

Antecedents of Customer Value Perception of Green Brands and Their Influence on Green Brand Attachment and Loyalty: A Study in Mainland China

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Abstract

Green marketing has received considerable attention during the last decade, and this has been due to an increasing environmental awareness among members of the general public. Nowadays, more and more companies are endeavouring to position their brands as being green or environmentally friendly in order to gain eco-advantage over their competitors. Not all of these companies, however, succeed. Consequently, an investigation on the effectiveness of green branding is essential. The current literature has focused largely on the influence of Western consumers' environmental attitudes on their green purchase intentions. Hence, the aim of this study is to utilise customer value approach to understand consumers' green brand adoption behaviour. In particular, this study investigates antecedents and relational outcomes of customer perceived value associated with green brands in the context of developing countries.

This study proposes a unique conceptual framework that comprises two dimensions of customer value: functional value and green perceived value (GPV), their antecedents and relational outcomes. Five important factors, utilitarian environmental, warm glow and self-expressive benefits, green risk, and green transparency were antecedents based on deontological and teleological perspectives. Additionally, self-brand connection, brand prominence and green brand loyalty were relational outcomes that can reflect green brand equity. Similarly, the mediating role of customer value was examined to address the gap between green initiatives and consumers' relational strength with a green brand based on the signalling theory. Finally, the proposed relationships in the conceptual model were examined in the brands of physical goods and services.

This study has adopted an elaborate research design and a quantitative method. The online survey strategy was used for data collection and an experienced research agency was employed to administer the online survey using a consumer panel in China. A sample of 826 Chinese respondents was used for the final data analysis and the structural equation modeling was employed to perform tests for the proposed relationships.

The findings of this study have revealed that green benefits and green transparency were positively associated with functional value and green perceived value, which in turn influenced customer perceived value associated with green brands. In particular, utilitarian environmental and self-expressive benefits together with green transparency had a significant

influence on functional value and GPV. In other words, provision of utilitarian environmental and self-expressive benefits and the increase of green transparency can lead to strong customer perceived value by enhancing functional value and GPV. The results also demonstrated that warm glow benefit was an important antecedent of customer value as it positively influenced green perceived value although its influence on functional value was not evident. Similarly, although the influence of green perceived risk on functional value was insignificant, its influence on green perceived value was significant. Hence, the increase of green perceived risk would negatively influence customer value through reducing green perceived value.

More importantly, functional value and green perceived value have been shown to have positive influences on self-brand connection, brand prominence and green brand loyalty. The mediating roles of these values were confirmed and their mediation effects in the relationships between green brand communication and green brand attachment and loyalty were different. Interestingly, the differences of the proposed relationships across brands of physical goods and services were identified and these findings suggest that various green marketing strategies should be considered between green product branding and green service branding.

This study is one of the very few to examine the effectiveness of green branding through the customer value approach in the context of a developing country. The study is the first to compare brands of physical goods and services in the green branding context, which provides valuable insights for current studies of consumers' adoption behaviour of green brands.

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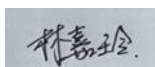
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Statement of original authorship

I declare that this thesis has been completed by myself, providing original contribution to knowledge. This thesis contains no material which has been previously submitted for achieving any other degree in any institution. To the best of my knowledge, this thesis contains no material which has been previously published or written by any other person, except where due references are made in the thesis.

Dr. Jay Daniel Thompson edited this thesis only addressing the style and grammar. He has made no fundamental changes to the content of the entire thesis.

Jialing Lin

A small rectangular box containing a handwritten signature in black ink. The signature appears to be '林嘉玲' (Lin Jialing).

December 2017

Relevant publications of this thesis

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Table of Contents

Abstract	i
Acknowledgements	iii
Statement of original authorship	iv
Relevant publications of this thesis	v
List of Figures	x
List of Tables	xi
Chapter 1 Introduction and Research Background	1
1.2 Research background.....	3
1.3 Research gaps identified from relevant literature	7
1.4 Research objectives and questions.....	8
1.5 Conceptual model	9
1.6 Methodological approach.....	11
1.7 Contribution of the research.....	13
1.7.1 Academic contribution of the research	13
1.7.2 Practical contribution of the research.....	13
1.8 The structure of the research.....	14
1.9 Chapter summary	16
Chapter 2 Literature Review	18
2.1 Introduction.....	18
2.2 Evolution of green marketing	19
2.3 Green marketing strategy	21
2.4 Green consumption behaviour	33
2.4.1 Influential factors of green consumption behaviour	44
2.4.2 Attitude-behaviour gap in green consumption.....	47
2.5 Customer value concept.....	50
2.5.1 Definition	50
2.5.2 Multidimensional conceptualisation of CV	51
2.5.3 CV in the green consumption context.....	53
2.6 Antecedents of CV associated with green brands	55
2.6.1 Ethical decision-making model.....	55
2.6.2 Teleological perspective	57
2.6.3 Deontological perspective.....	59
2.7 Consequences of CV associated with green brands.....	60
2.7.1 Relationship marketing	60
2.7.2 Consequences of CV in the green consumption context.....	61
2.7.3 The mediating role of CV	66

2.8 CV approach in the context of physical goods and services	68
2.9 The identification of research gaps	70
2.10 Chapter summary	73
Chapter 3 The Conceptual Model and Hypotheses	75
3.1 Introduction.....	75
3.2 Development of the proposed conceptual model.....	76
3.3 The first stage: Brand communicating	78
3.3.1 Green benefits	78
3.3.2 Green perceived risk	80
3.4 The second stage: Brand value assessment.....	82
3.5 Stage three: Brand relationship.....	83
3.5.1 Green brand attachment	83
3.5.2 Green brand loyalty.....	85
3.6 Development of hypotheses	86
3.6.1 Green benefits, risk and CV	86
3.6.2 Green transparency and CV	90
3.6.3 CV and green brand attachment and loyalty	91
3.6.4 CV as a mediator.....	93
3.6.5 Green branding of physical products and services.....	96
3.6.6 Summary of research hypotheses.....	97
3.7 Chapter summary	98
Chapter 4 Research Methodology	100
4.1 Chapter overview	100
4.2 Research paradigm and approach selection	101
4.3 Research context and unit of analysis	104
4.3.1 Research context	104
4.3.2 Unit of analysis	105
4.4 Research design	105
4.4.1 The nature of research design	106
4.4.2 Methods of data collection.....	107
4.4.3 Development of survey instrument.....	111
4.4.4 Validity and reliability of survey instrument	119
4.4.5 Design of the online survey	123
4.5 Ethical considerations	123
4.6 Data collection	124
4.6.1 Target population and sampling frame	124
4.6.2 Sample size	128

4.6.3 Survey administration	128
4.7 Data analysis	130
4.7.1 Data screening.....	130
4.7.2 Factor analysis	132
4.7.3 Structural equation modelling (SEM)	133
4.8 Potential risk of bias.....	138
4.9 Chapter summary	139
Chapter 5 Data Analysis and Results	141
5.1 Introduction.....	141
5.2 Data screening.....	142
5.3 Descriptive statistics	143
5.3.1 Demographic profile of respondents.....	143
5.3.2 Environmental behaviours of the respondents	146
5.3.4 Selection of green brands.....	147
5.3.5 Summary of the items used to operationalise constructs	148
5.4 Exploratory factor analysis (EFA)	150
5.4.1 EFA for green brand communication.....	152
5.4.2 EFA for green brand value assessment.....	154
5.4.3 EFA for green brand relationship.....	155
5.4.5 Summary of the latent constructs based on the EFA	157
5.5 Confirmatory factor analysis (CFA)	157
5.5.1 Construct validity and reliability.....	158
5.5.2 Descriptive fit indices	160
5.5.3 Findings from the CFA	162
5.6 Full structural equation modelling (SEM)	171
5.6.1 Testing for overall measurement model.....	171
5.6.2 Common method bias	176
5.6.3 Hypothesis testing.....	177
5.6.4 Discussion relating to hypothesis testing.....	179
5.7 Mediation testing	184
5.7.2 Discussion relating to the mediating roles of functional value and GPV	187
5.8 Moderation testing	189
5.8.1 Descriptive statistics	189
5.8.2 Multi-group analysis	190
5.8.3 The moderating effect of brand type.....	191
5.9 Chapter summary	195
Chapter 6 Discussion, Recommendation and Conclusion	197

6.1 Introduction.....	197
6.2 Discussion relating to green brand consumers.....	198
6.3 Revisiting the final SEM model.....	200
6.4 Discussion of findings relating to research question one.....	202
6.4.1 Utilitarian environmental benefit	203
6.4.2 Warm glow benefit.....	205
6.4.3 Self-expressive benefit.....	206
6.4.4 Green perceived risk	207
6.4.5 Green transparency	208
6.5 Discussion of findings relating to research question two.....	210
6.5.1 The mediating role of functional value	210
6.5.2 The mediating role of GPV	212
6.5.3 Summary of findings relating to research question two.....	213
6.6 Discussion of findings relating to research question three.....	214
6.7 Implications of this study.....	217
6.7.1 Theoretical implications.....	217
6.7.2 Practical implications.....	219
6.8 Limitations of this study	223
6.9 Future research directions	225
6.10 Conclusion	225
References.....	227
Appendices.....	257
Appendix 1 Survey instrument	257
Appendix 1A: Survey Instrument in English.....	257
Appendix 1B: Survey Instrument translated into Chinese.....	263
Appendix 2: Ethics approval.....	269
Appendix 3: Details of EFA results	270
Table A.....	270
Table B.....	273
Table C.....	275
Appendix 4: Details of CFA results	277
Appendix 5: Details of Structural model results	281
Appendix 6: Descriptive statistics for green brands	284
Table 6A: Correlation matrix and AVE statistics for the service context.....	284
Table 6B: Correlation matrix and AVE statistics for the physical goods context	285
Appendix 7: Action plans associated with research findings of this study	286
Appendix 8: ANOVA Analysis of four cities	291

List of Figures

Figure 1:1 Proposed conceptual model.....	10
Figure 1:2 Roadmap to the structure of the study.....	14
Figure 2:1 Roadmap of Chapter Two	19
Figure 2:2 Simplified Hunt-Vitell Model	55
Figure 3:1 Roadmap of Chapter 3.....	75
Figure 3:2 Proposed conceptual model.....	77
Figure 3:3 Proposed conceptual model and Hypotheses	97
Figure 4:1 Roadmap of Chapter Four	100
Figure 4:2 Map showing the geographic dispersion of the four selected cities.....	126
Figure 4:3 Relationship between the measurement and the structural models.....	134
Figure 4:4 The mediating effect.....	136
Figure 5:1 Roadmap of Chapter 5.....	141
Figure 5:2 Measurement model –Utilitarian environmental benefits	163
Figure 5:3 Measurement model –Warm glow benefits.....	163
Figure 5:4 Measurement model –Self-expressive benefits	164
Figure 5:5 Measurement model –Green perceived risk.....	165
Figure 5:6 Measurement model –Green transparency	165
Figure 5:7 Measurement model –Functional value	167
Figure 5:8 Measurement model -Green perceived value (GPV)	167
Figure 5:9 Measurement model –Self-brand connection.....	168
Figure 5:10 Measurement model –Brand prominence.....	169
Figure 5:11 Measurement model –Green brand loyalty	169
Figure 5:12 Full structural relationships of this research.....	178
Figure 5:13 Structural relationships in the context of brands of physical goods.....	194
Figure 5:14 Structural relationships in the context of brands of services.....	194
Figure 6:1 Roadmap of Chapter Six	198

List of Tables

Table 2:1 Summary of literature review on green marketing strategies	22
Table 2:2 Summary of literature review on factors influencing green consumption behaviour	36
Table 2:3 Summary of studies which measure brand equity indirectly	63
Table 3:1 Summary of all research hypotheses	98
Table 4:1 Research Paradigm	101
Table 4:2 Key differences between deductive and inductive approaches	103
Table 4:3 The differences between exploratory and explanatory research.....	107
Table 4:4 Advantages and disadvantages of self-administered questionnaires	109
Table 4:5 Source of measurement scale for utilitarian environmental benefits.....	113
Table 4:6 Source of measurement scale for warm glow benefits	114
Table 4:7 Source of measurement scale for self-expressive benefits	114
Table 4:8 Source of measurement scale for green perceived risk	115
Table 4:9 Source of measurement scale for green transparency.....	116
Table 4:10 Source of the measurement sale for customer value	117
Table 4:11 Source of the measurement sale for self-brand connection	118
Table 4:12 Source of the measurement sale for brand prominence.....	118
Table 4:13 Source of the measurement sale for green brand loyalty.....	119
Table 4:14 Key advantages and disadvantages of two techniques	135
Table 5:1 Demographic profile of respondents	143
Table 5:2 Respondents' involvement in environmental behaviour	146
Table 5:3 Green purchase place	147
Table 5:4 Selection of green brands.....	148
Table 5:5 Summary of mean and SD for items operationalising constructs.....	149
Table 5:6 EFA for green brand communication	153
Table 5:7 EFA for green brand evaluation	155
Table 5:8 EFA for green brand relationship	156
Table 5:9 Summary of the EFA analysis	157
Table 5:10 Reliability and validity indices	159
Table 5:11 Model Fit Indices	162
Table 5:12 Summary of CFA analysis.....	169
Table 5:13 Model fit summary of overall measurement model.....	171

Table 5:14 Measures and reliabilities	174
Table 5:15 Correlations and average variance extracted values	176
Table 5:16 Common method bias -Goodness of fit indices.....	177
Table 5:17 Model fit summary of full structural model	177
Table 5:18 Results of the structural model	179
Table 5:19 Direct, indirect, and total effects of determinants on relational outcomes	185
Table 5:20 Specific indirect effects of determinants on relational outcomes	187
Table 5:21 Results of measurement invariance test.....	192
Table 5:22 Results of multi-group analysis	193

Chapter 1 Introduction and Research Background

1.1 Introduction

Nowadays, consumers have a greater awareness of environmental issues such as global warming and sustainability. They are even willing to pay a premium price for products and services which are perceived beneficial for sustainability, social responsibility and environment protection (Meise et al. 2014; Parsa et al. 2015). Green marketing, (which endeavours to promote the consumption of green products and services as well as the preservation of the environment has received increasing attention in both academic and industrial communities (Mansvelt 2011; Polonsky 2011). In particular, companies are making great efforts to communicate their green initiatives by emphasising green innovations (Berrone et al. 2013), using green labels and trademarks (Leonidou et al. 2011), as well as adopting systematic environmental management (Delmas & Toffel 2008; King, Lenox & Terlaak 2005).

Not all organisations are, however, able to market their green brands successfully. The effectiveness of communication between consumers and green brands is significantly diminished by organisations' greenwash practices (Chen & Chang 2013; Huang & Chen 2015) and the failure of the transfer from consumers' positive environmental attitudes to actual green purchase behaviour (Chen & Chang 2012). This unexpected outcome would undermine genuine companies' green investment (Aschemann-Witzel & Niebuhr Aagaard 2014; Caruana, Carrington & Chatzidakis 2016) and dampen consumers' confidence in green brands.

Although a number of studies have examined consumer behaviour towards green brands (e.g., Huang, Yang & Wang 2014; Lee 2009; Mourad & Ahmed 2012), scant attention has been paid to addressing the development of green brands from consumers' perspective (Wang & Horng 2016) and factors that influence consumers' green purchase behaviour towards green brands (Papista & Krystallis 2013). The attitude-value-intention model based on the theory of planned behaviour (TPB) has been widely applied to green consumption research. The associated findings suggest that consumers who have positive environmental attitudes do not always convert these into their actual buying behaviour (e.g., Gupta & Ogden 2006; Joshia & Rahman 2015; de Barcellos et al. 2011; Vermeir & Verbeke 2006). Hence, this is an area of

concern, although consumers have showed an increasing level of environmental concern. Recently, several scholars have argued that consumers are more likely to assign green brands as their potential partners in the relationship between consumers and brands. The formation of this relationship is developed by evaluating the trade-off between the benefits and costs of that brand (Papista & Krystallis 2013). These authors explain that environmental aspect is not the only criteria persuading consumers to select green brands. Hence, they suggest a customer value approach which is embodied in a more realistic choice situation as an alternative to the TPB approach for investigating consumer purchase behaviour towards green brands and consumer-green brand relationship development. However, the customer value based conceptual model developed by Papista and Krystallis (2013) has not yet been empirically tested.

The current study extends the customer value (CV) concept which simply captures the customers' overall value perception toward green brands from a functional aspect (Papista & Krystallis 2013). In particular, this study focuses on both functional value and green perceived value (GPV). It also investigates factors influencing customer value associated with green brands based on the ethical theory by Hunt and Vitell (1986). This theory proposes that when consumers engage in green consumption, they evaluate and purchase green products and services according to (a) the costs and benefits (teleological perspective) as well as (b) what is good for the society, i.e., moral obligation (deontological perspective).

Additionally, the implementation of green marketing strategies such as green branding can increase companies' brand equity. Chen (2010) proposes a construct called "customer-based green brand equity" to investigate brand equity in relation to environmental issues. Despite the fact that previous studies have suggested that the relational constructs, such as green satisfaction and green trust positively promote green brand equity (Chen 2010; Chang & Chen 2013), brand attachment reflecting the strength of bond connecting the green brand and the self is still unexplored in relation to environmental issues. Previous studies provided some evidence that brand attachment is a powerful indicator of customer-based brand equity compared with brand attitude strength (e.g., Belaid & Behi 2011; Jang, Kim & Lee 2015; Park et al. 2010). Furthermore, a core dimension of brand equity, i.e., brand loyalty has been ignored when investigating green brand equity (Christodoulides & de Chernatony 2010; Hyun & Kim 2011; Torres, Augusto & Lisboa 2015). Thus, greater research attention needs

to be paid to the role of CV in consumer-green brand relationship development, an objective this study is attempting to achieve.

The purpose of the current chapter is to introduce the research topic to provide an introduction of this study and the chapter is organised as follows. Section 1.2 addresses the background to the research to gain basic understanding of this study. Section 1.3 identifies the gaps of the research in the extant literature. Section 1.4 presents the objectives of the research and articulates the research questions elicited from the identified gaps in the literature. A conceptual model is developed and discussed in Section 1.5. Section 1.6 addresses the methodological approach adopted and introduces several key terms of this research. Section 1.7 highlights the contribution and significance of the research in theory and practice. Section 1.8 introduces the overall structure of the research by summarising each chapter of this study. Finally, section 1.9 draws a conclusion to this chapter.

1.2 Research background

Green marketing has received media attention since the 1960s. Its growing popularity has been particularly evident since the 1990s, when the public started having higher environmental awareness regarding the emergence of new environmental problems, such as global warming (Fisk 1973; Kinnear, Taylor & Ahmed 1974; Mostafa 2007). Owing to such global concerns, the rules and patterns associated with business competition were changed significantly with the creation of rigorous international environmental regulations and the increase of consumers' environmental awareness (Chen, Lai & Wen 2006; Chen 2008).

In particular, most companies have integrated green commitment into their marketing strategies. Consumers' green purchasing behaviour has been regarded as a sustainable way to develop economic growth due to its significant influence on companies' profitability (Kotler 2011; Nielsen 2014; OECD, 2016). For instance, there has been a fourfold increase of the global green market value in just four years from \$209 billion in 2011 to \$845 billion in 2015 (Kotler 2011, p. 134; Leonidou & Skarmeas 2015). Additionally, a recent global study conducted by Nielsen (2014) has reported that more than 50% of the respondents are willing to pay more for products and services from environmental friendly companies. Consequently, the concept of green marketing is now being pursued for balancing the relationship between economic development and environment protection (Chen 2008). Also, satisfying outcomes,

such as corporate reputation and competitiveness can be achieved if companies provide products or services that meet consumers' green needs (Chen 2010). Several green pioneer companies have enjoyed salient benefits, including the improvement of corporate images, the development of new markets and the achievement of competitive advantage (Chen 2008; Chen, Lai & Wen 2006). As a result, increasing attention has been paid to the role of green marketing in corporate branding as green branding has been widely regarded as one of the effective ways to achieve market differentiation (Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005; Papista & Krystallis 2013; Raska & Shaw 2012).

Most previous green branding studies have focused on customer-based brand equity in relation to green brands (Chen 2010; Kang & Hur 2012; Ng et al. 2014). These studies have suggested that green marketing will help companies to increase their intangible brand equities through enhancing brand trust, satisfaction and image. This therefore could assist them in gaining a more competitive advantage and generating higher profits (Jung & Sung, 2008). Subsequently, companies have increasingly positioned their brands as being environmentally friendly through green innovations (Berrone et al. 2013), the use of environmental labels and trademarks (Leonidou et al. 2011) and by adopting systematically environmental management (Delmas & Toffel 2008; King, Lenox & Terlaak 2005). For example, famous brands, such as American Apparel and Toyota Prius have provided green options for their consumers to pursue eco-advantages (Donnar 2005).

However, majority of consumers have a low level of awareness of environmental benefits associated with green brands although there have been an increasing number of companies endeavouring to offer environmentally friendly products and services (Smith & Brower, 2012). Substantive recent studies have pointed out that despite their growing environmental awareness, consumers are not purchasing environmentally-friendly offerings as regularly as expected (e.g., Carrington, Neville & Whitwell 2010; Gleim et al. 2013; Gupta & Ogden 2009). For example, in the overall Australian homecare market in 2014, green brands like Nature's Organics accounted for only 4% of the value share (Euromonitor International 2014). This means that consumers' environmental attitudes do not necessarily translate into their actual green consumption behaviour.

Additionally, greenwash reflecting a firm's malpractices that make unsubstantiated and misleading claims of the green functionality of its products, has emerged as a barrier to the

success of green marketing (Chen & Chang 2013; Huang & Chen 2015). Undoubtedly, this situation has exacerbated consumers' sceptical attitudes towards green products, which in turn has increased the gap between their environmental attitudes and actual purchase behaviour (Chen & Chang 2013). An increasing number of companies have sought to address green initiative efforts, although some other companies have been dishonest about their green marketing practices. Also, consumers' positive environmental attitudes have been found to be insufficient in translating into actual green purchase behaviour. Most of consumers are unaware of relevant environmental benefits associated with green brands. If such ineffective and inconsistent communication continues, it would undermine genuine companies' green investment efforts (Aschemann-Witzel & Niebuhr Aagaard 2014; Caruana, Carrington & Chatzidakis 2016). Hence, to drive consumers' positive responses and engagement to the green initiatives introduced by companies, it is imperative to improve the effectiveness of the green branding strategy (Tollin, Christensen, & Wilke 2015).

Knowledge about factors affecting consumers' green purchase behaviour has been found to have significant implications for organisations. Thus, researchers have been aiming at investigating determinants of green purchase intention in different contexts (e.g., Pagiaslis & Krontalis 2014; Chan 2001; Cowan & Kinley 2014; Chekima et al. 2016). Rooted in the theory of reasoned action (TRA) and the theory of planned behaviour (TPB), the literature largely addresses individual factors to improve consumers' green consumption and assist business organisations to survive in the green market (Hansen, 2009). These factors generally include environmental concern and knowledge, personal norms and values and perceived consumer effectiveness (e.g., Pagiaslis & Krontalis 2014; D'Souza, Taghian, & Khosla 2007; Kabaday et al. 2015; Kang, Liu, & Kim 2013).

However, the attitude-behaviour gap has made the applicability of the TPB approach in green consumption behaviour to be debatable. As suggested by prior research, customer value incorporating situational factors would be an alternative approach to investigate consumers' green brand adoption behaviour (Papista & Krystallis 2013). The importance of customer value in relationship marketing and its determinants have been widely acknowledged in the literature. There is, however, limited available research on the factors influencing customer value and its relevant consequences in the green consumption context. Furthermore, although several studies have conceptualised customer value in a functional manner, the conceptualisation of customer value in the green consumption research is still unclear.

