

# Components of Brand Equity: The Case of Bình Thuận Dragon Fruit

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## ABSTRACT

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The paper aims at testing the theoretical model of brand equity and developing a measure for brand equity of Bình Thuận dragon fruit and relationship between components of brand equity. The research results based on Structural Equation Modeling (SEM) demonstrate relationships between the following components of the brand equity of Bình Thuận dragon fruit: Brand awareness, perceived quality, brand associations and brand loyalty. The results also show that these components do affect the overall brand equity.

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## 1. PROBLEM STATEMENT

Dragon fruit is a specialty ranked 1<sup>st</sup> out of 11 types of Vietnamese fruit with competitive advantage acknowledged by Ministry of Agriculture and Rural Development at the conference held in HCMC on June 7 2004. The fruit features high economic efficiency and considerably raises farmers' income in general, and in Bình Thuận Province in particular, it helps restructure agricultural crops and change the face of rural districts.

Dragon fruit yield during the past years has risen rapidly (from 141,283 tons in 2007 to 379,604 tons in 2012 counted as for 15,807 hectares of farmland) (Bình Thuận Office of Statistics, 2012). Yet, uneven quality and size of dragon fruit, lax control of food sanitation from production to consumption stages and irrational brand marketing programs prevent this product from creating a vivid image in consumers' mind and intense loyalty toward the product, accounting for its low value (Bình Thuận Department of Agriculture and Rural Development, 2010).

## 2. THEORETICAL BASES ON BRAND EQUITY AND PROPOSED RESEARCH MODEL

### 2.1 Brand Equity

The concept of brand equity dates back to the 1980s and has resulted in various definitions (Keller, 1993). According to Aaker (1991, 1996), brand equity is the added value endowed by a brand. While Blackston (1992) assumes that brand equity is consumer's viewpoints on the brand, Keller (1993) defines it as consumer's knowledge of the brand, which consists of two main components: (i) brand awareness; and (2) brand impressions. In his perspective, a brand demonstrates its high value merely when customers have much awareness of and/or favorable impressions of attributes provided by the brand. Simon & Sullivan (1993) identify brand equity as incremental benefits, whereas Park & Srinivasan (1994) analyze brand equity in its role as the difference between "an individual consumer's overall brand preference" and his or her preference for different attributes in particular. As a whole, most studies prove that brand equity is the added value from a product thanks to the existence of brand (Srivastava & Shocker, 1991).

On the analysis of brand equity, Lassar *et al.* (1995) propose two approaches in financial perspective and consumer's one:

Financial perspective: Brand equity is viewed as corporate equity. Simon & Sullivan (1993) employ finance-based estimation technique to measure corporate brand equity,

which isolates the value of brand equity from that of others. This technique divides the value of corporate shares into tangible and intangible equity and subsequently, separates brand equity from the intangible assets (Hoàng *et al.*, 2010).

Consumer's perspective: Aaker (1996) suggests that brand equity is "a set of brand assets and liabilities linked to a brand name and symbol, which add to or subtract from the value provided by a product or service." Keller (1993) introduces two ways of measuring brand equity: direct and indirect. Indirect measurement is conducted through the identification of potential resources of brand equity by measuring consumer's brand awareness, brand attributes and relationships between brand associations, whereas direct measurement focuses on evaluating consumer's response to corporate marketing.

To Siverman *et al.* (1999), brand equity in consumer's perspective can be approached by two different viewpoints: (i) Consumer's cognition (i.e. brand awareness, brand associations, perceived quality, brand trust); and (ii) Consumer's behavior (brand loyalty and willingness to pay high prices).

In this study, consumer's cognition viewpoint is chosen for the analysis.

## **2.2 Components of Brand Equity:**

Aaker (1991, 1996) suggests that brand equity can be measured by the following four components: (i) brand awareness; (ii) perceived quality; (iii) brand associations; and (iv) brand loyalty.

Keller (1993) explains that brand equity itself is consumer's knowledge of that brand, which comprises brand awareness and brand impressions.

