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Zone of Tolerance as an effective management tool to assess Service Quality in Singapore's Stockbroking Industry

ABSTRACT

The zone of tolerance (ZOT) is an innovative concept that has attracted considerable attention in the services marketing arena. Professional services are credence products with hardly any tangible cues to signal quality. A cross-section of 147 recent stock market investors in Singapore provided data on the way they rated their respective stockbroking agents. In developing an initial tool for the stockbroking context, the 44 attributes of service quality were operationalised generating five dimensions which were identified as Trust/Reliability, Information Cues, Empathic Investment Advice, Relationship Building and understanding Investor Profile. Measure of Service Adequacy (MSA), Measure of Service Superiority (MSS) and Zone of Tolerance were calculated. This study revealed that attention should be focused on the dimensions of Empathic Investment Advice and Information Cues, as stockbrokers' performance on these two dimensions was clearly inadequate. The proposed exploratory instrument used here to measure the service standards in the stockbroking industry could serve as a start for other studies in the professional services context. Some interesting managerial implications of the findings have been discussed.

Keywords: service quality, satisfaction, measure of service adequacy, measure of service superiority, zones of tolerance, customer loyalty, stockbroker.

INTRODUCTION

Service providers such as stockbrokers are keen to maximise favourable customer intentions particularly customer loyalty. Considerable emphasis has focused on the impact of service quality in determining repeat purchase and customer loyalty (Hallowell, 1996), however these issues have received little research attention within the stockbroking services sector. Parasuraman, Zeithaml, & Berry (1985) define service quality as the overall evaluation of a specific service computed by comparing a firm's performance with the customer's general expectations of how firms in that industry should perform. An area of acceptability may exist, however, and Zeithaml, Berry &

Parasuraman (1991) suggested the concept of ‘the zone of tolerance’ to represent the area between what they call the ‘adequate’ level of service and the ‘desired’ level of service. The link between service quality and profits is a complex one. Hence to delineate the complex relationship between these two variables, researchers and managers must investigate and understand many other relationships, each of which is an integral part of the composite (Berry, Zeithaml, & Parasuraman, 1996). In this context, the relationship between service quality and consumer behavioural intentions (taking into account the zones of tolerance) is an extremely important one which is the primary focus of this research.

STOCKBROKING SERVICES

Stockbroking is a professional service which is characterised by high involvement of its customers due to the importance of tailoring specific needs, the variability of the products available, the complexity involved in the investments and the need to involve the customers in every aspect of the transaction. As a result, stockbrokers must resort to personal selling as a basis of fulfilling the conditions that customers have established. All these characteristics cause customers to seek long-term relationships with their stockbrokers in order to reduce risks and uncertainties (Berry et al., 1996). Pure services like stockbroking may conjure different expectations than services which include some tangible elements (Zeithaml et al., 1991). These conditions are prevalent in the Singapore stockbroking industry, where brokers form the bulk of the distribution channels. The stockbroking context of this study is ideal since investment stocks are almost always sold by an agent who, in 80 percent of the cases, is the customer’s only contact (Lin & Wei,

1999). Customers perceive the role of agents as their means of contact with the service bought and also view the necessity for an ongoing interaction with the agents.

SERVICE QUALITY AND ZONE OF TOLERANCE LITERATURE

Unlike product quality, service quality involves more than the outcome; it also includes the manner in which the service is delivered (Parasuraman et al., 1985). Superiority of the offering depends on customers' perception of service quality and not on the service provider's perception of the offering. Shaw & Ivens (2002) believe that customer experience is the next competitive battle ground and will be the next business tsunami. There is a general convergence of findings that delivering service quality and value are fundamental bases of marketing activities (Holbrook & Corfman, 1994) and an effective source of competitive advantage (Gale, 1994; Woodruff, 1997). Service quality has been considered as an antecedent of satisfaction (Brady, Cronin, & Brand, 2002). Enhancing service quality has a potentially enormous impact on profitability, through reducing an organisation's operating cost and improving its market position. Possibly the most widely reported set of service quality determinants was conceptualised in the SERVQUAL model developed by Parasuraman et al.(1985; Parasuraman, Zeithaml, & Berry, 1988) to measure consumer's perception of quality. The SERVQUAL instrument consists of 22 items covering the five dimensions of Tangibles, Reliability, Responsiveness, Assurance and Empathy. One of the most important attributes of services associated with its brand is Trust, which is a feeling of security held by customers (Delgado-Ballester & Munuera-Aleman, 2001; Odekerken-Schroder, Birgelen, Lemmink, Ruyter, & Wetzels, 2000). This

