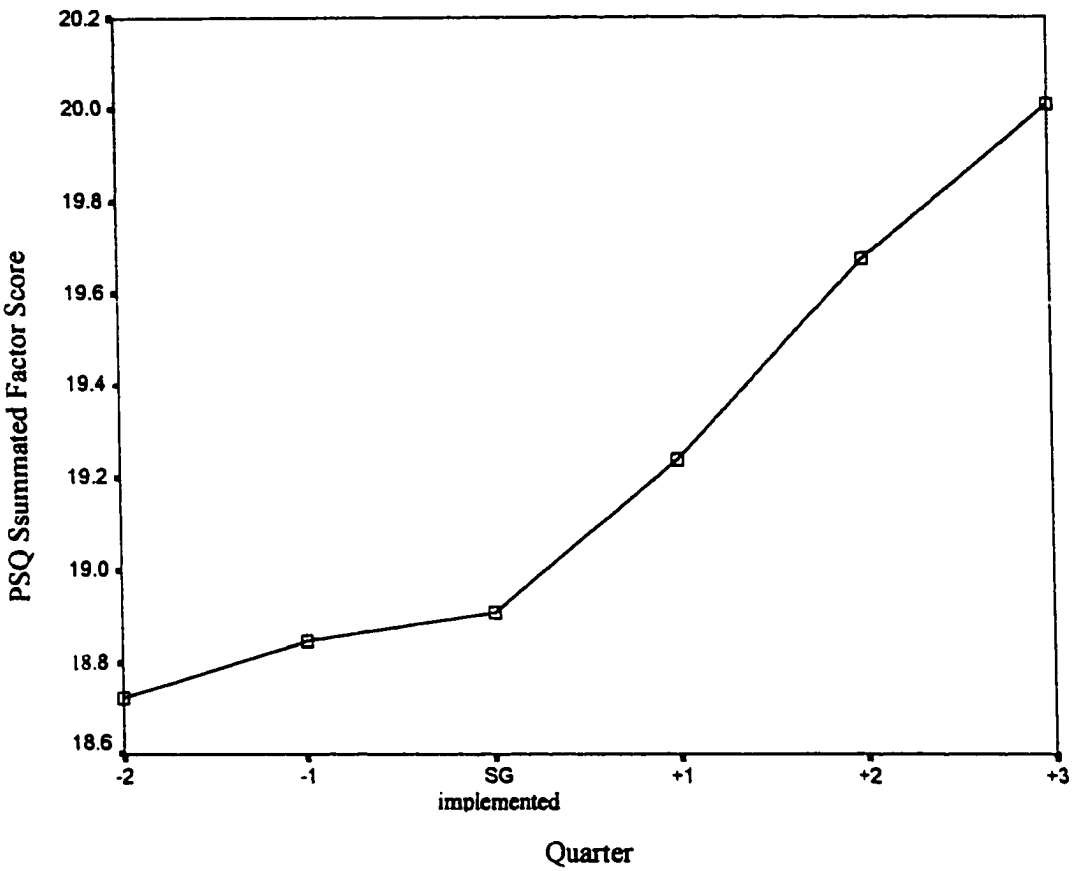


Table 6.4 Paired Sample t-tests for PSQ

Pair	Mean Difference	Standard Deviation	*n*	*t*-value
1 Quarter Before and 2 Quarters Before	0.004	0.825	38	.028
1 Quarter Before and 1 Quarter After	0.474*	1.247	53	2.764
1 Quarter After and 2 Quarters After	0.153	1.132	26	0.689

$p < 0.01$ (2-tail)

although the effect of the service guarantee is not significant in the regression analysis of the smaller data set, a paired t-test of PSQ before and after the implementation of the service guarantee for the smaller data set *was* significant ($p < 0.10$). Both data sets gave similar results; the service guarantee increased the average perceived service quality factor score by 0.5 point. The results of these regressions were used as input to the subsequent path analysis.

6.4.2 Service Guarantee – Employee Motivation/Vision and Learning through Service Failure

The service guarantee is hypothesized to affect both EMV and LTSF. Therefore, a repeated measures MANOVA analysis was performed with EMV and LTSF as the dependent variables and SG as the independent variable in order to test hypotheses H6.2 and H6.4. Although this analysis showed significant positive differences before and after the guarantee for the multivariate model (Hotelling's trace = 4.31, $p \leq 0.02$), the univariate analysis showed that only EMV was significant. Additionally, a univariate analysis of a repeated measures MANOVA with the individual items that make up the EMV and LTSF scales showed significant positive differences only for items in the EMV scale. Thus, hypothesis H6.2 is supported; the service guarantee was found to have a positive effect on employee motivation and vision. However, hypothesis H6.4 was not supported; the service guarantee was not found to affect learning through service failure.

Regression analysis was performed on both the large (41 hotel) data set and the smaller (18 hotel) subset for which perceived service quality data was available (Table 6.5). Again, both the small data subset and the larger data set give similar results; the service guarantee does not directly affect learning through service failure, but it does have a significant positive effect on employee motivation and vision, increasing the EMV factor score by one point.