Lassar *et al.* (1995) in a research on brand equity in consumer's perspective indicate that brand equity is an increase in consumer's perceived benefits, which consist of five components: (i) perceived quality; (ii) perceived value; (iii) brand impressions; (iv) brand trust; and (v) feelings about the brand.

Sharp (1995) proposes three brand components: (i) brand awareness; (ii) brand images; and (iii) relationships with customers.

According to Berry (2000), brand equity is made up of brand awareness and brand meanings.

Nguyễn & Nguyễn (2011) find that brand equity of consumer goods (i.e. shampoo) in Vietnam's market involves three components: (i) perceived quality; (ii) brand awareness; and (iii) brand passions.

### 2.3 Proposed Model and Hypotheses

Most researches into brand equity are mainly conducted in developed countries and/or on manufactured or consumer goods; hence, scales are inappropriate for Vietnamese fresh fruit. An empirical research accordingly is needed to measure the model and develop a fine measure for brand equity of Bình Thuận dragon fruit specifically. Based on these observations, the authors apply the model suggested by Aaker (1991, 1996), including the following four components: (i) brand awareness; (ii) brand associations; (iii) perceived quality; and (iv) brand loyalty due to its being most cited (Atilgan *et al.*, 2005).

**Brand Equity:** As defined by Keller (1993), brand equity is consumer's knowledge of that brand. Brown (1991) assumes that brand equity is consumer's impressions of a brand, representing his or her whole awareness and considered as an incentive for their consumption or use of a certain product/service among a wide range of other competitive ones in the market. To Srivastava & Shocker (1991), brand equity is deemed added benefits from a branded product.

Meanwhile, Edell (1993) and Yoo *et al.* (2000) believe that brand equity refers to consumers' different assessments of branded and unbranded products of identical attributes.

Overall, most of the previous studies imply that brand equity reveals choices based on consumer's will and affection for a brand among a set of other competing brands (Davis & Doughlass, 1995). That is also a highlight that comprehensively explains brand equity as a result of corporate marketing efforts to build positive awareness and behaviors toward the brand as well as for intangible value that leads to consumers' choices.

**Brand Awareness:** Brand awareness, according to Aaker (1991), is the ability of potential consumers to recognize and recollect a brand as a structural component of a certain product. Thus, brand awareness reflects the power of a brand existing in consumer's mind (Hoàng *et al.*, 2010). In addition, brand awareness denotes another consumer's ability to recognize and recollect a brand in a series of brands in the market (Aaker, 1991; Keller, 1993; Rossiter & Percy, 1987). Keller (1993, 1998) also indicates that brand awareness plays a crucial role in consumer's decisions and includes both brand recognition and brand recollection.

When consumers decide to choose a particular brand, they should first of all be able to identify it; therefore, brand awareness is a primary criterion, depending on which

consumers distinguish a brand from a series of competing brands (Nguyễn & Nguyễn, 2011). Since brand awareness is a component of brand equity (Aaker, 1991, 1996; Keller, 1993, 1998; Yoo et al., 2000; Nguyễn & Nguyễn, 2011), the authors propose  $H_1$  as given below:

*H<sub>1</sub>: Brand awareness directly affects brand equity (+).*

Brand Associations: As suggested by Aaker (1991, 1996), a brand association is anything attached in consumer's memory as regards the brand and brand image as a part of brand associations. Keller (1993, 1998) assumes that brand associations are information on a brand existing in an individual consumer's mind and it connotes brand meanings as for that consumer.

Furthermore, brand associations can be examined in all forms and attributes of a product or distinctive features of its own (Chen, 2001). Brand associations are supposed to be fundamental to purchase decisions and brand loyalty of consumers, and increase corporate value (Atilgan *et al.* 2005). Aaker (1991, 1996) also lists such benefits provided by brand associations as supporting the process of collecting and retrieving information, creating brand distinction and reasons to the purchase, inspiring positive feelings/attitudes toward the brand, and providing the basis for expansion.

