Chapter 7

Results and Hypotheses Testing Model

7.1 Introduction

The purpose of this chapter is to present the results of testing the 22 hypothesized models (without moderating effects) and 8 hypothesized models with the moderating effects. The results of the structural model along with the equivalent model and the moderating effects of Individualism/Collectivism and Business/Leisure are also presented in this chapter.

7.2 Sample Size

As mentioned in Chapter 5, a sample size of 200 or more is generally regarded as the minimum sample size for testing a model (Hair, Black et al., 2006). Furthermore, Pritchard, Havitz et al. (1999) proposed that a sample size ranging from 100 to 200 can avoid misspecification problems. Hoelter (1983) also suggested that the minimum sample size be 200. Therefore, the sample size of 487 exceeds the critical level, which is acceptable for the analysis of structural equation modeling.

7.3 Recursive Path Analysis: Empirical Testing of Hypothesized Model

The theoretical model consisting of ten variables (without moderating effects) can be seen in Figure 7.1. Additionally, the summary of the 22 hypotheses test results is provided in Table 7.1.

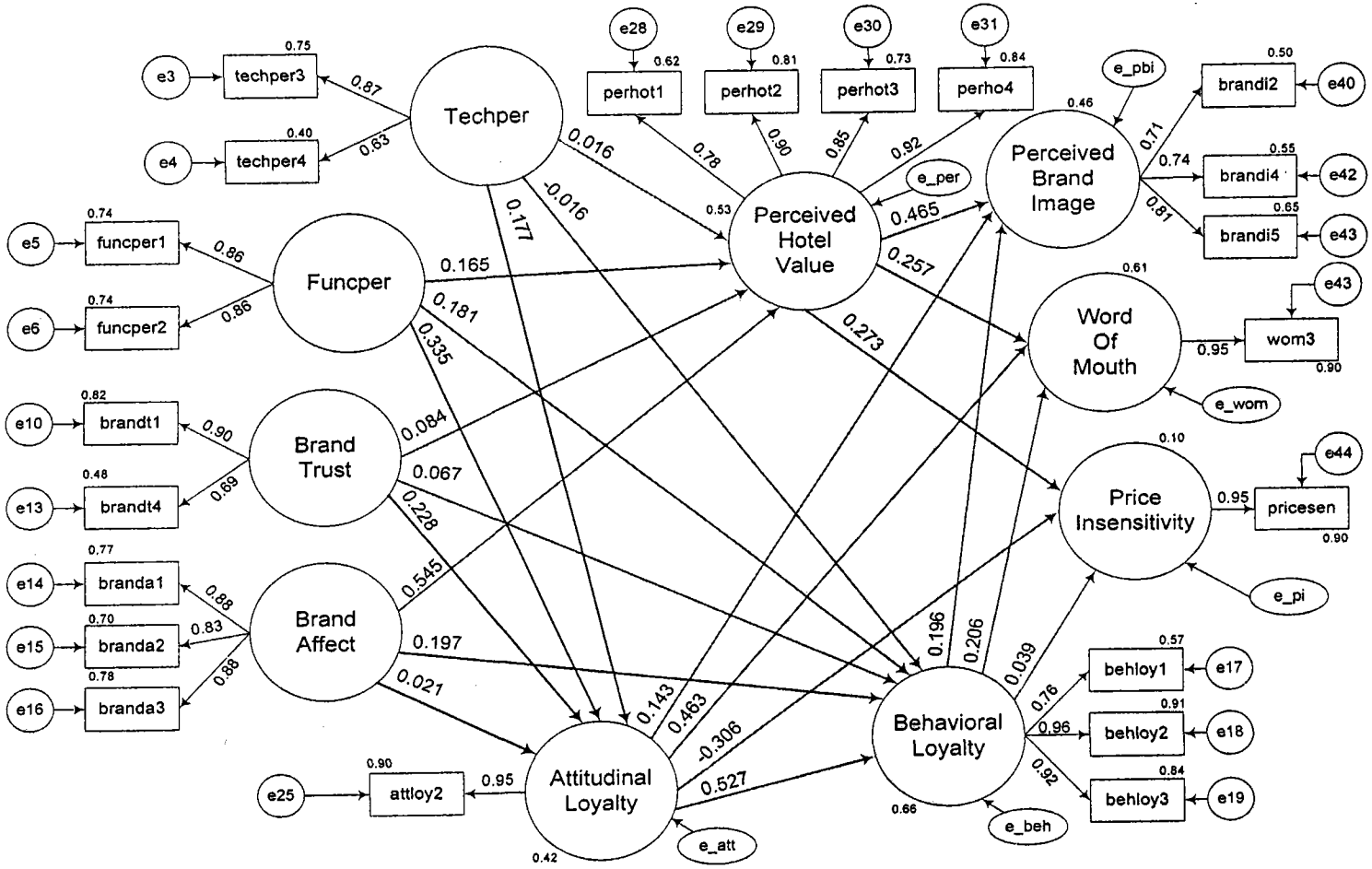

Figure 7.1: Structural Equation Model without Moderating Variable

Table 7.1 Summary of Hypotheses Testing Results without Moderating Effects

H	From	To	Standardized estimate	t-values	Sig.
H1A	Functional performance	Attitudinal loyalty	0.335	4.272	****
H1B	Technical performance	Attitudinal loyalty	0.177	3.034	***
H2A	Functional performance	Behavioral loyalty	0.181	2.900	***
H2B	Technical performance	Behavioral loyalty	-0.016	-0.355	No
H3A	Functional performance	Perceived value	0.165	2.381	***
H3B	Technical performance	Perceived value	0.016	0.320	No
H4A	Brand trust	Attitudinal loyalty	0.228	1.622	*
H4B	Brand affect	Attitudinal loyalty	0.021	0.189	No
H5A	Brand trust	Behavioral loyalty	0.067	0.623	No
H5B	Brand affect	Behavioral loyalty	0.197	2.349	***
H6A	Brand trust	Perceived value	0.084	0.676	No
H6B	Brand affect	Perceived value	0.545	5.466	****
H7	Attitudinal loyalty	Behavioral loyalty	0.527	10.761	****
H8A	Attitudinal loyalty	Positive word-of-mouth	0.463	7.937	****
H8B	Behavioral loyalty	Positive word-of-mouth	0.206	3.410	****
H8C	Perceived value	Positive word-of-mouth	0.257	6.300	****
H9A	Attitudinal loyalty	Price insensitivity	-0.306	-3.780	****
H9B	Behavioral loyalty	Price insensitivity	0.039	0.463	No
H9C	Perceived value	Price insensitivity	0.273	4.862	****
H10A	Attitudinal loyalty	Perceived brand image	0.143	1.990	**
H10B	Behavioral loyalty	Perceived brand image	0.196	2.632	***
H10C	Perceived value	Perceived brand image	0.465	8.304	****
Squared Multiple Correlations		SMC Values			
Attitudinal loyalty		0.424			
Behavioral loyalty		0.663			
Perceived value		0.531			
Positive word-of-mouth		0.613			
Price insensitivity		0.095			
Perceived brand image		0.458			
Model Goodness-of-fit statistics:					
Chi-Square = 503.91		χ^2/df = 2.74	RMSR = 0.065		
Degree of freedom = 184		GFI = 0.909	SRMR = 0.058		
p-value = 0.000		AGFI = 0.875	RMSEA = 0.060		