Although there is theoretical and anecdotal support for the positive affect of a service

Table 6.5 Regression Analyses

Dependent Variable	Intercept	Independent Variable Coefficients				*r*	*n*
		SG	EMV	LTSF	EMV*LTSF		
PSQ	18.38	0.47***				0.166	106
PSQ	18.78	0.53				0.189	36
LTSF	31.23	0.11				0.016	82
LTSF	31.40	0.55				0.092	36
EMV	22.08	0.88*				0.209	82
EMV	22.33	1.13*				0.293	36
PSQ	1.01		0.99	0.28	-0.02	0.445	36
PSQ	13.76		0.38**	-0.11		0.439	36
PSQ	18.07			0.03		0.063	36
PSQ	12.52		0.28**			0.391	36
EMV	9.99			0.40****		0.621	82
EMV	11.21			0.37****		0.577	36

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$, ****$p < 0.001$

guarantee on learning through service failure, this study does not affirm that effect. However, it is possible that the service guarantee positively affects service learning through failure without affecting employee perceptions of service learning. In other words, the firm may be learning from their failures and improving service quality but not publicizing this learning and, therefore, not affecting employee perceptions of learning. It is also possible that knowledge of service learning takes time to be evidenced and the time frame of this study was not sufficiently long enough for those effects to be seen.

6.4.3 Employee Motivation/Vision and Learning through Service Failure – Perceived Service Quality

Regression analyses were performed to determine the effect of EMV and LTSF on PSQ. Initially, PSQ was regressed on EMV, LTSF, and the EMV-LTSF interaction. The interaction effect was not significant, allowing us to eliminate the possibility of a moderation effect. Next, PSQ was regressed on EMV and LTSF. Although the regression was significant ($p < 0.05$), only the EMV effect was significant. Regressing PSQ on EMV showed that EMV has a significant positive effect on PSQ. Thus we reject hypothesis H6.5 and accept hypothesis H6.3. Employee motivation and vision has a significant direct positive effect on perceived service quality. However, learning through service failure was not found to have a direct effect on perceived service quality.

6.4.4 Path Analyses

Path analyses were used to investigate the relationships among the constructs, as well as to test the remaining hypotheses. Although it would be desirable to have a larger data set, the minimum requirement of 5 observations per parameter estimated is met with this data. Additionally, the regression analyses of the larger data sets provide evidence that the smaller data set is adequate.

Initially, a saturated model was estimated (Figure 6.4). While this model fits perfectly, the

paths from SG to LTSF, LTSF to PSQ, and the direct path from SG to PSQ are not significant. Additionally, the path from LTSF to PSQ has a sign that is opposite to that predicted by theory. Therefore, the paths from SG to LTSF and LTSF to PSQ were eliminated and the model was re-estimated.

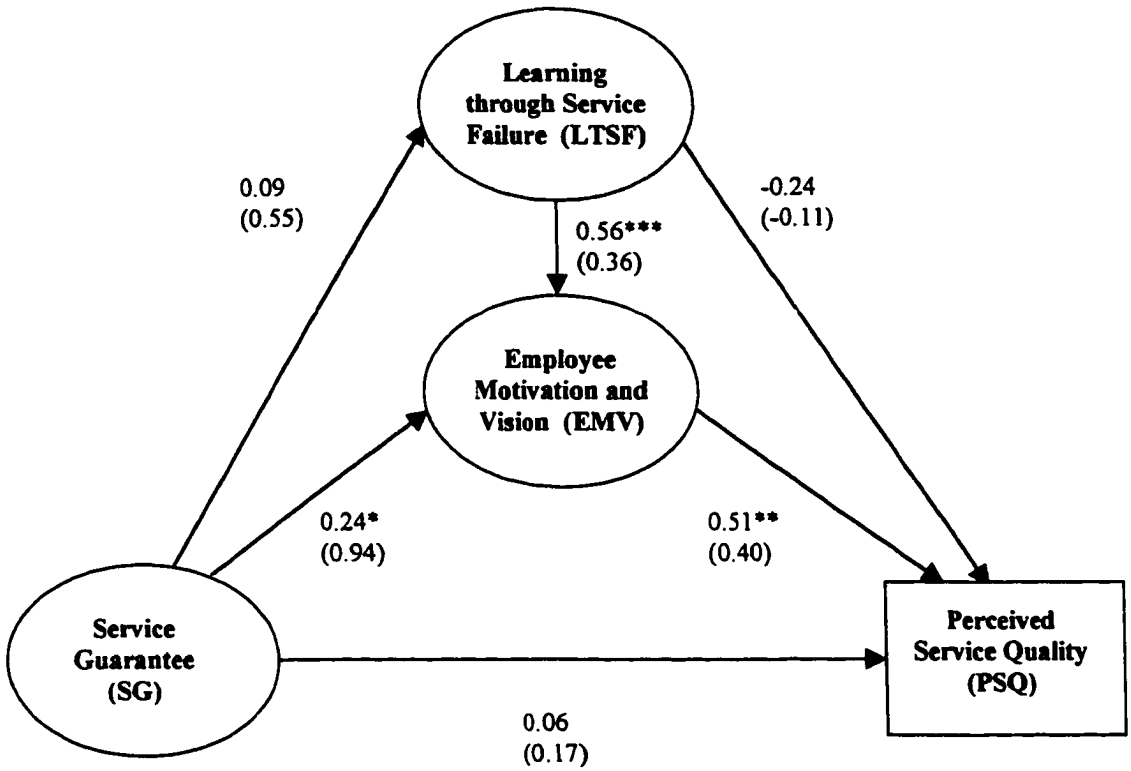
A reduced path model was estimated (Figure 6.5). These are nested models and therefore the change in χ^2 can be evaluated to determine if the paths are significant. The χ^2 difference of 1.61 is not significant, allowing us to conclude that the eliminated paths are not significant. Thus, the path analysis supports our previous rejection of hypotheses H6.4 and H6.5; the service guarantee did not affect employee perceptions of learning through service failure and learning through service failure does not directly affect perceived service quality. The path analysis also supports hypothesis H6.6b; learning through service failure has a positive effect on perceived service quality through its effect on employee motivation and vision.