is important especially in the context of stockbroking agents, where trust is based on the fact that services are conducted as part of their relationship with customers.

The impact of service quality on profitability introduces the service profit chain (SPC) concept (Heskett, Sasser, & Schlesinger, 1997). SPC is a strategic service vision, whereby there is a strong and direct relationship between customer satisfaction (Andreassen, 1994) customer loyalty and the value of goods and services delivered to customers (Silvestro & Cross, 2000). Furthermore, there is a strong link between these elements and overall profit and growth of an organisation (Heskett et al, 1997). Organisational profit and growth are linked to customer loyalty, satisfaction and value via strategic implementation of referral, related sales and retention strategies. This model attributes a service organisation's financial and market performance to its relationship with customers and employees (Heskett et al., 1997). SPC is closely associated with the SERVQUAL measurement instrument, in that many of the SPC linkages are replicated in SERVQUAL analysis (Zeithaml, Bitner, & Gremler, 2006).

Despite the emphasis on the importance of service quality, Rust, Zahorik & Keiningham (1995) have argued that some organisations which have excelled in service quality improvements, have later run into financial difficulties. These authors have highlighted the potential diminishing returns of quality expenditure. Hence, researchers and managers are concerned about the adequacy and effectiveness of service quality improvements. A useful concept to address these concerns is the ZOT, which is conceptualised as a range of service performance, such that customers are indifferent to small increases or

decreases of service quality within the zone (Johnston, 1995; Liljander & Strandvik, 1993). Teas & DeCarlo (2004) found that consideration of the ZOT increased the explanatory power of performance-based models that were developed by previous researchers (Brady et al., 2002; Cronin & Taylor, 1992).

RESEARCH PROBLEM

Based on the literature review the objectives of this exploratory research are to:

- a) Develop a customised instrument for measuring service quality in the stockbroking industry ;
- b) Examine the relationship between Measure of Service Superiority (MSS) and Measure of Service Adequacy (MSA) and satisfaction level of investors ;
- c) Examine the application of the service quality zone of tolerance approach in the context of stockbroking and hence professional services;
- d) Gain insights into service quality standards and problems associated with the stockbroking business in Singapore.
- e) Provide managerial implications for the stockbroking industry.

No extant empirical investigation cited in the literature has focused on the measurement of service quality and zone of tolerance in the stockbroking industry. With the growing intensity of competition in this industry, it is paramount that stockbrokers clearly understand the service quality attributes so as to enhance customer loyalty and future patronage.

RESEARCH METHODOLOGY

The data required for this research was collected by means of a customer survey. A questionnaire was developed which included items from the SERVQUAL instrument and from extant literature which contained in-depth inventory of specific service quality items associated with the stockbroking industry.

The questionnaire was distributed to a group of stock brokers working for a local brokerage firm to seek their professional advice. Following this, some of the items were refined and paraphrased in both wording and contextual application as appropriate. The questionnaire was then pre-tested using two focus groups, each comprising of six participants (who had engaged with the services of a stockbroker in the past 12 months). Following the pre-testing, the questionnaire was modified and refined. The major problem was with the length of the questionnaire, which was subsequently reduced by adjusting its formatting and layout.