Note: Significance for t-values at one-tailed for .10 level (*) = 1.28, for .05 level (**) = 1.65, for .01 level (***) = 2.33, for .001 level (****) = 3.09 (Malhotra, 2004).

7.4 Results of Hypotheses Testing

Based on Table 7.1, the results of hypothesis testing are reported in terms of the standardized parameter estimates and their associated t-values. One-tailed tests of significance are employed to analyze the significance of each path coefficient. The majority of the hypotheses (15 from 22) are statistically significant in the

hypothesized direction as expected, except for the hypothesized relationship between attitudinal loyalty and price insensitivity (H9A) which is statistically significant in the opposite direction as expected. There are six hypotheses which are statistically insignificant at any level. This includes the relationship between technical performance and behavioral loyalty (H2B), the relationship between technical performance and perceived value (H3B), the relationship between brand affect and attitudinal loyalty (H4B), the relationship between brand trust and behavioral loyalty (H5A), the relationship between brand trust and perceived value (H6A), and the relationship between behavioral loyalty and price insensitivity (H9B).

7.4.1 Hypothesized Relationships between Functional Performance and Attitudinal Loyalty (H1A) and between Technical Performance and Attitudinal Loyalty (H1B)

The results indicated that a relationship between functional performance and attitudinal loyalty (standardized estimate = 0.34, t-value = 4.27) and a relationship between technical performance and attitudinal loyalty (standardized parameter estimate = 0.18, t-value = 3.03) are positive as hypothesized. Consistently, a positive relationship between service quality and loyalty has long been acknowledged [Pritchard and Howard (1997) and Pritchard, Havitz et al. (1999)], and the impact of service quality on loyalty is stronger than on satisfaction (Lee and Hwan, 2005). Hence, hypotheses H1A and H1B are supported by the data.

7.4.2 Hypothesized Relationship between Functional Performance and Behavioral Loyalty (H2A) and between Technical Performance and Behavioral Loyalty (H2B)

Several studies have indicated that service quality has a positive impact on loyalty. On testing the hypotheses H2A and H2B, the result showed that these two are only partially supported. There is a positive relationship between functional performance and behavioral loyalty at the statistical significance level of 0.01 (standardized parameter estimate = 0.18, t-value = 2.90).

The result does not support a positive relationship between technical performance and behavioral loyalty. Technical performance is negatively and insignificantly related to behavioral loyalty (standardized parameter estimate = -0.02 and t-value = -0.36, which is inconsistent with Patterson, Mandhachitara et al.'s (2001) finding that technical performance and functional performance have approximately equal explanatory power in driving customer satisfaction. Technical performance refers to delivery of the core service and equates to a reliability dimension. In a luxury hotel, service may appear to be inconsistent and not delivered as expected, which indicates a negative relationship between these two constructs.

7.4.3 Hypothesized Relationships between Functional Performance and Perceived Value (H3A) and between Technical Performance and Perceived Value (H3B)

On testing hypotheses H3A and H3B, the result was also partially consistent with our expectations. The result shows that functional performance has a positive relationship with perceived value at the statistical significance level of 0.01 (standardized parameter estimate = 0.17 and t-value = 2.38), which is consistent with our expectation. Even though the relationship between technical performance and perceived value is positive, it is insignificant (standardized parameter estimate = 0.02 and t-value = 0.32).

In conclusion, hypotheses testing between service quality and loyalty (H1A, H1B, H2A, and H2B) and the relationship between service quality and perceived value (H3A and H3B), the results support a positive relationship between functional performance and attitudinal loyalty (H1A), a relationship between functional performance and behavioral loyalty (H2A) and a relationship between functional performance and perceived value (H3A). However, hypotheses testing supports only a positive relationship between technical performance and attitudinal loyalty (H1B) but not a relationship between technical performance and behavioral loyalty (H2B) and a relationship between technical performance and perceived value (H3B). These findings indicate that functional performance is shown to have more

explanatory power in shaping loyalty and perceived value than technical performance in the luxury hotel context.

7.4.4 Hypothesized Relationships between Brand Trust and Attitudinal Loyalty (H4A) and between Brand Affect and Attitudinal Loyalty (H4B)

Hypotheses H4A and H4B predicted the positive relationship between brand trust and attitudinal loyalty and between brand affect and attitudinal loyalty. The result is not consistent with our prediction. Even though the result indicated that a positive relationship existed between two pairs of constructs, it is statistically insignificant. The relationship between brand trust and attitudinal loyalty, the t-value is significant at 0.10 level (standardized parameter estimate = 0.23 and t-value = 1.62), whereas a positive relationship between brand affect and attitudinal loyalty is statistically insignificant at any level (standardized parameter estimate = 0.02 and t-value = 0.19). According to Chaudhuri and Holbrook's (2001) findings, a strong positive relationship was found between brand trust and attitudinal loyalty and between brand affect and attitudinal loyalty based on 107 brands in different product categories, mostly consumer products. Hence, this dissertation extends on their findings by examining these same relationships in the context of luxury hotels in Thailand. Although the positive relationship is statistically insignificant at any level for both hypotheses, it is nevertheless inconsistent. Therefore, H4A and H4B are not supported by the findings.

