



# Hot, tropical and thirsty: An analysis of bottled water consumer satisfaction in Thailand

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## Abstract

With nearly 40 million foreign tourists per year, Thailand consumes an average of 57.5 gallons of water per capita per year, which makes Thailand the second largest per-person consumer of bottled water in the world. As the global average is only 13.2 gallons per person per year, both tourists and residents have an insatiable thirst for bottled water. Therefore, the authors undertook a study to investigate the factors that influence bottled water consumer satisfaction (CS). Furthermore, an examination of the interrelationships between the variables corporate social responsibility (CSR), brand trust (BT), and brand image (BI) and their effect on CS were also analysed by use of LISREL 9.1 software. Results from the 489 consumer sample group obtained from across five major areas of Thailand, determined that all the model's variables had a positive effect on CS as there was a combined 78% variance of influence on CS. Ranked in importance, factors influencing CS were CSR (TE=0.89), BT (TE=0.68), and BI (TE=0.29), respectively. Furthermore, from the consumers' questionnaire concerning their preference for a bottled water brand (*Singha*, *Crystal*, *Nestlé*, *Namthip*, and Pepsi's *Aquafina*), 31.29% indicated a preference for Singha. Additionally, from the results of the analysis on CSR, the authors concluded that was a heightened awareness amongst consumers and travellers about the environment and plastic bottle waste. It was suggested by the authors that bottled water companies need to develop CSR campaigns that are focused on plastic waste reduction and cleanup activities. Additionally, they need to take their efforts 'to the people', and tell each consumer why and how they are contributing to not only Thailand's environmental well-being but the world as well.

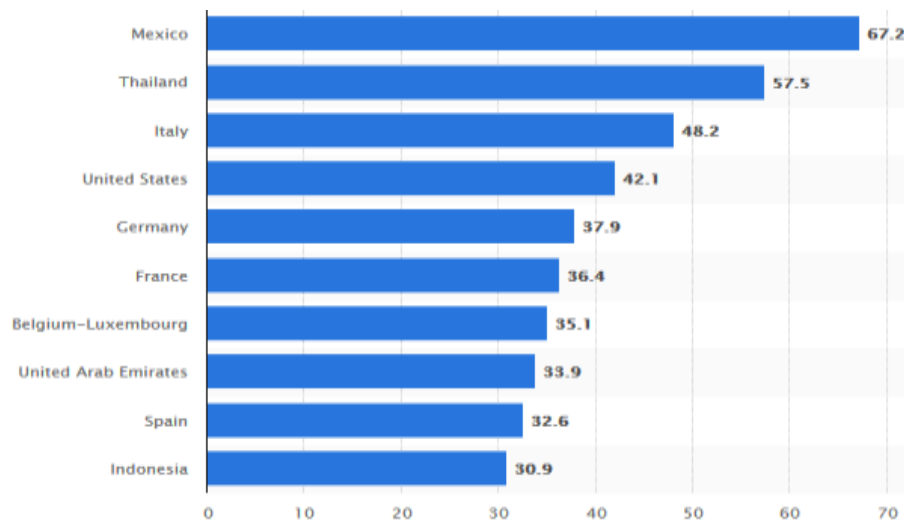
**Keywords:** Brand image, brand trust, corporate social responsibility, plastic waste, tourism.

## Introduction

According to German-born Martin Riese (a '*water sommelier*'), all water is unique and has many different kinds of taste (Riese, 2018). However, Jewell (2014) has written that marketing bottled water's 'uniqueness' is the best marketing trick of the past 100 years, which has reshaped the beverage marketplace (Taylor, 2017).

Both men, however, would most probably agree that bottled water is big business globally, with data indicating that bottled water overtook carbonated soft drinks to become the number one consumer beverage (Rodwan, 2017). Globally, bottled water consumption reached 100 billion gallons in 2017, with China representing over 25% (25.468 billion gallons) of the world's total consumption.

Additionally, Thailand, in 2017, reached the seventh position worldwide for bottled water consumption (3.966 billion gallons) (Rodwan, 2017). With nearly 40 million foreign tourists per year (Worrachaddejchai, 2019), Thailand consumes an average of 57.5 gallons per capita per year, which makes Thailand the second largest per-person consumer of bottled water in the world (Figure 1). As the global average is only 13.2 gallons per person, per year, Thailand has an insatiable thirst for bottled water.



**Figure 1.** Global Per Capita Consumption of Bottled Water in 2017 in Gallons.  
Source: Statista (2019)

So what kind of bottled water do consumers in Thailand drink? According to Euromonitor (2019), Thai *still bottled water* is the dominant choice for health-conscious consumers, which is water in which carbon dioxide gas has been dissolved under pressure, with *still water* representing the majority of global bottled water sales. However, there are other types of bottled water, including *sparkling water*, which is also known as *carbonated water* and *mineral water* (Chau & Tomaszewska, 2019). Also, in Thailand, bottled waters' purification processes play a role in brand selection, which includes processes such as reverse osmosis, the use of ultraviolet light, ozone treatment, as well as tapping into mineral or spring water (Losito, 2019; Potivejkul et al., 2017; World Health Organization, 2017).