A non-probabilistic sampling procedure, i.e. convenience sampling was adopted owing to the unavailability of a satisfactory sampling frame. The population was defined as all the investors who had invested or transacted in the stock market in the past one year. A total of 240 self-administered questionnaires were distributed by trained interviewers to a randomly selected set of respondents, out of which 170 were returned (70.83% response rate). As a small incentive, a token gift was handed to each respondent. 23 questionnaires were rendered unusable due to incomplete data, giving a final sample size of 147. Overall non-response bias was taken care of by improving the research design and also by using trained interviewers. The main demographic variables of final respondents is shown in Exhibit 1.

Exhibit 1: Profile of the final respondents

Demographic variable	Segments and percentages
Gender	Male 48%, Female 52%
Marital Status	Single 35%, Married 58%, Others 7%
Age Group	21 to 30 years 37%, 31 to 40 years 34%, Above 41 years 29%
Personal Income	Less than \$2500 per month 38%, Less than \$4500 per month 23%, Above \$ 4500 per month 39%
Educational Level	Secondary school 24%, Polytechnic 40%, University 36%
Occupation	Clerical 14%, Supervisory 20%, Managerial 38%, Own Business 27%, Not working 1%,

RESULTS

The raw data were initially organised into its difference-score measures, of service superiority (MSS)*¹ and service adequacy (MSA)*. Consistent with Parasuraman, Zeithaml & Berry's (1994) recommendation, both MSS and MSA scores of the 44 items were factor analysed separately utilising the principal component approach, with eigenvalues greater than one as the criteria for the extraction of factors. Orthogonal (Varimax) rotation was used to obtain several theoretically meaningful factors and also to enable correlated factors to be rotated, given that realistically very few factors are uncorrelated (Hair, Money, Samouel, & Page, 2007). Additionally, reliability coefficients (alphas) of each dimension extracted from the analysis were computed to test for internal consistency of the grouping of the items. The initial factor loadings and reliability tests revealed a five factor structure for both the MSS and MSA data.

¹ * MSS is the difference between desired service level and perceived service level

* MSA is the difference between adequate service level and perceived service level

Factor Analysis (MSS Scores)

Exhibit 2 illustrates the five-factor structure and loading of the MSS related scores.

Exhibit 2: Factor Analysis and Loading (MSS Scores)

Item	Rotated Factor Loading				
	<i>Factor 1</i> Trust/ Reliability	<i>Factor 2</i> Information Cues	<i>Factor 3</i> Empathic Investment Advice	<i>Factor 4</i> Relationship Building	<i>Factor 5</i> Understand Investor Profile
Honesty	0.80	-0.03	0.07	0.10	0.15
Trustworthy	0.74	-0.06	0.17	0.17	0.25
Respond promptly to client's requests	0.70	0.14	0.14	0.12	0.10
Confidentiality	0.69	0.15	0.21	-0.04	0.17
Execute orders accurately	0.66	0.12	0.21	-0.10	0.06
Make clients feel safe	0.65	0.25	-0.12	0.18	0.17
Keep clients informed when order is done	0.63	0.11	0.28	-0.04	-0.07
Provide replacement during absence	0.57	0.32	0.23	0.18	0.02
Easily available	0.55	0.36	0.06	0.07	0.29
Excellent knowledge	0.55	0.30	0.31	-0.03	0.27
Patient	0.51	0.07	-0.18	0.22	0.45
Dependable in handling problems	0.47	0.28	0.19	0.14	0.08
Share opinions on rumor(s)	0.26	0.75	0.15	0.26	0.11
Provide e-mail updates	0.04	0.73	0.10	0.22	0.21
Provide confirmation on any significant rumors	0.11	0.72	0.28	0.08	0.04
Provide private share allotment opportunity	0.35	0.69	0.20	0.13	0.02
Provide stock evaluation reports	0.10	0.68	0.04	0.01	0.39
Provide stock market information	0.11	0.66	0.07	0.12	0.33
Provide important news quickly	0.31	0.66	0.34	0.08	0.13
Offer gifts/professional aids	0.06	0.58	-0.03	0.44	0.01
Secure invitations for clients to attend investment seminar(s)	0.07	0.57	0.37	0.41	-0.01
Modern equipment/technology	0.32	0.42	-0.02	0.23	0.35
Advise against undue risks	0.25	0.20	0.75	0.09	0.16
Advise against placing impulsive orders	0.25	0.17	0.74	0.24	0.16
Treat client's investment more than just taking orders	0.31	0.24	0.72	0.26	0.21
Advise against stock	0.39	0.29	0.57	0.31	0.17