7.4.5 Hypothesized Relationships between Brand Trust and Behavioral Loyalty (H5A) and between Brand Affect and Behavioral Loyalty (H5B)

On testing hypotheses H5A and H5B, both predicted positive relationships. The result is partially consistent with our expectations. Brand trust is positively related to behavioral loyalty and is statistically insignificant at any level (standardized parameter estimate = 0.07, t-value = 0.62). Brand affect is positively

related to behavioral loyalty at 0.01 level (standardized parameter estimate = 0.20, t-value = 2.35). Hence, no support is found for H5A, whereas H5B is supported by the data.

7.4.6 Hypothesized Relationships between Brand Trust and Perceived Value (H6A) and between Brand Affect and Perceived Value (H6B)

As mentioned before, the relationship between brand trust and perceived value and between brand affect and perceived value are expected to be positive. The results are partially supported the hypotheses. Both relationships are positive; however, only brand affect is positively related to perceived value at the statistical significance level of 0.001 (standardized parameter estimate = 0.55, t-value = 5.47). The positive relationship between brand trust and perceived value is statistically insignificant at any level (standardized parameter estimate = 0.08, t-value = 0.68). Hence, only the positive relationship between brand affect and perceived value is supported by the result.

In summary, the result supports the positive relationship between brand affect and behavioral loyalty and perceived value, whereas the positive relationship between brand affect and attitudinal loyalty, between brand trust and behavioral loyalty and between brand trust and perceived value are not found. The result is partially consistent with Chaudhuri and Holbrook's (2001) findings. For example, in their study of hedonic categories, brand trust had a positive relationship with attitudinal and behavioral loyalty at the statistical insignificant level. They also suggested that the relationship should be significant when the sample became larger. In their study, the data was collected in the form of product-level data, which is different from this dissertation (collected in the form of luxury service-level data). Hence, hypotheses of H6A and H6B are partially supported by the data.

7.4.7 Hypothesized Relationship between Attitudinal Loyalty and Behavioral Loyalty (H7)

As expected, the result supports a positive relationship between attitudinal loyalty and behavioral loyalty at the statistical significance level of 0.001 (standardized parameter estimate = 0.53, t-value = 10.76). The result is also consistent with the findings of Rundle-Thiele and Mackay (2001) and Bennett and Rundle-Thiele (2002) that attitudinal loyalty has a strong positively correlation with behavioral loyalty. The finding implies that the more attitudinal loyalty there is, the more behavioral loyalty there will be.

7.4.8 Hypothesized Relationships between Attitudinal Loyalty and Positive Word-of-Mouth (H8A), between Behavioral Loyalty and Positive Word-of-Mouth (H8B) and between Perceived Value and Positive Word-of-Mouth (H8C)

As expected, the results indicate that there are positive relationships between attitudinal loyalty and positive word-of-mouth (standardized parameter estimate = 0.46, t-value = 7.94), between behavioral loyalty and positive word-of-mouth (standardized parameter estimate = 0.21, t-value = 3.41) and between perceived value and positive word-of-mouth at the statistically significant level of 0.001 (standardized parameter estimate = 0.26, t-value = 6.30). The results are strongly consistent with several previous studies such as Lau and Lee (1999), Cronin, Brady et al. (2000), Gounaris and Stathakopoulos (2004) and Wang, Lo et al. (2004).

7.4.9 Hypothesized Relationships between Attitudinal Loyalty and Price Insensitivity (H9A), between Behavioral Loyalty and Price Insensitivity (H9B) and between Perceived Value and Price Insensitivity (H9C)

Attitudinal loyalty is found to have a negative correlation with price insensitivity at the statistically significant level of 0.001 (standardized parameter estimate = -0.31, t-value = -3.78), which is inconsistent with the hypothesis. In

addition, behavioral loyalty is positively but insignificantly related to price insensitivity at any level (standardized parameter estimate = 0.04, t-value = 0.46). Perceived value has a positive relationship with price insensitivity at a statistically significant level of 0.001 (standardized parameter estimate = 0.27, t-value = 4.86). The results indicate that only the relationship between perceived value and price insensitivity is supported by the data; therefore H9C is supported. However, the results of H9A and H9B are not as expected. The reason may be that a hotel's low pricing policy is available worldwide, especially in a difficult period of high competition since the events of September 11 (Gillian, 2002; Corp., 2005), which has had an impact in the opposite direction to price insensitivity. Accordingly, attitudinal loyalty may have a negative relationship with price insensitivity, even though behavioral loyalty has a positive relationship with price insensitivity despite demonstrated statistical insignificance.

7.4.10 Hypothesized Relationships between Attitudinal Loyalty and Perceived Brand Image (H10A), between Behavioral Loyalty and Perceived Brand Image (H10B) and between Perceived Value and Perceived Brand Image (H10C)

The results supported all hypotheses (H10A, H10B and H10C) that there are positive relationships between attitudinal loyalty and perceived brand image at the statistical significance level of 0.05 (standardized parameter estimate = 0.14, t-value = 1.99), between behavioral loyalty and perceived brand image at the statistical significance level of 0.01 (standardized parameter estimate = 0.20, t-value = 2.63) and between perceived value and perceived brand image at the statistical significance level of 0.001 (standardized parameter estimate = 0.47, t-value = 8.30).

In summary, these hypotheses are mostly supported by the data except the relationship between loyalty (attitudinal and behavioral) and price insensitivity, whereas all other demonstrated relationships fully support the hypotheses.

7.5 Total. Direct and Indirect Effects

The objective of this dissertation is to empirically assess the factors driving customer loyalty, perceived value and its consequences (positive word-of-mouth, price insensitivity and perceived brand image). Hence, the contribution of predictor variables in explaining variations in the three mediating variables (attitudinal loyalty, behavioral loyalty and perceived value) and three dependent variables (positive word-of-mouth, price insensitivity and perceived brand image) are investigated. The results are presented in Table 7.2.