Recently, consumer-perceived green value has been found to be an important determinant of green purchase intention (Chen & Chang 2012).

There has been extensive discussion of green consumption behaviour in existing studies. The majority of these studies have, however, been based in the American and European contexts and the knowledge of consumers' purchase behaviour towards green brands in developing countries remains limited. There has been a recent trend whereby research on green consumption has been shifting to Asian regions (Ramayah, Lee & Mohamad 2010). Such studies have attempted to understand the influence of culture on consumers' green purchase behaviour in relation to the similarities and differences in an environmentally conscious setting (Chan & Lau 2000; Lee 2008, 2009; Chen & Chai 2010).

China has been regarded as a potential market of green products (Chen & Lobo 2012). Although the Chinese economy is the second largest in the world, it has faced global criticism regarding environmental issues owing to previous government policies that ignored environmental concerns and had poor sustainability management (Martinsons et al. 1997; Guerin 2009). In response to such criticisms, the Chinese government recently issued several new strategies and policies. For example, it joined the non-legally binding Copenhagen Accord, which aims to protect the environment and the Chinese government envisages decreasing its carbon intensity by 40-50% by 2020 compared to the 2005 levels (Marinova, Guo & Wu 2013). More importantly, the Chinese government has identified the green economy as a sustainable development plan to stimulate economic growth and prevent its environment from further damage (Pan, Ma & Zhang 2011). In its 12th Five-year Development Plan, Chinese authorities officially announced a strategy for balancing economic development and environment protection (Chen et al. 2013). More recently, a report of the top 100 green brands was released (Li 2012).

Furthermore, there is evidence that Chinese consumers are purchasing green products. For instance, Ip (2003) suggests that consumers in the major cities of China have become more affluent and thus are increasingly purchasing green products. Chen and Lobo (2012) suggest that Chinese consumers in five major cities purchase organic foods. Likewise, Xu et al. (2012) suggest that consumers possess a strong willingness to pay a price premium for eco-labeled seafood. Yu et al. (2014) demonstrate that Chinese consumers are willing to pay 50% more for green food than their more 'conventional' counterparts. Although consumers' green

purchase behaviour has been widely explored in recent literature, there are still unresolved issues relating to companies' failure to capture consumers' green needs in China, where their green scepticism is growing dramatically.

1.3 Research gaps identified from relevant literature

Based on literature from areas such as green marketing, relationship marketing, environmental behaviour and ethical consumption, this study aims to address four main research gaps. Firstly, in response to the debates regarding the attitude-behaviour gap in green consumerism, the customer value approach is proposed as an alternative approach to the TPB approach (Papista & Krystallis 2013). Although extensive research has suggested that customer value is an important determinant of consumer purchase intentions, the application of the customer value concept to green brands context is still limited (Papista & Krystallis 2013).

Additionally, the concept of customer value in previous studies is generally regarded as customers' overall evaluation from a functional perspective and factors influencing customer value are typically considered from the cost-benefit approach. The current study, however, includes the concept of GPV which is a green brand context specific concept proposed by Chen & Chang (2012). In particular, this study examines how customer value, comprising of functional value and GPV contribute to the development of the consumer-green brand relationship.

Secondly, this study uses the ethical theory developed by Hunt and Vitell (1986) as an overarching theoretical framework. This theory proposes that individuals' ethical behaviour is influenced by both deontological perspective (i.e., related to moral obligation) and teleological perspective (i.e., related to cost-benefit approach). This provides a new insight into an investigation of factors that promote customer perceived value associated with green brands. In particular, green benefits (utilitarian environmental, warm glow and self-expressive benefits), green risk and green transparency are included as important determinants of CV based on teleological and deontological evaluations. These factors have been found to play an important part in enhancing green purchase intention. No single study exists which simultaneously investigates these factors within a CV framework in the context of green consumption. Hence the current study fulfils this gap. Moreover, factors affecting the formation of CV might be different cross groups of physical products and services due to their different characteristics (Lovelock 2001; Rathmell 1966; Zeithaml, Parasuraman, &

Berry 1985). Hence, it would be worth examining the differences in the proposed relationships between brands of physical products and services.

Thirdly, limited research has been undertaken on the exploration of the complex nature of brand equity in green brand contexts (Christodoulides & de Chernatony 2010; Jang, Kim & Lee 2015). In particular, attachment reflects the strength of the bond relating the brand to self and this bond is mostly based on self-benefit in past studies (Japutra 2014). In relation to green brands, it is important to explore the dimensions of brand attachment in relation to consumers' green concerns. The inclusion of green brand equity, a complex construct reflecting brand assets relating to its green commitments and environmental concerns, signifies the levels of companies green success. Although, this construct has been introduced and measured in Chen's (2010) study as a uni-dimensional construct, recent literature has suggested that green brand equity is complex and should be a multi-dimensional construct that captures customer-green brand relationship (Chang & Chen 2013). Brand attachment and loyalty regarding green brands would be two crucial dimensions in strengthening green brand equity.

Finally, prior studies that applied customer value as an alternative approach to investigate consumer green brand purchase behaviour and most green consumerism studies have been conducted in western economies. Limited studies investigate the green brand consumerism trend in Asian countries, including China, where green marketing is constantly increasing.

1.4 Research objectives and questions

To address the identified gaps in the literature, this study aims to empirically investigate the factors that stimulate or hinder the development of customer value and consumer-green brand relationship. Based on the ethical theory developed by Hunt and Vitell (1986), the relationship marketing theory and the signalling theory, this study proposes a conceptual model that examines factors influencing customer perceived value in relation to green brands and the ways in which customer perceived value contribute to the understanding of brand attachment and loyalty in the context of green brands. This in turn helps to improve the effectiveness of green branding strategy. To meet the foregoing objectives, the overarching research question is: How do consumers' perceptions towards firms' green branding

initiatives influence their perceived value associated with green brands and the consumer-green brand relationship? The specific research questions are proposed as follows.

Research Questions

Primary research question 1: What are the factors which stimulate or hinder the presence of customer perceived value associated with green brands? The associated secondary questions are:

(i) What are the factors that influence the customer perceived value based on the deontological and teleological perspectives (the antecedents to customer perceived value)?

(ii) What is the level of value perceived by Chinese consumers when they choose green brands?

Primary research question 2: What is the influence of the inclusion of customer perceived value in the relationships between green brand communication and green brand attachment and loyalty? The associated secondary questions are:

(i) Does customer perceived value contribute to consumers' brand attachment towards green brands and which are the dimensions of customer perceived value that drive green brand attachment?

(ii) Does customer perceived value play a significant positive role in enhancing green brand loyalty and which dimensions of customer perceived value drive green brand loyalty?

Primary research question 3: How do the relationships between constructs presented in the conceptual model vary amongst brands of physical goods and services? The associated secondary questions are:

(i) Are there any differences in the formation of customer perceived value across brands of physical products and services?

(ii) Are there any differences in the effects of customer perceived value on green brand attachment and loyalty in the context of physical products and services?

1.5 Conceptual model

In response to the foregoing research questions, relevant issues in relation to green benefits, green risk, green transparency, customer perceived value, green brand attachment and loyalty were examined. These issues are discussed in Chapters Two and Three. The proposed conceptual model was developed and examined based on: 1) the ethical theory proposed by Hunt and Vitell (1986), which consolidates the deontological and teleological perspectives to investigate customer perceived value associated with green brands, 2) the relationship marketing theory (Arnett & Badrinarayanan 2005) and 3) the signalling theory (Connelly et al. 2011) to understand how green brand communication influences the relationship development between consumers and green brands. In this respect, the determinants that stimulate or hinder customer perceived value associated with green brands are examined. These determinants are related to consumers' perceptions of green brand communication which take account of both deontological and teleological perspectives. In addition, the relationships between CV and green brand equity related outcomes are investigated. Finally, the indirect relationships between consumers' perception of green initiatives and green brand loyalty and attachment are evaluated and the role of the mediating variable, CV is also examined. Figure 1.1 illustrates the conceptual model proposed in this study.

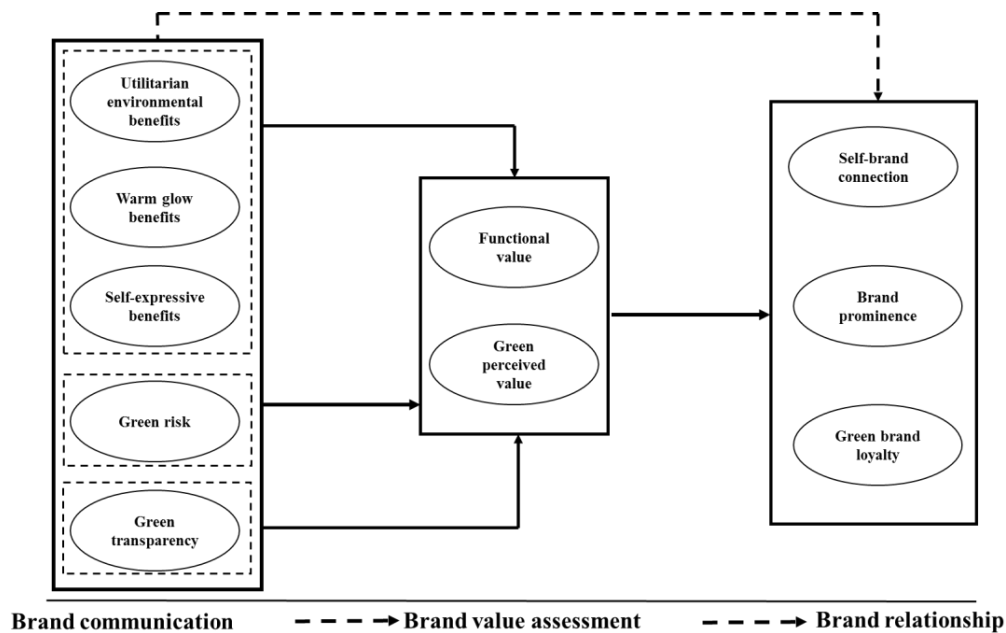


Figure 1:1 Proposed conceptual model

1.6 Methodological approach

In order to effectively address the research questions stated in Section 1.4, this study was conducted in line with the positivist paradigm (Collis & Hussey 2013; Saunders, Lewis & Thornhill 2009). Quantitative research on the topics of interest remains fragmented and difficult to find. A quantitative methodology can play an important role in examining the existing theory by testing and confirming the proposed hypotheses (Saunders, Lewis & Thornhill 2009). In particular, when testing and confirming the hypotheses, a quantitative method needs to be used with a certain size of survey (Cavana, Delahaye & Sekaran 2001; Malhotra, Birks & Wills 2013) and it usually involves large amounts of surveys to test hypotheses by using questionnaires, statistical analysis and experiment (Neuman 2011). This study aims to investigate the factors that stimulate and hinder the development of customer-green brand relationship through the lens of CV as the existing theories have shown that attitude might not be a good indicator of green purchase behaviour because of the ‘halo effect’. Thus, a conceptual model portraying the inter-relationships between customer perceived value, green brand attachment and green brand loyalty is developed and requires direct and specific information to verify or reject the proposed hypotheses. As such, the survey research strategy is well matched to the needs of this study.

The sample frame included participants who had heard about green brands and were above 18 years old. The sampling frame of this study was Chinese consumers residing in four geographically dispersed cities of China (Beijing, Guangzhou, Chongqing and Hangzhou). Hence, a sample comprising of participants from different cities assists in providing more general views and behaviours. The survey instrument was well developed before the data collection began. Specifically, it was developed using previously validated scales. The prescribed back translation technique was employed to translate the original English survey instrument into Chinese by professional translators (Usunier 1998). A final agreement was reached by two other bilingual researchers. To ensure instrument clarity, the question wording and validity, six academics who were experts in green marketing and relationship management were invited to discuss and examine the survey instrument rigorously. Later, two rounds of pre-tests were conducted by using two focus groups, each of which included eight university students who resided in the Guangzhou (South) and Chengdu (West) cities of China, and who had purchase experience of green brands. Subsequently, some minor changes

regarding the wording and formatting were made based on the feedback received from these pre-tests.

The pre-tested questionnaire was formatted into an online version. An international market agency, having approximately 1.3 million Chinese panel members, was employed to collect data. After data collection, a series of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were then performed to examine the reliability and validity of measurement scales. Then, the structural model was tested and a number of hypotheses were examined. Further analysis using invariance testing was conducted to investigate whether there were significant differences in data of various brands of physical products and services.

Definition of Key Terms

Green brands: This study has adopted a broad definition of green brands. The term ‘green brands’ refer to brands that possess attributes and benefits associated with the diverse range of issues that relate to the reduction of environmental impact, ethical and social issues as well as organic production (Wheeler 2013).

Green perceived value (GPV): This concept refers to a consumer’s overall appraisal of the net benefits of a product or service between what is received and what is given based on consumers’ environmental desires, sustainable expectations, and green needs (Chen & Chang 2012, p.505).

Green brand equity: This construct refers to a set of brand assets and liabilities about green commitments and environmental concerns linked to a brand, its name and symbol that increases or decreases the value provided by a product or service (Chen 2010, p.310).

Brand attachment: This concept is defined as the strength of the bond connecting the brand with the self (Park et al. 2010, p.2).

Deontological perspective: This type of moral philosophy reflects an individual’s specific actions or behaviours that are right based or rule based (Hunt & Vitell 1986).

Teleological perspective: This view focuses on behavioural consequences, reflecting that the cost-benefit approach is adopted when making a decision (Hunt & Vitell 1986).

1.7 Contribution of the research

1.7.1 Academic contribution of the research

This study offers contributions to both academics and practitioners in consumer-green brand relationship management. Firstly, this study proposes an integrative model that investigates the relationships between customer perceived value, green brand attachment and green brand loyalty. The conceptual model developed in this study not only captures the influences of consumers' brand evaluation based on their moral philosophies (i.e., deontological perspective and teleological perspective) on CV associated with a green brand, but also includes CV in the relationships between consumers' perceptions toward firms' green initiatives and green brand attachment and loyalty. Previous studies have generally employed CV, attachment and brand loyalty separately; the current study simultaneously assesses their interactive relationships.

Secondly, the CV based on consumers' green concerns needs to be examined both from consumers' deontological perspective and teleological perspective as their ethical concerns might influence their evaluation. Thirdly, since this study is focused on customer-green brand relationship, both attachment and brand loyalty are evaluated to reflect the green brand context. Fourthly, an investigation of the differences in the formation of CV and their influence on green brand attachment and loyalty across brands of physical products and services provides significant theoretical implications for green branding research. Finally, this study aims to empirically test the proposed model in China, an emerging non-western market economy.

1.7.2 Practical contribution of the research

Practically, this study adopts new insights using customer perceived value, comprising of functional value and GPV to investigate consumer-green brand relationship and empirically tests it in an Asian background, i.e., China. This would assist global enterprises in better understanding consumers and the green marketing potential in China. Additionally, the findings from testing the conceptual model can help managers realise the relative importance of the factors that contribute to consumer-green brand relationship. This study can provide more evidence to support green marketing and its benefits to green brands; and gain a better understanding of green branding strategies in the context of physical products and services.

Importantly, this study aims to assist organisations in facilitating the communication between consumers and green brands which in turn would reduce the attitude-behaviour gap in consumers' green purchase behaviour. Also, this study contributes to practical implications for organisations which target the emerging green market. In particular, the findings of the study will help global enterprises to design effective green brand relationship strategies in China which is regarded as a huge emerging green market. It is envisaged that positive findings would encourage more companies in China to adopt green marketing as their new innovative strategy to gain a competitive advantage. Finally, the findings of this study will hopefully assist the Chinese government to fulfil their responsibility relating to environmental concerns. More importantly, the study will also enhance the Chinese governments' understanding of the ethical concerns of its citizens and the development of green marketing in China.

1.8 The structure of the research

There are six chapters in this study. The roadmap to the structure of this study is depicted in Figure 1.2.

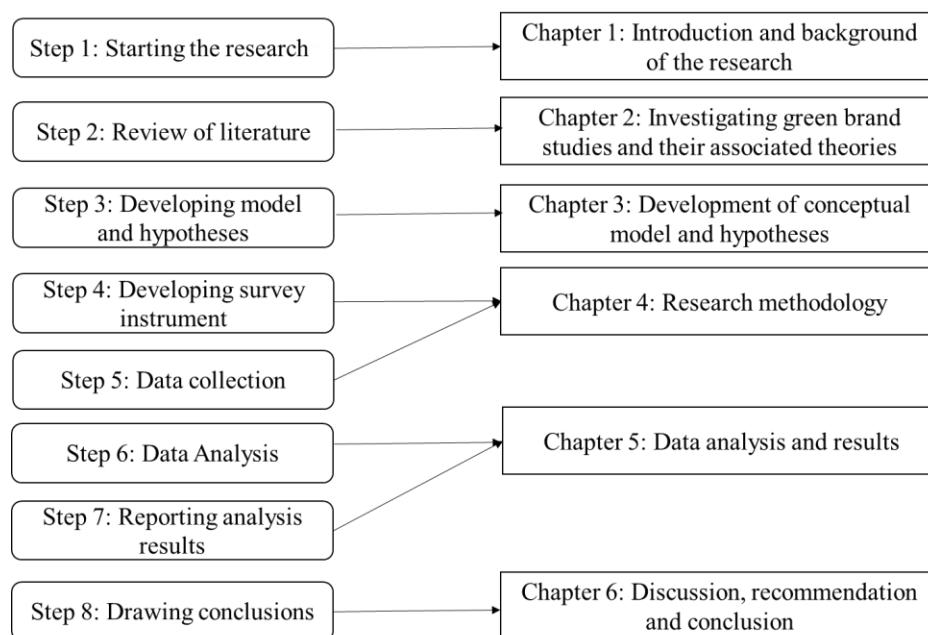


Figure 1:2 Roadmap to the structure of the study

Source: Developed for this research (adapted from Perry (1995))

Chapter One provides important information on the background and research problems. These are addressed from the following four aspects: the popularity of green marketing; the importance and effectiveness of green branding in consumers' green consumption behaviour; the attitude-behaviour gap; and the increase of consumers' sceptical attitudes toward green products/brands and the potential green market in China. This chapter also discusses the research objectives targeted at empirically investigating the factors that stimulate or hinder the development of customer value of green brand (i.e., functional value and green value) and customer-green brand relationship. Hence, three primary research questions are proposed: 1) what are the factors which stimulate or hinder the presence of customer value associated with green brands? 2) whether and how the customer value of green brand plays a mediating role in the formation of customer-green brand relationship?; and 3) whether and how green brand type moderates the formation of customer-green brand relationship? Following this, individual sections examine the relevant research approach suited to answer the research questions; justify the selected research and data collection methods; examine the analysis techniques; and, finally, outline the findings and the implications of the outcomes.

Chapter Two examines the concepts of green marketing which have previously focused on the key themes of green branding research, such as green brand positioning and green brand equity. Additionally, several important theories and models— the theory of planned behaviour (TPB), ethical decision-making model, relationship marketing theory and signalling theory —have been introduced in this chapter to serve as the underpinning theoretical base to develop the conceptual framework. Finally, the role of customer value in green brand consumption behaviour and its dimensions have been addressed. These themes provide significant theoretical knowledge to support the argument that customer value comprised of functional value and green value would be an alternative to the TPB approach in understanding consumers' green brand adoption behaviour. Drawing on existing knowledge and literature, gaps in the existing literature and knowledge have been identified.

Chapter Three develops a conceptual framework which includes the brand communication stage (i.e., consumers' perceptions of green branding initiatives), the brand value assessment stage (i.e., consumers' value perceptions of green brand) and the brand relationship stage (i.e., self-brand connection, brand prominence and brand loyalty). In particular, this chapter explains each stage separately and develops the relevant hypotheses.

Chapter Four provides a detailed research design that attempts to answer the research questions. In particular, this chapter begins with a consideration of the positivism paradigm followed by the selection of the detailed research design. These address the issues relating to the survey research strategy, selection of online survey method, survey instrument development and pre-test and data collection. Lastly, there is an explanation of the ethical concerns given to the survey instrument design and the potential risk of social desirability bias.

Chapter Five adopts a structural equation modelling technique using the Mplus 7.31 application software application to examine the hypothesised structural relationships. It starts with data screening to ensure the data quality, followed by an introduction to relevant analysis methods, aimed at examining construct validity and reliability. The structural relationships in the proposed conceptual model are tested. Finally, the mediator effects of functional value and green value and the moderator effect of green brand type are examined.

Chapter Six discusses the findings in relation to the results of data analysis. These findings are reported logically in line with the structure of the conceptual framework. Each of the research questions is logically addressed. Finally, a comparison between the findings of this study and extant literature are provided to elicit the academic contribution of this research and the generation of a new body of knowledge.

Chapter Six also summarises the research background, research aims and objectives, and the knowledge gap relating to the research questions. The theoretical implications relating to consumers' green brand adoption behaviour are discussed. There are suggestions of the practical implications for organisations to improve the effectiveness of their green branding strategies. Limitations of this study are addressed. These limitations relate to the sample size, sample representativeness, and research method. Finally, future research directions are discussed.

1.9 Chapter summary

This chapter has provided an overview of the study, and has done this by discussing the background to the research and addressing its associated issues. Research gaps and the objectives of the research were identified and the research questions were proposed. To effectively respond to these research questions, a conceptual model was developed. In order

to verify the relationships proposed in the model, the methodological approach was discussed and the quantitative research method was adopted. The significance of this study for theoretical and practical knowledge was justified. Finally, an overview of each chapter was presented to demonstrate how this study has progressed.

Chapter 2 Literature Review

2.1 Introduction

This chapter provides a review of the literature related to green marketing, green consumption, and customer perceived value. Figure 2.1 diagrammatically illustrates the roadmap of the different sections of Chapter Two. It begins with a discussion of the evolution of green marketing to identify the research trends in green marketing (Section 2.2). This is followed by a detailed review of the green marketing strategy to examine the effectiveness of green initiatives with special reference to green branding, green communication and barriers to green marketing success (Section 2.3). Section 2.4 addresses green consumption behaviour and in particular discusses the factors affecting green consumption behaviour and the attitude-behaviour gap in green consumption. The customer value concept is discussed in Section 2.5. This section explains the measurement dimensions and application in the green consumption context. Section 2.6 provides a discussion of the determinants of customer perceived value based on the ethical decision-making model. Section 2.7 addresses the consequences of customer perceived value as per the relationship marketing theory and discusses the role of CV based on signalling theory. A discussion of CV approach in the context of physical goods and services is provided in Section 2.8. An identification of research gaps is provided in Section 2.9. Section 2.10 concludes the chapter.