The direct path from SG to PSQ is again not significant in this reduced model. Therefore, this path was eliminated and the model was re-estimated. This "fully reduced" model (Figure 6.6) and the reduced model are nested. The χ^2 difference of 0.26 is not significant, supporting the elimination of this path. However, given the small sample size as well as the underlying theory, both of these models were evaluated for model fit. All paths in the fully reduced model are significant, so no further model reductions were attempted.

Table 6.6 contains the data for the analysis of model fit. Although the final model (without the direct path from SG to PSQ) appears to fit better, the reduced model also has adequate fit. These path analyses indicate that the service guarantee affects perceived service quality only through its effect on EMV. However, this conclusion may be premature.

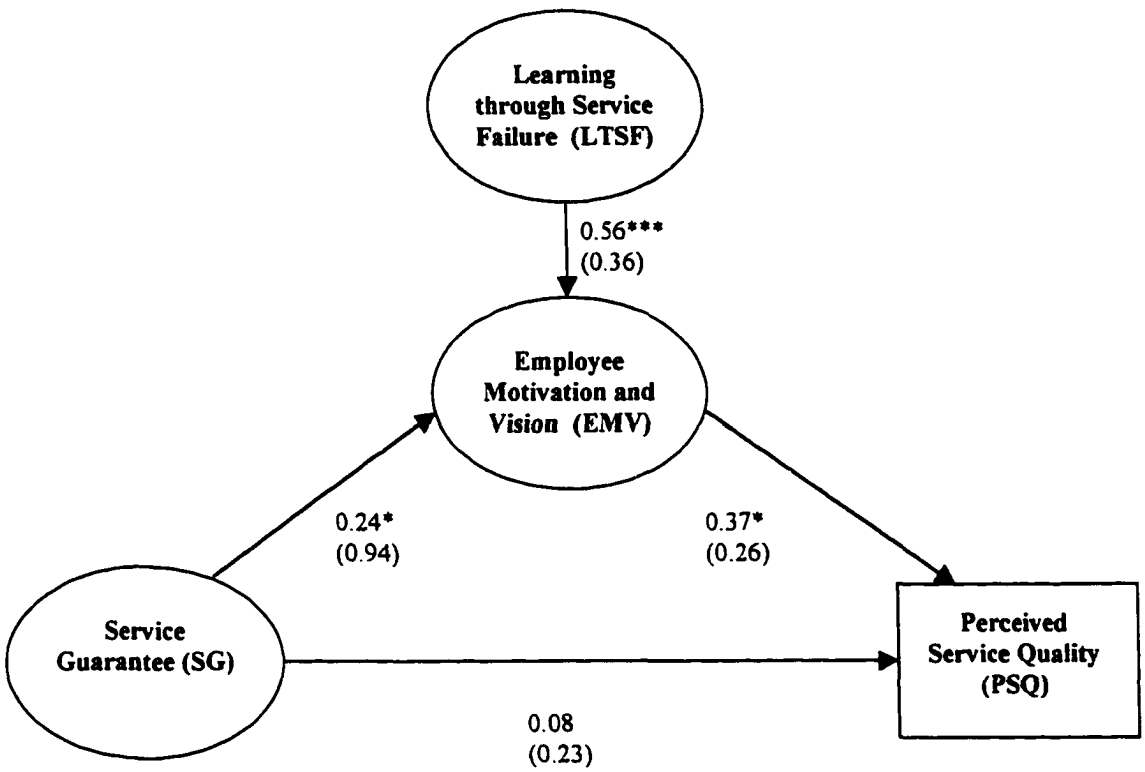
The direct path from SG to PSQ is representative of both the direct effect of the service guarantee on perceived service quality and the marketing impact of the service guarantee on