Brand associations also create corporate value and likewise enhance brand value by assisting consumers with the differentiation of various brands, arouse positive feelings/attitudes in consumers' minds and suggesting plausible reasons to the purchase (Tong & Hawley, 2009). A brand association is another component of brand equity (Aaker, 1991, 1996; Keller, 1993; Yoo *et al.*, 2000; Nguyễn & Nguyễn, 2011), which leads to the hypothesis  $H_2$ :

*H<sub>2</sub>: Brand associations directly affect brand equity (+).*

Perceived Quality: Perceived Quality is defined as consumer's subjective perception of product quality (Zeithaml, 1988). Hoàng *et al.* (2010) indicate that perceived quality is consumer's perception of the possibility that a brand lives up to his or her expectations. However, the authentic quality of a brand offered by a particular provider and perceived quality do not match. This is merely because consumers are no experts in this domain and thus the quality sensed by them would form the basis for their consumption (Nguyễn & Nguyễn, 2011).

Apart from that, Nguyễn & Nguyễn (2011) suggest that a brand perceived to have high quality will evoke consumers' feelings due to desirable features the brand offers

that make them long to possess rather than any others. On the other hand, as confirmed by Zeithaml (1988) as a part of brand value, the higher perceived quality, the more likely a brand is chosen instead of other competing ones. Now that perceived quality is a component of brand equity (Aaker, 1991, 1996; Yoo *et al.*, 2000; Nguyễn & Nguyễn, 2011), hypothesis H<sub>3</sub> is constructed as follows:

*H<sub>3</sub>: Perceived quality directly affects brand equity (+).*

**Brand Loyalty:** According to David Aaker (1991), brand loyalty is consumer's further engagement with a brand.

There are two brand loyalty approaches which are based on: (i) consumer's behavior; and (ii) consumer's attitude (Chaudhuri & Holbrook, 2001; Kabiraj & Shanmugan, 2011).

The first approach examining behavioral brand loyalty lays great emphasis on the loyalty to a brand with regard to repeat purchase or frequent use of a specific product of the brand (Chaudhuri & Holbrook, 2001; Kabiraj & Shanmugan, 2011). Per Oliver (1997), brand loyalty is considered an individual customer's commitment to the purchase or use of a branded product in the future despite the effects of the market's contexts and impacts which may change his or her unusual behaviors.

Definitions of attitudinal brand loyalty underscore consumer's intentions of consuming products. Rossiter & Percy (1987) stress that brand loyalty is expressed through sympathetic attitudes toward a brand and aims of using the brand over times. Additionally, Yoo *et al.* (2001) suggest that brand loyalty signifies the tendency of consumer's loyalty to a brand.

Brand loyalty performs a key role in brand success and the more intensely brand loyalty is created, the more benefits it should bring (Nguyễn & Nguyễn, 2011). For such reason, brand loyalty constitutes another component of brand equity (Aaker, 1991, 1996; Yoo *et al.*, 2000; Nguyễn & Nguyễn, 2011).

This study explores consumer's brand loyalty on the basis of attitudinal perspective. Thus, H<sub>4</sub> can be formed as below:

*H<sub>4</sub>: Brand loyalty directly affects brand equity (+).*

In their study of brand equity, Yoo *et al.* (2000) assume that there exist interactions between its components. Aaker (1991) and Tan *et al.* (2011) further clarify that brand loyalty is also impacted by such other components of brand equity as brand awareness,

brand associations, and perceived quality. Hence, the authors suggest the following hypotheses:

*H<sub>5</sub>: Brand awareness directly affects brand loyalty (+).*

$H_6$ : Brand associations directly affect brand loyalty (+).