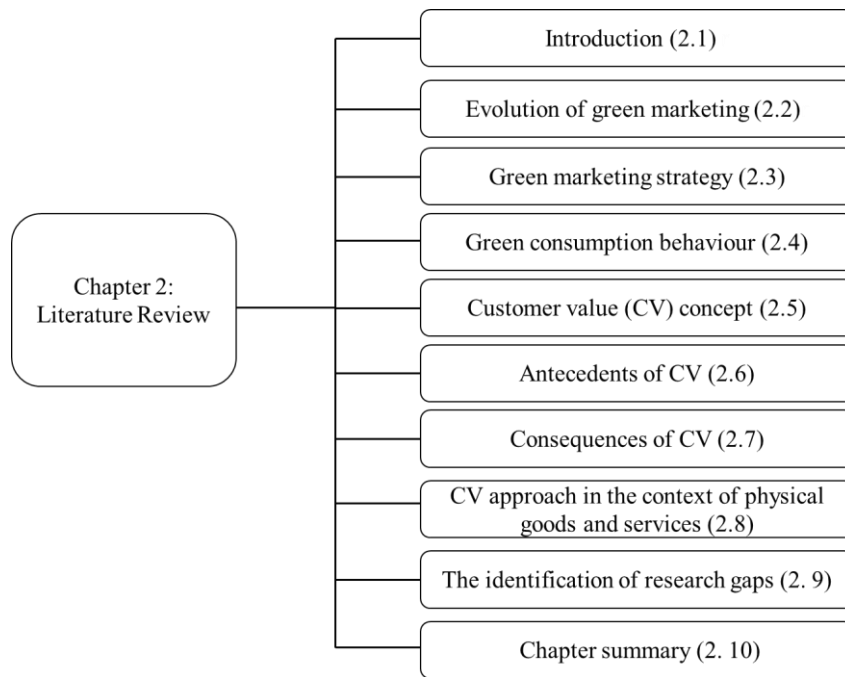


Figure 2:1 Roadmap of Chapter Two

Source: Developed for this research (adapted from Perry (1995))

2.2 Evolution of green marketing

With increasingly evident global environmental problems, consumers and environmental activists have become aware of environmental issues in their daily behaviour (Kinnear et al. 1974; Mostafa 2007). This has led to significant changes in firms' marketing strategies since the early 1990s. In order to deal with the pressures resulting from the environmental concerns of society, more and more companies have adopted green marketing strategies to transform their businesses into those that can comply with the green trends (Ottman 1992; Peattie 1995; Vandermerwe & Oliff 1990). During this stage, the main goal for most companies was to adopt green marketing practices in order to develop a responsible image for legitimacy through greening their products. Progressively, with consumers' increasing needs for green products and their willingness to pay premium prices, companies realised that green marketing was able to create huge market value by satisfying the consumers' environmental needs or wants (Polonsky, 1994). From then on, they began to actively respond to green trends and endeavoured to incorporate sustainability thoughts into their marketing strategies. This was because an environmentally-conscious image could lead to positive market performance and competitive advantages (Chen & Chang 2013; Lee, Kim & Choi 2012).

Green marketing has been generally regarded as an important tool in promoting products that possess environmental friendly characteristics. This definition narrows the scope of green marketing and therefore it was transformed into a broader concept which has been applied to the context of consumer goods and services (Chen 2009; Ottman 1998; Polonsky 1994). This definition covers a broad range of activities that are related to environmental impact, including modification of the production process and packaging and certain changes to the product and advertising. Building on this argument, green marketing has been defined as all activities attempting to develop and facilitate any exchanges intended to satisfy consumers' needs or wants in a sustainable way (Polonsky 1994). This definition further identifies the important role of green marketing in minimizing environmental harm.

Similarly, Armstrong and Kotler (2011) use the term 'green marketing' to describe all marketing activities that attempt to satisfy the present needs of both consumers and businesses, while also contributing to the protection of environment for future generations. In other words, marketing that satisfies the needs of both consumers and businesses by not sacrificing the environment can be classified as being 'green marketing'. In this regard, organisations are more likely to adopt green marketing strategies intending to find solutions to environmental challenges by developing environmentally friendly products, biodegradable and recyclable packaging, and green production processes (Kotler & Armstrong 2011). An increasing number of firms have realised the significance of environmental responsibility in achieving their environmental and profit-related objectives. For example, The Body Shop has gained a competitive advantage from successfully promoting its environmental responsible practices by offering more environmentally responsible cosmetic products to its consumers and incorporating social responsibility into its corporate culture (Miles & Covin 2000). In contrast, Coca-Cola has invested a large number of resources in various recycling activities and modified its packaging. These actions have not, however, led to consumers' commitment to this brand. The reason for that is because these actions on the behalf of Coca Cola do not promote environmental initiatives (Polonsky 1994).

With an understanding of the importance of green marketing in generating competitive advantage, much research has investigated business-level and functional-level strategies in the early 2000s. Such a move assisted companies in understanding how to market green products effectively and to enhance their market performance (e.g., Banerjee 2001, 2002; Mathur & Mathur 2000). From the mid-2000s onwards, green marketing functions have been widely discussed and these address green product innovation, green advertising, green

retailing and distribution, green positioning and green branding (e.g., Chen 2010; do Paco et al. 2013; Grankvist, Lekedal & Marmendal 2007; Hartmann & Apaolaza-Ibáñez, 2006; Kumar, 2016; Leonidou et al., 2011; Ng et al., 2014). In simple terms, this stage started to predominantly examine the application of green marketing strategies either at business level or at consumer level.

2.3 Green marketing strategy

Green marketing strategy reflects firms' strategic efforts to satisfy consumers' needs and wants by providing environmentally friendly products and services that are beneficial for environment protection and society (Grewal & Levy 2008; Mansvelt 2011; Polonsky 2011). There are numerous gains received from green marketing strategies, such as relieving regulation pressure, gaining competitive advantage and creating responsible corporate culture (Grant 2008; Polonsky & Rosenberger 2001). Consequently, green marketing strategies have aroused increasing interest among managers, stakeholders and academics (Mourad & Ahmed 2012).

The topic of the evaluation of green marketing strategies has received considerable critical attention from a review of the green marketing literature. (Rivera-Camino, 2007). Notably, the effectiveness of green marketing has raised researchers' concerns as firms' orientations have largely relied on making profits through business level green marketing activities whilst the role of consumers in this process have frequently been ignored (Peattie & Crane, 2005). Additionally, the literature has identified the importance of green branding and communication in the evaluation of green marketing strategies (e.g., Hartmann, Ibáñez, & Sainz 2005; Ng et al. 2014; Pickett-Baker & Ozaki 2008; Thøgersen, Haugaard & Olesen 2010). Also, this has highlighted the potential barriers to the success of green marketing (e.g., Albayrak et al. 2011; Delmas & Cuerel Burbano 2011; Leonidou & Skarmeas 2015; Ottman, Stafford & Hartman 2006). A summary of the salient features of the literature review of the green marketing strategies is presented in Table 2.1.

Table 2:1 Summary of literature review on green marketing strategies

Author(s)/year	Context	Methodology	Focus	Findings
Albayrak, Caber, Herstein & Moutinho (2011)	Turkey	Quantitative research	Consumer scepticism	Consumer scepticism will be reduced if firms perform honestly, trustworthily and altruistically
Biel & Grankvist (2010)	Sweden (Food wholesaler)	Quantitative research	Environmental information	Environmental information had an influence on consumers' preference for green products and negative information presented stronger effects as compared to positive information
Bose & Luo (2011)	USA (Information technology)	Conceptual framework	Adoption of modern technological means, such as virtualisation to implement green branding	Virtualisation can assist organisations in undertaking green IT initiatives.
Dekhili & Achabou (2014)	France (Nespresso coffee)	Quantitative research	Consumers' response to eco-labelling	Both self-declarations carried out by the company itself and independent certifications had positive influences on consumers' preference.
Delmas & Burbano (2011)	USA	Quantitative research	Negative effects of greenwashing on confidence in green products	To effectively reduce greenwashing behaviour, it is required to improve the transparency of a firm's environmental performance and facilitate knowledge of greenwashing.
Deshwal (2012)	India	Conceptual framework	The evolution of green marketing	Green marketing has become an effective tool for firms to position their brands as being environmentally friendly.

Author(s)/year	Context	Methodology	Focus	Findings
D'Souza, Taghian, Lamb, & Peretiakos (2006)	Australia (Supermarket food)	Quantitative research	The influences of the product's price and quality on the green purchase intention of consumers	Consumers were not willing to compromise low-quality green products with higher price.
Ferreira, Avila, & de Faria (2010)	Brazil (Jeans pants)	Quantitative research	Consumers' response to socially responsible firms	Social responsibility initiatives enhance consumer perceived benefits and value.
Furlow (2010)	USA	Conceptual framework	The negative influence of greenwashing on consumers' attitudes toward green products	Green claims used by majority of firms were always misleading and they exaggerated the functionality of green products.
Grimmer & Woolley (2014)	Australia (Bottled water)	Quantitative research (Experiment)	The relationship between green marketing communication message and consumers' purchase intention and the moderating role of environmental involvement in this relationship	The effect of environmental messages on consumers' green purchase intention was stronger when they had higher environmental involvement.
Guo, Tao, Li & Wang (2017)	China (energy)	Quantitative research (Survey)	The negative influence of greenwashing on trust in the context of energy brands	Greenwashing negatively influenced brand trust by reducing green promise and brand legitimacy. In addition, brand trust crisis can be alleviated by enhancing brand loyalty.
Gupta & Ogden (2009)	USA (Energy conservation)	Quantitative research (Survey)	The attitude - behaviour inconsistency in the environmental consumerism	Consumer perceived efficacy, expectation of others' cooperation, in-group identity and trust were found to have significant influence in understanding the gap between positive environmental attitude and actual

Author(s)/year	Context	Methodology	Focus	Findings
				purchase behaviour.
Hartmann, Ibáñez, & Sainz (2005)	Spain (Known brands of small-sized cars)	Quantitative research (Experiment)	The relationship between functional and emotional green brand positioning and consumers' attitudes toward green brands	Both functional and emotional positioning had a significant influence on brand attitude and a combination of functional attributes and emotional benefits presented highest perceptual effects.
Hartmann & Apaolaza-Ibáñez (2012)	Spain (energy)	Quantitative research (Experiment)	The influence of psychological benefits associated with green brands on consumers' brand attitudes and purchase intention	Emotional benefits positively influenced consumers' brand attitude and purchase intention. Notably, nature-experience presented the strongest effect on brand attitude whilst self-expressive benefits were found to have no direct effect on brand attitude and purchase intention.
He & Li (2011)	Taiwan China (mobile telecommunications services)	Quantitative research (Survey)	Service branding through corporate social responsibility (CSR)	Service quality enhanced the effect of corporate social responsibility on brand identification.
Juwaheer, Pudaruth & Noyaux (2012)	Mauritius (hypermarkets and supermarkets)	Quantitative research (Survey)	The manner in which green marketing strategies affect consumer purchasing patterns	Consumers showed higher environmental awareness and green marketing strategies, including green branding, eco-labelling and green packaging were found to change customers' pattern of green consumption.
Jahdi & Acikdilli (2009)	UK (Bank service)	conceptual framework	The effects of CSR communication message on an organisation's corporate reputation and brand image	CSR communication message contributes to maintain ethical image and reputation, which is important to gain competitive advantage.

Author(s)/year	Context	Methodology	Focus	Findings
Kim, Njite & Hancer (2013)	USA (Eco-friendly restaurant)	Quantitative research (Survey)	The role of anticipated emotions in enhancing consumers' visit intention in the context of environmentally friendly restaurant	Anticipated emotion had significant influence on consumer intention formation and green branding strategy can include negative feeling to influence consumers' decision to select an eco-friendly restaurant.
Leonidou & Skarmeas (2015)	USA	Quantitative research (Survey)	Green scepticism	Corporate social responsibility can influence consumers' environmental action. Green scepticism led to more information search, negative word of mouth and reduction of purchase intentions.
Ng, Butt, Khong & Ong (2014)	Malaysia (Electric and electronic products)	Quantitative research (Survey)	The development of a comprehensive model comprising of both conventional and green branding constructs	Consumer perceived brand quality and overall credibility positively influenced green brand image, green perceived value and green brand equity, revealing the important role of conventional attributes in green branding research.
Ottman, Stafford & Hartman (2006)	USA	Conceptual framework	The approach in enhancing consumers appeal for green products.	Credibility of green marketing communication determined the success of green marketing.
Phau & Ong (2007)	Australia (leisure clothing)	Quantitative research (Survey)	Consumers' responses to environmental claims	Consumers were more likely to perceive the environmental claims associated with green brands as being credible.
Pickett-Baker & Ozaki (2008)	England (supermarket products)	Quantitative research (Survey)	The manner in which marketing and branding techniques influence the development of green brands and green consumption patterns	Scant attention has been paid to the green branding. Consumers were not always aware of green benefits offered by green firms.

Author(s)/year	Context	Methodology	Focus	Findings
Polonsky (2011)	Australia	Conceptual framework	Green marketing is not achieving its full potential.	Marketers need to create alternative ways of presenting value and costs, changing the way firms talk about human interactions and the environment.
Rahbar & Abdul Wahid (2011)	Malaysia	Quantitative research (Survey)	The influence of green marketing tools (i.e., green label, brand and advertisements) on consumers' actual purchase behaviour	consumers' trust in eco-label and eco-brand can lead to actual purchase behaviour. Consumers' trust in green label and green brand had a significant influence on actual purchase behaviour.
Rex & Baumann (2007)	Sweden	conceptual framework	Green marketing positioning strategies.	Several implications could be learnt from conventional marketing by green marketing, such as stressing the roles of price, place and promotion in positioning strategies. In addition, provision of eco-labels is an effective tool to enhance credibility of green products.
Sarkar (2012)		Conceptual framework	The effect of green branding on developing sustainable green marketing strategy.	Green branding can assist in managing supply chain by addressing eco-labelling and eco-footprinting.
Singh, Iglesias & Batista-Foguet (2012)	Spain (Fast moving consumer goods)	Quantitative research (Survey)	The influence of consumers' perceptions of a corporate's ethicality on their perceived brand trust, brand affect and brand loyalty	Consumer perceived ethicality of a brand had significant influence on both brand trust and brand affect. Consumers' perceptions of ethicality significantly impacted brand trust and brand affect.
Teisl, Roe & Hicks (2002)	USA (Dolphin-safe labels on tuna)	Quantitative research (Survey)	Consumers' response to eco-labels.	The dolphin-safe label increased the market share of canned tuna. Eco-labels contributed to the increase of the market share of canned tuna.

Author(s)/year	Context	Methodology	Focus	Findings
Thogersen, Haugarrd & Olesen (2010)	Denmark (Sustainable fishery)	Quantitative research (Survey)	Consumers' response to eco-labels.	Consumers who had adopted eco-labels earlier made greater effort in their green practices
Vaccaro & Echeverri (2010)	USA (Electricity)	Quantitative research (Survey)	The effect of corporate transparency on customers' willingness to undertake pro-environmental collaborative programs	Customers are willing to partake in pro-environment programs if corporates present high level of transparency

The previous studies summarised in Table 2:1 demonstrate that green branding and communication strategies influence consumers in their purchasing patterns and in developing relationship between consumers and firms (Devi Juwaheer, Pudaruth & Monique Emmanuelle Noyaux 2012). Additionally, several important factors were identified as barriers to green marketing success, such as green scepticism. Hence, there are three major areas which can be identified in the review of green marketing strategy literature (shown in Table 2.1), i.e., green branding, green communication, and potential barriers to green marketing success. They are addressed in the following sections, with the aim of developing an understanding of how to improve the effectiveness of green marketing strategies.

Green branding

Consumers tend to prefer green brands due to their growing environmental awareness. This phenomenon has enhanced the role of brands in changing consumers' attitudes toward greener consumption (Bose & Luo 2011; Eagly & Kulesa 1997; Pickett-Baker & Ozaki 2008). In response, branding has been regarded as an effective green marketing strategy for gaining significant eco-advantages over competitors (Delgado-Ballester & Munuera-Alemán 2005). In order to enrich the scope of green branding research, the definitions of green brand have been widely discussed although a coherent definition is yet unavailable (Hartmann & Apaolaza-Ibáñez 2006; Papista & Krystallis 2013; Wang & Horng 2016).

Generally, from a lifecycle perspective, a green brand is characterised by the minimum usage of resources throughout the whole product lifecycle (Scheffer 1991). However, from a comparative standpoint, a green brand is referred to "a brand which offers significant eco-advantage over its incumbents and is able to attract consumers who set high priority to be green in their purchase" (Grant 2008, p.25). The features of green brands have been extended to broader aspects, including ethical and social concerns (e.g., Carrigan & Kirkup 2001; Newholm & Shaw 2007; Shaw & Clarke 1999). In other words, green benefits associated with brands and corporate green practices related to environmental responsibility and ethical and social issues would assure consumers that the brand they purchase is a green one.

As prior research has suggested, green positioning determines the success of green branding strategy (Coddington 1993; Mourad & Ahmed 2012). Brand communication and differentiation intended to generate effective green positioning can be through providing functional attributes and emotional benefits (Hartmann, Apaolaza Ibáñez & Forcada Sainz

2005; Kotler 2000). Several studies conducted by Hartmann and his co-authors (2005, 2006) have confirmed the contribution of emotional benefits in positioning a green brand. These scholars argue that depending solely on functional positioning might result in some disadvantages, such as lack of flexibility and brand differentiation as it can be easily imitated (Aaker 1996). In contrast, emotional positioning through providing warm glow (Ritov & Kahnemann 1997), self-expressive benefits (Aaker 2009) and nature experience (Kals, Schumacher & Montada 1999) can help create individual benefits to the buyer which might be adequate enough to influence their purchase.

Additionally, Hartmann et al. (2005) revealed that both functional and emotional positioning lead to positive brand attitudes. A combination of functional attributes and emotional benefits ensures the highest perceptual effects. In this regard, green branding research suggests that apart from providing information on functional attributes, emotional brand associations reflecting customers' needs for warm glow, self-expressive and nature experience should be considered in improving the communication between customers and green brands. Green brand positioning helps to develop green brand image and large resources are needed to increase green perceived value due to its positive influence on green trust, purchase intentions and green brand equity (Chen 2010; Chen & Chang 2013).

In particular, green brand equity reflects a brand's intangible assets and liabilities resulting from its green commitments and environmental concern. For this reason, green branding has been used as an important indicator in assessing the influence of green marketing on market performance (Chen 2010; Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005; Mourad & Ahmed 2012; Ng et al. 2014). For instance, Chen (2010) suggests that consumer perceived green brand image, green satisfaction and green trust positively affect green brand equity. Ng et al. (2014) argue that traditional features such as consumer perceived brand quality and overall credibility have positive influences on green brand equity by creating positive green brand image and increasing green brand perceived value. Nevertheless, far too little attention has been paid to the conceptualisation of green brand equity and how green branding strategy affects it from the consumers' perspective (Wang & Horng 2016). Apart from environmental performance, green marketing research demonstrates that firms' ethical practices positively influence a brand's image and loyalty (Nagar 2013) and corporate social responsibility (CSR) messages can help to facilitate communication and generate an ethical image (Jahdi & Acikdilli 2009).

Overall, green branding research has proven the positive influence of green brand positioning on brand attitude (e.g., Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005; Huang, Yang & Wang 2014; Mourad & Ahmed 2012). Effective brand positioning is required to provide high quality green communication to meet customers' expectations, so that they can associate the green brand with its valuable attributes (Ries & Trout 1986). Based on a broader scope of green brands, these studies have also identified the significant influence of ethical practices on brand attitude and brand image (Dekhili & Akli Achabou 2014; He & Li 2011; Jahdi & Acikdilli 2009).

Green communication

Communication messages in relation to firms'/products' environmental performance is another important area to consider when examining the evaluation on green marketing strategies. Several scholars suggest that consumer perceived value associated with products and services could be increased by improving consumers' knowledge of a firm's green initiatives (Hartmann & Ibanez 2006; Polonsky 2011). More importantly, consumers' value perception towards products and services is determined by how these products and services are positioned and how consumers respond to the communication of the "added value" associated with green offerings (Grimmer & Woolley 2014, p.233). Green brand positioning is effective in providing differentiation in green market, and marketers aim to adopt various communication strategies to deliver firms' unique features to their target consumers. Specifically, green products would not be commercially successful without effective communication (Pickett, Kangun & Grove 1995), which demonstrates that green communication is one of the major concerns for green marketers.

Hence, consumers are usually exposed to different types of environmental messages that will assist them in identifying greener products (D'souza & Taghian 2005). However, the credibility of green advertisements is debatable, and the fact that credibility has a positive influence on green product attitude (Ahmad, Shah & Ahmad 2010; Kilbourne 1995; Mathur & Mathur 2000). In order to communicate the credibility of green products, the roles of packaging and eco-labeling in changing consumers purchasing patterns have been addressed. For instance, environmentally-safe packaging enables companies to gain competitive advantage by presenting its environmental friendly features (Barber 2010; Delia 2010) and green consumers are likely to engage in green product consumption by ensuring that a

package designed by recycled materials (Laroche, Bergeron & Barbaro-Forleo 2001). Likewise, eco-labelling has been regarded as an effective way of communication by presenting specific benefits to customers, for example the characteristics of a product and the claim regarding its safety (D'Souza et al. 2006). In particular, consumers' trust in environmental labels can lead to actual purchase behaviour (Rahbar & Abdul Wahid 2011). Most labels used on green products are, however, unsubstantiated and misleading, which in turn increases customers' green skepticism (Borin, Cerf & Krishnan 2011). Thus, several scholars have argued that customers' value perception of green products and services can be increased if they have good understanding of a firm's green initiatives (Cherian & Jacob 2012; Hartmann & Apaolaza Ibáñez 2006; Polonsky 2011).

Additionally, corporate social responsibility (CSR) messages have found to have a positive influence on brand attitude (Becker-Olsen, Cudmore, & Hill 2006; Sen & Bhattacharya 2001). Hence, both environmental and ethical performance should be considered when examining customers' overall evaluation of a firm's green initiatives. It is extremely important to understand the value concept from consumers' perspective in order to facilitate communication between consumers and a firm's green initiatives. These initiatives include a firm's environmental and ethical performance. Researchers have argued that emotional benefits significantly motivate consumers to purchase green products (Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005); and that it is imperative to include emotional values associated with green brands for successfully delivering value to consumers (Hartmann & Apaolaza Ibáñez 2006). Although these scholars have reported the importance of emotional benefits in green communication, several key factors relating to green skepticism have not been examined in an integrated framework. These factors include risk perception and transparent information.

Barriers to green marketing success

Although green marketing has gained increasing popularity in achieving competitive advantage and market performance, not all companies have received positive outcomes in relation to their green marketing strategies (Chen, Lai & Wen 2006). For example, the market share of green products is still low, although eco-labels have commonly been used to implement green marketing (Rex & Baumann 2007). The literature review of green marketing demonstrates that conventional product attributes still significantly impact

customers' willingness to purchase green products. Such product attributes are quality, price and availability (Gupta & Ogden 2009; Moisander 2007). More importantly, consumers have expressed confusion and mistrust about green marketing, and this has negatively influenced their brand attitudes (Bonini & Oppenheim 2008). These consumers perceived green marketing to be deceptive or misleading. In simple terms, consumers have become skeptical of green advertisements and as a result this has reduced the credibility of green brands (Deshwal 2012).

Consumer skepticism has resulted mainly from their inability in correctly interpreting the meaning of the communication and also because of the presence of greenwash (Deshwal 2012). Greenwashing is defined as the 'the intersection of two types of behaviours of firms: poor environmental performance and positive communication about environmental performance' (Delmas & Burbano 2011, p.65). In other words, it is a kind of practice whereby companies exaggerate the environmental performance of their products and services.

In order to seize the opportunity of meeting consumers' demand for green products (Chen 2008; Chen & Chang 2012; Chen & Chang 2013), the phenomenon of greenwashing has become prevalent in the current green market (Nyilasy, Gangadharbatla & Paladino 2014). More and more companies are positioning their brands as being 'green' in order to achieve competitive advantage (Delmas & Toffel 2008; King, Lenox & Terlaak 2005). These companies aim to improve their green image and receive positive word-of-mouth.