Figure 6.4 Saturated Path Model



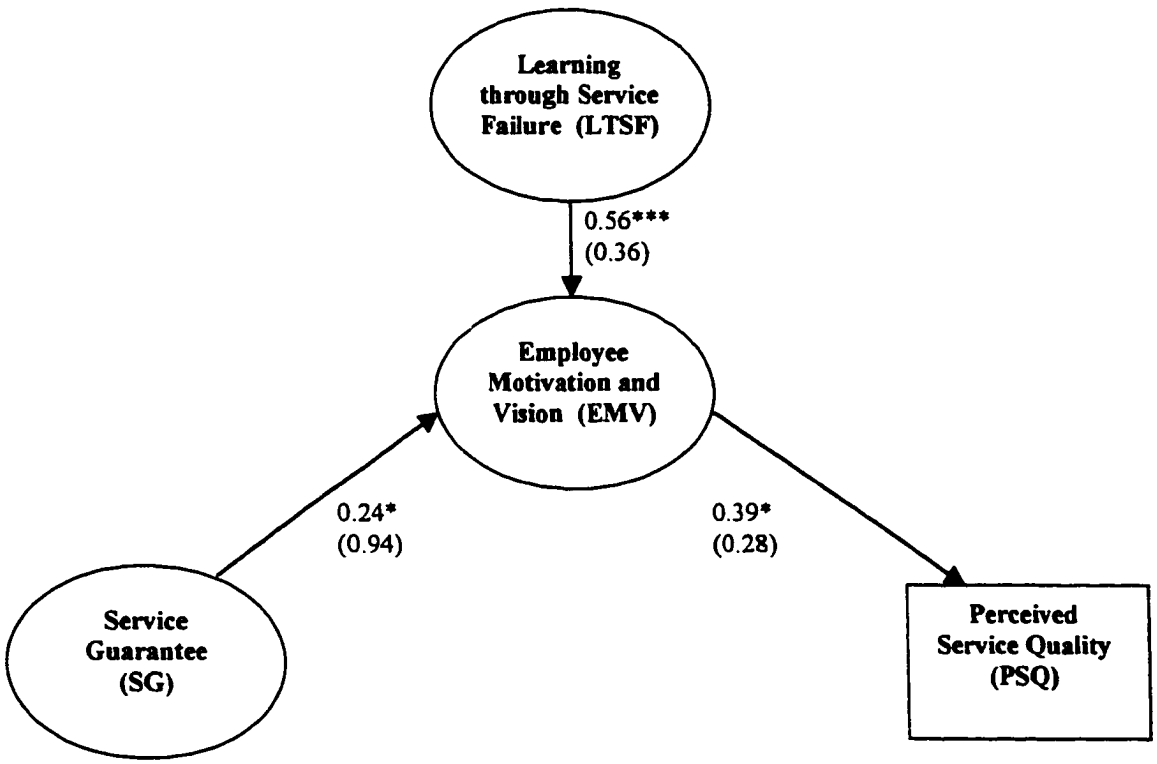
$\chi^2 = 0.00$ df = 0 p-value = 1.00 RMSEA = 0.00 $n = 18$
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, 1 tail t-test
(unstandardized path coefficients in parentheses)

Figure 6.5 Reduced Path Model



$\chi^2 = 1.61$ df = 1 p-value = 0.20 RMSEA = 0.14 $n = 18$
$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ 1 tail t-test
(unstandardized path coefficients in parentheses)

Figure 6.6 Fully Reduced Path Model



$\chi^2 = 1.87$ df = 2 p-value = 0.39 RMSEA = 0.00 $n = 18$
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, 1 tail t-test
(unstandardized path coefficients in parentheses)

Table 6.6 Model Fit

Test	Model		Acceptable Parameter Level (Hair et al. 1998)	Desirable Parameter Level (Hair et al. 1998)
	Reduced	Final		
χ^2 p-value	0.20	0.39	> 0.05	> 0.15
GFI	0.98	0.97	close to 1 is better	
RMSR	0.05	0.06	close to 0 is better	
RMSEA	0.14	0.00	< 0.10	<0.05
AGFI	0.77	0.87	> 0.90	
NFI	0.94	0.92	> 0.90	
NNFI	0.80	1.01	> 0.90	
CFI	0.97	1.00	close to 1 is better	
Normed χ^2	1.61	1.87	1 < x < 5	1 < x < 2

perceived service quality. The firm has not advertised the service guarantee. Therefore, the marketing impact is dependent on word-of-mouth and customer recovery/retention. A longer period of time may be required for evidence of the impact of these effects to appear. An examination of Figure 6.3 indicates that perceived service quality is continuing to increase in the second and third quarter after the implementation of the service guarantee. However, because this study is based on the comparison of the quarter before and the first quarter after the implementation, this effect may not appear to be significant. The path from SG to PSQ would be significant if the increase in PSQ score is twice what was observed (not unreasonable, given the evidence in Figure 6.3). Therefore, definitive conclusions about hypothesis H6.7 will not be attempted here.

6.5 Conclusions

This longitudinal study provides compelling empirical evidence that a service guarantee (SG) has a significant positive effect on both perceived service quality (PSQ) and employee motivation and vision (EMV). Additionally, this study provides evidence that learning through service failure (LTSF) positively affects perceived service quality through its impact on employee motivation and vision (EMV).

Employee motivation/vision was not only found to have a significant positive effect on perceived service quality, it was also found to mediate the effect of learning through service failure on perceived service quality as well as the effect of a service guarantee on perceived service quality. Particularly in service firms, because of the interaction of customers and employees in the service process, the motivation and vision of employees drives perceived service quality. This research provides important empirical verification for both the effect of employee motivation/vision on perceived service quality and the magnitude of that effect.