Table 7.2: Indirect, Direct and Total Effects of Predictor Variables on Three Mediating Variables and Three Dependent Variables

Predictor Variables	AL			BL			PV			WOM			PI			BI		
	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect
FP	0.335	0.335		0.358	0.181	0.177	0.165	0.165		0.270		0.270	-0.058		-0.058	0.195		0.195
TP	0.177	0.177		0.093		0.093				0.101		0.101	-0.054		-0.054	0.043		0.043
BT	0.228	0.228		0.120		0.120				0.131		0.131	-0.07		-0.07	0.057		0.057
BA				0.208	0.197	0.011	0.545	0.545		0.140		0.140	0.149		0.149	0.253		0.253
AL				0.917	0.527	0.390				0.806	0.463	0.343	-0.533	-0.306	-0.227	0.249	0.143	0.106
BL										0.323	0.206	0.117				0.308	0.196	0.112
PV										0.439	0.257	0.182	0.467	0.273	0.194	0.795	0.465	0.330

Note: AL = Attitudinal Loyalty, BL = Behavioral Loyalty, PV = Perceived Value, WOM = Positive Word-of-Mouth, PI = Price Insensitivity, BI = Perceived Brand Image, FP = Functional Performance, TP = Technical Performance, BT = Brand Trust, BA = Brand Affect

Attitudinal Loyalty: The model explains 42% of the variance in attitudinal loyalty and its most important predictor variable is functional performance ($\beta = 0.34$), which has significant positive direct effect on attitudinal loyalty. Furthermore, the other predictor variables on attitudinal loyalty are brand trust ($\beta = 0.23$) and technical performance ($\beta = 0.18$), respectively.

Behavioral loyalty: The model explains a high percentage 66% of the variation in behavioral loyalty. Attitudinal loyalty performs the most important predictor ($\beta = 0.92$), functional performance ($\beta = 0.36$) and brand affect ($\beta = 0.21$), which have significant positive direct and indirect effects on behavioral loyalty. The other predictor variables are brand trust ($\beta = 0.12$) and technical performance ($\beta = 0.09$), which all have an indirect effect on behavioral loyalty.

Perceived value: The model explains a high percentage 53% of the variation in perceived value. The best predictor variables are brand affect ($\beta = 0.55$) and functional performance ($\beta = 0.17$), which have a direct effect on perceived value.

Positive word-of-mouth: The model explains 61% of the variation in positive word-of-mouth and its most important predictor variables are attitudinal loyalty ($\beta = 0.81$), perceived value ($\beta = 0.44$) and behavioral loyalty ($\beta = 0.32$). These have significant positive direct and indirect effects on positive word-of-mouth. The predictor variables, which indicate only the indirect effect on positive word-of-mouth, are functional performance ($\beta = 0.27$), followed by brand affect ($\beta = 0.14$), brand trust ($\beta = 0.13$) and technical performance ($\beta = 0.10$), respectively.

Price insensitivity: The model explains only 9% of the variation in price insensitivity. The most important predictor variable is perceived value ($\beta = 0.47$), which has positive direct and indirect effects on price insensitivity. In contrast, attitudinal loyalty ($\beta = -0.53$) indicate the significant negative direct and indirect effects on price insensitivity. The predictor variables, which have a significant negative indirect effect include brand trust ($\beta = -0.07$) along with functional performance ($\beta = -0.06$) and technical performance ($\beta = -0.05$). The last predictor variable is brand affect ($\beta = 0.15$), which has a positive indirect effect on price insensitivity.

Perceived brand image: Table 7.1 illustrates the variation of perceived brand image at 46%. Surprisingly, perceived value is the most important predictor (β

= 0.80), followed by behavioral loyalty (β = 0.31) and attitudinal loyalty (β = 0.25), which have significant positive direct and indirect effects on perceived brand image. Brand affect (β = 0.25), functional performance (β = 0.20), brand trust (β = 0.06) and technical performance (β = 0.04), have a significant positive indirect effect on perceived brand image.

7.6 Holdout Sample

For model evaluation, it is suggested to set aside part of the data to examine how well the selected model performs on the holdout sample. This provides a stronger test of a model's predictive validity and robustness, than testing it on the same data set on which the model was developed. To test the robustness of the model, the analysis is duplicated with the holdout samples of 70 percent (340 respondents), 80 percent (390 respondents), 85 percent (414 respondents), 90 percent (438 respondents) and 95 percent (463 respondents) which are randomly selected from the total sample of 487 (Kohli, 1989). The result is shown in Table 7.3 as follows:

Table 7.3: Model Fit Indices of Holdout Samples

Holdout Sample	χ^2	df	P-value	χ^2/df	GFI	AGFI	RMSR	SRMR	RMSEA
70%	437.29	184	0.000	2.38	0.889	0.848	0.076	0.058	0.064
80%	466.06	184	0.000	2.53	0.898	0.859	0.072	0.058	0.063
85%	484.7	184	0.000	2.63	0.899	0.861	0.071	0.059	0.063
90%	470.98	184	0.000	2.56	0.906	0.871	0.065	0.056	0.060
95%	476.14	184	0.000	2.59	0.910	0.876	0.064	0.057	0.059

From Table 7.3, the ratio of chi-square over degree of freedom becomes larger when the sample size increases; however, the model fits the data. The increasing sample size which is considered to increase statistical power in detecting model-data discrepancies of the same magnitude results in the increment of the ratio of chi-square over the degree of freedom (Tanaka, 1993). From the holdout sample,

the goodness-of-fit indices show a marginal discrepancy, which implies the consistency of fit between the model and the data.

7.7 Equivalent Structural Model

There are several research studies such as Bollen and Long (1993) and Kline (1998) which conclude that all treatments of structural equation modeling should include the demonstration of superior goodness of fit hypothesized models compared to selected, plausible equivalent models. Lee and Hershberger (1990) also suggested a replacing rule, whereby the proposed model is respecified to create an equivalent model by reversing the direction of the arrow linking two endogenous variables. Therefore, the replacing rule implied in this dissertation is employed on the casual relationship between perceived brand image and perceived value by reversing the arrow from perceived brand image to perceived value. This reverse arrow is supported by Nandan (2005) that strengthened brand image can create value for the customer. The reason is that brand image described as a particular brand, is positioned in the market as to how the customer perceives the product, whereas loyalty led to its consequences such as price insensitivity, positive word-of-mouth, etc. (Dick and Basu, 1994; Chaudhuri and Holbrook, 2001). Hence, the reverse arrow in this dissertation shows only the causal relationship between perceived brand image and perceived value.