However, most of the above mentioned companies engage in greenwash practices in that they make unsubstantiated and misleading claims about the green functionality of their products (Chen & Chang 2012; Huang & Chen 2015; Laufer 2003; Parguel, Benoît-Moreau & Larceneux 2011). Such practices have exacerbated consumers' skeptical attitudes towards green products. If such greenwashing continues, it would undermine the well-meaning green investment undertaken by companies (Aschemann-Witzel & Niebuhr Aagaard 2014; Caruana, Carrington & Chatzidakis 2016) and dampen consumers' confidence in green brands (Delmas & Burbano 2011) and reduce their green trust (Chen & Chang, 2013). In this respect, there have been calls for improved consumer information tools which deliver transparent and non-misleading information. Such a move would increase consumers' recognition of green marketing (Rourke 2005; Thøgersen 2000).

In summary, the green marketing research has mainly emphasised the evaluation of green marketing strategies. In particular, this research has revealed that first, green branding is of

considerable importance in gaining competitive advantage and in enhancing consumer green purchase behaviour. Both these aspects require functional and emotional positioning strategies, together with ethical considerations. Also, the manner in which green branding strategies influence the formation of green brand equity is an approach worth examining. Second, the effectiveness of green brand communication through creating customer value needs to be investigated. Third, consumers' skepticism and green products' functional performance are important barriers to green marketing success. Hence, it is imperative to deliver tangible value of green alternatives and provide transparent and authentic information to customers.

Overall, the literature discussed in the foregoing sections presents an evaluation of green marketing strategies at the business level. This literature also addresses the limitations of green marketing in that consumers demonstrate a poor understanding of a firm's green branding strategy. Essentially, this proves that branding has been underestimated in green marketing. Hence, consumers' understanding of a firm's green branding strategy should be investigated. There should also be an investigation into how consumers interpret green brand communication, as well as the influence of this communication on their green brand consumption behaviour.

Thus, this study aims to improve the effectiveness of green branding strategy in increasing customers' green brand adoption behaviour. The study aims to do this by understanding customers' perceptions of a firm's green initiatives and strengthening the communication between customers and green brands. In order to understand consumers' green brand adoption behaviour, the following section will address green consumption behaviour.

2.4 Green consumption behaviour

Unlike general consumption behaviour, which is driven by a trade-off between direct personal benefits and costs, green consumption behaviour presents additional environmental consideration that benefits society as a whole (Kim & Choi 2005). That is, green consumption behaviour reflects the consumption of green products that are beneficial to the environment. Consumers who are engaged in green purchasing behaviour believe that this behaviour not only protects the environment, but also that it brings them immediate benefits (Dagher & Itani 2012; Vermillion & Peart 2010). Thus, green consumers consider

consequences to the environment that are associated with their consumption behaviour (Kim, 2011).

Green consumers are those who intend to express their environmental concerns and utilise some environmental criteria in their decision-making process (Henion & Kinnear 1990; Noonan & Coleman 2013). Products that have potential environmentally-conscious characteristics (for example, recyclability, organic and energy efficiency) will attract green consumers (Leonidou, Leonidou & Kvasova 2010). In order to position green products efficiently, the segmentation of green consumers has proposed. These consumers can be conveniently categorised in five segments (Ginsberg & Bloom 2004). These segments include True Blue Greens, Greenback Greens, Sprouts, Grouzers and Basic Browns (Ginsberg & Bloom 2004, p.80). Specifically, True Blue Greens are consumers who have strong environmentally friendly beliefs and who always purchase green products. Greenback Greens are consumers who mainly provide monetary support for the environment protection. Sprouts are consumers who desire more pro-environmental legislation although their perceived self-efficacy in environmental contribution is low. Grouzers are consumers who are willing to participate in environmental practices and they commonly believe that green products are costly. Finally, Basic Browns are consumers who pay the least attention to environmentalism. Accordingly, green consumers display different levels of environmental commitment in their purchase behaviour and the motivation for purchasing green products or services might be different across different segments. The foregoing segments of green consumers provides a general idea of green consumers and sheds light on the reasons why consumers with environmental consciousness do not purchase green products or services.

As consumers have become more aware of protecting the environment and have consequently become willing to purchase green products and services, their consumption behaviour has provided support for businesses which advocate green practices (Laroche, Bergeron & Barbaro-Forleo 2001). Consequently, marketers have significantly changed their marketing strategies in order to satisfy consumers' dynamic green needs (Vermillion & Peart 2010). Recently, several industries have applied green marketing strategies in various contexts, such as organic food, energy-efficient products, hotels and eco-tourism (Kotler, 2011). In response to the great potential market value generated by green consumption, academic research has been centered on factors affecting consumers' green consumption behaviour (e.g., Pagiaslis & Kroutalis 2014; Chan 2001; Chekima et al. 2016; Cowan & Kinley 2014) to examine key

factors that can stimulate consumers' green purchase. A summary of the literature review on factors influencing green purchase is presented in Table 2.2.

Table 2:2 Summary of literature review on factors influencing green consumption behaviour

Author(s)/Year	context	Methodology	Theory	Focus	Findings
Albayrak, Caber, Herstein & Moutinho (2011)	Turkey Corporate green claims	Quantitative research (Survey)	Model testing	The relationship between scepticism and green purchase behaviour	Scepticism negatively influenced green purchase behaviour. It also moderated the positive relationship between perceived consumer effectiveness and green purchase behaviour.
Aman, Harun, & Hussein (2012)	Malaysia	Quantitative research (Survey)	TRA	The influence of environmental knowledge and concern on green purchase intention	Environmental knowledge and environmental concern are two key determinants of green purchase intention
Biswas & Roy (2015)	India Electrical appliances	Quantitative research (Survey)	Theory of Consumption Values	Explores consumption value perceptions	Price and customer knowledge had significant influence on behavioural outcome
Carrington, Neville & Whitwell (2010)	Literature review	Conceptual framework	Conceptual approach	To bridge the intention–behaviour gap of the ethically minded consumer The intention-behaviour gap in consumers' ethical consumption behaviour	Factors in relation to actual situation are important to reduce the intention-behaviour gap. Perceived behavioural control is significant
Chan (2001)	Mainland China	Quantitative research (Survey)	value–attitude–behaviour hierarchy and TRA	The influence of various cultural and psychological factors on the Chinese consumers' green purchase behaviour .	Cultural factors (man-nature orientation and degree of collectivism) and psychological factors (ecological affect and knowledge) positively influenced Chinese consumers' green purchase attitude and in turn affected their purchase intention.
Chekima, Wafa, Igau & Chekima (2016)	Malaysia	Quantitative research (Survey)	TPB	The influential factors of consumers' purchase intention towards green products in Malaysia.	Environmental attitude, eco-label and man-nature orientation were found to have positive influence on consumers' green purchase intention. These effects are stronger in the group of highly educated individuals as compared to the less educated group.

Author(s)/Year	context	Methodology	Theory	Focus	Findings
Chen & Chang (2012)	Taiwan China information and electronics products	Quantitative research (Survey)	Model testing	The influence of green perceived value and green perceived risk on green purchase intentions and the mediating role of green trust.	Green perceived value positively influenced green trust and green purchase intentions while green perceived risk had a negative influence on both green trust and purchase intentions. Additionally, the partial mediating role of green trust was confirmed.
Cowan & Kinley (2014)	United States (Environmentally friendly apparel)	Quantitative research (survey)	TPB	The influence of attitude component (environmental knowledge, environmental concern and attitudes towards purchase behaviour) and normative influence (social pressure and environmental guilt) on purchase intentions.	The significant affecting factors of purchase intentions include environmental attitudes, environmental knowledge, environmental concern, social pressure social pressure, environmental guilt, perceived environmental impact, past purchases, accessibility, and cost.
D'Souza, Taghian & Khosla (2007)	Australia	Quantitative research (Survey)	Model testing	The influence of price, quality attributes, environmental knowledge, beliefs, demographic and situational factors on green purchase intentions.	Conventional attributes of green products are important to motivate customers to buy green products. Environmental beliefs and values had positive effects on purchase intentions.
Goha & Balaji (2016)	Malaysia	Quantitative research (Survey)	Attitude-behaviour-context theory	The influence of scepticism on green purchase behaviour and the mediating effect of environmental knowledge and environmental concern in this relationship in the context of Malaysia	Scepticism negatively impacted green purchase intentions by reducing consumers' environmental knowledge and concerns. The reduction of green scepticism helps to improve green performance and communication.

Author(s)/Year	context	Methodology	Theory	Focus	Findings
Han, Hsu & Lee(2009)	United States green hotel	Quantitative research (Survey)	Model testing	Eco-friendly decision-making processes of hotel customers.	The relationships between attitude towards green behaviour and behavioural intentions (visit intention, word of mouth intention and willingness to pay more) were fully mediated by overall image.
Hartmann & Apaolaza-Ibáñez (2012)	Spain (green energy brand)	Quantitative research (Experiment)	TRA	The effects of psychological benefits (warm glow, self-expressive benefits, and nature experiences) on green attitude and purchase intentions.	Psychological brand benefits are significant to predict green brand attitude and purchase intention. Nature experience was found to be the strongest predictor of brand attitude while the direct effects of self-expressive benefits on both brand attitudes and purchase intentions were not evident.
Huang, Yang & Wang (2014)	Taiwan, China (green brand)	Quantitative research (Survey)	Knowledge-attitude-intention hierarchy	How green brand positioning and green brand knowledge affect green brand attitude and purchase intention.	Both green brand positioning and knowledge positively influenced green brand attitudes. Additionally, green brand knowledge indirectly impacted green purchase intention through green brand attitude.
Joshia & Rahman (2015)	green purchase	Conceptual framework	TPB	Attitude - behaviour inconsistencies in green consumption context.	Functional attributes of green products and environmental concern are key determinants of consumer green purchase behaviour.
Kabaday, Dursun, Alan & Tuğer (2015)	Turkey (Earth Hour Program)	Quantitative research (Survey)	Model testing	Factors affecting of green consumption.	Perceived consumer effectiveness significantly influenced green purchase intentions.

Author(s)/Year	context	Methodology	Theory	Focus	Findings
Kang, Liu & Kim (2013)	United States, South Korea and China Textile and apparel products	Quantitative research (Survey)	TPB	The influence of product knowledge, effectiveness, and person relevance on green purchase attitude and behavioural intentions.	Product knowledge, perceived effectiveness and perceived self-image were found to influence consumers' purchase intentions toward green products by impacting their attitudes, subjective norms and perceived behavioural control.
Kaufmann, Ruediger, Khan & Yianna (2012)	green products	Conceptual framework	Conceptual approach	The impact of factors in relation to environmental issues on consumer green purchasing behaviour	Transparency/Fairness on business practices, collectivism, perceived consumer effectiveness, availability of product information, belief about product safety for use, environmental concern and attitude, environmental awareness, altruism, environmental knowledge and demographic factors were argued to have influence on green purchasing behaviour.
Kumar & Ghodeswar (2015)	India	Quantitative research (Survey)	Model testing	Factors influencing consumers' green product purchase decisions in India.	Green product experience, social appeal, environmental responsibility, supporting environmental protection and environmental friendliness of companies were found to have positive influence on consumers' purchase decisions on green products.
Kim & Chung (2011)	Organic personal care products	Quantitative research (Survey)	TPB	The influence of consumer values and past experiences on consumers' purchase intentions toward organic personal care products.	Environmental consciousness and appearance consciousness had significant influences on consumers' attitudes toward buying organic personal care products and past experience was also found to have a significant effect on purchase intention. Additionally, the mediating role of perceived behavioural control in the relationship between attitude and intention was confirmed.

Author(s)/Year	context	Methodology	Theory	Focus	Findings
Lee (2008)	Hong Kong , China	Quantitative research (Survey)	Model testing	Important affecting factors of Hong Kong adolescent consumers' green purchasing behaviour.	Social influence, environmental concern, concern for self-image in environmental production and perceived environmental responsibility are important determinants of green purchasing behaviour.
Lin & Huang (2011)	Mainland China	Quantitative research (Survey)	Theory of consumption values	Factors affecting consumer choice behaviour of green products.	Psychological benefit, desire for knowledge, novelty seeking, and specific conditions had significant influence on consumer choice behaviour regarding green products.
Liu, Wang, Shishime & Fujitsuka (2012)	China green product	Quantitative research (Survey)	TRA	Factors affecting green purchasing behaviour.	Perception of self-responsibility significantly impacted green purchasing intentions.
Maniatis (2016)	Greece (green products)	Quantitative research (Survey)	Model testing	Factors affecting consumer decision-making regarding green products. The influential factors of consumers' decisions on green products.	Both environmental and economic benefits are important when choosing a green product.
Martinez (2015)	Spain (Hotels)	Quantitative research (Survey)	The Hierarchy of Effects Model	Relationships between green loyalty, green trust, green satisfaction, and green overall image.	Overall green image positively influenced green trust, satisfaction and loyalty. Both green trust and satisfaction were found to have significant influence on green loyalty. Green trust was found to positively impact green satisfaction and hence the relationship between trust and loyalty was partially mediated by satisfaction. Additionally, the influence of overall green image on green loyalty was partially mediated by green trust and satisfaction.

Author(s)/Year	context	Methodology	Theory	Focus	Findings
Mostafa (2007)	Egypt	Quantitative research (Survey)	Model testing	The influence of three cognitive and attitudinal factors on gender differences in green purchase behaviour	There were differences in the relationships between consumers' ecological knowledge, environmental concern and attitudes and green purchase behaviour in groups of female and male. Women were found to be less aware of environmental issues when compared to men. Men appeared to have stronger environmental concerns and have shown a more positive outlook towards green purchase when compared to women.
Paço, Alves, Shiel & Filho(2013)	England, Germany, Portugal and Spain	Quantitative research (Survey)	Model testing	Relationships between environmental values, attitudes and behaviour	Man-nature orientation and generativity had a significant influence on environmental concern. The increase of environmental concern led to conserving behaviour and in turn resulted in positive environmentally friendly buying behaviour.
Pagiaslis & Krontalis (2014)	Greece (Bio-fuels)	Quantitative research (Survey)	TPB	The influence of environmental concern, environmental knowledge and beliefs on behavioural intention	Environmental concern, environmental knowledge and beliefs had positive influence on behavioural intention
Paul & Rana (2012)	India	Quantitative research (Survey)	TPB	Factors determining consumer behaviour towards organic food	Health, availability and education among demographic factors had positive effects on the consumer's attitude towards buying organic food and in turn impacted their purchase intention.

Author(s)/Year	context	Methodology	Theory	Focus	Findings
Ramayah, Lee & Mohamad (2010)	Developing country	Quantitative research (Survey)	TRA	The influence of individual values and attitudes on consumers' purchase intention towards green products in the context of a developing country.	The significant influence of environmental consequences on environmentally responsible purchase intention was not evident. Individual consequences and self-enhancement value negatively impacted environmental responsible purchase intention.
Rezai, Mohamed, Shamsudi & Teng (2011)	Malaysia (Green produced food)	Quantitative research (Survey)	Model testing	The influence of demographic and attitudinal factors on consumers' purchase intention towards green foods.	Both demographic and attitudinal factors were found to have a significant influence on consumer' purchase intention towards green foods. In particular, these factors included educational level, income, food safety and environmental friendliness.
Shaharudin, Jacqueline, Suhardi & Shamsul (2011)	Malaysia (Organic food)	Quantitative research (Survey)	TRA	The influence of perceived value on consumers' purchase intention in the TRA model	Perceived value and health consciousness were positively related to consumers' purchase intention
Tseng & Hung(2013)	Taiwan (Green information products)	Quantitative research (Survey)	Model testing	Investigation on the gaps between consumers' expectations and their perceptions in green products.	Improving green product quality by addressing tangibles, reliability and assurance is important in reducing the gap between customers' expectations and their perceptions in green products.
Vermeir & Verbeke (2006)	Belgium (Green food)	Quantitative research (Survey and experiment)	Decision-making process	Attitude-behavioural gap in the consumption of sustainable food products.	Involvement with sustainability, certainty and perceived consumer effectiveness were positively associated with consumers' attitudes toward purchasing sustainable dairy products. This, in turn, impacted their purchase intentions. In particular, low perceived availability of sustainable products helps to explain the attitude-behavioural gap.

Author(s)/Year	context	Methodology	Theory	Focus	Findings
Wahid, Rahbar, & Shyan (2011)	Malaysia (Environmental activities)	Quantitative research (Survey)	TRA	The influence of various attitudinal and demographic factors on green purchase behaviour.	Social influence, environmental concern and green product knowledge, environmental knowledge, and income level were found to have significant influence on green purchase behaviour.
Yin, Wu, Du & Chen (2010)	The cities of Guangzhou, Zhuhai and Shenzhen, China (organic food)	Survey and interview	Model testing	The influential factors of Chinese consumers' purchase intention towards organic food.	Income, degree of trust in organic food, degree of acceptance of organic food price, and consumers' concern on self-health were found to have significant influence on Chinese consumers' purchase intention towards organic food. However, when compared to these factors, the influence of consumers' age, education level together with environmental concern on their green purchase intention was less strong.

The studies summarised in Table 2: 2 reveal that there are two mainstream areas which examine factors influencing green consumption behaviour, i.e., factors addressing how to predict green purchase intention and the issue about attitude-behaviour gap associated with green consumption. There have been various factors affecting consumers' green purchase intention which in turn predict their actual purchase behaviour. These factors are mainly related to environmental concern, environmental knowledge and consumer perceived effectiveness. Most of the factors have been examined using the TPB model.

Additionally, the inconsistency between positive environmental attitude and actual green purchase behaviour has been identified. Several studies demonstrate that the quantity of consumers' actual green purchase is relatively low, and therefore this does not translate into a meaningful environmental influence. In turn, such a phenomenon discourages green investment by businesses (Sheth, Sethia & Srinivas 2011). There are several studies which address the attitude-behaviour gap relating to green/ethical consumption (e.g., Carrington, Neville & Whitwell 2010; Joshia & Rahman 2015; Vermeir & Verbeke 2006) and provide solutions that can bridge the identified inconsistencies. In order to better understand factors affecting consumer green brand adoption behaviour and seek a superior approach in increasing green brand consumption, the following sections will address important influential factors of consumers' green consumption behaviour and the attitude-behaviour gap in green consumption.

2.4.1 Influential factors of green consumption behaviour

Previous studies have provided evidence that there are numerous factors which motivate consumers to purchase green products and services (Mostafa 2007). These factors can be categorised as individual and situational (Joshi & Rahman 2015). In particular, individual factors, such as environmental concern and knowledge (Aman, Harun & Hussein 2012; Pagiaslis & Krontalis 2014; Cowan & Kinley 2014), perceived behavioural control (Carrington, Neville & Whitwell 2010; Kim & Chung 2011;), perceived consumer effectiveness (Albayrak et al., 2011; Kabaday et al. 2015; Kang, Liu, & Kim 2013), values and personal norms (D'Souza, Taghian, & Khosla 2007; Ramayah, Lee, & Mohamad 2010) have been found to significantly influence consumers' green purchase attitudes and intentions. The majority of these factors are related to consumers' beliefs, which have been widely regarded as being strong drivers for influencing and creating barriers for green purchase

behaviours. Specifically, with consumers' increasing awareness of global environmental issues, previous studies have investigated the relationship between consumers' environmental consciousness and their green purchase behaviour. The findings of these studies suggest that consumers' environmental concern is an important determinant of the green purchase intention (Cowan & Kinley 2014). However, not all consumers tend to have a good understanding of green products, even though they possess a certain level of environmental concern. As a result, environmental knowledge has been taken into consideration when examining the influence of beliefs on green purchase behaviour (Aman, Harun & Hussein 2012). Those consumers who have a better understanding of environmental issues are more likely to purchase green products and to behave in an environmentally friendly manner (Tilikidou & Delistavrou 2008).

The reasons for examining the influence of beliefs on green consumption behaviour in line with the theory of reasoned action (TRA) (Ajzen & Fishbein 1980) and the theory of planned behaviour (TPB) (Ajzen, 1991) have been widely employed. The former theory argues that individuals' behaviours are influenced by their intentions. Hence, this theory examines the influence of consumers' beliefs on purchase attitude which in turn affects green purchase intention. Due to the inconsistencies between intention and behaviour, Ajzen (1991) in his TPB includes the role of consumer perceived behavioural control. Although several previous studies have demonstrated that the addition of perceived behavioural control has improved the prediction level of intention to behaviour, the fact is that the attitude-behaviour gap is still prominent. Consequently, several scholars argue that situational factors are important for investigating green purchase behaviour (e.g., Biswas & Roy 2015; Chekima et al. 2016; Joshia & Rahman 2015).

Situational factors, such as subjective/social norms and reference groups (Rezai et al. 2013), product attributes and quality (Joshia & Rahman 2015; Tseng & Hung 2013), price (Biswas & Roy 2015), and eco-labeling and certification (Chekima et al., 2016) have been found to have significant influence on green purchase intentions and behaviour. Consumers live in a social system and hence subjective/social norms and reference groups can affect their decision-making about purchase of green products and services (e.g., Lee 2008; Vermeir & Verbeke 2006; Rahbar, & Abdul Wahid 2011). The findings of these studies reveal that green consumption behaviour is a form of conspicuous and symbolic consumption as consumers consider social values apart from individual influences in their green choices (Lee 2008). Similarly, product attributes and quality have been examined in green consumption research.

The findings suggest that functional attributes of green products present a greater influence on green purchase behaviour as compared to ethical characteristics (Chen & Lobo 2012; Young et al., 2010) and product quality significantly affects consumer green purchase intention and behaviour (e.g., D'Souza, Taghian & Khosla 2007; Paul & Rana 2012; Rahbar & Abdul Wahid 2011). Hence, Joshi and Rahman (2015) conclude that functional and sustainable characteristics of products with a high product quality positively influence green purchase behaviour.

Additionally, the gap between attitude and actual purchase might be widening, and this could be due to the offering of green options which have poor product attributes and inferior quality. Although most green marketing strategies intend to facilitate communication between consumers and green products by addressing environmental attributes, price still acts as a key barrier to purchase of green products (Connell 2010). In other words, green marketing strategies need to consider customers' expectations for their conventional needs. As brand credibility has been found to reduce price sensibility (Erdem, Swait & Louviere 2002), researchers have emphasised the influence of eco-labeling and certification on green purchase behaviour (Young et al., 2010). However, when they do not provide reliable information in a simple and user-friendly way, these approaches do not increase consumers' green trust (Nittala 2014; Rahbar & Wahid 2011). More importantly, consumers' sceptical attitudes resulting from greenwash significantly increase their green perceived risk, which in turn reduces their green trust and green purchase intention (Chen & Chang 2013).

In summary, the literature demonstrates that the application of TRA and TPB in consumer decision-making process and purchasing behaviour in relation to tangible green products and intangible green services is prevalent. Consequently, influential factors in relation to beliefs have been well-documented. These factors include environmental concern, knowledge, perceived behavioural control, and consumer perceived effectiveness. However, most conceptual models developed based on TRA and TPB fail to translate positive attitudes into actual purchase behaviour. To reduce the inconsistency between attitude and behaviour, the link between situational factors and green purchase behaviour has been examined. These factors primarily include social norms and reference groups, product attributes and quality, price, and eco-labeling and certification. Notably, customers' satisfaction of conventional needs still significantly influence their green purchase behaviour and eco-labeling and certification are difficult to improve the communication between customers and green products without providing reliable information.

Finally, green scepticism negatively influences green trust and green purchase behaviour which further increases the gap between positive environmental attitude and actual purchase behaviour (Albayrak et al. 2011). Overall, the application of TRA and TPB has provided theoretical contributions in understanding factors affecting green consumption behaviour. However, their disadvantages are also evident in response to the attitude-behaviour gap. As a consequence, a better approach to increase customer green consumption is essential and the following section discusses the attitude-behaviour gap in green consumption.