Although this study found that a service guarantee does not affect employee perceptions

of learning through service failure, it does provide strong support for the mediating effect of employee motivation/vision in the relationship of learning through service failure to perceived service quality. Not only do service firms need to insure that their employees know the importance of service quality to the firm and are motivated to provide that quality in order to provide superior quality, the motivation and vision of the firm's employees also affects the success of procedures and systems designed to insure learning.

Service firms would be wise to implement systems and procedures that not only encourage discovery of service failure, but also capture and employ this information. Service firms may also benefit from making employees aware of the learning that is taking place in order to reinforce the learning cycle. Service firms with a greater ability to learn from their service failures will be able to achieve higher levels of perceived service quality than their competitors.

Academics need to be aware of and account for the effects of employee motivation/vision in any studies of organizational learning and/or perceived service quality that they conduct. Practitioners and managers need to continually insure that employees are motivated and have a clear vision of the importance of service quality to the firm, both to increase the effectiveness of organizational learning and to achieve high levels of perceived service quality.

Most importantly this research provides empirical evidence that a service guarantee can have a positive effect on both employee motivation/vision and perceived service quality. Although both practitioners and academics endorse service guarantees as a means of improving service quality and there is a large base of anecdotal evidence in support of this relationship, this is the first rigorous study providing empirical evidence of the positive effect of a service guarantee on perceived service quality. In an increasingly competitive environment, where it is necessary to insure increased perceived service quality, service firms would be wise to consider offering a service guarantee.

CHAPTER 7

Conclusion

7.1 Contributions of this Research

The popularity of guarantees seems to be growing rapidly. Numerous examples of both large and small firms offering explicit service guarantees can be found in the literature (Appendix I). There is a large base of anecdotal evidence from firms who claim that their service guarantee programs have improved both their service quality and their financial performance. Some contradictory anecdotal evidence exists as well. However, no rigorous, theory-driven, empirical research study of service guarantees had been conducted prior to this study. Consequently, both academics and practitioners could only speculate as to how service guarantees might impact service quality and firm performance.

Practitioners and academics have postulated the positive effect of service guarantees on perceived service quality, customer satisfaction, customer loyalty, and firm performance. This research allowed us to develop and test a theory for understanding how services guarantees affect learning through service failure, employee motivation/vision, and marketing impact as well as their subsequent effect on perceived service quality, customer satisfaction/loyalty and, ultimately, firm performance. The development of a rigorous, empirically tested, theoretical framework for evaluating the effects of a service guarantee on corporate culture, quality, and marketing strength enables management scholars to obtain a deeper understanding of the principles and practices associated with successful and unsuccessful attempts to achieve quality.

Chapter 4 of this dissertation provides theoretical support for the positive impact of defensive marketing strategies/systems on customer satisfaction and firm performance. The mathematical model demonstrates that programs which increase customer complaints and

recovery (for example, a service guarantee) will positively impact firm market share. Thus, the model provides support for the positive effect of a service guarantee on customer satisfaction/loyalty and, subsequently, firm performance.

Chapter 5 of this dissertation provides important insights into the relationships between learning through service failure, employee motivation/vision, and perceived service quality. This cross-sectional, empirical study found that both employee motivation/vision and learning through service failure positively affect perceived service quality. Additionally, this study found that employee motivation/vision mediates the effect of learning through service failure on perceived service quality. Thus, this study not only provides empirical support for the positive effect of employee motivation/vision and learning through service failure on perceived service quality, it also helped to define the relationships between these concepts.

Chapter 6 of this dissertation builds on the insights obtained in the previous chapters to further define and test the theoretical framework developed. This longitudinal empirical study validates the positive effect of a service guarantee on perceived service quality modeled in Chapter 4. This study also validates the relationships defined in Chapter 5. Additionally, this study provides further insights into the proposed service guarantee/business performance framework. In particular, the study allows us to reject the proposition that employee perceptions of learning through service failure mediate the effect of the service guarantee on perceived service quality and validates the proposition that employee motivation/vision mediates the effect of the service guarantee on perceived service quality.

The potential of this research to inform practice is significant. In a sense, all firms have service guarantees, either implicit or explicit, but the strength of those guarantees differs among firms. The finding that a service guarantee has a positive effect on employee motivation/vision, as well as a positive "bottom line" effect on perceptions of service quality, will highlight for firms

the importance of managing their service guarantee.

7.2 Directions for Future Research

Additional investigation/analyses of the data collected for these studies is planned for the future. This includes: an analysis of the relationship between comment card evaluation of customer satisfaction/loyalty and the Gallup data, aimed at determining the reliability of comment card data; a hierarchical analysis of both the employee data and the Gallop data, aimed at determining/separating individual hotel effects from the effect of the service guarantee; and an additional analysis of the hypothesized relationships, where the employee and customer data is more closely matched in time, rather than merely before and after the implementation of the service guarantee.

The research documented here forms an integral part of the larger National Science Foundation, Transformations to Quality Organizations funded research. The studies planned for the NSF grant would extend this research by determining the effect and measurement of service guarantee strength on both financial and non-financial measures of firm success, through both pilot studies and a large random survey of US service firms, using the measures and theoretical framework developed in this research.