purchases during falling markets					
Have social relationships with clients	-0.01	0.18	0.17	0.84	0.13
Meet up with clients	0.04	0.19	0.37	0.78	0.04
Take initiative to call clients	0.13	0.23	0.38	0.67	0.04
Know clients at personal level	0.15	0.16	-0.20	0.61	0.33
Available after trading hours	0.32	0.36	0.25	0.46	0.13
Understand client's stock investment objectives	0.25	0.25	0.33	0.16	0.77
Understand client's stock investment needs	0.22	0.32	0.36	0.07	0.72
Understand client's risk profile	0.32	0.23	0.22	0.20	0.66
Eigenvalues	5.97	5.47	3.51	3.42	2.79
% of Variance	17.56	16.08	10.32	10.07	8.21

Exhibit 3 depicts the items that were eliminated owing to poor factor loadings, i.e loadings less than 0.4 (Nunnally & Bernstein, 1994)

Exhibit 3: Items eliminated owing to poor factor loadings (MSS Scores)

Description of the Item
Providing some flexibility to the settlement period
Humble enough to admit mistakes made
Providing adequate compensation for execution error
Consistently courteous to clients
Providing personal attention to clients
Acting in the best interests of clients
Executing order fast
Advising clients against too risky stock investments
Assisting clients to make money during good times
Reminding clients of any outstanding position for timely payment

Exhibit 4 gives the reliability estimates of each of the factors

Exhibit 4: Reliability estimates of each dimension (MSS Scores)

Service Dimension	Number of Items	Cronbach Alpha
Trust/Reliability	12	0.90
Information Cues	10	0.90
Empathic Investment Advice	4	0.89
Relationship Building	5	0.84
Understanding Investor Profile	3	0.89
Total Number of Statements	34	

Factor Analysis (MSA Scores)

Exhibit 5 illustrates the five-factor structure and loading of the MSA related scores.

Exhibit 5: Factor Analysis and Loading (MSA Scores)

Item	Rotated Factor Loading				
	<i>Factor 1</i> Trust/ Reliability	<i>Factor 2</i> Relationship Building	<i>Factor 3</i> Empathic Investment Advice	<i>Factor 4</i> Information Cues	<i>Factor 5</i> Understand Investor Profile
Honesty	0.78	0.14	0.15	0.07	0.18
Execute orders accurately	0.77	-0.04	0.20	0.16	0.02
Make clients feel safe	0.76	0.14	0.06	0.17	0.19
Keep clients informed when order is done	0.75	-0.03	0.13	0.04	0.04
Trustworthy	0.74	0.19	0.19	0.03	0.27
Respond promptly to client's requests	0.73	0.11	0.18	0.14	0.09
Confidentiality	0.67	-0.06	0.31	0.15	0.16
Provide replacement during absence	0.59	0.30	0.25	0.28	0.19
Dependable in handling problems	0.55	0.20	0.01	0.17	0.01
Easily available	0.52	0.13	0.16	0.52	0.23
Act in client's best interests	0.51	0.33	0.33	0.18	0.35
Have social relationships with clients	0.03	0.84	0.04	0.14	0.12
Meet up with clients	0.08	0.82	0.26	0.05	0.11
Take initiative to call clients	0.22	0.72	0.33	0.06	0.12
Available after trading hours	0.14	0.58	0.29	0.17	0.27
Secure invitations for clients to attend investment seminars	0.07	0.55	0.47	0.35	0.02
Offer gifts/professional aids	-0.01	0.54	0.10	0.48	0.05
Knowing clients at personal level	0.21	0.51	-0.01	0.33	0.12
Advise against placing impulsive orders	0.10	0.23	0.79	0.14	0.11
Advise against undue risks	0.27	0.14	0.77	0.15	0.17
Treat client's investment more than just taking orders	0.26	0.27	0.76	0.09	0.21
Advise against stock purchases during falling	0.31	0.28	0.67	0.22	0.18
Advise clients against too risky stock investments	0.25	0.04	0.60	0.36	0.04
Provide stock evaluation reports	0.08	0.06	0.16	0.82	0.20
Provide stock market information	0.18	0.14	0.26	0.77	0.11
Modern equipment/technology	0.32	0.17	0.06	0.59	0.20
Provide email updates	0.17	0.35	0.21	0.56	0.07
Share opinions on rumours	0.21	0.41	0.39	0.51	0.16