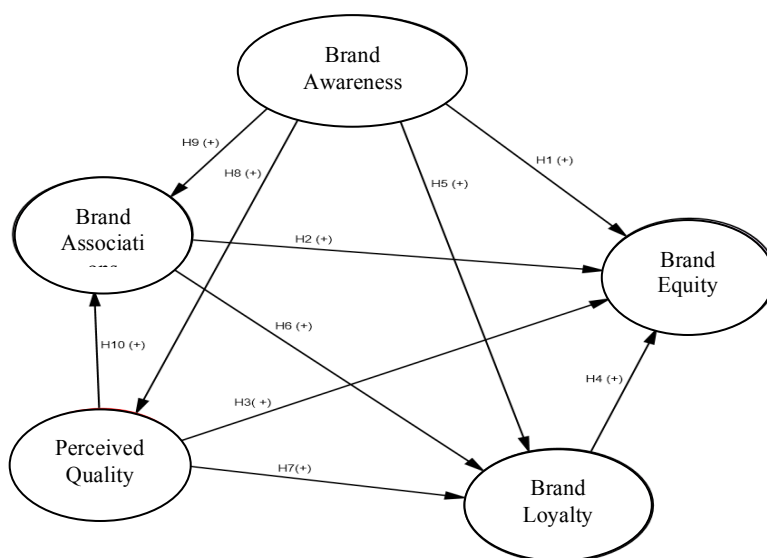
*H<sub>7</sub>: Perceived quality directly affects brand equity (+).*

Also, to perceive brand quality, consumers must be aware of it, that is, they do not only identify the brand but are able to compare and distinguish it from other competing ones in the same group (Nguyễn & Nguyễn, 2011). Once brand awareness and perceived quality are well experienced, consumer's brand associations would more conveniently be formed (Tong *et al.*, 2009; Yoo *et al.*, 2000), and this allows the authors to propose the following hypotheses:

*H<sub>5</sub>: Brand awareness directly affects perceived quality (+).*

*H<sub>6</sub>: Brand awareness directly affects brand associations (+).*

*H<sub>7</sub>: Perceived quality directly affects brand associations (+).*



### Figure 1: Proposed Model and Hypotheses

*Source:* Authors' design

### **3. METHODOLOGY**

#### **3.1 Research Procedures**

The study combines quantitative and qualitative methods. Qualitative research features group discussion concerning 10 customers with regular purchase of Bình Thuận dragon fruit. Next, quantitative research is conducted, preliminarily with 100 respondents directly consuming the fruit, based on direct interviews by means of questionnaires to evaluate the consistency and scale structure. Initial results of quantitative research will subsequently be applied as the data used in the formal research.

The formal research proceeds with the participation of 400 respondents (including 338 valid responses) in HCMC and Phan Thiết City also based on questionnaires to test the research model and hypotheses:

In Phan Thiết City, respondents are regular Bình Thuận dragon fruit purchasers from Phan Thiết market, fruit stores, and tourist attractions (160 out of 200 responses are valid).

For the case of HCMC, respondents are also regular Bình Thuận dragon fruit purchasers in farm product markets, first-level supermarket, and fruit stores (178 out of 200 responses are valid).

#### **3.2 Measure**

The scales employed in this study are previously used in Aaker (1991, 1996), Lassar *et al.* (1995), Yoo *et al.* (2000, 2001) and Nguyễn & Nguyễn (2001) to measure brand equity and its components. Yet, these scales are based on consumer or manufactured goods in developed countries and thus are inappropriate for dragon fruit brand in Vietnam's market. For this reason, quantitative and qualitative methods are used for adjusting the measure to this empirical research in Vietnam.

The results indicate that 25 observed variables used to measure brand equity and its related components of Bình Thuận dragon fruit include 7 variables for measuring brand awareness, 4 for brand associations, 4 for brand loyalty, 7 for perceived quality and 3 for overall brand equity, all of which are employed to design the questionnaires.

#### **3.3 Data Process Technique**



Collected data regarding Bình Thuận dragon fruit consumers are evaluated by means of Cronbach's Alpha, Explanatory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM).