2.4.2 Attitude-behaviour gap in green consumption

Green consumption reflects the important role of consumers in reducing damage to the environment during their purchasing behaviour (Grunert & Juhl 1995). Previous studies have demonstrated that consumers have positive environmental attitude and display increasing needs for green products and services (e.g., Arvola et al. 2008; Schmeltz 2012; Vermeir & Verbeke 2006). Nevertheless, there is scant evidence to suggest that the purchase of green products or services has increased. In simple terms, consumers' environmental concern and positive environmental attitude have been unsuccessful in guaranteeing the increase of green market share (Bray, Johns & Killburn 2011). For example, 67% of the consumers indicated willingness to purchase organic food whilst only 4% of them actually purchased those products (Hughner et al. 2007). Similarly, a survey conducted in the UK suggested that more than 30% of the consumers showed environmental concern, but this concern rarely translated into a green purchase (Garforth & Rehman 2006). This phenomenon has been addressed as a discrepancy or "gap" between consumers' environmental attitudes and their actual green purchase behaviour (Joshia & Rahman 2015; Vermeir & Verbeke 2008; Young et al. 2010). Situational factors, such as price, product attributes and quality, social influences and consumer perceived risk might well explain this attitude-behaviour gap as far as green purchases are concerned.

Prior research has focused largely on consumer values and beliefs to examine attitude-intention-behaviour models owing to the predominant application of TRA and TPB in investigating factors influencing on green purchase behaviour (Papista & Krystallis 2013). The TRA as proposed by Ajzen (1991), is an effective theoretical approach to predict behavioural intention and actual behaviour. It assumes that people's decisions on whether to

engage in a given behaviour or not is generally based on the implication of their actions (Ajzen & Fishbein 1980). That is, individuals' behaviour is shaped by their intentions. In addition, a person's attitude towards performing the behaviour and subjective norms reflecting his or her perception of others' opinions are two predictors of behavioural intention. However, the TRA fails to capture the nexus between intention and actual behaviour. This is even despite the fact that positive results associated with attitudes and subjective norms have been demonstrated. Gupta and Ogden (2009) explain that this inconsistency results from the lack of an individual's ability to control the outcomes. In this respect, Ajzen (1991) proposed TPB as an extension of TRA, which addresses perceived behavioural control (i.e., perceived self-efficacy) when people form intentions to perform behaviours besides favorable attitude and subjective norms. In particular, the TPB suggests that a person's behavioural intention would be enhanced when he or she has a feeling of adequate actual control over that behaviour (Ajzen 2002).

TPB has been widely applied in various contexts intended to investigate purchase behaviour in relation to organic food (Chen & Lobo 2012; Kim & Chung 2011), energy consumption (Gerpott & Mahmudova 2010; Hartmann & Apaolaza-Ibañez 2012), electronic and information products (Chen & Chang, 2012) and tourism services (Kim & Han, 2010; Lee et al., 2010). For example, subjective norms indirectly affect green purchasing intention via attitude formation (Tarkiainen & Sundqvist 2005). Consumer belief and attitude towards the purchase of organic food products indirectly influence behavioural intention through the pre-evaluation stage (Chen & Lobo, 2012). Zhao et al. (2014) suggest that attitude is the most significant determinant of green purchasing behaviour and Yeon Kim and Chung (2011) suggest that perceived behavioural control moderates the relationship between attitude and purchase intention when predicting consumer purchase intention of organic personal care products.

Similarly, in the green services context, attitudes and subjective norms have been identified as key antecedents of German consumers' green electricity adoption (Gerpott & Mahmudova 2010). Interestingly, tourism products which use the term 'sustainable tourism', 'green tourism', 'volunteer tourism' and 'eco-tourism' have also been investigated in green consumption studies (e.g., Bramwell & Lane 1993; Buckley 2004). Lee (2010) suggests that attitudes and subjective norms have significant influence in predicting participation intentions of potential volunteer tourists whilst their perceived behavioural control (self-efficacy) also plays a smaller role in similar prediction. However, the role of attitudes in enhancing green or

ethical consumerism remains debatable. Extensive previous attitudinal studies have revealed that environmental concern and/or attitudinal variables do not necessarily translate into actual purchase behaviour (e.g., Bamberg 2003; Schultz et al. 1995; Tanner 1999). Owing to these mixed findings, it is doubtful whether the TPB is a suitable model to predict green purchase behaviour. In response, several scholars have extended the TPB by including the effects of ethics, morals and values (Shaw & Clarke 1999; Shaw & Shui 2002). For example, Shaw and colleagues have included the influence of internal ethics on intentions within the context of fair trade. Additionally, moral norms were included to predict purchase intention of organic food (Arvola et al. 2008). These studies have simply accepted that consumers' intentions would automatically determine their actual behaviour. However, the transition from intentions to action is far more complex (Bagozzi 2000; Fukukawa 2003; Morwitz et al. 2007). Other scholars have argued that both ecological perspective and evaluation of product attributes determine customers' green preference and situational factors can moderate the relationship between positive environmental attitude and green purchase intention (Rokka & Uusitalo 2008).

Overall, these studies provide evidence that environmental concerns or attitudinal variables fail to translate into actual behaviour. Additionally, the inclusion of moral norms, ethics and values in the attitude-behaviour-intention model has ignored the complexity of the transition from intentions to action. Building on an argument relating to the disadvantages of TPB in green consumption research, Papista and Krystallis (2013) investigate whether the TPB is a suitable model for capturing the dynamic ethics-focused behaviours in some contexts, for example, when (1) affective components are also salient apart from cognitive components (Arvola et al. 2008; Magnusson et al. 2003); (2) individuals exhibit habitual purchasing behaviour (Thøgersen & Olander 2003); and (3) situational factors become prominent (Mainieri et al. 1997). In this regard, the TPB approach is limited in investigating the antecedents of green consumption behaviour as it ignores the external influence of the environment/situation on consumers' consumption behaviour (Carrington et al. 2010). Hence, a holistic model incorporating situational factors is essential to comprehend consumers' green decision-making process (Eukukawa 2003).

Recently, the customer perceived value concept (which helps to understand situational factors and consumers' characteristics) has been suggested as an alternative approach to the TPB model to investigate their green brand adoption behaviour (Papista & Krystallis 2013). However, the conceptual framework developed by these authors was not empirically tested

and the measurement of customer perceived value did not take its complexity into account. Moreover, these authors did not fully consider the factors that can influence customer perceived value. Based on the foregoing literature review of factors influencing of green consumption, this study argues that price and quality are significant factors which hamper consumer green purchasing behaviour and green value should be included to facilitate communication between consumers and green brands. Thus, this study extends the customer value concept to include both conventional value and green perceived value. This is because perceptions toward green brands need to be investigated from the point of view of consumers' desire to improve the environment, their sustainable expectations, green needs and functional needs when they wish to engage in green brand behaviour. Hence, the customer value concept is discussed in the next section.

2.5 Customer value concept

2.5.1 Definition

CV is well-established in the marketing literature, owing to its crucial role in effective marketing activity (Holbrook, 2006) and its significant influence on consumer purchasing behaviour (e.g., Chen & Dubinsky 2003; Cronin, Brady & Hult 2000; Sweeney, Soutar & Johnson 1999). Additionally, a growing interest in CV is evident in enhancing repurchase intentions (Fiol et al. 2009), developing strong consumer relationships (Smith & Colgate 2007; Wang et al. 2004) and achieving competitive advantages (Wang et al. 2004; Woodruff 1997). Consequently, the ability of a company to deliver superior value to its consumers has been found to be one of the most successful strategies (Grönroos, 1997; Treacy & Wiersema 1993).

Nevertheless, the definition of CV has not reached a consensus (Wang et al. 2004) and this construct has been found to be difficult to define and measure (e.g., Holbrook 2006; Woodruff 1997; Zeithaml 1988). The important role of consumer has been confirmed in determining value (Rintamäki, Kuusela & Mitronen 2007) and majority of definitions have addressed consumers' perceptions (e.g., Anderson, Dipak & Pradeep 1992; Woodruff 1997; Zeithaml 1988). For example, Anderson et al. (1993) have described customer-perceived value as perceived worth in monetary units. Such gains result as a ratio of benefits and price. This definition stresses the important influences of price and benefits on creating customer

value. Several scholars, such as Grewal et al. (1998), Woodruff and Gardial (1996) and Zeithaml (1988) extend the price consideration to all relevant sacrifices, including effort, time and risk and they generally agree that customer perceived value is the consumers' overall assessment of the utility of a product based on their perception of what is received and what is given. In simple terms, it is a trade-off between all relevant benefits and sacrifices. All the foregoing definitions seem to agree that customer perceived value should be defined based on customers' perspective (Rintamäki, Kuusela & Mitronen 2007) and a trade-off between benefits and sacrifices should be highlighted (Zeithaml 1988). Thus, CV has been widely defined as customers' overall evaluation of products or services with regard to their "get" attributes and "give" attributes. However, as CV is highly subjective and dynamic and varies from one customer to the other (Holbrook 1994; Kortege & Okonkwo 1993; Parasuraman et al. 1985; Zeithaml 1988), several researchers argue that the trade-off approach narrows the value concept when examining customer purchase behaviour owing to its simple uni-dimensional measurement and focus on economic utility (Sánchez-Fernández & Iniesta-Bonillo 2007).

In order to address the complexity of CV, Patterson and Spreng (1997) suggest that consumers' desires, expectations and needs are factored in their overall evaluation of the net benefit of a product or service (p.421). Essentially, this means the difference between what is received and what is given. Thus, consumers' appraisal of the net benefit is mainly determined by their satisfaction of desires, expectations and needs which in turn leads to value creation. As consumers have different desires, expectations and needs in various situations, this definition tends to be more dynamic and is able to examine the multidimensionality of CV. The traditional definition of CV focuses excessively on the economic utility, which might not be suitable for investigating green consumption behaviour. Hence, this study adopts the definition of CV proposed by Patterson and Spreng (1997) to understand its relevant dimensions in the green consumption context.

2.5.2 Multidimensional conceptualisation of CV

CV has been suggested as being a multidimensional construct because of its complex nature and the dimensions of CV vary in the marketing research domain. As customer value is a dynamic and context-specific concept, there has not been any single widely accepted dimensionality of CV and specific adjustment is required when it is applied in different contexts. There are numerous multidimensional approaches to measure CV, however, five

dimensions of CV as proposed by Sheth et al. (1991) have been widely utilised as a foundation to develop the measurement of CV. These dimensions include functional, emotional, social, epistemic and conditional value and they have been applied in various contexts.

The core dimension of CV (i.e., functional value) refers to the customer perceived utility gained from functional, utilitarian or physical performance of a product or service. This dimension focuses on the attributes that should match with required functionality, such as satisfactory quality and acceptable price (Whittaker et al. 2007). In contrast, other dimensions tend to capture customers' emotional, social and epistemic needs. Specifically, emotional value is referred to the benefits derived from products or services that arouse feelings or affective states (Whittaker, Ledden & Kalafatis 2007). Social value reflects customer perceived benefits that are associated with their expression of social needs. It could be increased by enhancing an individual's self-image among other individuals (Bearden & Netemeyer 1999). Epistemic value represents the perceived utility determined by products or services that can arouse curiosity, novelty and gained knowledge (Whittaker, Ledden & Kalafatis 2007). Finally, conditional value is the perceived utility acquired from products or services which manifests itself in specific situations and this largely depends on the context situation (Pura 2005). This dimension has been rarely considered in the customer value model owing to its requirement of specific condition.

Although these five dimensions have been empirically tested in various contexts, functional value presents a higher influence on green purchase behaviour (e.g., Chen & Chang 2012; Krystallis & Chrysohoidis 2005; Ng et al. 2014). For instance, quality, price and convenience determine customers' purchasing behaviour of organic food (Krystallis & Chrysohoidis 2005) and conventional branding attributes, such as price and quality significantly affect consumers' purchase intention of green brands (Chen & Chang 2012; Ng et al. 2014). Similarly, inferior product quality diminishes consumers' willingness to purchase green products and non-green aspects of CV should be taken into consideration in green offerings (Ottman et al. 2006). Thus, the functional aspect of CV which is regarded as a primary driver of consumer choice should be included in examining CV concept in the green consumption context (Sweeney & Soutar 2001). This dimension reflects the extent to which consumers' expectations for conventional attributes, such as quality and price are satisfied (Patterson & Spreng 1997; Sheth, Newman & Gross 1991).

2.5.3 CV in the green consumption context

Consumers' green needs have to be addressed owing to their increasing environmental awareness and additional value is likely to be created by satisfying their green needs or expectations. Hence, green value should be included by green brands to deliver superior customer value (Hartmann & Apaolaza-Ibáñez 2006). In response to this idea, green perceived value (GPV) has been proposed by Chen and Chang (2012) and was used to investigate customers' value perceptions of green brands. This concept is referred to as "a consumer's overall appraisal of the net benefits of a product or service between what is received and what is given based on the consumer's environmental desires, sustainable expectations, and green needs" (p. 505). Hence, GPV is a consumer's subjective evaluation of a green brand according to his/her green desires, expectations and needs. Customers look for functional value when they purchase green products, hence they perceive additional value when green brands fulfil their conventional needs (Hartmann & Apaolaza-Ibanez 2012; Sriram & Forman 1993). Recent attention has been focused on the provision of GPV in the green branding context (Chen & Chang 2012; Chen 2013; Koller, Floh & Zauner 2011; Ng et al. 2014). Hartmann and Apaolaza-Ibáñez (2006) confirm the effectiveness of green value on brand attitude while other researchers have found that GPV positively influenced green purchase intentions and led to green satisfaction and trust (Chen & Chang 2012; Chen 2013; Koller, Floh & Zauner 2011).

Most importantly, GPV has been found to significantly enhance green brand equity which enables companies to gain competitive advantage (Ailawadi & Keller 2004; Ng et al. 2014). This outcome is particularly important when examining the effectiveness of green branding strategy. However, green brand equity, a key construct discussed in green branding research has predominantly been measured as a uni-dimensional construct although several drivers, such as green image, green satisfaction and trust have been reported (Chen 2010; Ng et al. 2014).

Additionally, research on factors affecting CV associated with green brands and their influences on relational outcomes remains relatively fragmented and rare. It is therefore essential to investigate which factors stimulate or hinder the formation of CV in relation to green brands and how these factors lead to outcomes that can enhance and enrich green brand equity. Furthermore, account should be taken of the identified barriers of green consumption

which cause the attitude-behaviour gap. Also, conventional value focusing on price and quality together with GPV should be included as two key dimensions in understanding CV in the green consumption context. Such an argument is consistent with that proposed by Ottman et al. (2006). These researchers suggest that both green and non-green aspects of CV should be considered in green offerings.

Collectively, CV is a well-documented concept in marketing research and antecedents, and outcomes of CV have been widely investigated. Nevertheless, relatively little is known about which factors tend to positively or negatively affect CV, and how these factors generate green brand equity related outcomes in the green branding context. Most companies have addressed the green functionality to position their green brands but customers' responses are not as positive as expected due to lack of understanding. This lack of understanding has mitigated the effectiveness of green branding strategy. To improve the communication between customers and companies' green initiatives, emotional positioning was found to be important for achieving green value and forming positive brand attitude (Hartmann & Apaolaza Ibáñez 2006; Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005). Thus, both green functional attributes and emotional benefits need to be considered when attempting to enhance CV in the green consumption context.

Additionally, as green skepticism negatively affects consumers' green trust and a firm's transparency tends to improve their confidence in purchasing green products, ethical commitment of a firm has an influence on developing green image (Deshwal 2012). Apart from utilitarian and emotional benefits, consumers' expectations regarding a firm's ethical commitment to society influence their evaluation of a firm and its brands (Creyer 1997; Leonidou & Skarmeas 2015). In this respect, a broader research framework can be adopted to explore the influential factors of CV based on consumers' expectations of a firm's ethical commitment to society, especially in dealing with the current challenge caused by greenwash (Chen & Chang 2012; Reynolds & Yuthas 2008; Tapscott & Ticoll 2003). The ethical decision-making model would be addressed in the following sections to propose relevant antecedents of CV and the signalling theory would be discussed to underpin green brand equity related outcomes.

2.6 Antecedents of CV associated with green brands

2.6.1 Ethical decision-making model

As consumers pay increasing attention to ethical issues when they evaluate a firm's green initiatives, the topic of corporate social responsibility (CSR) has been widely discussed in green marketing research (Babiak & Trendafilova 2011; Cherian & Jacob 2012; Nyilasy, Gangadharbatla & Paladino 2014). This undoubtedly provides a broad framework to investigate green brand consumption behaviour. The Hunt-Vitell model explains an individual's ethical judgments based on teleological and deontological theories, which is depicted in figure 2.2. Notably, the Hunt-Vitell model is the most appropriate ethical model which is applicable to consumer behaviour (1986) as compared to the other two popular ethical models proposed by Ferrell and Gresham (1985) and Trevino (1986). Hence, it is the appropriate model for investigating the research question related to the antecedents of CV.



Figure 2:2 Simplified Hunt-Vitell Model

Source: Adapted from Hunt & Vitell (1986)

According to the Hunt-Vitell model (1986), it is evident that there are two major ethical evaluations (i.e., teleological and deontological evaluations) that might occur when an individual makes decisions in relation to ethical issues. Deontological evaluation reflects the consumer's appraisal of various behaviours or alternatives based on the inherent rightness versus wrongness, which is influenced by the consumer's deontological norms. In contrast, teleological evaluation largely relies on consequences associated with the consumer's decision. This evaluation can lead to positive ethical judgement if the consumer perceived consequence of the behaviour results in excess of good over bad. Specifically, consequences-

oriented considerations are the main references when individuals evaluate a firm's action when they take on a teleological perspective and the egotism and utilitarianism theories have been applied to explain this argument (Brunk 2010). On the other hand, the rule-based judgement is salient when individuals take on a deontological perspective. Duty and justice are two main theories that underpin the deontological perspective (Crane & Matten 2010). That is, moral duty and justice are important references when individuals evaluate whether a firm's action is right or wrong.

The majority of previous studies of CV have focused on identifying its determinants and the findings vary for different contexts. Owing to the complexity of CV, the conceptualisation of this concept has become ambiguous, which has resulted in conflicting findings regarding the factors influencing of CV. For example, benefits (functional, emotional and social) and sacrifices (price, effort, risk and time) have been associated with the customer value construct (Pura, 2005; Sweeney & Soutar, 2001), while other studies suggest that they are key antecedents of CV (Cronin, Michael & Hult 2000, Oh 1999; Spiteri & Dion 2004; Wang, Lo & Hui 2003). Regardless of these inconsistent findings, there is no right or wrong in examining CV as long as it can appropriately represent the research context and align with the research objective. Although a number of studies have examined the antecedents of CV, only a handful of them have extended this research to the green consumption context (Ng et al. 2014; Papista & Krystallis 2013). Ng et al. (2014) identify the significance of GPV in enhancing green brand equity and suggest that overall credibility and quality are two important antecedents of GPV. Their study suggests the significant influence of conventional attributes on green consumption behaviour.

Additionally, to deal with the limitation of the TPB approach applied in the context of green consumer behaviour, Papista and Krystallis (2013) have developed a customer value framework presenting all identified types of value (economic, social, hedonic, altruistic) and cost (price, effort, evaluation costs, time, performance risk). They assume that these types of value and cost determine customer perceived value. These two studies focus only on either the green or non-green aspect in order to operationalise customer perceived value. The customer value framework developed by Papista and Krystallis (2013) provides valuable insights for examining the antecedents of CV in the green brand context. Interestingly, their hypotheses were not empirically tested.

Rule-based or right-based norms and impure altruism motivations have been identified in stimulating green brand purchase (Chan, Wong & Leung 2008). In other words, customers' evaluation of a green brand can be influenced by their moral obligation and cost-benefit considerations. Building on these arguments, the two considerations are well explained by Hunt and Vitell's (1986) ethical decision model. This model postulates that both deontological and teleological evaluations determine the ethical judgments. In turn, ethical judgments influence an individual's behaviour through his/her moral intention. Hence, this model tends to be appropriate in examining the influential factors of CV associated with green brands. Regardless of numerous studies which investigate the determinants of CV, majority of them are still fragmented and limited attention has been paid to the factors influencing of CV in the green consumption context.

2.6.2 Teleological perspective

Egotism and utilitarianism are two theories which guide customers' behaviour when they possess a teleological perspective. In particular, their evaluations of a firm's ethical practice are mainly impacted by their desire for benefits and avoidance of costs (Brunk 2010). Utilitarian and psychological benefits have been assumed to positively relate to utilitarian oriented CV in the green brand research conducted by Papista and Krystallis (2013). These assumptions are supported by Hartmann et al. (2005) who reveal that utilitarian environmental benefits together with emotional benefits, including warm glow, self-expressive and nature experience generate positive green brand attitude. Furthermore, Hartmann and Apaolaza Ibáñez (2006) argue that more attention should be paid to emotional benefits besides the utilitarian environmental benefits to gain green value. Based on the teleological perspective, customers attempt to seek benefits from their purchase of green brands and in turn exhibit their evaluation of green brands (Vitell, Singhapakdi & Thomas 2001). Utilitarian environmental benefits are associated with a brand's capacity to fulfil a functional environmental performance (Sheth, Newman & Gross 1991).

The type of benefits described above directly link to the environmental issues and emphasise the green functionality that do good to the environment. Consequently, marketers are more likely to persuade customers to buy products or services through providing environmental credentials and confidently believe that consumers are highly involved in environmental issues (Hartmann & Apaolaza Ibáñez 2006; Peattie 1995; Swenson & Wells 1997). However, the findings on the influence of customers' environmental awareness on their green purchase

behaviour are debatable. Affective factors present an equally important influence as compared to green functionality (Hartmann et al. 2005; Hartmann & Apaolaza Ibáñez 2006; Smith et al. 1994).

In the green energy brand consumption context, warm glow, self-expressive and nature-related benefits have been empirically investigated in affecting green brand attitude and purchase intention (Hartmann & Apaolaza Ibáñez 2012). Specifically, warm glow benefits reflect customers' moral satisfaction, which they acquire as a result of their green purchase behaviour. That is, they are more likely to patronise green brands if they gain moral satisfaction associated with their green purchase behaviour. This impure altruistic construct has been found to directly influence green brand purchase intention but it has been ignored in the CV framework (Hartmann & Apaolaza Ibáñez 2012; Papista & Krystallis 2013). Self-expressive benefits, similar to social value mentioned in the CV framework focus on consumers needs for social expression and outer-directed self-esteem associated with their green consumption behaviour (Parker 2009; Sirgy 1982). Positive brand attitude can be generated through offering benefits that symbolises consumers' status in society and they would prefer green brands if they receive social approval and reputation as a consequence of their green purchase behaviour (Griskevicius, Tybur & Van den Bergh 2010). Nature-related benefits are acquired from the feelings of connection to the nature, which require specific stimulus, such as green advertising displaying nature scenery to evoke customers' emotional responses which in turn influence their brand attitudes (Hartmann & Apaolaza-Ibáñez 2010; 2012).