However, along with Thailand being seventh in the consumption of bottled water, Thailand also has the never-ending environmental problem of how to dispose of empty plastic bottles. Presently, there is legislation in Thailand to initial a complete ban on the use of single-use plastic bags, Styrofoam boxes, plastic straws, and single-use plastic cups by 2022 (Thai PBS, 2019). This is very similar to the January 2019 ban on plastic, Styrofoam, and single-use food containers on the Caribbean island of Dominica, which has been described as one of the world's most comprehensive plastic bans (Gibbens, 2018). However, in Thailand, this future ban does not include plastic bottles, which suggests the burden of responsibility for disposal by many consumers should rest with the bottled water companies or even the government itself (Hickman, 2018).



Similarly, in Sweden corporate social responsibly [CSR] activities are now expected from organizations, by consumers (Van den Berg & Lidfors, 2012). Also, corporate management is increasingly seeing the pursuit of CSR as a competitive advantage marketing tool. This is especially true when CSR involves environmental activities which are focused on a company's surrounding community (World Economic Forum, 2015). Additionally, according to LeBlanc (2018), recycling is an excellent way to start a CSR program, with disposal of plastic bottles being an important CSR concern to many bottled water consumers (Etale et al., 2018).

Therefore, the authors added CSR as a critical item that needed to be investigated, and the authors further determined that the study should examine a company's CSR efforts in *helping society* (x1), the level of the company's *environmental concern* (x2), and whether or not the company is *regulatory compliant* (x3) with existing domestic and international laws and regulations (Nielsen, 2018). Another crucial aspect is how much faith a consumer puts in brand trust (BT), as BT plays an essential role in a continual relationship between consumers and organizations (Morgan and Hunt, 1994). Delgado-Ballester (2004) also stated that BT is the expectation of brand reliability and good intentions, while trust can also facilitate the exchange of information and resources (Coleman, 1999). Therefore, the authors further determined that the study should examine consumer brand trust (BT) and the related manifest variables of *value recognition* (y1), *brand value* (y2), and *reliability* (y3).

Furthermore, the study's review suggested that brand image (BI) plays a vital role in bottled water consumer CS, with Goodson (2012) stating that branding is one of the most critical aspects in the creation and definition of an organization's identity. Moreover, within the food and beverage sector, Patwardhan et al. (2019) have suggested that everything from proximity, value, taste, flavor, price, ambience and service influence consumer re-purchase intention. Brands are also a valuable asset to an organization, with many firms adding the brand's value to their bottom line.

Sasmitha and Suki (2015) have also reported that online shoppers today get product and brand guidance from social media, which allows them to compare one product's price and features to another. It has also been stated that bottled water is typically sold to consumers in the U.S. for nearly 2,000 times the cost of that of faucet water (Schuhmann, 2016). Therefore, the study's authors added the manifest variables *known reputation* (y7), *excellent image* (y8), *success* (y9), and *reliability* (y10) to BI. Finally, consumer satisfaction (CS) was judged to also play an essential role in bottled water consumption. This is supported by research from Francisco (2014) in the Philippines which determined that households which perceived their primary water source to be unhealthy were most probably buyers of bottled or purified water. Other factors in the decision to purchase bottled water included the household head education, the presence of pre-school children, household size, and prices. This is consistent with Komissarova et al. (2017) which determined that in Russia the key factors behind the decision to purchase private label products, including bottled water, are quality and price. Moreover, consumer product packaging has been determined to be critical in the consumption experience (Hess et al., 2014), as bottle quality leads to bottled-water CS. Furthermore, higher-quality was determined to be an aspect of bottle thickness, which therefore impacts how consumers view a brand's reliability, value, and re-purchase intention. This is also consistent with Wichailert and Yousapornpaiboon (2017), which also reported that association with a brand and the perception of the brand's quality significantly affect a consumer's bottled water CS. Therefore, the study's authors added the manifest variables *quality satisfaction* (y4), *price satisfaction* (y5), and *decision satisfaction* (y6) to CS for investigation.

Therefore, the researchers aim to analyse the significance of CSR, BT, and BI on CS in bottled water brand selection and consumption in Thailand. Additionally, the research hopes to identify critical elements essential to a consumer when choosing a particular brand and help companies better understand how to create a better competitive advantage within the bottled water sector. Additionally, the study details the survey results of consumers randomly selected from four major regions and Bangkok's metro area (Table 1).

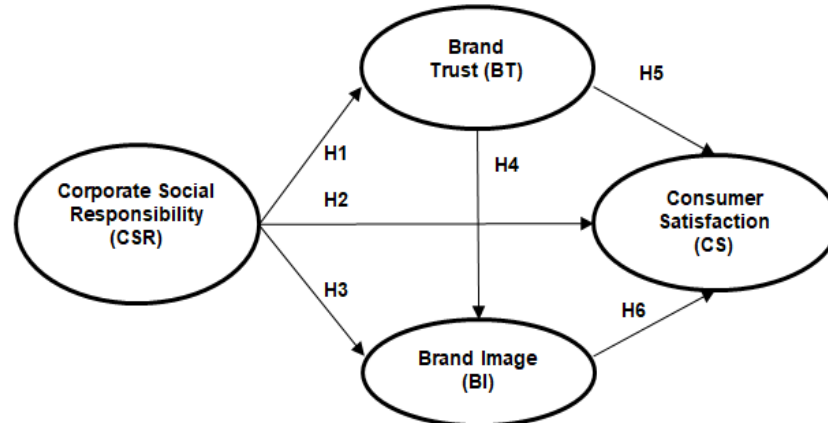
## Objectives of the Research

1. The researchers developed a structural equation model [SEM] of the variables to determine what variables affect bottled water consumer satisfaction in Thailand.
2. To compare the interrelationships of these factors and determine their importance to both consumers and the bottled water companies.