#### 4. RESEARCH RESULTS

##### 4.1 Reliability Test for Scales of Studied Concepts

Results of reliability test through Cronbach's Alpha: The conditions governing reliability standards include Cronbach's Alpha  $> 0,6$  and item-total correlation  $> 0,3$  (Nunnally & Burnstein, 1994). Results of the test are illustrated in Table 1:

**Table 1. Results of Reliability Test for Studied Concepts**

Observed Variable	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha If Item Deleted	Source
Perceived Quality (QL): Alpha = 0.89					
QL1: The shape of Bình Thuận dragon fruit is so beautiful.	22.0030	11.9377	0.7132	0.8725	Yoo <i>et al.</i> (2000); Nguyễn & Nguyễn (2011)
QL2: Its colors are brilliant.	21.9172	11.7973	0.7056	0.8734	
QL3: It is tasty and sweet.	21.8994	11.8177	0.6865	0.8760	
QL4: Its flavor is pure and refreshing.	21.7485	12.1651	0.6870	0.8757	
QL5: It offers high nutritional value.	21.8580	12.2409	0.6890	0.8755	
QL6: It can be long-term preserved.	21.9260	12.3417	0.6706	0.8776	
QL7: It satisfies my demands for consuming dragon fruit.	21.8077	12.2864	0.6648	0.8783	
Brand awareness AW: Alpha = 0.871					
AW1: I am aware of Bình Thuận dragon fruit.	20.6095	9.5800	0.6694	0.8492	Yoo <i>et al.</i> (2000)
AW2: I am aware of how it	20.3994	9.2851	0.7082	0.8437	Aaker (1991)
					Nguyễn &

looks like.

Nguyễn (2011)

AW3: I am aware of how it tastes.	20.8432	10.0080	0.6612	0.8514
AW4: I can be aware of its colors.	21.1036	9.7073	0.6338	0.8540
AW5: I can distinguish Bình Thuận dragon fruit from other types.	20.8669	9.0831	0.6234	0.8590
AW6: I am aware of the design of its logo.	21.0089	10.4955	0.5871	0.8607
AW7: Briefly, when referring to Bình Thuận dragon fruit, I can easily conceive of it.	21.2811	9.5795	0.6819	0.8476

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**Brand associations AS: Alpha = 0.913**

AS1: When mentioning dragon fruit, I immediately associate it with Bình Thuận one.	9.6331	4.6187	0.7807	0.8960
AS2: I have no trouble in visualizing its shape and colors.	10.1538	4.2255	0.7948	0.8900
AS3: As for the fruit, I picture the one with a thick peel and long-term preservation.	10.4408	4.4727	0.7996	0.8889
AS4: Its sweet and refreshing taste first comes to my mind in my reference to Bình Thuận dragon fruit.	10.5296	3.8582	0.8487	0.8723

Yoo *et al.*

(2000)

Lassar *et al.*  
(1995)

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**Brand loyalty LO: Alpha = 0.851**

LO1: I always think of Bình Thuận brand when I want dragon fruit.	9.6361	2.8197	0.6554	0.8260
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Yoo *et al.*  
(2000)

Nguyễn &  
Nguyễn (2011)

LO2: I will not buy any other brands if Bình Thuận dragon fruit is not available at fruit stores.	10.5266	2.4340	0.7184	0.8020
LO3: I will purchase Bình Thuận dragon fruit in the future.	10.2219	2.7904	0.7050	0.8070
LO4: I will introduce Bình Thuận dragon fruit to other consumers.	9.6183	2.6996	0.6980	0.8084

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**Brand equity BE: Alpha = 0.804**

BE1: It is meaningful to consume Bình Thuận dragon fruit instead of other kinds although this kind of fruit may seem the same.	7.6213	0.8710	0.6732	0.7111	
BE2: Although many kinds of dragon fruit offer similar flavor, I like using Bình Thuận one.	7.5799	0.9209	0.6838	0.6957	Yoo <i>et al.</i> (2000)
BE3: Despite the presence of other brands of the same quality, I would stick to my choice of Bình Thuận dragon fruit.	7.2308	1.1157	0.6086	0.7781	

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The results achieved from Cronbach's Alpha test demonstrate that the scales' reliability is ensured. All coefficients of item-total correlations are higher than 0.3 (the minimum is AW6 = 0.5871). Cronbach's Alpha coefficients are all higher than 0.7. Thus, all of the observed variables can be employed in the next analysis.