As to the influence of cost consideration in customers' green consumption behaviour, green perceived risk has been especially investigated in recent studies due to its significant effect on greenwash and green trust (Chen & Chang, 2013; Polonsky et al., 2010). Green perceived risk is defined as "the expectation of negative environmental consequences associated with purchase behaviour" (Chen & Chang 2012, p. 506) and it results in customers' mistrust of green claims and they doubt the performance of a green brand (Chaudhuri 1997; Chen & Chang 2013; Eid 2011; Lin, Lobo & Leckie 2017). Given customers' strong intention to avoid risk in their purchase behaviour, a reduction of green perceived risk would lead to positive evaluation of a green brand. Hence, according to the teleological perspective considering the trade-off between benefits and cost, utilitarian environmental benefits, warm glow benefits, self-expressive benefits and green perceived risk need to be investigated as

important antecedents of CV associated with green brands. Nature-related benefits require specific stimulus, and hence they have been excluded from this study.

2.6.3 Deontological perspective

The deontological perspective suggests that moral duty and justice are important references when individuals evaluate whether a firm's action is right or wrong (Crane & Matten 2010). Several recent studies have demonstrated that customers' evaluation of a firm and its brands are determined by a firm's moral commitment to environmental, social and ethical issues (Brunk 2010; Lavorata 2014). These findings further support the argument that both moral obligation and cost-benefit considerations are important for customers' evaluation of a firm's behaviour. As discussed previously, green skepticism has become a key barrier to green consumption (Albayrak, Aksoy & Caber 2013; do Paço & Reis 2012; Leonidou & Skarmas 2017). To reduce consumers' sceptical attitudes toward corporate green initiatives, clear and unambiguous information on a firm's environmental policies and frank admission on how its production process affects the environment should be delivered. This is called "green transparency" (Eggert & Helm, 2003; Teas, 1993; Vaccaro & Echeverri, 2010). Green transparency reflects a firm's environmentally ethical commitment with its target market, and can strengthen consumers' understanding of the motives of a firm's green initiatives (Reynolds & Yuthas 2008; Tapscott & Ticoll 2003; Teas 1993). Consequently, green transparency assists consumers in attributing a firm's behaviour as being moral, ethical and environmental (Ellen, Webb & Mohr 2006; Parguel, Benoît-Moreau & Larceneux 2011; Vlachos et al. 2009).

The significance of green transparency in evaluating a firm's behaviour is in line with the current trends of corporate social responsibility (CSR) research. The green concept has been integrated into the scheme of CSR and firms are expected to practice in a more responsible and environmentally friendly manner (Sarkar 2012). CSR reflects "organisations' efforts in their business operations and voluntary interaction with their stakeholders by taking account of social and environmental concerns" (Juščius & Snieška 2008, p.35). This means that organisations should not only provide benefits for society as a whole, but also offer products and services that are environmentally friendly. Green transparency is not always deemed to result in monetary value for firms intended to implement CSR, but it could assist them in promoting their efforts toward environment and society which in turn would reinforce their

green reputation (Sirsly & Lametrz 2008). Additionally, CSR initiatives could create customer value which is important for performance improvement (Piercy & Lane 2009). Hence, green transparency, an important form of CSR practices might impact the formation of CV associated with green brands.

Based on the foregoing discussion, green benefits (utilitarian environmental, warm glow and self-expressive benefits), green perceived risk and green transparency would be further investigated as determinants of CV in relation to green brands. Details of how these factors influence CV will be addressed in Chapter Three.

2.7 Consequences of CV associated with green brands

2.7.1 Relationship marketing

In order to survive in mature markets, the development of sustaining long-term relationships with stakeholders has become a crucial factor and the main challenge for all marketers is to increase customer loyalty and retention (Bhardwaj 2007; De Madariaga & Valor 2007). As a result, relationship marketing which attempts to build and sustain the relationship with customers through marketing activities has been largely discussed in fostering consumer loyalty. This loyal relationship is built by providing value to all the stakeholders involved in the relational exchange (Grönroos 1995; Peng & Wang 2006).

Relationship marketing theory suggests that cooperative relationships acquired from successful relational exchange determine the success of relationship marketing. Extensive prior research has focused on relationships of trust, commitment and communication (Arnett & Badrinarayanan 2005). In particular, the “commitment-trust” theory that has been widely applied to the relationship marketing has identified that commitment relationship can be formed if consumers perceived a certain of benefits in the relational exchange which leads to trust by reducing the risks in the relational exchange (Morgan & Hunt 1994). In other words, consumers tend to engage in developing relationships with partners who are trustworthy in aspects of reliability, integrity and competence.

Importantly, Morgan and Hunt (1994) report that consumers who engage in the relationship with partners would consider these partners share similar values with them. The influence of shared values on the development of consumer relationship with firms has been discussed in

ethical consumption research. For example, moral obligation and moral virtues have been found to motivate relational exchanges and consumers are willing to be involved in relational exchanges with firms that are regarded as socially responsible. Likewise, a firm's green commitment is able to share social responsible values with customers, which in turn leads to their engagement in relational exchange. Therefore, it is appropriate to investigate the formation of relationship between consumers and green brands based on green marketing and relationship marketing perspectives.

Prior research suggests that a firm's market offerings which create value for its target consumers act as relational resources which contribute to the competitiveness of a firm (Wang et al., 2004). Value has been regarded as a cornerstone in relationship marketing and the strategy of delivering superior value to customers has been adopted as the most successful one in order to achieve competitive advantage (Ravald & Grönroos 1996). The creation and delivering of superior customer value improves customer relationship management (Mason et al. 2001; Day 1994; Slater 1997). For example, an increase in customer value results in customer satisfaction which subsequently strengthens the bond and achieves loyalty (Ravald & Grönroos 1996). The majority of scholars agree that CV plays a central part in relationship marketing as a key determinant of customer satisfaction (e.g., Cronin, Brady & Hult 2000; Patterson & Spreng 1997; Ryu, Lee & Gon Kim 2012), trust (Chaudhuri & Holbrook, 2001; Moliner et al. 2007; Singh & Sirdeshmukh 2000) and customer loyalty (Lin & Wang 2006; Patterson & Spreng 1997; Tsai, Tsai & Chang 2010; Yang & Peterson 2004). Notwithstanding the foregoing discussion, the relational outcomes of CV in the green consumption context remains underestimated.

2.7.2 Consequences of CV in the green consumption context

Based on the relationship marketing theory, customers are willing to engage in relational exchange with a green brand in line with its environmental concern and commitment. Also the delivery of superior customer value results in positive relational outcomes. For instance, Koller et al. (2011) suggest that customer perceived value has a positive influence on customer loyalty. In their study, customer value was measured by functional, economic, emotional and social value, whilst ecological value was regarded as an antecedent of customer value. Additionally, other scholars have emphasized mainly on the customer value generated from the green content and they suggest that green perceived value is positively

associated with green trust and green loyalty (Chen 2012; Chen 2013). More importantly, green perceived value has been found to be a key driver of green brand equity (Ng et al. 2014). This concept has been widely addressed in recent green branding research (Chang & Chen 2014; Chen 2010; Namkung & Jang 2013; Ng et al., 2014). These scholars agree that green marketing is an effective tool for companies to increase their intangible brand equity, which would afford them competitive advantage and higher profitability (Jung & Sung 2008). In this respect, Chen (2010) investigated brand equity from the green marketing perspective and proposed a novel construct called “green brand equity”. This concept has been extended from the definition of brand equity conceptualised by Aaker (1991) which takes into account green commitment and environmental concerns. It is defined as “a set of brand assets and liabilities in relation to green commitment and environmental concerns linked to a brand, its name and symbol”. These assets and liabilities are added or subtracted from the value provided by a product or service (Chen 2010, p.310). Green brand equity is able to capture consistently the manner in which consumers establish relationships with a brand which displays green commitment and environmental concerns, hence providing customer value. However, the investigation on consequences of customer value is fragmented due to the different conceptualisations of customer value in the green consumption context. Furthermore, green brand equity has been measured purely from the loyalty aspect. However, prior research which scrutinise the definition and dimensions of brand equity has suggested that brand equity should be regarded as a multi-faceted concept (Christodoulides & de Chernatony 2009). Drawing on the above argument, the influence of CV on green brand equity related outcomes becomes important to further understand the effectiveness of green branding strategy. This is because an increase of intangible brand equities via green branding can contribute in achieving competitive advantages and higher profitability.

Blackston (1992) suggests that brand equity should be explored from a relationship perspective to reduce the gap between what marketers measure as brand equity and what consumers really perceive about a specific brand. Such an approach not only guides the brand to behave appropriately with the consumer to maintain the desired relationship, but also tailors a brand’s attitude and behaviour expressed through its marketing activities to be in line with their relationships. Accordingly, green brand equity can be understood as being a concept which reflects the interactive relationship built on intangible brand assets between the consumer and the brand. This is done by building its green commitment to the environmental concerns. This is moreso, as the greenwash issue has been widely identified in

current green marketing literature. Greenwash increases consumers' confusion and risk perception which in turn damages their trust on the green claims of a brand's products or services (Chen & Chang 2013). Therefore, to develop and maintain the positive relationship between customers and the green brand, the most effective pathway would be to enhance the intangible assets. This would result in profitability for virtuous organisations.

Dimensions of customer-based green brand equity

In order to broaden the scope of green brand equity, a discussion about the operationalisation of brand equity has provided significant insights. There are two approaches commonly used to operationalise brand equity: direct and indirect. The direct approach focuses on consumers' preferences and utilities which resulted in serious problems associated with brand separability. This approach lacks managerial value, and do not provide insights to understand the sources of brand value. Conversely, the indirect approach intends to capture consumer-based brand equity through its individual dimensions and provides distinct managerial usefulness. This approach has been widely applied to measure consumer-based brand equity (Christodoulides & Chernatony 2009). Table 2.3 presents a summary of studies which use the indirect approach to measure brand equity.

Table 2:3 Summary of studies which measure brand equity indirectly

Author (s)/Year	Dimensions	Context	Product category
Chang & Chen (2014); Chen (2010)	Overall green brand equity	Taiwan China	information and electronics products
Christodoulides et al. (2006)	Emotional connection, online experience, responsive service, nature, trust, fulfilment	UK	e-retailers
de Chematony et al. (2004)	brand loyalty, satisfaction, reputation	UK	financial services
Hyun & Kim (2011)	perceived quality, brand awareness, brand image, and brand loyalty	N/A	restaurant
Kumar et al. (2013)	perceived quality, brand awareness, brand association, brand trust, brand loyalty	India	hospital
Lassar et al. (1995)	performance, social image, value, trustworthiness, attachment	USA	televisions, watches
Nam et al. (2011)	physical quality, staff behaviour, ideal self-congruence, brand identification and lifestyle-congruence	UK	hotel

Netemeyer et al. (2004)	perceived quality, perceived value for the cost, uniqueness, willingness to pay a premium	USA	colas, toothpaste, athletic shoes, jeans
Ng et al. (2014)	Overall green brand equity	Malaysia	electrical and electronic products
Park et al. (2010)	brand attachment and brand attitude strength	N/A	Apple iPod
Rios & Riquelme (2008)	brand value, brand trust, brand awareness, brand loyalty	Australia	online business
Torres, Augusto & Lisboa (2015)	perceived quality, brand awareness, brand loyalty	Portugal	beer
Yoo & Donthu (2001)	brand association/brand awareness, perceived quality, brand loyalty	USA Korea	athletic shoes, film, colour television sets

Source: Adapted from various studies

The dimensionality of brand equity developed by Aaker (1996) has been widely documented in previous studies. Brand equity encompasses perceived quality, brand awareness, brand association and brand loyalty (e.g., Aaker 1996; Buil, De Chernatony & Martínez 2013; Cai, Zhao & He 2015; Liao & Cheng 2014; de Oliveira, Silveira & Luce 2015; Washburn & Plank 2002). Nevertheless, the indirect approach of measuring brand equity has no consensus as to what dimensions might comprise consumer-based brand equity. Hence, there is no universal measurement for brand equity. The applicability and scope of brand equity need to be justified according to different contexts (Baker, Nancarrow & Tinson 2005). For example, Yoo and Donthu (2001) developed a consumer-based brand equity scale. Regardless of its convenience to administer, the scale captures three dimensions, i.e., perceived quality, brand loyalty and a combination of brand association and brand awareness. However, the complexity of consumer brand decisions would be increased in the absence of brand associations (Del Rio et al. 2001; Torres, Augusto & Lisboa 2015).

Additionally, since most existing consumer-based brand equity measures depended largely on evaluations of product brands, the applicability of the mentioned prominent measurement scale in the context of services might be debatable (Christodoulides & Chernatony 2009). For instance, Page and Lepkowska-White (2002) proposed image and awareness as two main dimensions to measure web equity and regarded loyalty as an outcome of web equity instead of being a driver (as Aaker's (1991) model suggested). In a similar vein, Nam et al. (2011) proposed a five-dimension model of brand equity to investigate its influence on brand loyalty in the context of hotel and restaurant services. The five dimensions of brand equity comprise

of physical quality, staff behaviour, ideal self-congruence, brand identification and lifestyle-congruence. This model also regards brand loyalty as an outcome of brand equity and focuses on service context which would not be suitable for product brands. Christodoulides et al. (2006) develop a brand equity model that comprises of emotional connection, online experience, responsive service nature, trust and fulfilment while brand awareness was not included which is contrary to what is professed in the customer-based brand equity literature (Keller 2003). Kumar et al. (2013) added the dimension of brand trust in the scale suggested by Aaker (1991) and Keller (1993) to measure hospital service brand equity. The findings of their studies demonstrate that brand loyalty is the strongest driver of brand equity and brand trust has a similar effect on brand equity as compared to brand awareness and brand association.

Given the foregoing arguments, consumer-based brand equity measures using relationship dimensions would be more comprehensive if the model attempts to be applied to the contexts of both tangible products and intangible services.

Green brand loyalty

Brand loyalty has been commonly regarded as a core component of brand equity in the context of products and services (e.g., de Chematony et al. 2004; Kumar et al. 2013; Yoo & Donthu 2001) and it focuses on the commitment relationship which results in repeat purchases (Keller, 1993). In order to address consumers' commitment of repeat purchase of a brand based on its green commitment and environmental concerns, Chen (2013) proposes the concept of "green loyalty". This is defined as "the level of repurchase intentions prompted by a strong environmental attitude and sustainable commitment towards a brand" (p.297). Prior research indicates that customer perceived value positively influences repurchase intentions (Patterson & Spreng 1997; Yang & Peterson 2004) and is key driver of loyalty (Lin & Wang 2006; Tsai et al., 2010). Based on these findings, Chen (2013) hypothesised that GPV had a positive impact on green loyalty and such a relationship was confirmed. Nevertheless, this type of relationship has not yet been tested in a specific green brand context.

Green brand attachment

Apart from the substantial evidence on the importance of brand loyalty to brand equity in both products and services categories, another relationship dimension, brand attachment is also important. Such an assumption is supported by Feldwick (1996) who mentions that brand equity can be used as a measure of the strength of consumers' attachment to a brand. Furthermore, Park et al. (2010) suggest that brand attachment, reflecting "the strength of the bond connecting the brand with the self" is one of the critical drivers of brand equity (Park et al. 2010, p.2). In particular, self-brand connection and brand prominence are two critical factors which reflect the conceptual properties of brand attachment. That is, self-brand connection reflects the bond connecting a person with the brand whilst brand prominence measures the "strength" of this bond.

Similarly, green brand attachment reflects the strength of the bond relating the self to the brand based on its green commitment and environmental concerns. This indicates the congruence between green brand personality and customers' goals and personal concerns. It also suggests that the ease and frequency with which consumers connect to the environmental personality of the green brand can strengthen their commitment to buy green brands. Consumers are more likely to build an ongoing relationship with a brand that is able to meet their expectations (Dwivedi 2014). Additionally, consumers tend to engage in purchasing green brands when their green identity is manifested as a result of that purchase (Fournier 1998). Therefore, in attempting to satisfy customers' functional and green expectations, CV enhances the link between the self and the green brand (Einwiller et al. 2006).

Although a number of previous studies have examined the consequences of CV, only a handful of research has explored CV in the green consumption context. Importantly, limited attention has been paid to examine CV from a functional and green perspective in investigating its influence on green brand equity related outcomes. Green brand equity provides valuable insights in evaluating the effectiveness of green branding strategy. It does this by evaluating the manner in which CV affects the formation of relationship between customers and green brands. Thus, this study intends to address three relational outcomes: green brand loyalty, self-brand connection and brand prominence.

2.7.3 The mediating role of CV

Previous research findings relating to the influence of quality on loyalty are inconsistent (Cronin, Brady & Hult 2000; Lai, Griffin & Babin, 2009; Patterson & Spreng 1997; Zeithaml,

Berry & Parasuraman 1996). Several studies have found that there is a direct relationship between quality and loyalty, indicating that quality directly influences loyalty to the company or brand (Zeithaml et al. 1996). Another construct, customer value was later included in the quality-value model. The findings suggest that quality directly influences loyalty and indirectly influences loyalty through customer value (Cronin, Brady & Hult 2000). Other scholars have argued that the relationship between quality and loyalty is fully mediated by customer value (e.g., Kim & Han, 2008; Patterson & Spreng, 1997; Roset & Pieters, 1997). The underpinning logic of the quality-value-loyalty model is that the communication between customers and the brand via quality is insufficient to lead to loyal behaviour if it fails to deliver superior value associated with their perceived quality. Such a phenomenon can be explained by the signalling theory.

The signalling theory has been widely utilised to describe behaviour when there is information asymmetry between two parties (i.e., the sender and the receiver) (Connelly et al., 2011). This theory focuses on a signal as a communication method used by the sender to exchange information and the receiver's interpretation of the signal. Since there is also information asymmetry between firms and their target markets, many researchers have confirmed the importance of signals used by companies when communicating with their consumers (Spence 2002; Stigler 1961; Stiglitz 2002). Signals are defined as 'a marketer-controlled, easy-to-acquire informational cue, extrinsic to the product itself that consumers use to form inferences about the quality or value of that product' (Bloom & Reve 1990, p. 59). Consumers rely on signals to evaluate product quality in an imperfect information environment (e.g., Kirmani 1997; Kirmani & Rao 2000; Nelson 1970). Prior research suggests that signals used to reflect quality are widely connected to a firm's actions and strategies, such as advertising (Kirmani 1997), brand name (Lambin, Chumpitaz, & Schuiling 2007), price (Dawar & Sarvary 1997) and warranty (Boulding & Kirmani 1993). Recently, Pappu and Quester (2016) argue that innovativeness of a brand can act as a signal to gain utilitarian value (Stock 2011), competitive advantage (Mukherjee & Hoyer, 2001) and provision of providing effective solution to the promised task (Kunz, Schmitt & Meyer 2011). Similarly, information is a critical asset within the green marketing context. Firms should communicate information clearly to their consumers, especially when consumers' greenwash perception has increased dramatically (Chen & Chang 2013; Erdem & Swait 1998). A recent study suggests that quality on its own does not lead to customer loyalty and GPV has been found to fully mediate the link between quality and green brand equity (Ng et al. 2014).

These findings provide support for the indirect relationship between multiple dimensions of green brand communication and green brand attachment and loyalty.

In the case of green brands, green benefits, risk and transparency can serve as important signals for customers to evaluate the green brand. That is, the increase of green benefits and transparency, and the reduction of green risk, can signal high level of CV and thereby enhancing green brand attachment and loyalty. Specifically, consumers may refrain from developing attached and loyal relationship with green brands as their expectation for functional value and green value are not satisfied by their perceived green benefits. Additionally, risk is indirectly related to loyalty through trust (Matzler, Grabner - Kräuter & Bidmon 2008). This is also supported in the green consumption context. For example, green risk has been found to negatively impact green trust which in turn influences consumer green purchase intention (Chen & Chang 2012, 2013). In other words, consumers are willing to develop strong relationship with green brands if they perceived high level of CV due to the reduction of green risk.

Also, the influence of ethical efforts on patronage and recommendation intentions is mediated by trust (Vlachos et al. 2009). This implies that the effective communication of ethical efforts leads to consumer trust, which then results in loyalty. Similarly, a firm attempting to communicate its green transparency to its consumers is required to deliver superior value that can satisfy their expectation for functional and green value. Although the relationships between quality, customer value and loyalty have been well documented in marketing research, there is still limited understanding about the role of CV in the relationship between green brand communication and green brand equity-related outcomes.

2.8 CV approach in the context of physical goods and services

In an attempt to extend the knowledge of green branding, recent studies have addressed topics relating to green brand purchase intention and green brand equity (Chen 2010; Huang, Yang & Wang 2014; Ng et al. 2014). These empirical studies have studied brands which are pre-dominantly associated with electrical and electronic products. For example, Ng et al. (2014) suggest that GPV and green image positively relate to green brand equity. To increase customer value, green product quality has been found to have a positive influence on consumers' green satisfaction and loyalty (Chang & Fong 2010). In contrast, green perceived risk negatively influences green trust and green brand equity (Chang & Chen 2013; Chen &

Chang 2013). Owing to greater exposure to environmental issues, green marketing has mainly emphasised manufacturing firms. Green marketing now needs to be extended to green issues in the service sector (Leonidou et al. 2011).

Generally, services focus more on behavioural activities than physical attributes (María Cubillo, Sánchez & Cerviño 2006). The term “service” has been defined as “an act or performance offered by one party to another. Although the process may be tied to a physical product, the performance is essentially intangible and does not normally result in ownership of any of the factors of production” (Lovelock 2001, p.3). There are four salient characteristics of services: intangibility, heterogeneity, perishability and inseparability of production-consumption, which distinguish them from tangible products. In particular, intangibility is regarded as the most obvious characteristic that is used to differentiate services from goods. Unlike tangible products that exist in both time and space, services depend more on time through social interactions and acts (Berry 1980). Hence, intangible activities, such as tourism, hotel and airline services can be considered to be part of services sector. In the hospitality context, service quality and consumers’ perception of price influence CV (Chen & Hu 2010; Chiang & Jang 2007; Hu, Kandampully & Juwaheer 2009).

Additionally, CV leads to numerous positive outcomes, such as corporate image, customer satisfaction and behavioural intentions (Hu, Kandampully & Juwaheer 2009; Ryu, Lee, & Kim 2012). More importantly, consumers tend to perceive greater risk for services than for tangible goods (Murray & Schlacter 1990). This is because the amount or quality of information available for services is reduced owing to their greater degrees of intangibility, inseparability of production-consumption, perishability as well as heterogeneity (Lovelock 2001; Zeithaml, Parasuraman, & Berry 1985). Consequently, the effect of risk perceptions on consumers’ evaluation of a firm would be stronger in the context of services as compared to physical goods.

Furthermore, as suggested by previous studies, the heterogeneity is another important characteristic of service which implies that there is no standardisation applied to various contexts (Lovelock 2001; Zeithaml, Parasuraman, & Berry 1985). This characteristic strengthens the importance of communication between providers and consumers. In other words, consumers’ satisfaction of services would be influenced by firms’ behaviour instead of only service quality. The foregoing discussions further confirm the necessity of varying marketing strategies intended to create customer value in the context of physical goods and services (Smith & Colgate 2007).

Overall, services are commonly intangible, perishable, heterogenous and production and consumption occur simultaneously (Lovelock 2001; Zeithaml, Parasuraman, & Berry 1985). The characteristics of services have led to them as posing little threat to the environment. As a result, it would be difficult for service organisations to demonstrate their green commitment to their target consumers (Aykol & Leonidou 2015). Despite this, green branding of services has been discussed in recent literature. Within green energy consumption, green transparency is particularly important and it contributes in increasing customers' environmental awareness, which in turn influences their willingness to partake in environmental programs (Vaccaro & Patin˜o Echeverri 2010).