Additional possibilities for future research include: investigation of service guarantees in the health care industry with respect to both health outcomes and patient satisfaction; development and empirical testing of a mathematical model for optimal delivery time guarantees; empirical testing of the service satisfaction/market share model; and further development and empirical testing of the combined business strategy, operations strategy, and learning through service failure paradigm framework.

APPENDIX I

Companies with Service Guarantees, Notes, and Literature References

AMC Theater, theater (Albrecht 1990)

Allied Van Lines, $100 for day of delay (Hart 1993)

Ameritech, telephone, Ameritech recently filed tariffs in each of its states for enhancements to its custom 800 service. The proposed enhancements include a service guarantee (O'Shea 1993)

Bain & Co., consulting, some unconditional (Hart 1993)

Blue Valley Welding Supply, Inc. (Maher 1992)

Boston Chicken Inc., a new recovery program for an ailing Boston Chicken Inc., eliminating discounts and offering a 100% satisfaction guarantee. (Papiernik 1998)

Brighton Colorado Police Department, includes the concept of the customers being right. The police department has developed a service guarantee (Galloway 1992)

Brunswick Recreation Centers, replace damaged balls and waive cost of interrupted games (Hart 1993)

Celtic Life Insurance Co., includes some plan enhancements and a service guarantee (Koco 1990)

Connecticut Life & Casualty Insurance Co., the insurer is printing a competitive price and service guarantee on every policy it issues (Arndt 1990)

Curtis Mathis, 6 year parts and labor (Hart 1993)

Davis-Baldwin Insurance and Risk Management, Davis-Baldwin Insurance and Risk Management (Tampa, Florida) promises in writing to deliver good service. The service guarantee comes in the form of a 'service excellence contract,' which spells out in detail all the services the agency will provide to clients during a policy period. The contract enables clients to hold the agency accountable for promises made, and most clients are impressed that the agency 'put it in writing' (Davis and Baldwin 1995)

DDB Needham, consulting (Hart 1993)

Delta Dental Plan, payback for failures, Delta Dental Plan of Massachusetts (Medford) provides the Guarantee of Service Excellence, a seven-point program that supports the company's commitment to quality service with payback for failures. The service guarantee was the culmination of the company's plan to institute total quality management principles into the foundation of the company. Developed along with customers and independent market researchers, the guarantee includes: 1. price guarantee of 10% off the dentists' usual and stated fees, 2. No-hassle customer service, 3. Quick processing of claims – 90% within 15 days, 4. smooth conversion to Delta Dental, 5. no balance billing of patients by participating dentists, dentists, 6. accurate and quick turnaround of identification cards, and 7. monthly management reports. $50 if don't resolve problem or give update in one day. (DeBow 1994; Hart 1993; Hart and Schlesinger 1992; Raffio 1992)

Delta Hotels, one minute check-in or free room (Hart 1993)

The Denver Post, newspaper, delivery guarantee-no payout (Albrecht 1990)

Digi-Key Corp., their service guarantee assures that all orders placed by 5 p.m. will be shipped the next day. Among the factors that Digi-Key attributes the successful maintenance of its guarantee to is its scales (Setra Systems). (Anonymous 1998a)

Dominos, 30 min free $3 off (Hart 1993; Maher 1992; Zeithaml et al. 1990)

Emery Worldwide, in January, Emery Worldwide launched a new program of guaranteed delivery options. Dubbed the "Guaranteed Service Program," it offers five levels of money-back guaranteed delivery (two of which are new to Emery's service portfolio) anywhere in the US, Canada, or Puerto Rico. (Anonymous 1999a; Anonymous 1999b; Saccomano 1999)

Empire of America, insurance, free lunch if wait in line more than 5 minutes (Hart 1993)

Federal Express, next day delivery or free (Hart 1993; Zeithaml et al. 1990)

First Image Management Company, computer services, unconditional (Ettorre 1994; Hart 1993)

Flyaway Avian Averting System, no bill until birds gone, implicit (Hart 1993)(Hart, 1993)

GTE Corporation, telephone, meet commitment for installation or repair or up to $100, no questions asked (Ettorre 1994; Hart 1993)

Hampton Inns, full satisfaction or money back. Hampton Inns found that offering a full refund to its economy hotel chain customers was effective because, although it had to pay out $1.1million in 1993 to dissatisfied customers, it estimates that the guarantee brought in an additional $11million of revenue. Customer service guarantees have a number of pitfalls, however, including: 1. customers who cheat, 2. the failure of the organization to learn from dissatisfied customers using the guarantee, 3. a failure to lay the groundwork, 4. competitors who offer a service guarantee first, 5. a service guarantee that bars too many customers, and 6. a service guarantee that tarnishes the company's image. (Everett 1990; Fojt 1995; Hart 1993; Hart and Schlesinger 1992)

Holiday Inns of Cayman Islands, no excursion fee for diving if weather is bad (Hart 1993)

Henry Ford Hospital in Detroit, radiology, unconditional (Hart 1993)

Henry Ford Community College, refund if another college doesn't grant credit, free courses if employers find them lacking in skill (Hart 1993)

Insty-Prints, 50% discount if miss deadline (Beran 1995)