The equivalent model is reestimated and the model fits the data. The model fit indices indicate an adequate fit. The model goodness-of-fit statistics on the equivalent model are χ^2 = 541.33, df = 184, p-value = 0.00, χ^2/df = 2.94, RMR = 0.06, GFI = 0.91, AGFI = 0.87, RMSEA = 0.06 and SRMR = 0.07. In addition, Joreskog (1993) recommended that the evaluation of the hypothesized and competing model can be implemented through considering both parsimony and fit. He introduced three measures for comparison, which include Akaike information criterion (AIC), expected cross-validation index (ECVI) and consistent Akaike information criterion (CAIC). These three measures are functions of the model of chi-square and degrees of freedom. The model with the smallest value on these measures is the better model. Furthermore, the parsimonious normed fit index (PNFI)

is another measure to determine model parsimony. The higher values of PNFI imply better model parsimony (Johkle and Duhan, 2001). Hence, four measures of equivalent value are AIC = 679.33, ECVI = 1.40, CAIC = 1037.32 and PNFI = 0.74. The result of the hypothesized model and equivalent model is shown in Table 7.4 as follows:

Table 7.4: Standardized Parameter Estimates and Model Fit Statistics of the Hypothesized Model and the Equivalent Model

H:	From	To	Hypothesized model		Equivalent Model	
			Standardized estimate	t-value	Standardized estimate	t-value
H1A	Functional performance	Attitudinal loyalty	0.335****	4.272	0.331****	4.206
H1B	Technical performance	Attitudinal loyalty	0.177***	3.034	0.181****	3.090
H2A	Functional performance	Behavioral loyalty	0.181***	2.900	0.179***	2.867
H2B	Technical performance	Behavioral loyalty	-0.016	-0.355	-0.015	-0.340
H3A	Functional performance	Perceived value	0.165***	2.381	0.136**	1.905
H3B	Technical performance	Perceived value	0.016	0.320	0.032	0.607
H4A	Brand trust	Attitudinal loyalty	0.228*	1.622	0.227*	1.605
H4B	Brand affect	Attitudinal loyalty	0.021	0.189	0.019	0.177
H5A	Brand trust	Behavioral loyalty	0.067	0.623	0.067	0.620
H5B	Brand affect	Behavioral loyalty	0.197***	2.349	0.205***	2.449
H6A	Brand trust	Perceived value	0.084	0.676	-0.037	-0.292
H6B	Brand affect	Perceived value	0.545****	5.466	0.487****	4.831
H7	Attitudinal loyalty	Behavioral loyalty	0.527****	10.761	0.527****	10.824
H8A	Attitudinal loyalty	Positive word-of-mouth	0.463****	7.937	0.456****	7.813
H8B	Behavioral loyalty	Positive word-of-mouth	0.206****	3.410	0.219****	3.545
H8C	Perceived value	Positive word-of-mouth	0.257****	6.300	0.236****	5.536
H9A	Attitudinal loyalty	Price insensitivity	-0.306****	-3.780	-0.309****	-3.789
H9B	Behavioral loyalty	Price insensitivity	0.039	0.463	0.039	0.460
H9C	Perceived value	Price insensitivity	0.273****	4.862	0.266****	4.476
H10A	Attitudinal loyalty	Perceived brand image	0.143**	1.990	0.143**	1.904
H10B	Behavioral loyalty	Perceived brand image	0.196***	2.632	0.502****	6.318

H:	From	To	Hypothesized model		Equivalent Model	
			Standardized estimate	t-value	Standardized estimate	t-value
New path	Perceived brand image	Perceived value			0.300****	6.220
H10C	Perceived value	Perceived brand image	0.465****	8.304		
Model Goodness-of-fit Statistics						
	χ^2		503.910		541.325	
	df		184		184	
	χ^2/df		2.739		2.942	
	p-value		0.000		0.000	
	GFI		0.909		0.906	
	AGFI		0.875		0.870	
	RMSR		0.065		0.064	
	RMSEA		0.060		0.063	
	SRMR		0.058		0.070	
	AIC		641.910		679.325	
	ECVI		1.321		1.398	
	CAIC		999.900		1037.315	
	PNFI		0.743		0.739	

Note: *p = 0.10, **p = 0.05, ***p = 0.01, ****p = 0.001 based on one-tailed t-tests: t-value > 1.28 for p = 0.10, t-value > 1.65 for p = 0.05, t-value > 2.33 for p = 0.01 and t-value > 3.09 for p = 0.001.

According to Table 7.4, the results show that the three measures of AIC, ECVI and CAIC of the hypothesized model are lower than the three measures of the equivalent model. The value of PNFI on the hypothesized model is also higher value than the PNFI value of the equivalent model. Hence, all measures of the hypothesized model indicate that this hypothesized model performs better in terms of both model parsimony and fit.

7.8 Competing Model

A competing model including all independent variables along with attitudinal and behavioral loyalty and perceived value has a direct impact on the dependent variables (positive word-of-mouth, price insensitivity and perceived brand image). This model is adopted from Zeithaml, Berry et al. (1996) in which service

quality assessment impact on behavioral intentions (including word-of-mouth communications, price insensitivity, purchase intentions, and complaining behavior). A competing model is assessed and the model fit indices indicate adequate fit between the model and the data. The results of the comparison between the hypothesized model and the competing model are indicated in Table 7.5 as follows:

Table 7.5 Standardized Parameter Estimates and Model Fit Statistics of the Hypothesized Model and the Competing Model