## Research hypothesis

After the authors' analysis of the related literature, eight hypotheses were conceptualized. The framework is shown in Figure 2:

- H1: CSR directly affects BT.*
- H2: CSR directly affects CS.*
- H3: CSR directly affects BI.*
- H4: BT directly affects BI.*
- H5: BT directly affects CS.*
- H6: BI directly affects CS.*



**Figure 2.** The Conceptualized Framework.  
Source: The authors.

## Materials and Methods

Data collection was attained by the use of quantitative methods, which used a multi-scaled questionnaire survey technique to test the theoretical model's variables influencing consumer satisfaction in purchasing bottled drinking water in Thailand.

## Population and Sample

The study's population was consumers who were bottled water drinkers in Thailand. The brands selected for the comparison were the top 6 brands, including *Singha*, *Crystal*, *Nestlé*, *Namthip*, and Pepsi's *Aquafina*, which were readily available in convenience stores around Thailand

(Figure 3). It should also be noted, that both *Nestlé* and *Aquafina* are also in the top three of bottled water brands in the U.S. (Statista, 2019).

Numerous studies have also reported on suggestions for sample sizes over the years. However, Loehlin (1992) has written that in confirmatory factor analysis (CFA) models, a sample should include at least 200 participants. However, Bartholomew et al. (2008) have also suggested that a higher sample size of 400 should be used, as a larger sample size assures better CFA results. Therefore, due to time constraints and the inability to re-visit the pre-selected convenience stores in each region, a target of 600 was set for the initial sample size (Table 1). The authors set the larger sample size due to the potential for sampling and questionnaire non-response errors (Dillman et al., 2013). With this sample size in mind, teams of Thai graduate students were sent to the selected convenience stores over four months from February to May 2019. Every fifth convenience store shopper was selected during three separate periods in the morning, lunchtime, and evening. From this process, 489 complete and audited questionnaires were obtained.

**Table 1.** Author proposed sample size by region.

Thai region	Thai bottled water brands						Total
	Singha	Crysta l	Nestlé	Namthip	Chang	Aquafina (Pepsi)	
Northern Thailand	20	20	20	20	20	20	120
Central Thailand	20	20	20	20	20	20	120
Northeast Thailand	20	20	20	20	20	20	120
Southern Thailand	20	20	20	20	20	20	120
Bangkok area	20	20	20	20	20	20	120
Totals	100	100	100	100	100	100	600

### The study’s questionnaire development

- Part 1 of the questionnaire contained seven items about the respondents’ gender, age, education, relationship status, profession, and monthly income (Table 2). It also asked each respondent, “Which brand of bottled water do you drink regularly?” and offered a pictorial choice for each brand.



**Figure 3.** Consumer Bottled Water Preference.  
 Source: The authors’ survey.

- Part 2 through part 6 of the questionnaire used a seven level agreement scale to determine each bottled water consumer’s opinion on each item. The scale rank of ‘7’ indicated ‘most agreement’, ‘6’ was ‘considerable agreement’, ‘5’ indicated ‘quite a lot agreement’, ‘4’ indicated ‘moderate agreement’, ‘3’ indicated ‘somewhat agree’, ‘2’ indicated a ‘little bit of agreement’, and ‘1’ indicated ‘minimal agreement’.



3. Part 2 also had seven items about each brand's corporate social responsibility (CSR), part 3 had six items on brand trust (BT), part 4 contained seven items on consumer satisfaction (CS), and lastly, part 5 contained nine items on brand image (BI).
4. Cronbach's  $\alpha$  was also used to determine the questionnaire and item reliability, with the expert's results for CSR = 0.89, BT = 0.86, CS = 0.89, and BI = 0.93 (Tables 3 & 4). Tavakol and Dennick (2011) have written that values  $\geq 0.70$  are acceptable.

## Results

Results from the research study are detailed in this section as follows:

### Bottled water consumer characteristics

Results from the survey's questionnaire indicated that 49.69% of the bottled water consumers were from 21-30 years old. Additionally, 56.85% had obtained at least a bachelor degree, while 64.62% still considered themselves 'single' (Table 2). Furthermore, Thai bottled water consumers selected Singha's brand (31.29%) over Crystal's brand (26.18%), with Nestlé's brand third in consumer preference (20.25%).