Isrotel, Israeli hotel chain, commits to standards of a "warranty certificate" and compensates guests if it fails to meet that commitment (Donath 1997)

Jaguar, free loaner when car under warranty (Hart 1993)

JWS Technologies, industrial gas delivery company. Developed a simple service guarantee: If JWS was late with a delivery for any reason, the customer would receive the ordered gas for free. In order to motivate employees, Lyons set aside $4 per worker for each day that no deliveries were missed. At the end of each quarter, employees would share the money as a performance bonus. (Hart 1993; Jaffe 1990; Maher 1991)

Kelly Services, unconditional (Hart 1993)

Lands End, mail order, unconditional (Albrecht 1990; Hart 1993)

Lincoln Electric, guaranteed cost reduction (Hart 1993)

L.L. Bean, mail order, unconditional (Albrecht 1990; Ettorre 1994; Hart 1993; Zeithaml et al. 1990)

Lufthansa, bad, hard to invoke (Hart 1993)

Minneapolis Marriot, $20 unconditional (Hart 1993)

Mission Oaks Hospital in Los Gatos, wait more than 5 minutes for ER care reduce bill 25% (Hart 1993; Hart and Schlesinger 1992)

Manpower, Inc. (Hart 1993)

MCI, telephone. Guarantees to restore 800 service within 5 minutes of an outage or credit customers for one month's worth of fixed charges. MCI will restore a customer's 800 service by routing the traffic to an alternate location predesignated by the user. (Taff 1993; Wallace 1993)

National Cable Television Association, the National Cable Television Association (NCTA) and cable marketing association CTAM have created the On-Time Customer Service Guarantee Task Force in an effort to increase awareness of the NCTA's on-time guarantee. Only 25% of the country's 62 million cable customers are aware of the guarantee. (Katz 1996)

New York Telephone Company, plans to counter a Teleport Communications Group Inc. service guarantee by offering a month's credit of recurring charges on any T1 or T3 link that goes down for more than a minute. Although New York Telephone was able to respond to the competitive access providers' fiber-based services and service guarantees, it faces a new threat from a partnership between Teleport and Bell Atlantic Corp. (Burch 1993)

Norrell Temporary Services, temporary employment agency, better than Kelly or your money back (Everett 1990)

Oakley Millwork Inc, no backorder or free (Hart 1993)

Pacific Fertility Center, fertility clinic, charge triple, refund 90% if no pregnancy (Hamilton 1996)

Pan American World Airways, Inc. (Maher 1991)

Pioneer, electronic component, free pink Cadillac if fail to ship certain component on time (Hart 1993)

Quill Corporation, office products and supplies, complete guarantee of satisfaction ship in 8-32 hours, no payout stated (Albrecht 1990)

Quimobasicos, Mexican chemical company promise to maintain distributor inventory levels, payout lost profits (Hart 1993)

Radisson Hotels Worldwide (Hill et al. 1998)

Reproductive Health Associates, Inc., fertility clinic, charge triple, refund 90% if no pregnancy (Hamilton 1996)

RPS, offers a money-back guarantee on all commercial ground deliveries within the 48 contiguous states.(Anonymous 1998c)

Santa Clara Medical Center, medical center (Albrecht 1990)

Satisfaction Guaranteed Eateries, Inc., "Your Enjoyment Guaranteed. Always." (Firnstahl 1989)

Scruba-Dub Car Wash, rewash until satisfied (Hart 1993)

Sharper Image, mail order gadgets, complete guarantee + return postage (Albrecht 1990)

Socket Express Inc., on time and zero defects or order is free (Benson 1990)

Speedy Muffler King, 110% (Hart 1993)

Sprint, lowered the prices of its frame relay service and offered a new service guarantee (Rendleman 1995). Sprint is offering a set of performance guarantees for a suite of network security services. All of the performance guarantees are backed up with as much as a 25% money-back guarantee for level one customers and as much as a 50% money-back guarantee for Level 2 customers.(Kujubu 1998)

Squaw Valley USE, bad, hard to invoke (Hart 1993)

Transport International Pool (TIP), a GE Capital Company, initiated a Peak Season Trailer Guarantee program that will guarantee the availability of equipment during customers' critical peak seasons. (Anonymous 1998b)

Traveler's Advantage, bad, hard to invoke (Hart 1993)

Trump Shuttle, on time or 2000 frequent flyer, half price companion or $20 restaurant discount (Everett 1990; Hart 1993)

United Weight Control Corp., it is very difficult to receive specific, actionable, constructive feedback systematically in health care delivery. A case study of United Weight Control Corp. describes a service guarantee tool that does exactly that, at low cost. As additional benefits, thoughtful use of service guarantees can raise morale, channel complaints that might otherwise go to the wrong people, and provide a unique marketing edge. (Lewis 1993)

UPS, without any changes in rates, customers shipping packages to commercial addresses will be given a guaranteed delivery date, more than seven million packages a day. (Anonymous 1998c)

Vintage Wine Bar and Restaurant, implicit, employee invoked (Jenkins 1997)

Wal-Mart (Hart 1993; Zeithaml et al. 1990)

Wattley Cranes, repair within 24 hours (Hart 1993)