H:	From	To	Hypothesized Model		Competing Model	
			Standardized estimate	t-value	Standardized estimate	t-value
H1A	Functional performance	Attitudinal loyalty	0.335	4.272****		
H1B	Technical performance	Attitudinal loyalty	0.177	3.034***		
H2A	Functional performance	Behavioral loyalty	0.181	2.900***		
H2B	Technical performance	Behavioral loyalty	-0.016	-0.355		
H3A	Functional performance	Perceived value	0.165	2.381***		
H3B	Technical performance	Perceived value	0.016	0.320		
	Functional performance	Positive word-of-mouth			0.081	1.029
	Functional performance	Price insensitivity			-0.009	-0.098
	Functional performance	Perceived brand image			-0.031	-0.329
	Technical performance	Positive word-of-mouth			0.145	2.418***
	Technical performance	Price insensitivity			0.173	2.447***
	Technical performance	Perceived brand image			-0.120	-1.725**
H4A	Brand trust	Attitudinal loyalty	0.228	1.622*		
H4B	Brand affect	Attitudinal loyalty	0.021	0.189		
H5A	Brand trust	Behavioral loyalty	0.067	0.623		
H5B	Brand affect	Behavioral loyalty	0.197	2.349***		
H6A	Brand trust	Perceived value	0.084	0.676		
H6B	Brand affect	Perceived value	0.545	5.466****		
	Brand trust	Positive word-of-mouth			-0.068	-0.469
	Brand trust	Price insensitivity			-0.140	-0.815
	Brand trust	Perceived brand image			0.447	2.452***
	Brand affect	Price insensitivity			0.217	1.639*
	Brand affect	Perceived brand image			0.238	1.726**
H7	Attitudinal loyalty	Behavioral loyalty	0.527	10.761****	0.753	16.09****

H:	From	To	Hypothesized Model		Competing Model	
			Standardized estimate	t-value	Standardized estimate	t-value
H8B	Behavioral loyalty	Positive word-of-mouth	0.206	3.410****	0.175	2.705***
H8C	Perceived value	Positive word-of-mouth	0.257	6.300****	0.216	5.463****
H9A	Attitudinal loyalty	Price insensitivity	-0.306	-3.780****	-0.332	-4.307****
H9B	Behavioral loyalty	Price insensitivity	0.039	0.463	0.016	0.218
H9C	Perceived value	Price insensitivity	0.273	4.862****	0.183	3.966****
H10A	Attitudinal loyalty	Perceived brand image	0.143	1.990**	0.165	2.183**
H10B	Behavioral loyalty	Perceived brand image	0.196	2.632***	0.071	0.968
H10C	Perceived value	Perceived brand image	0.465	8.304****	0.227	4.832****

Model Goodness-of-fit statistics	Hypothesized Model	Competing Model
χ^2	503.91	1001.649
d.f.	184	184
p-value	0.000	0.000
χ^2/df	2.74	5.444
GFI	0.909	0.847
AGFI	0.875	0.789
RMSR	0.065	0.333
TLI	0.945	0.889
CFI	0.956	0.888
NFI	0.933	0.867
SRMR	0.0576	0.2799
RMSEA	0.060	0.096
PNFI	0.743	0.691
AIC	641.910	1139.649
ECVI	1.321	2.345
CAIC	999.900	1497.639

Note: * = 0.10, ** = 0.05, *** = 0.01, **** = 0.001 based one-tailed t-values: t-value > 1.28 for $p < 0.10$, t-value > 1.65 for $p < 0.05$, t-value > 2.33 for $p < 0.01$, t-value > 3.09 for $p < 0.001$.

These two models are compared in terms of model parsimony and fit. Four measures (AIC, ECVI, CAIC and PNIF) are used to compare the data. The criteria of the better fitted model and greater parsimony are decided by lower values of AIC, ECVI, CAIC along with higher value of PNFI. The results from Table 7.5 indicate that all three values of AIC, ECVI, CAIC on the hypothesized model (AIC = 641.91, ECVI = 1.32, CAIC = 999.90) are lower than those of the competing model (AIC = 1139.65, ECVI = 2.35 and CAIC = 1497.64). The PNFI value of the hypothesized model (PNFI = 0.74) is higher than the PNFI value of the competing model (PNFI = 0.69). Hence, the hypothesized model performs better fit and greater parsimony than the competing model.

Morgan and Hunt (1994) also recommended four criteria in choosing the better model, which included (1) overall fit of the model-implies covariance matrix to the sample covariance matrix, as measured by CFI (the higher value performing the better fit model), (2) percentage of the model's hypothesized parameters that are statistically significant, (3) ability to explain the variance in the outcomes of interest, as measured by squared multiple correlations (SMC) of the outcome variables and (4) parsimony, as measured by the parsimonious normed fit index (PNFI), the better parsimony indicating the higher value of PNFI. According to Table 7.5, the value of CFI on the hypothesized model (CFI = 0.96) is higher than the value of CFI on the competing model (CFI = 0.89). On the hypothesized model, 14 of 22 (63.6%) hypothesized paths are statistically significant at 0.05 level (not including one path that is statistically significant at 0.10 level), while 13 from 22 (59.1%) competing paths are statistically significant at 0.05 level (not including 2 paths that are statistically significant at 0.10 level). Furthermore, the SMC values of the hypothesized model including positive word-of-mouth, price insensitivity and perceived brand image are equal to 0.61, 0.10 and 0.46, respectively, whereas the SMC values on the competing models are 0.50, 0.18 and 0.46, respectively. The PNFI value of the hypothesized model (0.74) is higher than the value on the competing model (0.69). The SMC values of these two models are indifferent. However, the three measures which include CFI, the percentage of statistically significant paths and PNFI value on the hypothesized model are higher than on the competing model. Hence, the hypothesized model with mediating variables

(attitudinal loyalty, behavioral loyalty and perceived value) perform better in terms of model fit and parsimony.

7.9 Moderating Tests

Two sets of moderating variables are examined in this dissertation, including traveling purpose (business/leisure) and cultural aspect (individualism/collectivism). The model specification requires a testing of the moderating effects of business/leisure along with individualism/collectivism on the relationship between independent variables (functional performance, technical performance, brand trust, brand affect) and the mediating variables (attitudinal loyalty, behavioral loyalty and perceived value). To assess the moderating effects, a multi-group path analysis is recommended (Bagozzi and Yi, 1989). This analysis is an appropriate technique when the covariance matrices differ significantly across treatments (Voss, Parasuraman, and Grewal, 1998). Moreover, this analysis enhances the simultaneous estimation of all hypothesized relationships across groups. In addition, this technique allows for restricted models by applying systematic constraints on posited relationships. These restricted models can be assessed for their fit to data on the basis of a chi-square statistic, non-normed fit index (NNFI), or Tucker-Lewis index (TLI), comparative fit index (CFI) along with other indicators such as the root mean square error of approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) (Marsh, Balla, and Hau, 1996).