**Table 2.** Bottled water consumer characteristics ( $n=489$ )

	Consumers	%
<b>Gender</b>		
Men	207	42.33
Women	282	57.67
<b>Total</b>	<b>489</b>	<b>100.0</b>
<b>Age</b>		
21-30	243	49.69
31-40	125	25.56
41-50	90	18.40
51-60	20	4.09
Over 60	11	2.25
<b>Total</b>	<b>489</b>	<b>100.0</b>
<b>Education</b>		
Lower than primary school	10	2.04
Primary school	20	4.09
Junior high school	22	4.50
Senior high school	52	10.63
Vocational Certificate/High Vocational Certificate/Diploma	93	19.02
Bachelor degree	278	56.85
Graduate degree	14	2.86
<b>Total</b>	<b>489</b>	<b>100.0</b>
<b>Relationship status</b>		
Single	316	64.62
Married	153	31.29
Divorced/widowed	20	4.09
<b>Total</b>	<b>489</b>	<b>100.0</b>
<b>Profession</b>		
Government	39	7.98
State enterprise	30	6.13
Private company	92	18.81
General employee	154	31.49



Private business	128	26.18
Other	46	9.41
<b>Total</b>	<b>489</b>	<b>100.0</b>
<b>Income per month (in Thai baht*)</b>		
10,000 or less	130	26.58
10,001-20,000	196	40.08
20,001-30,000	110	22.49
30,001-40,000	38	7.77
40,001-50,000	10	2.04
Over 50,000	5	1.02
<b>Total</b>	<b>489</b>	<b>100.0</b>
<i>Which bottled water brand do you drink regularly?</i>		
Singha (Boon Rawd Brewery)	153	31.29
Crystal (Serm Suk)	128	26.18
Nestlé	99	20.25
Namthip	65	13.29
Chang	19	3.89
Aquafina (Pepsi)	25	5.11
<b>Total</b>	<b>489</b>	<b>100.0</b>

(Source: The study's questionnaire.) \* 10,000 Thai baht = \$327 USD on 2019.September.01

### Goodness-of-fit (GoF) analysis

A GoF analysis was done during the CFA analysis to determine the model's fit. Thereafter, a SEM also using LISREL 9.10 was run. Voerman (2003) has written that if the chi-square ( $\chi^2$ ) statistic is non-significant ( $p \geq 0.05$ ), the data and model fit. Other authors have also suggested that acceptable fit indices include the goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), and the comparative fit index (CFI), with each having values  $\geq 0.90$  to indicate a good model fit (Bentler & Bonett, 1980; Hooper et al., 2008; Satorra & Bentler, 2001; Schumacker & Lomax, 2010). Additionally, authors have written that the use of both the RMSEA and GFI are also excellent absolute fit indices (Voerman, 2003), with RMSEA values  $\leq 0.05$  indicating a good fit (Byrne, 1998).

The GFI statistic, however, becomes stronger as it grows higher, with  $\geq .90$  considered acceptable (Hu & Bentler, 1999). The comparative fit index (CFI) statistic is also suggested as an incremental fit measure (Bentler & Bonett, 1980). Also, the root mean square residual (RMR) should have a value of  $\leq 0.05$ , which suggests an acceptable model (Byrne, 1998). Results from the study's GoF showed that  $\chi^2 = 0.67$  which was non-significant,  $\chi^2/df = 0.85$ , RMSEA = 0.00, GFI = 0.99, AGFI = 0.97, RMR = 0.01, SRMR = 0.01, NFI = 0.99, and CFI = 1.00, which indicates that all results were within the defined criteria. Finally, the values for  $\alpha = 0.86-0.93$ , which is considered acceptable.

### CFA results

The CFA analysis results are presented in Table 3 for the study's independent latent variable CSR. Ratner (2009) has written that the correlation coefficient can be indicated as  $r$  or  $R$ , with the value of  $r^2$  or  $R^2$  named the coefficient of determination. Moore et al. (2013) have also added that  $R^2$  values of  $r \geq 0.7$  are strong,  $0.5 \leq r \leq 0.7$  are moderate, and  $0.3 \leq r \leq 0.5$  are weak. Therefore, CSR's  $x_2$  and  $x_3$  manifest variables have a strong relationship with CSR, while  $x_1$  is moderate. Therefore, it appears that Thai bottled water consumers are also concerned about the environment and what a company does to offset the negative impact of plastic bottles ( $x_2 = .75$ ).



**Table 3.** CFA results for CSR.

Latent variable	$\alpha$	AVE	CR	Manifest variables	loading	$R^2$
CSR	0.89	0.59	0.81	Helping society (x1)	0.77	.59
				Environmental concern (x2)	0.87	.75
				Regulatory compliant (x3)	0.65	.41

(Source: Authors of the study.)

The CFA analysis results are detailed in Table 4 for the study's dependent latent variables BT, CS, and BI. From the examination of the results, BI's reliability (y10) was viewed by consumers to be of very strong importance ( $R^2 = .81$ ).

**Table 4.** CFA results for BT, CS, and BI.

Latent variables	$\alpha$	AVE	CR	Manifest variables	loading	$R^2$
BT	0.86	0.46	0.72	Value perception (y1)	0.74	.28
				Brand value (y2)	0.71	.51
				Trust (y3)	0.77	.59
CS	0.89	0.51	0.75	Quality satisfaction (y4)	0.68	.46
				Price satisfaction (y5)	0.66	.43
				Decision satisfaction (y6)	0.79	.62
BI	0.93	0.71	0.91	Known reputation (y7)	0.84	.71
				Excellent image (y8)	0.86	.74
				Success (y9)	0.77	.59
				Reliability (y10)	0.90	.81

(Source: Authors of the study.)