William Morrow, publisher (Hart 1993)

Whirlpool, one year unconditional (Hart 1993)

Bank One Texas Trust, if not satisfied with their service quality in any given year, return fees paid or any portion thereof (Berry 1995; Berry and Yadav 1996)

Bank of America in San Francisco, introduced its "Service Guarantee" program on August 1, 1986. Designed to increase the bank's checking account market share, the program is a promise that Bank of America's (B of A) personal checking account customers will be satisfied with the service they receive. If not, they can close their checking accounts and request a full refund of monthly checking service charges paid during the guarantee period. Bad, hard to invoke, close account (Albrecht 1990; Hart 1993)

Colorado National Bank of Denver, guarantees quality to customers and is steadily improving internal delivery systems, strengthening customer relationships, and penetrating the targeted markets of competition. The concept of PIMWIMI is founded on: 1. service, which is guaranteed for responsiveness, accuracy, and courtesy, 2. systems, which are monitored for customer friendliness and enable front-line staff to make as many decisions as possible that influence the quality of service delivery, and 3. customers, which are easily able to give opinions of the bank's service. If Colorado National does not live up to its promises, any unsatisfied customer will receive a 'note from the president' in the form of a $5 bill. (Browning 1989)

Commerce Bank in Aurora Colorado, bank , $5 for mistake (Albrecht 1990)

First Interstate Bank of California (Hart et al. 1990)

First National Bank of Chicago, $250 if dissatisfied with loan application process (Hart 1993)

First Union National Bank of Charlotte, dozen roses for bank error (Hart 1993)

First Wyoming Bank in Cleveland (Albrecht 1990)

Maine Savings Bank of Portland, $1 for every complaint letter (Hart 1993)

Maryland National Bank of Baltimore (Albrecht 1990; Maher 1991; Maher 1992)

Marquette Bank (Maher 1991)

National Bank of Detroit (Albrecht 1990)

North Island Federal Credit Union, credit union. Began empowering its employees by establishing the philosophy that constant improvement in member service is a value that cannot be imposed but must come from the employee. Areas of undefined authority were clarified, and the permission to do whatever was necessary to resolve a problem was granted to managers and their employees. Individual sessions were then held with each work unit to enable them to set up a service guarantee, define their primary functions, and plan to meet the expectations of members and other employees. (Lamb 1993)

Union National Bank and Trust (Maher 1992)

Wells Fargo Bank, $5 for more than 5 minutes in line (Hart 1993; Hart et al. 1990; Maher 1991)

APPENDIX II

Terms Used in This Paper

Chapter 4

$a(t)$ Addition rate. This is the number of customers added at the end of period t.

α Addition parameter. This is the proportion of the non-customer population, $M-m(t)$, which become customers when 100% of the customers are satisfied in period t. $(0 \leq \alpha \leq 1)$

β The ratio of the addition and defection parameters, α/δ. $(0 \leq \beta \leq \infty)$

c Normalization factor to adjust the percent satisfied Π_s for competition. $(c \geq 0)$

$d(t)$ Defection rate. This is the number of customer defections at the end of period t.

δ Defection parameter. This is the percent of dissatisfied customers who defect in one period. $(0 \leq \delta \leq 1)$

κ Complaint rate. This is the percent of dissatisfied customers who voice a complaint to the service-providing firm. $(0 \leq \kappa \leq 1)$

λ Parameter for the linear combination used to give more weight to complaining customers. $(0 \leq \lambda \leq 1)$

M Market size in terms of the number of customers and potential customers in the market.

$m(t)$ Number of customers for the firm in the end of period t. $(0 \leq m(t) \leq M)$

μ Contribution margin per customer per period. $(\mu \geq 0)$

ν Compensation paid to recover a complaining customer. $(\nu \geq 0)$

Π_{Mt} Market share. $(0 \leq \Pi_{Mt} \leq 1)$

Π_s Percent of customers who are satisfied. $(0 \leq \Pi_s \leq 1)$

R The Dissatisfaction/Satisfaction ratio, $(1-\Pi_s)/\Pi_s$. $(0 \leq R \leq \infty)$

ρ Service recovery rate. This is the percent of complaining customers who are recovered. $(0 \leq \rho \leq 1)$

σ Service success rate. This is the percent of customers who do not experience a service failure. $(0 \leq \sigma \leq 1)$

θ Learning rate. This is the percent of the voiced problems that the firm fixes permanently in a period. *($0 \leq \theta \leq 1$)*

Chapter 5

Z design matrix

Z_1 design matrix

Z_2 design matrix

Z_{EMV} standardized observations for EMV

Z_{LTSF} standardized observations for LTSF

Z_5 design matrix

β_1 matrix of coefficients for main effects of EMV

β_{1A} matrix of coefficients for main effects of EMV

β_{1B} matrix of coefficients for main effects of EMV

β_2 matrix of coefficients for main effects of LTSF

β_{2B} matrix of coefficients for main effects of LTSF

β_{2A} matrix of coefficients for main effects of LTSF

β_3 standardized regression coefficient for EMV

β_4 standardized regression coefficient LTSF

β_5 matrix of coefficients for interaction effects between EMV and LTSF

ε error matrix

ε error term

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