Provide important news quickly	0.35	0.30	0.42	0.48	0.17
Understand client's stock investment objectives	0.23	0.20	0.18	0.17	0.86
Understand client's stock investment needs	0.22	0.13	0.17	0.23	0.82
Understand client's risk profile	0.32	0.24	0.19	0.24	0.65
Eigenvalues	6.04	4.19	4.11	3.82	2.61
% of Variance	18.87	13.09	12.83	11.93	8.16

Exhibit 6 depicts the items that were eliminated owing to poor factor loadings, i.e loadings less than 0.4 (Nunnally & Bernstein, 1994)

Exhibit 6: Items eliminated owing to poor factor loadings (MSA Scores)

Description of the Item
Providing some flexibility to the settlement period
Humble enough to admit mistakes made
Providing adequate compensation for execution error
Having excellent knowledge on the stock market
Consistently courteous to clients
Patient in handling orders
Providing personal attention to clients
Executing order fast
Providing private share allotment opportunity
Providing confirmation on any significant rumors as soon as available
Assisting clients to make money during good times
Reminding clients of any outstanding position for timely payment

Exhibit 7 gives the reliability estimates of each of the factors

Exhibit 7: Reliability estimates of each dimension (MSA Scores)

Service Dimension	Number of Items	Cronbach Alpha
Trust/Reliability	11	0.92
Relationship Building	7	0.87
Empathic Investment Advice	5	0.88
Information Cues	6	0.87
Understanding Investor Profile	3	0.88
Total Number of Statements	32	

Comparison of MSS and MSA Score Formats

Based on the above computations, a comparison of the two formats was performed to ascertain which format should be used for further analysis. The comparison in Exhibit 8 shows that the variation explained by the factors from the MSA score format was slightly superior to the MSS score format. The eigenvalues in the MSA construct were higher than those in the MSS construct for three dimensions, i.e. Trust/Reliability, Relationship Building and Empathic Investment Advice. Finally, the cronbach alpha values in the MSA construct for the same three dimensions were relatively higher than those in the MSS construct. Hence it appeared that the results of the factor analysis derived from the MSA construct were relatively superior than that of the MSS construct. This is in line with the findings of Parasuraman et al. (1994).

Exhibit 8: Summary of Comparison between MSS and MSA Constructs

Basis of Comparison	MSS	MSA
Total Variance Explained	62.24%	64.88%
Eigenvalues for Each Dimension		
- Trust/Reliability	5.97	6.04
- Relationship Building	3.42	4.19
- Empathic Investment Advice	3.51	4.11
- Information Cues	5.47	3.82
- Understanding Investor Profile	2.79	2.61
Cronbach Alpha for Each Dimension		
- Trust/Reliability	0.90	0.92
- Relationship Building	0.84	0.87
- Empathic Investment Advice	0.89	0.88
- Information Cues	0.90	0.87
- Understanding Investor Profile	0.89	0.88