Additionally, Hartmann and Apaolaza-Ib˜a˜nez (2006) demonstrate that utilitarian environmental benefits significantly impact brand attitude and purchase intention whilst the influence of warm glow and self-expressive benefits on brand attitude are absent. In the context of physical products, Hartmann et al. (2005) suggest that a combination of functional (utilitarian environmental benefits) and emotional benefits (warm glow, self-expressive benefits and nature experience) can create the strongest perceptual effects on brand attitude. Nevertheless, there has been no detailed investigation of a comparison between brands of physical goods and services aimed at examining CV in the green consumption context. More attention should be paid to develop appropriate green marketing strategies based on different brand contexts.

2.9 The identification of research gaps

What is identified from the body of the foregoing literature is that majority of the green marketing studies have emphasised the evaluation of green marketing strategies; and the green branding strategy has been widely adopted in order to gain competitive advantage. However, most green initiatives depending on communication messages simply address environmentally friendly characteristics of products and services. The potential barriers to green marketing success (for example, corporate greenwash practices) discourage consumers' confidence in green claims, which further restrain firms' green investment. Although numerous studies have addressed the important role of green marketing strategies in achieving market value and competitive advantage, most of them were discussed from the perspective of organisations (Cronin et al. 2011; Peattie & Crane 2005; Rex & Baumann 2007). Relatively little attention has been devoted to the manner in which consumers'

understanding of green initiatives influence the creation of firms' intangible brand equities. Hence, the current study attempts to examine how consumers interpret green initiatives communications in order to improve the effectiveness of green branding strategy from consumers' perspective.

As documented in prior research, the attitude-behaviour gap was identified as a key issue discouraging green consumption. This problem is particularly evident in the predominantly adopted models based on TPB and TRA (e.g., Joshia & Rahman 2015; Vermeir & Verbeke 2008; Young et al. 2010). To minimise the pitfalls that can result from the TPB approach, a more dynamic approach—that is, customer value —has been applied to the green brand context (Papista & Krystallis 2013). The customer value framework developed by Papista and Krystallis (2013) has provided an alternative approach for marketers to understand factors influencing the formation of customer value and their relationships with green brands. This framework includes situational factors although these factors are typically considered from the cost-benefit perspective.

Additionally, the conceptualisation of customer value in Papista and Krystallis' study focuses primarily on functional perspective and this framework has not yet been empirically tested. Recently, several scholars have suggested that green value should be included to maximise consumers' positive green brand attitudes (Hartmann & Apaolaza Ibáñez 2006; Hartmann, Apaolaza Ibáñez & Sainz 2005) as green value is able to significantly motivate them to purchase green products and services (Chen & Chang 2012). Therefore, a green brand context-specific concept known as "green perceived value" (GPV), together with functional value, have been included in the conceptualisation of CV in the current study.

Relatively scant attention has been paid to the factors impacting CV in the green consumption context. Owing to the strong relationship between green marketing and CSR, environmental concerns have been integrated into firms' CSR practices. According to a broader concept of green marketing, the ethical theory developed by Hunt and Vitell (1986) has been applied to investigate consumers' environmental purchase behaviour. This ethical framework has provided significant implications for examining factors which influence consumers' evaluation of a firm's brand. This model demonstrates that individuals' ethical behaviour is influenced by both deontological perspective (i.e., related to moral obligation) and teleological perspective (i.e., related to cost-benefit approach). In this regard, green benefits (utilitarian environmental, warm glow and self-expressive benefits) and green risk are expected to influence CV based on teleological perspective whilst green transparency is

assumed to influence CV according to deontological perspective. These factors have been found to positively influence green purchase intention whilst they have not been simultaneously investigated within a CV framework in the context of green consumption. The current study intends to address this gap.

Hence, the first primary research question relating to the current study is: **–What are the factors which stimulate or hinder the presence of CV associated with green brands?** In particular, *how do green benefits and risk (teleological perspective) and green transparency (deontological perspective) influence CV through functional value and GPV?*”

Although brand equity has received considerable attention in the marketing literature, the complex nature of brand equity in green brand contexts remains underestimated (Christodoulides & de Chernatony, 2010; Jang, Kim & Lee 2015). Recently, Chen (2012) has examined brand equity within the green marketing framework and proposed a concept of green brand equity. GPV has been found to have a significant influence on green brand equity (Ng et al., 2014) whilst green brand equity was measured as a uni-dimensional construct focusing on brand loyalty. This is inconsistent with previous arguments that brand equity is a complex concept and therefore green brand equity should be a multi-dimensional construct capturing customer-green brand relationship (Chang & Chen 2013).

The brand attachment that reflects the strength of the bond linking the brand with self has been identified as a key driver of brand equity (Park et al. 2010). This construct captures the congruence between the self and the benefit (Japutra 2014) which would play a crucial role in understanding the relationship between consumers and brands based on their green concerns. There is, however, still limited understanding about the influence of CV in generating brand attachment in the green brand context. Thus, the current study proposes the second primary research questions to address this limitation. That question is: **“What is the influence of the inclusion of CV in the relationships between green brand communication and green brand attachment and loyalty?”** A further question is: *“Does CV contribute to consumers’ brand attachment towards green brands and which are the dimensions of customer perceived value that drive green brand attachment? Does CV play a significant positive role in enhancing green brand loyalty and which dimensions of customer-perceived value that drive green brand loyalty?”*

Importantly, since physical products and services have several different characteristics (Lovelock 2001; Zeithaml, Parasuraman & Berry 1985), factors influencing the formation of

CV associated with green brands and their influence on relationship building between consumers and green brands might be different. For example, in the context of physical goods, both functional (utilitarian environmental benefits) and emotional benefits (warm glow, self-expressive benefits and nature experience) have been found to positively influence brand attitude. However, the effects of warm glow and self-expressive benefits on brand attitude were absent in the context of services, such as green energy consumption (Hartmann & Apaolaza-Ibáñez 2012; Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005). Additionally, scant attention has been paid to the service branding in the green marketing context owing to its unobvious threats to the environment. This would mitigate the effectiveness of green branding strategy if organisations adopt similar branding strategies between physical goods and services by ignoring their differences. To address this limitation, the current study proposes the third primary research question that is: **How do the relationships among constructs presented in the conceptual model vary among brands of physical goods and services?** In other words, *are there any differences in the formation of customer perceived value across brands of physical products and services? Are there any differences in the effects of customer perceived value on green brand attachment and loyalty in the contexts of physical products and services?*

Finally, there is a large number of published studies that investigate green consumption behaviour in western economies, but only a handful of these studies have been conducted in Asian countries (Mourad & Ahmed 2012). In order to extend the green consumption research to a universal context, it is necessary to conduct studies in Asian countries. Hence, the present study empirically tests the conceptual model in mainland China, a country which has been regarded as an emerging green market (Chen & Lobo 2012).

2.10 Chapter summary

This chapter has provided a detailed review of the literature in relation to green marketing, green consumption behaviour, the attitude-behaviour gap and CV. Extensive prior research has largely focused on factors influencing green consumption behaviour based on TPB and TRA whilst customers' positive attitude has failed to translate into actual green purchase behaviour. Additionally, with consumers' increasing green scepticism toward green offerings, the communication between consumers and a firm intending to implement green initiatives should be facilitated. To address the disadvantages of the application of TPB and TRA in a

green consumption context, the CV approach has been suggested. This is an alternative approach to investigate customers' green brand adoption behaviour and the relationship formation between customer and green brands. An identification of barriers to the green marketing success requires a more dynamic framework to improve the effectiveness of green branding strategy by encouraging green consumption and developing strong relationship with customers.

This chapter has provided a discussion of the ethical decision-making process to examine antecedents of CV both from deontological and teleological perspectives and argues that green brand communication through providing green benefits, reducing green risk and presenting green transparency should be facilitated. Furthermore, the signalling theory and relationship marketing theory have also been addressed to investigate consequences and the mediating effect of CV. In order to develop appropriate green branding strategies in different brand contexts, a discussion of CV approach in brands of physical goods and services has been presented and subsequently relevant research gaps have been identified from extensive literature. The next chapter presents an overview of the development of the conceptual model and its associated hypotheses.

Chapter 3 The Conceptual Model and Hypotheses

3.1 Introduction

This chapter explains the development of the conceptual model based on the literature review articulated in Chapter Two. The relevant literature relates to green marketing, green branding, relationship marketing, customer value concept, ethical decision-making model and signalling theory. Figure 3.1 diagrammatically illustrates the roadmap of Chapter Three. This figure explains the development of the conceptual model in section 3.2. The first stage (brand communication), including customer perceived green benefits, risk and transparency are addressed in section 3.3. The second stage (brand value assessment), comprising of customer perceived functional value and GPV are discussed in section 3.4. Subsequently, stage three (brand relationship), including self-brand connection, brand prominence and green brand loyalty are highlighted in section 3.5 and the development of relevant hypotheses is presented in section 3.6. Finally, section 3.7 provides a summary of this chapter.

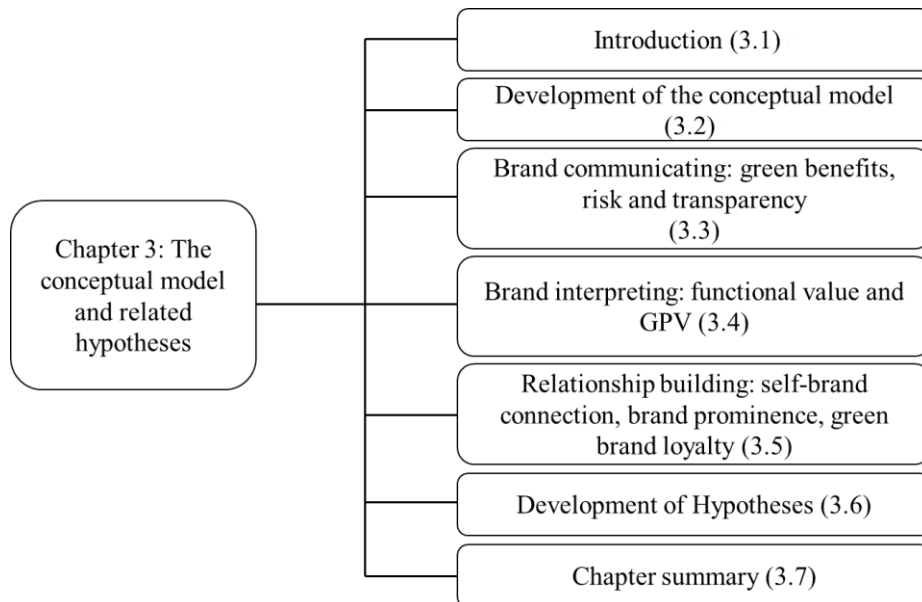


Figure 3:1 Roadmap of Chapter 3

Source: Developed for this research (adapted from Perry (1995))

3.2 Development of the proposed conceptual model

Literature reviews are essential in developing a theoretical model, as they provide significant support for identifying and scoping relevant models (Cavana, Delahaye & Sekaran 2001). The conceptual model of this study has been developed by reviewing extensive relevant literature and is designed to address the research questions proposed in the thesis.

The literature review contains elaborate discussion of customer value concept in the green brand context, ethical decision-making model, relationship marketing, signalling theory and potential disadvantages of applicability of TPB in green consumption research. This study then extends the work of Papista and Krystallis (2013) and proposes a unique conceptual model that investigates the effectiveness of green branding strategies. In particular, it examines factors that stimulate or hinder the formation of customer perceived value associated with green brands and their influences on green brand attachment and loyalty. This study has established that several shortcomings of TPB in green consumption research are evident, hence the customer value approach can be used as an alternative to investigate customers' adoption of green brands. The proposed conceptual model also addresses the gap between green initiatives and customers' relational strength with a green brand using the signalling theory. In order to examine these interactive relationships, this study proposes a three-stage conceptual model, which is depicted in figure 3.2. The three stages are known as brand communication, brand value assessment, and brand relationship.

Based on the ethical decision-making model, consumers tend to evaluate a firm's ethical behaviour both from both deontological and teleological perspectives (Hunt & Vitell 1993). This suggests that consumers not only take account of the trade-off between benefits and risks associated with their green purchase but also care about a firm's ethical performance. The understanding of factors influencing consumers' evaluation towards a green brand is important to facilitate communication between consumers and the green brand and therefore this forms the first stage of the proposed conceptual model, i.e., brand communicating. According to research findings discussed in Chapter Two, it was decided to include relevant factors which influence customer value perception associated with green brands. These factors include green benefits, comprising utilitarian environmental, warm glow and self-expressive benefits and green perceived risk and green transparency.

The customer perceived value comprising functional and non-functional values (GPV) forms the second stage of the proposed conceptual model, i.e., brand value assessment. Prior

research suggests that GPV positively influences green purchase intentions (Chen & Chang 2012) and it helps to generate green image and trust (Chen 2013; Lin, Lobo & Leckie 2017). This process uses signals which assist consumers in interpreting all information in relation to green brands. Apart from GPV, functional value is also included in this stage as conventional evaluation is always important during a consumer's green decision-making process (Ng et al. 2014).

Finally, the third stage of the conceptual model, brand relationship, is related to green brand attachment and loyalty. This stage has been developed using relationship marketing theory. This theory has been applied to explain the formation of brand trust between consumers and green brands (Chen 2010). Likewise, consumers are likely to build attached and loyal relationships with green brands if their expectations are met. The proposed conceptual model depicted in Figure 3.2 has been developed to help explain customers' green brand adoption behaviour and the relationship development between customers and green brands. The model achieves these aims by addressing determinants of customer perceived value and their influence on green brand attachment and loyalty. The details of the individual stages of this conceptual model and the development of hypotheses are presented from Section 3.3 onwards.

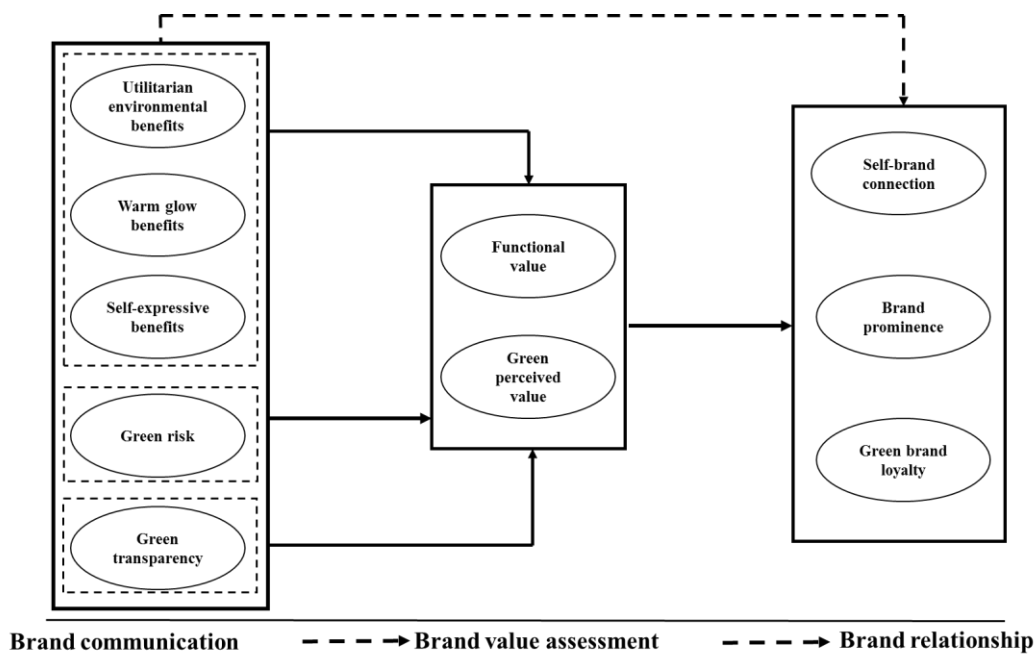


Figure 3:2 Proposed conceptual model

Source: Developed for this research

3.3 The first stage: Brand communicating

3.3.1 Green benefits

Brand positioning strategy focusing either on functional or non-functional attributes has been adopted to build consumers' perceptions toward a company's brand (Chen 2001), which attempts to differentiate their offer from their rivals (Davicik & Sharma 2015). This brand communicating stage helps customers to form their initial impression of the personality of the brand. Therefore, in order to enhance customers' perceptions of green brands, companies have invested great resources in green brand positioning (Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005; Hartmann & Apaolaza-Ibáñez 2006). For instance, Hartmann et al. (2005) adopted functional (i.e., utilitarian environmental benefits) and emotional positioning (i.e., warm glow, self-expressive, nature-related benefits) to predict consumers' attitudes toward green products and demonstrated that a combination of functional attributes and emotional benefits ensures the highest perceptual effects. Product performance has been shown to have a positive influence on consumers' adoption and retention of green products (Chang & Chen 2014; Ng et al. 2014). Hence, consumers might refuse to accept environmentally friendly (green) products if they are sceptical about the relative performance of environmental products (Wong, Turner & Stoneman 1996). In other words, in order to influence the acceptance of green products, it is imperative to satisfy consumers' expectations of the performance of such products.

It is generally suggested that product differentiation can lead to a gain in competitive advantage and hence its associated strategies may also be effective in the environmental context (Porter 1998; Reinhardt 1998). For example, product positioning through product attributes and/or packaging might not be the only approach to achieve success. Instead, provision of environmental benefits would create differentiation and influence consumers' preference and choice. This is particularly evident in a situation when two products are perceived as being equal in all aspects (Leigh et al. 1988; Shrivastava 1995). Therefore, a product's environmental performance can assist brands in differentiating themselves from their competitors and can influence consumers' choice especially in markets where there are increasing difficulties for differentiation and intense competition (Christensen 1995).

Utilitarian environmental benefits reflect consumers' perceived utility acquired from a brand's capacity to fulfil functional, utilitarian or physical environmental performance, which

is the most direct aspect to facilitate communication between consumers and the green brand (Sheth, Newman & Gross 1991). As compared to conventional brands, consumers expect green brands with environmentally sound attributes to deliver additional benefits (Bech-Larsen 1996; Sriram & Forman 1993). Additionally, it has been proven that consumers' purchase intentions of green products could be affected by environmentally utilitarian product attributes (Roberts 1996; Ellen 1994). Therefore, the dissemination of detailed information about the environmental credentials of a product or service is important. Such a strategy confirms the importance of the functional positioning in green consumption context (Hartman & Apaolaza Ibáñez 2006). However, just depending on functional positioning is inadequate as there are disadvantages, such as the lack of the flexibility of brand differentiation (Hartman & Apaolaza Ibáñez, 2006). In this respect, Hartman et al. (2005) argue that emotional brand benefits (i.e., warm glow, self-expressive and nature-related benefits) can address this shortcoming.

Warm glow results from customers' personal satisfaction when they commit to the pro-environment behaviour in an altruistic way, which could be regarded as an impure form of altruism (Ritov & Kahnemann 1997). That is, the gain of moral satisfaction is able to motivate customers to adopt green options rather than solely depend on improvements in environmental quality. For instance, warm glow benefit has been well discussed in the green energy context and it was found to be a much stronger antecedent to customers' willingness to pay a higher price as compared to environmental impact (Wüstenhagen & Bilharz 2006). Importantly, it can directly influence customers' purchase intention of green energy (Hartmann & Apaolaza-Ibáñez 2012). Therefore, it is imperative to satisfy customers' expectation of warm glow benefits for green brand communication (Andreoni 1990). In addition, self-expressive benefits reflect customers' motivation of exhibiting their environmental consciousness to others to gain personal satisfaction. These benefits focus on customers' needs for social expression and outer-directed self-esteem (Parker 2009; Sirgy 1982). Customers form positive brand attitudes if the brand makes them feel superior and symbolises their status in society and this can result in positive outcomes, such as brand love and WOM (Carroll & Ahuvia 2006; Wallace, Buil & de Chernatony 2014). Based on the altruism theory (Barclay & Willer 2007; Schwartz 1977; Van Vugt, Roberts & Hardy 2007), consumers' willingness to engage in the common good results from the fact that they receive social approval and reputation and that they are capable of sacrificing resources (Juvonen & Murdock 1993). Such reputation and status lead consumers to prefer green brands

(Griskevicius, Tybur & Van den Bergh 2010). Thus, consumers might purchase green brands that allow them to express their environmental concerns to others. Nature-related benefits results from consumers' emotional connection to the nature (Hartmann & Apaolaza-Ibáñez 2006). This has been highlighted in green advertising aimed at persuading consumers when making green decisions (Hartmann & Apaolaza-Ibáñez 2006; 2010; 2012). For example, research conducted by Hartmann and Apaolaza-Ibáñez (2010, 2012) suggest that compared with advertisements showing urban or desert scenes, those displaying natural scenery evoke more positive emotional responses and such responses associated with the visuals of nature further contribute towards enhancement of green brand attitudes.

Accordingly, customer perceived green benefits, which comprise of utilitarian environmental benefits, warm glow and self-expressive benefits are the key dimensions associated with the brand communicating stage. Nature-related benefits require specific type of advertisements to evoke customers' perceptions which are beyond the scope of this study.

3.3.2 Green perceived risk

Perceived risk refers to consumers' subjective evaluation relating to the possible negative and uncertain outcomes of their decisions (Peter & Ryan 1976), which has been shown to have influences on consumer attitudes and purchase intention (Mitchell 1999; Wood & Scheer 1996). In particular, the reduction of perceived risk contributes to increase customer trust (Chang & Chen 2008). Recently, perceived risk has been identified as a key factor mitigating green purchase likelihood under various contexts of green consumption, ranging from green electronic products (Chen & Chang 2013), organic food (Katie & Bernard 2006) and green brands (Papista & Krystallis 2013). Perceived risk associated with green consumption has been termed 'green perceived risk' and it is defined as "the expectation of negative environmental consequences associated with purchase behaviour" (Chen & Chang 2012, p. 506). With consumers' increasing scepticism towards organisations' dishonest marketing practices and misleading environmental claims, consumers perceive green consumption as being risky behaviour to some extent (Chen & Chang 2013; Polonsky et al. 2010). This in turn might result in brand dissatisfaction and distrust due to negative consumption emotions (Chaudhuri 1997; Chen & Chang 2013; Eid 2011).

Additionally, a brand's green image might be damaged if consumers perceive high potential green risk when they are uncertain about the credibility, benevolence and ability of a brand to

address its environmental claims and performance (Kalafatis et al. 1999; Lin, Lobo & Leckie 2017). Generally, consumers are inclined to avoid risk rather than maximise utility based on risk theory (Mitchell 1999). Hence their evaluation of a green brand would be positive if green perceived risk can be minimised. Thus, outcome-oriented expectations based on teleological perspective needs to be considered in order to enhance customers' brand attitudes (Brunk, 2010; Chen & Chang 2012).

3.3.3 Green transparency

Apart from utilitarian benefits, emotional benefits and their perceived risk, consumers' expectations relating to a firm's ethical commitment to society also influence their evaluation of a firm and its brands (Creyer 1997; Leonidou & Skarmeas 2015). A firm's moral commitment to environmental, social and ethical issues is a significant factor in influencing consumers' positive evaluation of a firm and its brands based on deontological perspective (Brunk 2010; Lavorata 2014). In order to reduce the negative impact of greenwash (Nyilasy, Gangadharbatla & Paladino 2014) and consumers' scepticism toward corporate green initiatives, the dimension of perceived green transparency has been studied (Teas 1993; Vaccaro & Echeverri 2010). The term "green transparency" refers to the manner in which green brands clearly provide relevant information on their environmental policies as well as frank admission on how their production process impacts the environment (Eggert & Helm 2003). Since green brands usually carry higher prices than non-green brands, consumers require more detailed information to facilitate their green decision-making process. Meise et al. (2014) suggest that firms are able to communicate value by increasing the transparency of value differentiating sustainability-related information. In other words, green transparency assists consumers in understanding the motives of firms' green initiatives (Reynolds & Yuthas 2008; Tapscott & Ticoll 2003; Teas 1993). As a result, information disclosure has shown to have positive impact on consumer-firm relationships and high level of perceived environmental transparency (green transparency) can increase consumers' knowledge about the value associated with a firm's socially responsible activities (Vaccaro & Echeverri 2010). Based on the above discussions, customer perceived green benefits, green perceived risk and green transparency represent the brand communicating stage. These factors are consistent with teleological and deontological evaluations in the proposed ethical decision making model.