Moreover, it is important to determine the differences between groups in terms of traveling purpose and cultural aspect (business vs. leisure and individualism vs. collectivism). These differences are assessed by using a split-group analysis method (Osterhus, 1997). First, the 487 sample size is divided into two groups (according to the binary question), which are business and leisure. The number of business customers are equal to 142 (29.8%), whereas the number of leisure customers are equal to 345 (70.2%).

Additional analysis is conducted to investigate differences between the high and low collectivism groups. These differences are also examined by using split-group analysis procedure (high and low on the moderating variables) (Osterhus,

1997). Therefore, the total sample size of 487 is separated into two groups by employing high and low median splits on the collectivism construct (including 3 items: collec1, collec3 and collec4). The high collectivism group is the one whose scores of collectivism are above and equal to 4 on the five-point Likert scale. Therefore, the total score of three items on the collectivism construct, which is equal to 12 or above, is categorized as the high collectivism group. The total score of the remaining three items, which is equal to 9 or lower, is categorized as the low collectivism group. The total score between 10 and 11 is deleted. The sample size of the high collectivism group is 315 customers, whereas the score of the low collectivism group (individualism) equals 107 customers. Hence, the moderating effects of business/leisure and individualism/collectivism are examined and observed in the relative change of model fit.

To examine the commonalities and differences between business and leisure along with individualism and collectivism groups, two alternative multiple sample models are assessed. The first model is an unconstrained model, where no constraints across samples on the structural parameters are estimated. Next, the constrained model is assessed. The twelve relationships of business and leisure models along with individualism and collectivism models are treated to be constrained across samples in both models. The twelve constrained paths of both models include:

- Functional performance → Attitudinal loyalty
- Technical performance → Attitudinal loyalty
- Brand trust → Attitudinal loyalty
- Brand affect → Attitudinal loyalty
- Functional performance → Behavioral loyalty
- Technical performance → Behavioral loyalty
- Brand trust → Behavioral loyalty
- Brand affect → Behavioral loyalty
- Functional performance → Perceived value
- Technical performance → Perceived value
- Brand trust → Perceived value
- Brand affect → Perceived value

A significant moderating effect exists if the change in chi-square value is significant. For the business and leisure groups, the chi-square on the unconstrained model is equal to 760.46 and the degree of freedom is 368 ($p < 0.00$). The chi-square value and the degree of freedom are equal to the respective sums of the structural models estimated separately on the two samples. The chi-square value of the constrained model with the twelve common relationships is equal to 773.71 and the degree of freedom is 380 ($p < 0.00$). The difference of chi-square value between the two models is 13.25 (773.71 – 760.46), while the value on the chi-square table with the alpha at 0.05 significant level and the degree of freedom of 12 (380 – 368) is equal to 21.03 (13.25 < 21.03). Hence, the acceptance of the hypotheses on the twelve relationships is invariant across two samples because the difference is statistically insignificant at a level of 0.05. The result indicates that the type of customers (business/leisure) has no moderating effect on the hypothesized relationships.

Furthermore, the same procedure is used on individualist and collectivist groups. The chi-square value of the unconstrained model is equal to 666.32 and the degree of freedom is 368. The chi-square value of the constrained model is 704.71 and the degree of freedom is 380. The difference of the chi-square value on these two models is 38.39 ($\Delta\chi^2_{12} = 38.39$). Therefore, the rejection of the hypotheses that the twelve relationships are invariant across the two samples is accepted. The critical value of chi-square table with alpha at 0.05 level at the degree of freedom of 12 is 21.03. Hence, the difference of chi-square value of the tested models is higher than the chi-square value from the table (38.39 – 21.03), which implies that the difference is statistically significant at less than 0.05 level. The finding suggests that collectivism has a moderating effect on the hypothesized relationships. The result of chi-square value on testing the moderating effects of traveling purpose and cultural aspect is shown in Table 7.6.

Table 7.6: Moderating Tests of Business/Leisure Group and Individualism/Collectivism Group

Business/Leisure Group	
Constrained Model*	$\chi^2_{380} = 773.705$
Unconstrained Model	$\chi^2_{368} = 760.458$
The Difference	$\Delta\chi^2_{12} = 13.247$ ($p > 0.05$)
Individualism/Collectivism Group	
Constrained Model*	$\chi^2_{380} = 704.704$
Unconstrained Model	$\chi^2_{368} = 666.324$
The Difference	$\Delta\chi^2_{12} = 38.38$ ($p < 0.05$)

Note: * Constrained model refers to the restriction of the beta coefficient to be equal between the high and low moderator groups, whereas the freed condition relaxes this constraint.

7.10 Results of Moderating Tests

In this section, only the unstandardized parameter estimates of individualism/collectivism construct is provided in Table 7.7. The result of this table indicates that the moderating effect of collectivism construct had an impact on the hypothesized relationships between independent variables (functional performance, technical performance, brand trust and brand affect) and mediating variables (attitudinal loyalty, behavioral loyalty and perceived value) at the statistically significant level. By comparing across groups, unstandardized comparisons are suggested to be evaluated instead of standardized comparisons. The reason is that indicators may have different variances, measurement error terms, and disturbance terms (Ping, 1995). The unstandardized parameter estimates are used to perform the comparison between individualism and collectivism groups as follows:

Table 7.7: The Hypotheses Testing on the Moderating Effects of Individualism/Collectivism

			Collectivism		Individualism	
			Unstand.Est.	t-value	Unstand.Est.	t-value
H11A	Functional Performance	Attitudinal Loyalty	0.484	3.655****	-0.888	-0.625
	Functional Performance	Behavioral Loyalty	0.282	2.316**	-1.281	-0.649
	Functional Performance	Perceived Value	0.186	1.462*	-1.065	-1.047
H11B	Technical Performance	Attitudinal Loyalty	0.343	2.607***	0.758	1.400*
	Technical Performance	Behavioral Loyalty	0.171	1.459*	0.395	0.478
	Technical Performance	Perceived Value	0.174	1.378*	0.252	0.555
H11C	Brand Trust	Attitudinal Loyalty	0.218	1.106	5.261	0.988
	Brand Trust	Behavioral Loyalty	0.027	0.173	6.802	0.850
	Brand Trust	Perceived Value	-0.213	-1.071	5.381	1.464*
H11D	Brand Affect	Attitudinal Loyalty	0.272	2.222**	-3.669	-1.002
	Brand Affect	Behavioral Loyalty	0.476	4.187****	-4.403	-0.798
	Brand Affect	Perceived Value	0.889	6.645****	-2.798	-1.120

Model Goodness-of-fit statistics:

Chi-Square = 666.324	RMSR = 0.058
Degree of freedom = 368	TLI = 0.940
p-value = 0.000	CFI = 0.952
GFI = 0.882	NFI = 0.900
AGFI = 0.837	RMSEA = 0.042, SRMR = 0.0622

Note: *p = 0.10 for t-values > 1.28, ** p = 0.05 for t-values > 1.65, ***p = 0.01 for t-values > 2.33, ****p = 0.001 for t-values > 3.09 based on one-tailed t-tests.