Descriptive Analyses

A summary of the mean scores for Perceptions, Desired and Adequate Expectations, Zone of Tolerance, MSS and MSA is shown in Exhibit 9. The perception mean scores

ranged from 4.19 for Empathic Investment Advice to 5.03 for Trust/Reliability. For the desired expectations, the mean ratings ranged from 4.78 for Relationship Building to 5.92 for Trust/Reliability. As for adequate expectations, the mean score ranged from 3.65 for Relationship Building to 4.89 for Trust/Reliability. The Zone of Tolerance was computed by subtracting adequate expectations from desired expectations. Its mean scores ranged from 1.04 for Trust/Reliability to 1.16 for Information Cues. By computing the difference between perceptions and desired expectations, the MSS mean for each service dimension was obtained. Additionally, the MSA mean was obtained by calculating the difference between perceptions and adequate expectations. The MSS mean scores for all the five dimensions were negative whereas the MSA mean scores were negative for two dimensions, i.e. Empathic Investment Advice and Information Cues. The overall mean scores were also computed.

Exhibit 9: Summary of Mean Scores including Zone of Tolerance

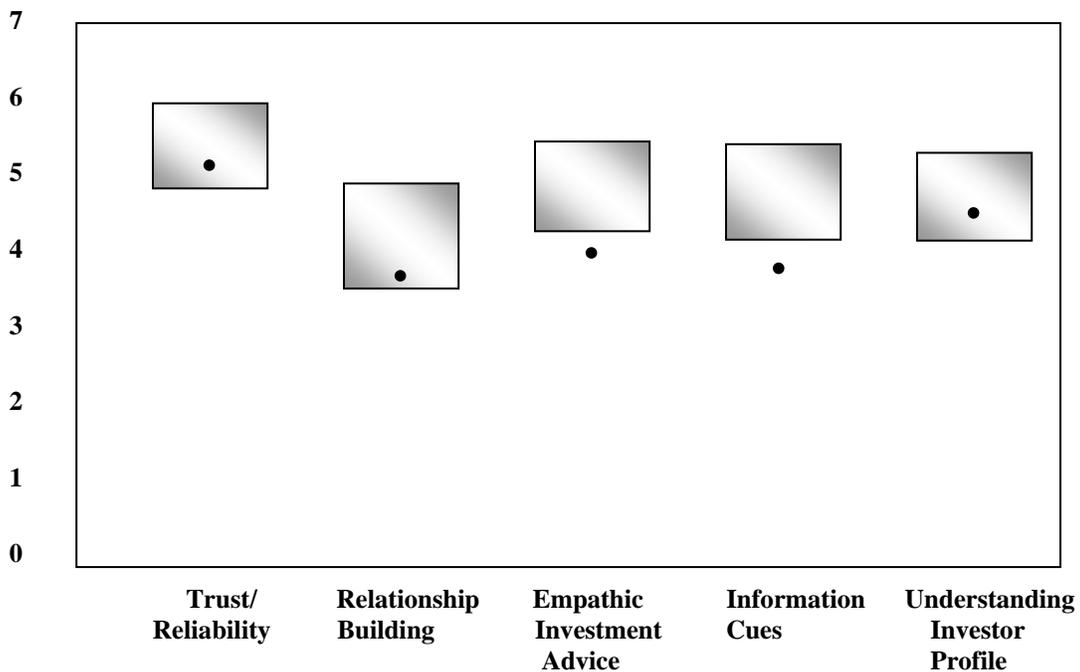
Service Dimension	Perceptions (P)	Desired Service (D)	Adequate Service (A)	Zone of Tolerance (D-A)	MSS (P-D)	MSA (P-A)
Trust/Reliability	5.03	5.92	4.89	1.03	-0.89	0.14
Relationship Building	3.69	4.78	3.65	1.13	-1.09	0.04
Empathic Investment Advice	4.19	5.52	4.42	1.10	-1.33	-0.24
Information Cues	4.20	5.44	4.29	1.15	-1.25	-0.09
Understanding Investor Profile	4.56	5.51	4.41	1.10	-0.95	0.15
Overall	4.33	5.43	4.33	1.11	-1.10	0.00