Results of Explanatory Factor Analysis (EFA): EFA results suggest that 22 observed variables are drawn into 4 factors:

QL1, QL2, QL3, QL4, QL5, QL6 and QL7: Perceived Quality QL

AW1, AW2, AW3, AW4, and AW7: Brand awareness AW

LO1, LO2, LO3, LO4: Brand loyalty LO

AS1, AS2, AS3, AS4, AW5, AW6: Brand associations AS (since factor loadings of AS1, AS2, AS3, and AS4 are the highest, these are the main factors creating the factor brand associations).

The results further indicate that AW5 and AW6, according to consumer's opinions, belong to brand associations and that BE1, BE2, and BE3 are incorporated into brand equity BE.

EFA results with Varimax rotation including Eigenvalue > 1 and total variance extracted > 50% demonstrate that the five factors tested from the empirical model are consistent with the scales suggested in previous studies. EFA results are presented in detail in Tables 2 and 3.

**Table 2. EFA Results of Brand Equity's Components**

Observed variable	Factor			
	1	2	3	4
QL1	0.8063			
QL2	0.7470			
QL4	0.7389			
QL5	0.7292			
QL7	0.7252			
QL3	0.7238			
QL6	0.7179			
AS4		0.8505		
AS2		0.8276		
AS3		0.7940		
AS1		0.7899		
AW6		0.5725		
AW5		0.5669		
AW7			0.7648	
AW3			0.7592	
AW2			0.7517	
AW4			0.7510	
AW1			0.7495	
LO3				0.7713
LO2				0.7525
LO4				0.7476

LO1				0.6940
Eigenvalue	4.3681	3.8203	3.6410	2.7138
% of variance	19.8551	17.3654	16.5501	12.3355
KMO				0.9391
Bartlett's Test	Chi square			4188.8215
	df			231
	Sig.			0.000

Source: Authors' calculations

**Table 3. EFA Results of Brand Equity**

Observed variable	Factor	
	1	
BE1	0.866	
BE2	0.860	
BE3	0.819	
Eigenvalue	2.161	
% of variance	72.030	
KMO	0.705	
Bartlett's Test	Chi square	330.438
	df	3
	Sig.	0.000

Source: Authors' calculations

CFA Results: Composite reliability and extracted variance concerning scales of the concepts of brand equity's components show that the scales' reliability satisfies value conditions as illustrated in Table 4.

**Table 4. CFA Results**

Concept	Component	Number of observed variables	Reliability		Extracted variance
			Cronbach	Composite	
Brand equity's components	Perceived quality QL	7	0.891	0.892	0.541
	Brand awareness AW	5	0.871	0.855	0.541
	Brand associations	6	0.913	0.911	0.634
	Brand loyalty	4	0.851	0.854	0.593
Brand equity BE		3	0.804	0.808	0.584

Source: Authors' analysis

A correlation test among the scales signifies that Chi-square = 313.895, df = 203 with  $p = 0.000$ . However, other indexes demonstrate the model's consistency with market data: TLI = 0.969; CFI = 0.971 and RMSEA = 0.040 satisfy the conditions of level of consistency as presented in Table 5.