### The direct effect (DE), indirect effect (IE), and total effect (TE) analysis

The values for DE, IE, and TE are presented in Table 5 (Ladhari, 2009). As the values of the coefficient increases, the strength between the variables increases (Ratner, 2009). Ranked in importance, factors influencing CS were CSR (TE=0.89), BT (TE=0.68), and BI (TE=0.29), respectively.

**Table 5.** Standard coefficients of influence for the model's consumer satisfaction for bottled water.

Dependent variables	$R^2$	Effect	Independent variables		
			CSR	BT	BI
BT	.68	DE	0.83**		
		IE	-		
		TE	0.83**		
CS	.78	DE	0.21*	0.53**	0.29*
		IE	0.68**	0.15*	-
		TE	0.89**	0.68**	0.29*
BI	.68	DE	0.38**	0.53**	
		IE	0.44**		
		TE	0.82**	0.53**	

\*Sig.  $\leq .05$ , \*\*Sig.  $\leq .01$  (Source: Results are from the authors of the study.)

### Convergent validity [CV] and discriminant validity [DV]

Campbell and Fiske (1959) originally proposed two aspects to assess the construct validity of a test, which included CV and DV. Additionally, in SEM, a CFA is used to assess construct validity (Jöreskog et al., 2016). Furthermore, it has been suggested that composite reliability  $\geq 0.6$ , the



average variance extracted (AVE) should  $\geq 0.5$ , and composite reliability (CR) should  $\geq 0.6$  (Table 6). However, if the AVE is  $\leq 0.5$ , but CR is higher than 0.6, the CV of the construct is still adequate (Fornell et al., 1996).

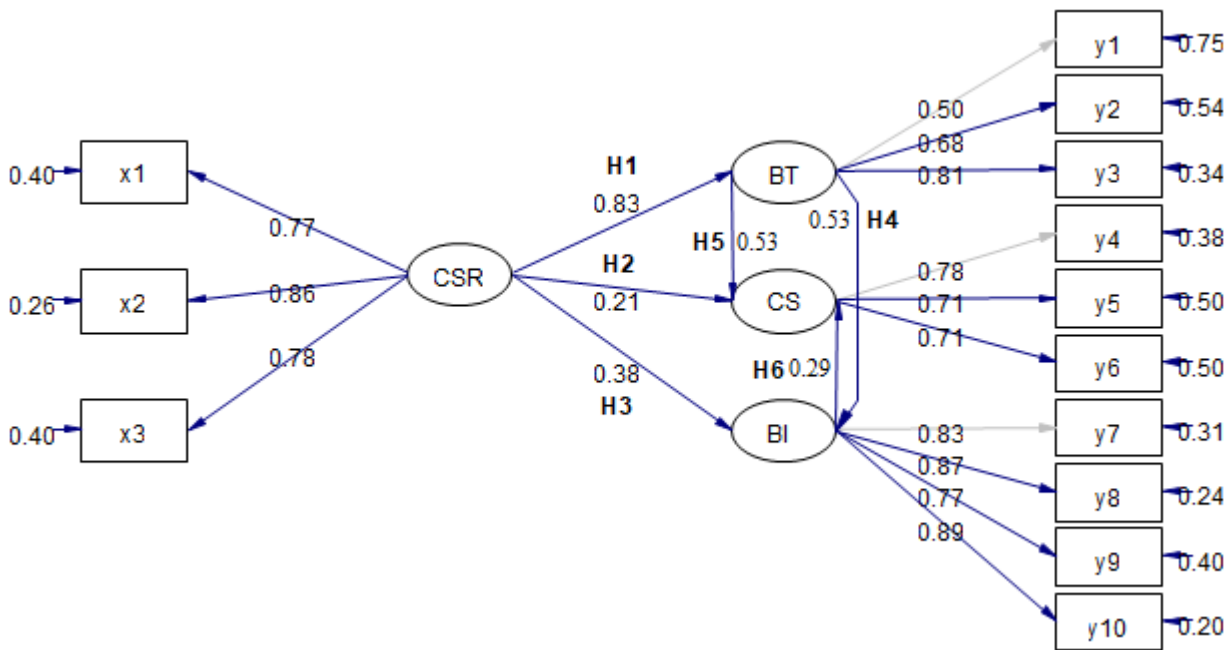
**Table 6.** SEM correlation coefficients for the variables that affect CS.

Latent Variables	CSR	BT	CS	BI
CSR	<b>1.00</b>			
BT	.66**	<b>1.00</b>		
CS	.72**	.63**	<b>1.00</b>	
BI	.74**	.59**	.83**	<b>1.00</b>
$\rho_v$ (AVE)	0.64	0.45	0.54	0.71
$\rho_c$ (composite reliability)	0.84	0.71	0.78	0.91
Square root of the AVE	0.80	0.67	0.73	0.84

\*\*Sig.  $\leq .01$ . (Source: Results are from the authors of the study.)