The result of testing the moderating effects of individualism/collectivism from Table 7.7 indicates that only six posited relationships out of twelve hypothesized relationships have the positive relationship at the statistical significance levels of 0.05, 0.01 and 0.001, respectively. Moreover, only three proposed relationships are statistically insignificant at any level (brand trust → attitudinal loyalty, brand trust → behavioral loyalty and brand trust → perceived value). The details of moderating

effect of individualism/collectivism between independent variables and mediating variables are presented in the following section.

7.10.1 The Moderating Effect of Individualism/.Collectivism on the Relationships between Functional Performance and Loyalty (Attitudinal and Behavioral) and Perceived Value

The moderating effect of individualism/collectivism on the relationships between functional performance and loyalty (attitudinal and behavioral) and perceived value for the high collectivism group is statistically significant at 0.001, 0.05 and 0.10 levels, respectively. On the contrary, the moderating effect of the low collectivism group is statistically insignificant at any level. The moderating effect of the high collectivism group enhances the strength of the relationship between functional performance and attitudinal loyalty (b = 0.48, t-value = 3.66) and between functional performance and behavioral loyalty (b = 0.28, t-value = 2.32) at a significant level when compared to the low collectivism group. Hence, the result supported hypothesis 11A.

7.10.2 The Moderating Effect of Individualism/.Collectivism on the Relationships between Technical Performance and Loyalty (Attitudinal and Behavioral) and Perceived Value

For hypothesis 11B, the moderating effect of collectivism is found to have an impact on the relationships between technical performance and loyalty and perceived value. The findings revealed that the parameter estimates in the high collectivism group (b = 0.17, t-value = 1.46 for behavioral loyalty and b = 0.17, t-value = 1.38 for perceived value) are statistically significant compared to the low collectivism group (b = 0.40, t-value = 0.48 for behavioral loyalty and b = 0.25, t-value = 0.56 for perceived value). This is despite the magnitude of parameter estimates in the low collectivism group being higher than in the high collectivism group. However, both t-values of the low collectivism group are statistical insignificant at any level. The result shows that there is a positive relationship

between technical performance and loyalty (attitudinal and behavioral) and perceived value at the statistically significant level of 0.01 and 0.10 for the high collectivism group. However, the relationship between technical performance and attitudinal loyalty for the low collectivism group is statistically significant level of 0.10. The magnitude of positive relationship on the low collectivism group (b = 0.76, t-value = 1.40) is higher than on the high collectivism group (b = 0.34, t-value = 2.61). Therefore, hypothesis 11B is partially supported.

7.10.3 The Moderating Effect of Individualism/.Collectivism on the Relationships between Brand Trust and Loyalty (Attitudinal and Behavioral) and Perceived Value

The results from Table 7.7 indicate that the relationships between brand trust and loyalty is not statistically significant at any levels for both groups. The relationship between brand trust and perceived value for the high collectivism group is negative and statistically insignificant. However, this relationship is found to be statistically significant at 0.10 for the low collectivism group. The magnitude of parameter estimates in the low collectivism group (b = 5.38, t-value = 1.46) is greater than in the high collectivism group (b = -0.21, t-value = -1.07). Hence, hypothesis 11C is not supported.

7.10.4 The Moderating Effect of Individualism/.Collectivism on the Relationships between Brand Affect and Loyalty (Attitudinal and Behavioral) and Perceived Value

The relationships between brand affect and loyalty and perceived value on the collectivism group is positive at statistically significant of 0.05 and 0.001 levels, respectively. However, the relationship between brand affect and loyalty and perceived value on the low collectivism group is negative and statistically insignificant at any level, which implies that the result on both groups is supported hypothesis 11D.

7.11 Summary

The result of posited relationships by applying structural equation modeling indicates that there are positive relationships between functional performance and loyalty (attitudinal and behavioral) and perceived value as expected. However, there is only one positive relationship between technical performance and attitudinal loyalty as hypothesized. Technical performance has a negative relationship with behavioral loyalty and a positive relationship with perceived value. Both these relationships are statistically insignificant at any level. The findings of both relationships do not support the hypothesized relationship. Brand trust has a positive relationship with loyalty (attitudinal and behavioral) and perceived value; however, all relationships are statistically insignificant at any level, which does not support the hypotheses. Brand affect also has a positive relationship with loyalty and perceived value. However, the results support the hypotheses only on the positive relationship between brand affect and behavioral loyalty and perceived value. The reason is that a positive relationship between brand affect and attitudinal loyalty is statistically insignificant at any level. The positive relationship between attitudinal loyalty and behavioral loyalty strongly supported the hypothesis. In addition, there are strong positive relationships between loyalty (attitudinal and behavioral) and positive word-of-mouth and perceived brand image. The positive relationships between perceived value and positive word-of-mouth, price insensitivity and perceived brand image also supported the hypotheses. However, the relationship between attitudinal loyalty and price insensitivity is negative, which contradicted the hypothesis.

Regarding the moderating effect, the result indicated that only the individualism/collectivism group has a moderating effect on the relationship between the independent variables and mediating variables. The moderating effects of the collectivism group on the positive relationship between functional performance and loyalty (attitudinal and behavioral) and perceived value are apparent. However, the moderating effects of the collectivism group on the positive relationship between technical performance and loyalty (attitudinal and behavioral) and perceived value is partially supported. Moderating effects on the relationship between brand trust and loyalty and perceived value are not found. Finally, the moderating effects of the

collectivism group on the positive relationship between brand affect and loyalty and perceived value are strongly supported by the findings.