Usefulness of the Zone of Tolerance Framework

In order to serve customers well, accurate measurement of service quality is deemed critical. Measuring customers’ perceptions alone is not enough as this does not provide

maximum diagnostic value and might sometimes provide misleading conclusions (Parasuraman et al., 1994). The zone of tolerance framework provides a more detailed insight as is depicted in Exhibit 10. For example, the perception means of the dimension of Relationship Building is the least and one would naturally be concerned. However, when these perception ratings are seen relative to its zone of tolerance, it is observed that mean perception ratings are higher than the adequate service level. This implies that investors are generally satisfied with their stockbrokers' performance on this dimension. Attention should instead be focused on the dimensions of Empathic Investment Advice and Information Cues as stockbrokers' performance in these dimensions is clearly inadequate.

Exhibit 10: Service Performance Relative to Zone of Tolerance for Stockbrokers



DISCUSSION AND IMPLICATIONS

In developing an initial tool for the stockbroking context, the five factors identified were Trust/Reliability, Information Cues, Empathic Investment Advice, Relationship Building and Understanding Investor Profile. Undeniably, the factors had many elements of the old SERVQUAL dimensions. However, this was expected as the SERVQUAL instrument has undergone rigorous testing and serves as an important platform for exploratory contextual investigations in service quality measurements. Both Trust/Reliability and Empathic Investment Advice had the highest desired and adequate expectations among the respondents, suggesting that expectations for these two dimensions were regarded by investors as the most crucial towards meeting service quality. Additionally the least tolerance for performance deviation was in the dimension of Trust/Reliability. A possible explanation could be that the components investigated in this dimension, i.e. honesty, accurate execution of orders and excellent knowledge are widely recognized as the key success factors in this industry (Lin & Wei, 1999).

Based on the above discussion of the stockbroking industry, two major managerial implications emerge. Firstly, growing evidence that expectations drive diagnostic evaluations of service quality by customers means that managers can no longer afford to ignore consumer expectations or possess a one-sided view of expectations. Rather, context-specific examination of expectations is vital and useful so that managers would be able to assess and determine the precise level of both adequate and desired expectations. With such an understanding, more precise resource allocations could be determined as advocated by Walker and Baker (2000). This adds to the diagnostic value of having a multi-expectations framework as service shortfalls can be identified more

accurately from the customers' perspectives and control over meeting minimum or desired levels as required can be established.

Secondly, this study further substantiates the need to re-visit current tools in quality measurements. The proposed exploratory instrument used here to measure the service standards of the stockbroking industry in Singapore could serve as a start for other studies in the professional services context. Another point of concern would be to accept the dimensionality differences of different industries and investigate the areas that are important or those that are key success factors of quality standards for that industry. Competitive strategies based upon vital aspects of the service quality prevents stretching of resources, and helps in creating customer satisfaction, hence loyalty.

LIMITATIONS AND FUTURE RESEARCH

The first shortcoming of this study is the research design, which limited the ability to explore the possibilities of changes in expectation variables over time. Longitudinal studies would provide greater diagnostic value as tracking changes in perceptions and expectations over a period of time would eliminate circumstantial bias, for example an immediate reaction to a specific service encounter. In this regard, Clow & Vorheis (1993) found that the customers immediate experience, either positive or negative, tended to overstate or understate expectations. Given that the benefits of stocks are long term, this is a practical issue that can confound customers' responses.

The exploratory focus of this study had limited the sampling frame as the distribution of the subjects in terms of demographic profiles was conveniently sampled. A random sampling method using a much larger and more representative demographic profile of

investors in Singapore would provide a more comprehensive understanding of the industry.

While the reliability and validity tests verified many of the constructs and variables proposed here, due to the exploratory nature of the study, many modifications and new items were used, which should have been subjected to rigorous tests. The initial positive results should serve as a start for the possibility of expanding or rewording the items in each scale to garner higher reliability. With that, the dimensionality of the instrument could be reassessed for confirmation of its applicability to the general stockbroking industry. Finally, demographics seem to play an important role in service quality studies. Investigating this area would prove fruitful for managers in their segmentation strategies.

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