### SEM Results

From the SEM analysis, results showed that all the model's variables had a positive effect on bottled drinking water consumer satisfaction (CS), which can be combined to explain the shared variance of the factors affecting CS ( $R^2$ ) by 78% (Table 6). Also, Figure 4 and Table 7 and further detail the reliability of the SEM's results for Thai bottled water CS.



**Figure 4.** Consumer Satisfaction for Bottled Water.  
 Chi-Square=22.28, df = 26,  $p$ -value = 0.67352, RMSEA = 0.000  
 (Source: The authors' SEM analysis.)

**Table 7.** Hypothesis Testing Results.

Hypotheses	Coefficient	t-test	Results
H1: CSR directly affects BT	0.83	9.90**	supported
H2: CSR directly affects CS	0.21	2.21*	supported
H3: CSR directly affects BI	0.38	3.85**	supported
H4: BT directly affects BI	0.53	4.61**	supported
H5: BT directly affects CS	0.53	3.77**	supported
H6: BI directly affects CS	0.29	2.36*	supported



\*Sig. ≤ .05, \*\*Sig. ≤ .01 (Source: The authors' analysis.)

## Discussion

From the results of research to develop a causal relationship model of variables that influence bottled water CS, all the model's causal variables were determined to positively influence CS. This can be explained by the combination of the shared variance of influencing factors on CS ( $R^2$ ) at 78%. Furthermore, from Table 6's results, we see that the TE values for the latent variables CSR, BT, and BI were 0.89, 0.68, and 0.29, respectively.

It is noted from the survey's descriptive analysis presented in Table 8, that the consumers viewed their overall agreement with each area of inquiry as 'moderate,' with hardly any difference in each aspect's results. This was interpreted as confirmation for the importance of each latent variable's importance in bottled water consumer satisfaction.

**Table 8.** Descriptive analysis.

Latent Variable	Mean	S.D.	Skewness	Kurtosis	Agreement Level
CSR	4.48	.80	.03	1.19	moderate
BT	4.41	.83	-.25	1.56	moderate
BI	4.49	.88	-.24	.81	moderate
CS	4.47	.87	-.03	.39	moderate

S. D. = standard deviation (Source: The authors' analysis.)

As both western and Asian countries age, there is a growing concerns among individuals about their health, including inter alia heart disease, diabetes, and obesity (International Bottled Water Association, 2018). Furthermore, many consumers purchase bottled water due to water's lack of calories and artificial ingredients. Bottled water is also convenient and refreshing which attracts health-conscious consumers everywhere. Therefore, the importance of understanding consumer satisfaction (CS) of Thai bottled water is of significant importance.

From the study's analysis, CSR was determined to have the most significance when consumers were asked which factors from the study had the greatest weight in their satisfaction when selecting a bottle from a convenience store cooler. The BI was also important as well, with 31.29% of the 489 surveyed choosing Singha brand bottled water. The major takeaway from these results suggests that companies need to focus their corporate and marketing resources on telling consumers about their CSR activities, especially when it comes to how their plastic is collected and disposed of.

### CSR hypotheses results

The SEM analysis showed that H1's relationship between CSR and BT was positive and strong, as  $r = 0.83$ ,  $t$ -value = 9.90, and  $p \leq 0.01$  (Table 8). However, the analysis also determined that H2's relationship between CSR and CS was weak but positive as  $r = 0.21$ ,  $t$ -value = 2.21, and  $p \leq 0.05$ . However, the relationship between CSR and BI was a bit stronger in H3 as  $r = 0.38$ ,  $t$ -value = 3.85, and  $p \leq 0.01$ .

This is consistent with a worldwide Nielsen (2018) survey in which 81% of the respondents strongly indicated that companies should help improve the environment, with Thai companies needing to learn from other countries such as Norway where 97% of all used plastic bottled containers are recycled (Hickman, 2018).



With reports stating that Thailand is the world's sixth-biggest ocean waste contributor, the need for CSR activities is critical (Styllis, 2018). As such, Thailand creates 1.03 million tons of used plastic each year (plastic accounts for 12%), with 3% estimated to be entering the Gulf of Thailand and surrounding seas and oceans. As the seventh-largest consumer of bottled water (most of which is plastic), Thai and foreign tourist consumers sense that companies need to focus CSR resources on this monumental environmental problem.

### **BT hypotheses results**

Further results revealed that H4 had a moderate and positive correlation between BT and BI as  $r = 0.53$ ,  $t$ -value = 4.61, and  $p \leq 0.01$ . Furthermore, H5's relationship between BT and CS was moderate and direct as  $r = 0.53$ ,  $t$ -value = 3.77, and  $p \leq 0.01$ . Support for these finding also comes from Sung and Kim (2010), which has indicated that sincerity and ruggedness are critical aspects in a consumer's level of BT.

### **BI hypothesis results**

Concerning the relationship between BI and CS, the results for H6 determined that there was a weak but positive correlation as  $r = 0.29$ ,  $t$ -value = 2.36, and  $p \leq 0.05$ . Suhartanto and Kandampully (2003) have reported BI evolves in a consumer's mind by the effectiveness of promotional impact, advertising, public relations, word-of-mouth, and a consumer's use of a service or product.