**Table 5. Fit Index Method for Testing Discriminant Validity of the Factors**

Indexes	$\chi^2$	df	$\chi^2/df$	p-value	TLI	CFI	RMSEA
Model value	313.895	203	1.546	0.000	0.969	0.971	0.040
Acceptable model fit value			< 2	> 0.05	> 0.90	> 0.95	< 0.070

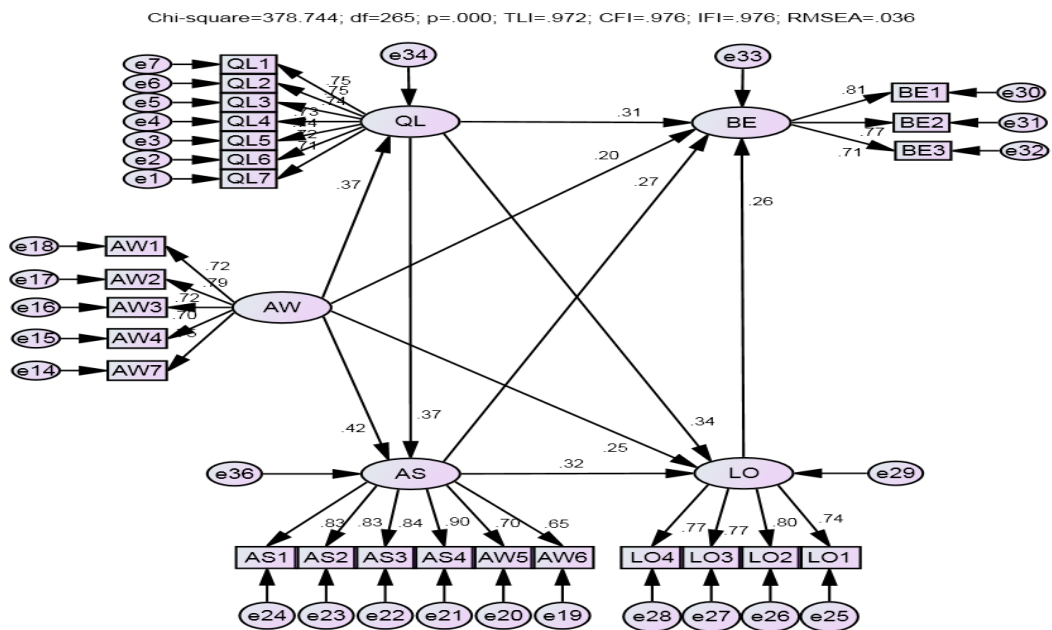
$\chi^2/df$  ratio < 2 (Nguyễn & Nguyễn, 2011), TLI > 0.90 (Hair *et al.*, 2006), CFI > 0.95 (Hu & Bentler, 1999), RMSEA < 0.07 (Hair *et al.*, 2006), p-value > 0.05 (Nguyễn & Nguyễn, 2011)

#### 4.2 Model and Hypotheses Tests:

The results of estimation of theoretical model presented in Table 6 show that  $\chi^2$  of 378.744, df of 265 with a p-value of 0.000 (<0.05) do not meet the expectations due to sample size. However, other indexes imply the model's consistency with market data: TLI = 0.972; CFI = 0.976 and RMSEA = 0.036. The results of the empirical research on Bình Thuận dragon fruit brand equity are compliant with theoretical models suggested by Aaker (1991, 1996). The results of model and hypotheses tests are in Figure 2.

**Table 6. Fit Index Method for Testing the Research Model**

Indexes	$\chi^2$	Df	$\chi^2/df$	p-value	TLI	CFI	RMSEA
Model value	378.744	265	1.429	0.000	0.972	0.976	0.040
Acceptable model fit value			< 2	> 0.05	> 0.90	> 0.95	< 0.070



$\chi^2/df$  ratio < 2 (Nguyễn & Nguyễn, 2011), TLI > 0.90 (Hair *et al.*, 2006), CFI > 0.95 (Hu & Bentler, 1999), RMSEA < 0.07 (Hair *et al.*, 2006), p-value > 0.05 (Nguyễn & Nguyễn, 2011)

**Figure 2. Results of Model and Hypotheses Testing**

Table 7 demonstrates the results of the hypotheses testing, which indicate that all of the hypotheses are accepted at 0.05 significance level.