### **Conclusion**

The study investigated the relationships between the variables CSR, BT, BI, and CS. CSR was determined to have a strong impact on a consumer's CS as environmental concerns with plastic waste is ever increasing in a consumer's mind. Furthermore, Thai product branding (Singha) also seems to have a significant effect on a consumer's purchase decision as 31.29% of the study's respondents indicated their preference for the brand. This is in support of multiple studies in which the Boon Rawd Brewery's Singha brand was also stated to be the leading brand of bottled water in Thailand. The authors feel that companies need to develop CSR campaigns that are focused on plastic waste reduction and cleanup. Additionally, they need to take their efforts 'to the people', and tell each consumer why and how they are contributing to not only Thailand's environmental well-being but the world as well.

### **References**

- Bartholomew, D. J., Steele, F., Moustaki, I. & Galbraith, J. I. (2008). *Analysis of multivariate social science data* (2nd ed.), Boca Raton, FL: CRC Press.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238 - 246.
- Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2<sup>nd</sup> ed.). New York, NY: Routledge. [online] <http://tinyurl.com/ze7ze7d> [Accessed 1 September 2019].
- Campbell, D. T. & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56(2), 56-81. [online] <https://tinyurl.com/y33zfl72> [Accessed 1 September 2019].



Chau, N. D. & Tomaszewska, B. (2019). Mineral and bottled water as natural beverages. In A. M. Grumezescu & A. M. Holban, (Eds.). *Bottled and Packaged Water, Volume 4: The Science of Beverages* (pp. 1 – 38). Philadelphia, PA: Woodhead Publishing.

Coleman, J. S. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.

Delgado-Ballester, E. (2004). Applicability of a brand trust scale across product categories: A multigroup invariance analysis. *European Journal of Marketing*, 38(5/6), 573-592. doi: 10.1108/03090560410529222

Diamantopoulos, A. & Siguaw, J. A. (2000). *Introducing LISREL*. London, UK: Sage.

Dillman, D. A., Smyth, J. D. & Christian, L. M. (2013). Internet, phone, mail, and mixed-mode surveys: The tailored design method. Hoboken NJ: Wiley.

Etale, A., Jobin, M. & Siegrist, M. (2018). Tap versus bottled water consumption: The influence of social norms, affect and image on consumer choice. *Appetite*, 121, 138 – 146. doi: 10.1016/j.appet.2017.11.090

Euromonitor. (2019, March). Bottled water in Thailand. [online] <https://tinyurl.com/y23lrn49> [Accessed 1 September 2019].

Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J. & Bryant, B. E. (1996). The American customer satisfaction index: Nature, purpose, and findings. *Journal of Marketing*, 60(4), 7–14.

Francisco, J. P. S. (2014). Why households buy bottled water: a survey of household perceptions in the Philippines. *International Journal of Consumer Studies*, 38(1), 98 – 103.

Gibbens, S. (2018, August 7). This island nation is banning plastic. *National Geographic*. [online] <https://tinyurl.com/y2u6tru9> [Accessed 1 September 2019].

Goodson, S. (2012, May 27). Why brand building is important. *Forbes*. [online] <https://tinyurl.com/y47c5gol> [Accessed 1 September 2019].

Hess, J.S., Singh, J., Metcalf, L.E. & Danes, J. (2014). The impact of consumer product package quality on consumption satisfaction, brand perceptions, consumer investment and behavior. *Journal of Applied Packaging Research*, 6(1), 23 – 39.

Hickman, M. (2018, July 19). Why the world should look to Norway when it comes to plastic bottle recycling. *Mother Nature Network*. [online] <https://tinyurl.com/y5mc63j2> [Accessed 1 September 2019].

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, 6(1), 53-60. [online] <http://tinyurl.com/zyd6od2> [Accessed 1 September 2019].

Hu, L. T. & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1 – 55. doi: 10.1080/10705519909540118

International Bottled Water Association. (2018, May 31). *Consumers reaffirm bottled water is America's favorite drink*. [online] <https://tinyurl.com/y5na5tgy> [Accessed 1 September 2019].



- Jewell, J. (2014, April 27). Bottled water is the marketing trick of the century. *The Week*. [online] <https://tinyurl.com/y27twm2r> [Accessed 1 September 2019].
- Jöreskog, K. G., Olsson, U. H. & Fan, Y. W. (2016). *Multivariate analysis with LISREL*. Berlin, Germany: Springer.
- Kandampully, J. & Suhartanto, D. (2003). The role of customer satisfaction and image in gaining customer loyalty in the hotel industry. *Journal of Hospitality & Leisure Marketing*, 10(1-2), 3 – 25. doi: 10.1300/j150v10n01\_02
- Komissarova, I. P., Mayorova, E. A., Nikishin, A. F., Rozhnova, O. V. & Mayorova, A. N. (2017). Private labels and product categories. *Revista Espacios*, 38(62), 5 - 10. [online] <https://tinyurl.com/y2fdekwp> [Accessed 1 September 2019].
- Ladhari, R. (2009). A review of twenty years of SERVQUAL research. *International Journal of Quality and Service Sciences*, 1(2), 172-198. doi: 10.1108/17566690910971445
- LeBlanc, R. (2018, November, 29). How recycling can boost corporate social responsibility (CSR). *The Balance Small Business*. [online] <https://tinyurl.com/yxam8bqc> [Accessed 1 September 2019].
- Lei, P-W. & Wu, Q. (2007). Introduction to structural equation modeling: Issues and practical considerations. *Educational Measurement: Issues and Practice*, 26(3), 33 – 43.
- Loehlin, J. C. (1992). *Latent variable models*. Hillsdale, NJ: Lawrence Erlbaum Publishers.
- Losito, T. (2019, July 15). Reverse osmosis drinking water: The myths and the facts. *Water Conditioning & Purification Magazine*. [online] <https://tinyurl.com/y6aqf83l> [Accessed 1 September 2019].
- Moore, D. S., Notz, W. I. & Flinger, M. A. (2013). *The basic practice of statistics* (6th ed.). New York, NY: W. H. Freeman and Company.
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *The Journal of Marketing*, 58(3), 20-38. doi: 10.2307/1252308
- Nielsen. (2018, May 28). *The database: Can corporate citizenship be good for communities and the bottom Line?* [online] <https://tinyurl.com/y2upn9kc> [Accessed 1 September 2019].
- Patwardhan, V., Dabral, P. & Mallya, J. (2019). Uncovering factors influencing consumers' interest for craft beer: A study on microbreweries in Bangalore, India. *African Journal of Hospitality, Tourism and Leisure*, 8(4), 1 – 12. [online] <https://tinyurl.com/yyb9aeg8> [Accessed 1 September 2019].
- Potivejkul, S., Pimdee, P. & Phimolsathien, T. (2017). Perceptions on ozonation water treatment use: An alternative idea for ASEAN water resource sustainability. *Journal of Sustainability Science and Management*, 12(1), 49-59. [online] <https://tinyurl.com/y68n5avz> [Accessed 1 September 2019].



- Pratiwi, H., Rosmawati, P. & Usman, O. (2019). Effect of price, promotion, brand trust, and customer satisfaction on customer loyalty in packaging products mineral water Aqua. *SSRN Electronic Journal*. doi: 10.2139/ssrn.3314013
- Rasch, G. (1980). Probabilistic models for some intelligence and attainment tests. Chicago, IL: University of Chicago Press.
- Ratner, B. (2009). The correlation coefficient: Its values range between +1/-1, or do they? *Journal of Targeting, Measurement and Analysis for Marketing*, 17(2), 139 – 142.
- Riese, M. (2018). Martin Riese–Water Sommelier [Personal Web Site]. [online] <https://www.martin-riese.com> [accessed 1 September 2019].
- Rodwan, J. G. (2017). *Bottled water 2017 staying strong: U.S. and international developments & statistics*. [online] <https://tinyurl.com/y463nsj6> [Accessed 1 September 2019].
- Sasmita, J. & Suki, N. M. (2015). Young consumers' insights on brand equity: Effects of brand association, brand loyalty, brand awareness, and brand image. *International Journal of Retail & Distribution Management*, 43(3), 276-292. doi: 10.1108/IJRDM-02-2014-0024
- Schuhmann, E. (2016). Framing bottled water: An analysis of the framing contest between the anti-bottled water movement and the bottled water industry. (Master's thesis). doi: 10.18297/etd/2422
- Statista. (2019). Per capita consumption of bottled water worldwide in 2017, by leading countries (in gallons). [online] <https://tinyurl.com/yyqjhjksm> [Accessed 1 September 2019].
- Styllis, G. (2018, June 25). Thailand falling behind in global battle with plastic waste. *Nikkei Asian Review*. [online] <https://tinyurl.com/y346s7zn> [Accessed 1 September 2019].
- Sung, Y. & Kim, J. (2010). Effects of brand personality on brand trust and brand affect. *Psychology and Marketing*, 27(7), 639 – 661. doi: 10.1002/mar.20349
- Tavakol, M. & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. doi: 10.5116/ijme.4dfb.8dfd
- Taylor, K. (2017, March 10). Bottled water just surpassed a major milestone -- thanks to the 'marketing trick of the century'. *Business Insider – Australia*. [online] <https://tinyurl.com/yyvdca9p> [Accessed 1 September 2019].
- Thai PBS. (2019, August 22). Environment Ministry considers quicker ban on 4 plastic products in Thailand. [online] <https://tinyurl.com/yxjfc8no> [Accessed 1 September 2019].
- Van den Berg, H. & Lidfors, L. (2012). The effect of perceived CSR on customer loyalty: An empirical study into consumer behavior on the Swedish chocolate market. (Master's thesis). [online] <https://tinyurl.com/y3qb7wse> [Accessed 1 September 2019].
- Wichailert, K. & Yousapornpaiboon, K. (2017). Brand equity affects brand loyalty of the bottled mineral drinking water in Thailand. *Journal of Administrative and Business Studies*, 3(4), 180 – 191. doi: 10.20474/jabs-3.4.3



World Economic Forum. (2015). *Beyond supply chains empowering responsible value chains*. [online] <https://tinyurl.com/z3ldam6> [Accessed 1 September 2019].

World Health Organization. (2017). *Guidelines for drinking-water safety*. [online] <https://tinyurl.com/yjyfetoj> [Accessed 1 September 2019].