**Table 7. Results of Hypotheses Testing**

			Estimate	S.E.	C.R.	P	Label
QL	<---	AW	0.37	0.065	5.67	0.000	H <sub>8</sub> accepted
AS	<---	AW	0.295	0.045	6.581	0.000	H <sub>9</sub> accepted
AS	<---	QL	0.259	0.043	6.049	0.000	H <sub>10</sub> accepted
LO	<---	QL	0.3	0.055	5.437	0.000	H <sub>7</sub> accepted
LO	<---	AW	0.219	0.056	3.917	0.000	H <sub>5</sub> accepted
LO	<---	AS	0.403	0.088	4.586	0.000	H <sub>6</sub> accepted
BE	<---	QL	0.292	0.059	4.964	0.000	H <sub>3</sub> accepted
BE	<---	AW	0.188	0.057	3.281	0.001	H <sub>1</sub> accepted
BE	<---	AS	0.359	0.09	3.994	0.000	H <sub>2</sub> accepted
BE	<---	LO	0.281	0.079	3.555	0.000	H <sub>4</sub> accepted

*Source: Authors' analysis*

## 5. RESULT DISCUSSIONS AND RESEARCH IMPLICATIONS

### 5.1 Result Discussions

The results show that brand equity's components of Bình Thuận dragon fruit are correlated with one another:

Brand awareness AW affects perceived quality QL as for Bình Thuận dragon fruit brand (Hypothesis H<sub>8</sub>), consistent with the theory and empirical research by Tong *et al.*, 2009 and Yoo *et al.*, 2000.

Brand awareness AW and perceived quality QL directly affect brand associations AS (Hypotheses H<sub>9</sub> and H<sub>10</sub>), consistent with the theory and empirical research by Tong *et al.* (2009) and Yoo *et al.* (2000).

Brand awareness AW, perceived quality QL, and brand associations directly affect customer's loyalty to the brand (Hypotheses H<sub>5</sub>, H<sub>6</sub>, and H<sub>7</sub>), consistent with the theory and empirical research by Aaker (1991), Yoo *et al.* (2000), and Tan *et al.* (2011).

Furthermore, these components do affect brand equity BE (Hypotheses H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub>), consistent with the theory and empirical research by Aaker (1991, 1996), Keller (1993, 1998), Yoo *et al.* (2000), and Nguyễn & Nguyễn (2011).



The results also indicate that perceived quality QL greatly affects brand equity BE and brand loyalty LO. These imply that the research should take account of perceived quality of Bình Thuận dragon fruit brand.

### **5.2 Research Implications**

Based on the study results, the authors suggest the following policy implications for enhancing perceived quality: (1) Improving the quality of dragon fruit to satisfy market demands by applying technology to production, harvest and preservation thereby ensuring consistent quality of shape and good preservation for the fruit; (2) Developing technological process of care, harvest and preservation and popularize such knowledge to producers; (3) Strictly controlling food hygiene according to VietGap standards.

In addition, several implications are proposed to foster consumer's brand awareness and associations, including the following:

(1) Advertise health benefits offered by the dragon fruit to stimulate consumer tastes and preferences and broaden market size;

(2) Develop distribution networks including wholesale markets and supermarkets to promote consumption and expand market share;

(3) Consult provincial trade promotion agencies for recommendations on reputable and qualified fruit traders, thereby helping Bình Thuận dragon fruit suppliers engage in promotional activities such as trade negotiations, market research and opportunity seeking to expand their market; and

(4) Widely promote the brand through video clips, reports on mass media and reliable websites to promote consumer preference for Bình Thuận dragon fruit.

### **5.3 Limitations and Suggestions for Further Studies**

The study focuses only on direct consumers, not on indirect ones (retailers and wholesalers), while in fact the latter does exert certain influences on brand equity. Thus, there should be further studies on brand equity that combines both direct and indirect consumers.

Due to time and budget constraints, the research has been carried out with only 400 respondents (338 valid responses) in HCMC and Phan Thiết City based on convenient sampling method, which proves a hindrance to the tests on reliability of the scales■

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