3.4 The second stage: Brand value assessment

CV has been regarded as a key element of marketing and an important indicator of repurchase intentions (Callarisa Fiol et al. 2009; Parasuraman & Grewal 2000), which is a complex concept to define and measure (e.g., Holbrook 2006; Woodruff 1997; Zeithaml 1988). Regardless of the divergence of its definition, it has been broadly referred to as ~~the~~ customer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml 1988, p.14). In other words, perceived value is a subjective concept, reflecting customers overall evaluation on ~~get~~" attributes (e.g., quality) and ~~give~~" attributes (e.g., price) associated with their purchase. However, this view narrows the value concept to investigate customer purchase behaviour because of its simple uni-dimensional measurement and its concentration on economic utility (Sánchez-Fernández & Iniesta-Bonillo 2007). In this respect, Patterson and Spreng (1997) focus on customers' expectations and define customer perceived value as a "cognitive-based construct which captures any benefit-sacrifice discrepancy in much the same way disconfirmation does for variations between expectations and perceived performance" (p. 421). That is, consumers might perceive a high level of value if their expectations can be satisfied from their consumptions.

Several scholars have argued that instead of simply focusing on expectation for functionality, other value components, such as social value and emotional value should be taken into consideration (Sheth, Newman & Gross 1991). Despite this, functional value in terms of performance (quality) and sacrifice (price) is popular (Patterson & Spreng 1997). Hence, consumers are more likely to expect high quality in the green purchase context. Prior research suggests that quality, price and convenience are important factors for consumers when they purchase organic food (Krystallis & Chryssohoidis 2005) and conventional branding attributes, such as price and quality still dominantly influence consumers' green brand adoption (Chen & Chang 2012; Ng et al. 2014).

Similarly, consumers' willingness to purchase green products would be largely mitigated because of inferior product quality, and non-green aspects of customer value should be integrated into green offerings (Ottman, Stafford & Hartman 2006). Hence, in order to thoroughly investigate the relationship between consumers and brands in the green consumption context, this study highlights the functional aspect of customer perceived value as it is traditionally presumed to be the primary driver of consumer choice (Sweeney &

Soutar 2001). Additionally, “functional value” can be defined as consumers’ subjective evaluation toward a green brand influenced by their expectations for conventional attributes, i.e., quality and price (Patterson & Spreng 1997; Sheth, Newman & Gross 1991). Functional value has been regarded as one of crucial dimensions of customer value of green brand, which focuses on performance (quality) and monetary cost (price).

Apart from conventional functional value, green value should also be included when capturing the customer value of green brands (Hartmann & Apaolaza-Ibáñez 2006). Chen and Chang (2012) developed a construct called “green perceived value” (GPV), which they have defined as “a consumer's overall appraisal of the net benefits of a product or service between what is received and what is given based on the consumer's environmental desires, sustainable expectations, and green needs” (p. 505). In other words, GPV reflects customers’ subjective evaluation of a green brand based on their green desires, expectations and needs. Notably, green attributes contribute to create additional value when the conventional product attributes of a green product are similar to its competing brands. This, in turn, generates customer green brand preferences (Hartmann & Apaolaza-Ibanez 2012; Sriram & Forman 1993).

Additionally, within the green consumption context, GPV has been found to positively influence green purchase intentions and contribute to the relationship development between customers and brands by enhancing their green satisfaction and green trust (Chen 2013; Chen & Chang 2012; Koller, Floh & Zauner 2011). Likewise, GPV has been shown to be a significant driver of green brand equity (Ng et al. 2014). In this regard, GPV might be a crucial factor influencing green purchase intentions and relationship development between customers and green brands and this aspect is worthy of investigation. Thus, aspects of both conventional and green values should be included in the examination of CV. In other words, to achieve success relating to consumers’ green purchase, both green and non-green aspects of customers’ value need to be considered in the green offerings (Ottman, Stafford & Hartman 2006).

3.5 Stage three: Brand relationship

3.5.1 Green brand attachment

The attachment theory has been widely applied to explain interpersonal relationships, such as dyadic relationships between infants and their caregivers (Bowlby 1969) as well as in romantic relationships between adults (Hazan & Shaver 1987). Interestingly, these types of relationship attachment manifest themselves when linking persons to objects, such as material possessions (Wallendorf & Arnould 1988), places (Rubenstein & Patricia 1992), and more recently, brands (Fournier 1998; Schouten & McAlexander 1995; Thomson MacInnis & Park 2005).

Brand attachment is a relational construct that associates consumers with brands (Schmitt 2012), which is defined as “the strength of the bond connecting the brand with the self” (Park et al. 2010, p.2). This bond is particularly influenced by consumers’ accessible memory network through their thoughts and feelings about the brand and the brand’s relationship to the self. In other words, self-brand connection and brand prominence are two critical factors which reflect brand attachment based on the attachment theory (Mikulincer & Shaver 2007; Park et al. 2010). Similarly, “green brand attachment” can be explained as the strength of the bond connecting the self with the brand through its green commitment and environmental concerns. This strength is related to the congruence between consumers’ goals and personal concerns and the brand personality resulting from green commitment and concerns (i.e., self-green brand connection). The strength of green brand attachment also takes into account consumers’ perceived ease and frequency with the environmental personality of the green brand in their mind (i.e., green brand prominence).

Prior research suggests that attachment is one of the cornerstones in relationship marketing, which contributes to shape the relationship between consumers and brands. This includes trust, commitment and loyalty (Park, MacInnis & Priester 2006; Paulssen 2009; Thomson 2006). Additionally, brand attachment is a stronger driver of brand equity as compared to brand attitude strength (Park et al. 2010) and recently, the attachment theory has been applied to ethical and green contexts (Jang, Kim & Lee 2015; Schmalz & Orth 2012). For example, store loyalty can be enhanced if consumers feel attached with a store that has implemented green practices (Jang, Kim & Lee 2015). Likewise, consumers are willing to resist the moderately negative information about firms’ ethical behaviour (Schmalz & Orth 2012). Also, in relationship mishaps, consumers respond constructively to an organisation’s related recovery efforts if they form strong cognitive and affective bonds with an organisation or a brand (Finkel et al. 2002). Hence, within the green brand context, brand attachment can be regarded as an important indicator of the effectiveness of green branding. This is because

brand equity can be generated from the enhancement of self-brand connection and brand prominence based on environmental commitment and concern.

3.5.2 Green brand loyalty

The term “brand loyalty” refers to a consumer’s strong commitment to repurchase their preferred products or services (Oliver 1999, p.34). Brand loyalty contributes to positive brand outcomes including positive word-of-mouth communication, an acceptance of premium price, and an increase in repurchase probability (Chaudhuri & Holbrook 2001; Shankar et al. 2003). Brand loyalty is particularly important in the marketplace, where the competition between several brands is intense (Jones & Sasser 1995). In the green marketing context, in order to gain competitive advantage, several companies have been devoting great efforts to satisfy consumers’ environmental demands by adopting green marketing strategies (Chan 2013; Chen 2010; Kang & Hur 2012). Chen (2013) defines green brand loyalty as “the level of repurchase intentions prompted by a strong environmental attitude and sustainable commitment towards a brand” (p.297). Although previous studies have mentioned green loyalty, no empirical research has investigated it in a specific green brand context (Chen 2013; Jang, Kim & Lee 2015; Martínez 2015).

The consumer-brand relationship has been regarded as a key asset to strong brands (Strandvik & Heinonen, 2013) and therefore, brand loyalty is widely adopted as a core component of brand equity both in the goods and services context (e.g., de Chematony, Harris & Christodoulides 2004; Kumar, Dalla Pozza & Ganesh 2013; Yoo & Donthu 2001). Brand loyalty contributes in enhancing brand equity through producing consumers’ favourable beliefs and attitudes about the brand and results in a high level of commitment to repurchase the brand (Keller 1993). Green brand loyalty reflects consumers’ strong relational strength with the brand by considering its green commitment and environmental concerns and this relational strength would increase consumers’ repurchase intentions. Hence, it is imperative to incorporate the green brand loyalty construct to investigate the effectiveness of green branding.

Resulting from the above discussions, this research applies and adapts the ethical decision-making model. It also uses the relationship marketing theory in the green brand consumption context, and offers an alternative approach in understanding antecedents and outcomes

associated with customer perceived value in relation to green brands. The following sections describe the development of the relevant hypotheses.

3.6 Development of hypotheses

3.6.1 Green benefits, risk and CV

From a teleological perspective using egotism and utilitarianism theories, the gain of benefits and avoidance of costs are important criteria when consumers evaluate a firm's ethical practice (Brunk 2010; Crane & Matten 2010). In this regard, both green benefits and green risk might influence consumers' evaluation toward a brand's green initiatives.

Currently, brand positioning has been widely discussed in the context of green marketing and green brand positioning has become an effective approach in addressing green initiatives. This requires a brand to actively communicate and differentiate itself from its competitors through environmentally sound attributes (Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005). To achieve effective green brand positioning, both functional attributes (i.e., utilitarian environmental benefits) and emotional benefits (i.e., warm glow and self-expressive benefits) need to be taken into consideration. A combination of these attributes and benefits in a green brand positioning strategy generates superior perceptual effects (Hartmann & Apaolaza Ibáñez 2006; Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005). In particular, utilitarian environmental benefit is the most direct aspect influencing the communication between customers and the green brand through addressing functional, utilitarian or physical environmental performance (Sheth, Newman & Gross 1991).

Previous studies have confirmed the important role of utilitarian environmental benefit in enhancing purchase intentions (Hartmann & Apaolaza-Ibáñez 2012; Roberts 1996). For example, customers are willing to pay higher price for green energy due to its contributions to climate protection and renewable energy growth (Roe et al. 2001; Wüstenhagen & Bilharz 2006). Notably, customers still consider price and quality during their green decision-making process (D'Souza et al. 2006; Gleim et al. 2013). They do not generally give up conventional products or service quality and pay premium prices for green offerings (D'Souza et al. 2006). In other words, customers' perception of functional value can be enhanced if their expectations for high quality are met and they regard green consumption as being value for money. Hence, utilitarian environmental benefit which signals superior quality and long-term

indirect personal benefits is expected to have positive influence on functional value. Specifically, excellent eco-performance requires production and process innovations, which to some extent demonstrates a brand's capability to produce high quality products and is able to assist customers in saving costs in the long term (Koller, Floh & Zauner 2011). For example, hybrid vehicles have contributed to the reduction of emissions by taking advantage of modern technology, which on the one hand protect the environment and on the other hand, create economic value for customers.

Furthermore, in response to consumers' increasing environmental concern, utilitarian environmental benefit has been regarded as an essential attribute of a green brand to differentiate itself from conventional alternatives (Bech-Larsen 1996; Sriram & Forman 1993). Provision of utilitarian environmental benefit has been found to have positive effects on brand attitude and purchase intentions in the context of green energy brand consumption (Hartmann & Apaolaza-Ibáñez 2012). For instance, consumers intend to pay a premium for green energy products if they think they that are consuming renewable energy (Bang et al. 2000). Previous research has established that there is a positive relationship between product performance and customer perceived value (e.g., Baker et al. 2002; Chen & Hu 2010; Cronin, Brady & Hult 2000). Similarly, GPV reflects customers' overall evaluation of a green brand by highlighting their environmental expectations and needs, which can be enhanced through increasing utilitarian environmental benefits to satisfy their expectations for green functionality. Additionally, excellent environmental performance has been shown in contributing in green satisfaction and green trust (Chen & Chang 2013), which in turn increase GPV. Thus, it is expected that utilitarian environmental benefits will have a positive impact on GPV. Based on the foregoing discussion, the following has been hypothesised:

H₁. Utilitarian environmental benefit is positively associated with (a) functional value and (b) GPV.

Regardless of the important role of utilitarian environmental benefit in green consumption behaviour, some general disadvantages have been identified, such as the lack of flexibility of brand differentiation (Hartmann & Apaolaza Ibáñez 2006). That is, solely depending on functional positioning fails to create differentiation amongst green choices. Also, customers make green choices based on emotional criteria in the absence of tangible benefits (Hartmann, Apaolaza Ibáñez & Forcada Sainz 2005). This is because in most cases, it is difficult for

customers to gain immediate individual benefit from their purchase of green products. Such products indeed reduce harm on the environment, which might not sufficiently motivate customers to make green choices (Andreoni 1990). Hartman et al. (2005) argue that provision of emotional brand benefits is able to make up for this shortcoming. In particular, warm glow benefit, reflecting customers' feelings of moral satisfaction associated with their pro-environmental behaviour, is a form of impure altruism (Andreoni 1989, 1990). In contrast to pure altruism that concerns public good, impure altruism reflects customers' decision-making behaviour influenced by their personal good feeling (Andreoni 1990). It is a purely egoistic behaviour.

Warm glow benefit has been found to positively influence customers' willingness to pay a price premium for green options (Wüstenhagen & Bilharz 2006) and directly impact purchase intention of green energy (Hartmann & Apaolaza-Ibáñez 2012). As a result, customers might perceive a green brand as being value for money if they can receive moral satisfaction from their purchase behaviour. Thus, the expectation of warm glow benefit potentially enhances customers' satisfaction on performance which in turn increases functional value. In addition, Papista and Krystallis (2013) propose that altruistic value is positively associated with customer perceived value. Customers tend to feel good when they purchase green brands which contain environmentally friendly attributes (Pickett-Baker & Ozaki 2008), and impure altruism motivates customers to use green products or services (Hartmann & Apaolaza-Ibáñez 2006). This results in moral satisfaction for consumers when they make decisions to purchase green brands. Essentially, the warm glow of giving by firms leads consumers to positively evaluate a firm and its brands. The following hypotheses have thus been developed:

H₂. Warm glow benefit is positively associated with (a) functional value and (b) GPV.

Similarly, self-expressive benefit focuses on consumers' psychological needs for social expression and outer-directed self-esteem (Keller 1993). Within the green consumption context, consumers look for benefits that can increase personal satisfaction by presenting their environmental concerns to others (Hartmann & Apaolaza-Ibáñez 2006). This can be explained by the altruism theory, which suggests that consumers' willingness to engage in the common good results from the fact that they receive social approval and reputation and that they are capable of sacrificing resources (e.g., Barclay & Willer 2007; Carman 1992; Hawkes 1993; Roberts 1998; Schwartz 1977; Van Vugt et al. 2007). Consequently, consumers' expectation for reputation and status lead them to prefer green brands (Griskevicius, Tybur &

Van den Bergh 2010) and strengthen green brand attitude and brand love (Carroll & Ahuvia 2006; Hartmann & Apaolaza-Ibañez 2006). Therefore, it is expected that customers perceived functional value will be increased by signalling their social status and assisting them in expressing outer-directed self-esteem in green offerings. Hence they might build up strong beliefs that the green brand delivers superior functionality and presents reasonable price. In a similar vein, self-expressive benefit tends to satisfy consumers' needs regarding social approval and addresses the consumers' outer-directed self-esteem. This directly influences the green brand image in relation to its environmental performance, concerns and promises (Chen & Chang 2012; Lin, Lobo & Leckie 2017), which in turn will enhance GPV. Accordingly, the following hypotheses have been proposed:

H₃. Self-expressive benefit is positively associated with (a) functional value and (b) GPV.

In contrast, according to the risk theory, customers would try to avoid risks rather than maximise utility (Mitchell 1999). Green perceived risk focusing on customer perceived uncertainty and negative consequences associated with green purchase, reflects potential financial, functional and psychological risks (Chen & Chang 2012; Snoj, Pisnik Korda & Mumel 2004). In other words, customers might experience negative consequences as green brands are usually more expensive than conventional alternatives. Hence the green brand might fail to meet their expectation and consumption of green brands might damage their ego. Facing imperfect and asymmetrical information, consumers are prone to present higher levels of perceived risk, which can bring about several unfavourable responses, such as unwillingness to recommend (Cunningham et al. 2004), seeking detailed information and turning to a more trustful choice (Beatty & Smith 1987; Locander & Herman 1979). Thus, the decrease of consumer perceived risk can evoke consumers' brand awareness since the brand is credible and their information costs have been considerably reduced (Erdem & Swait 1998; Hoyer & Brown 1990). Green perceived risk captures the extent to which consumers' expectation of negative environmental consequences is associated with their purchase behaviour (Chen & Chang 2012). In other words, the higher the level of green perceived risk, the more difficult it would be for successful communication to take place between the customer and the green brand.

Customer perceived risk is another important aspect for consumers to use to evaluate a firm's ethical practice according to the teleological perspective. Perceived risk associated with green

brands can negatively influence customers' trust of their green claims, and this in turn can hinder their green purchase intentions when they lack sufficient relevant information (Chen & Chang 2013; Polonsky et al. 2010). The provision of ambiguous information should increase consumers' scepticism toward a firm/brand's ethical commitment, which can in turn lead them to distrust green products or services. Additionally, prior research has revealed that perceived risk is negatively associated with customer value (Beneke et al. 2013; Snoj, Pisnik Korda & Mumel 2004). Hence, consumers' perceptions of green risk would negatively influence their trust on a firm/brand's environmental performance. In this respect, there is a chance that green perceived risk is negatively related to functional value and GPV. In simple terms, customers tend to perceive a green brand as being able to satisfy their conventional and green needs through increasing green trust and positive emotions and therefore the following hypotheses have been proposed:

H₄. Green perceived risk is negatively associated with (a) functional value and (b) GPV.

3.6.2 Green transparency and CV

Theories associated with duties and justice are the two main ethical theories that have been widely applied in deontological evaluation and they are particularly important when guiding individuals' ethical judgment (Crane & Matten 2010, p.111). Green transparency reflects a firm's ethical practice, referring to the extent by which green brands clearly provide relevant information on their environmental policies as well as on how their production process impact the environment (Eggert & Helm 2003; Vaccaro & Madsen 2009). Detailed information is required for customer green decision-making process due to the higher price of green brands. This decision-making primarily depends on the extent of treatment that a customer receives from the company (Elçi, Ki' tapçi & Ertürk 2007). Hence, the presence of green transparency reflects a firm's efforts in being honest, keeping promises and being truthful in the relationship with its consumers. This would help the customers to transfer their received information into trustful perceptions on the brand's quality (Elçi, Ki' tapçi & Ertürk 2007).

Additionally, He and Lai (2014) address the importance of ethically responsible corporate behaviour on brand management. These researchers suggest that ethical behaviour positively influences customers' perception of a brand's image. They argue that reputable brands

commonly regarded as ethical players have strong incentives to maintain their reputation. Similarly, associations linked to environmental commitments and environmental concerns would be enhanced since a brand's commitment to reduce environment impact is part of ethical consumption (De Pelsmacker, Driesen & Rayp 2005; Doane 2001; Low & Davenport 2007). These associations are formed in the memories of consumers, and are used as green brand nodes which generate positive green brand attitudes (Huang, Yang & Wang 2014). Hence, this study argues that the provision of green transparency, a type of corporate ethically responsible behaviour can increase functional value.

Furthermore, consumer perceived green transparency contributes in providing clear understanding of firms' green initiatives (Reynolds & Yuthas 2008; Tapscott & Ticoll 2003; Teas 1993). This deeper understanding of firms' green initiatives can influence consumers' willingness to engage in pro-environmental behaviour (Vaccaro & Echeverri, 2010). Based on the attribution theory, consumers tend to attribute a firm's behaviour to intrinsic motivations when they perceive that the firm's behaviour is moral, ethical and environmental, which enhances their evaluations of a firm and its brands (Ellen, Webb & Mohr 2006; Parguel, Benoît-Moreau & Larceneux 2011; Vlachos et al. 2009). Hence, since the brand intends to provide consumers with clear information and communication, such perceived green transparency would lead them to ascribe a firm's actions to intrinsic motivations so that their green expectations are met and their green value perceptions are enhanced. Thus, this study argues that an increase of green transparency would enhance functional value and GPV and proposes the following hypotheses:

H₅. Green transparency is positively associated with (a) functional value and (b) GPV.

3.6.3 CV and green brand attachment and loyalty

Much has been written about the critical influence that CV has had on important relational outcomes such as brand trust, brand satisfaction, and brand loyalty (e.g., Sirohi, McLaughlin & Wittink 1998; Smith & Colgate 2007; Wang et al. 2004). Recently, the CV concept has been discussed in the green consumption context (Ng et al. 2014; Papista & Krystallis 2013). These authors argue that CV has a significant influence on generating brand loyalty and green brand equity. Additionally, some researchers have argued that CV directly influences loyalty and positive word-of-mouth communication (e.g., Chen 2013; Valenzuela Mulki & Jaramillo

2010; Zeithaml 1988). In this respect, green brand loyalty reflecting customers' repurchase intentions influenced by a strong environmental attitude and sustainable commitment towards a brand will be enhanced if customers' expectations for functional value and GPV are satisfied (Chen 2013, p.297). That is, consumers are expected to be loyal to green brands once their expectations for value created through conventional and green aspects are satisfied. Hence, it is reasonable to expect that both functional value and GPV can foster customer brand loyalty to green brands.

Furthermore, brand attachment has found to perform better as compared to brand attitude in increasing brand equity (Park et al. 2010). This has been investigated from two important dimensions: self-brand connection and brand prominence. Although attachment has been introduced in the green consumption context (Jang, Kim & Lee 2015), it is conceptualised only from an emotional aspect. Green brand attachment reflects the strength of the bond connecting the self with the brand in relation to its green commitment and environmental concerns. Thus, green brand attachment plays an important role in enhancing green brand equity (Park et al. 2010). To increase green brand attachment, it is imperative to strengthen self-brand connection and enhance brand prominence. Prior research has provided evidence that customer perceived value can evoke brand attachment, which means that customers are likely to be attached with a brand if this brand can deliver superior value to satisfy their relevant expectations (Kotler & Keller 2006). Similarly, functional value and GPV are assumed to have positive influence on green brand attachment through enhancing self-brand connection and brand prominence. When green brands claim to be environmentally friendly and moral in their activities, they provide an opportunity for consumers to reflect on their green identity and assist them in expressing the significant aspects of the self when they purchase and use the green products (Fournier, 1998). For example, consumers would associate themselves with a green brand if such a brand successfully delivers values which fulfil their goals.

Relationship marketing theory (Arnett & Badrinarayanan 2005) suggests that customers are likely to develop an ongoing relationship with a brand through favourable relational behaviour when their expectations are met (Dwivedi 2014). Customers are more likely to identify with green brands that help them to fulfil their environmental and social goals. Likewise, satisfactory functional value also helps to connect the green brand and the self and aspects, such as quality are therefore important in green brand positioning (Chen & Chang 2012; Ng et al. 2014). For example, if a green brand fails to provide a satisfactory functional

performance, customers might think that the brand would damage their image and therefore, the enhancement of customer perceived functional value is able to strengthen the connection between the brand and the self. In simple terms, stronger customer identification with a brand can be achieved once personal relevance is enhanced (Einwiller et al. 2006).

Additionally, green attributes have been widely provided to differentiate a green brand from its conventional alternatives (Christensen 1995; Menon et al. 1999). However, because customers are increasingly sceptical about green brands, they are sometimes uncertain about product quality and find it difficult to make green decisions (Chang & Chen 2013). The provision of superior functional value and GPV reflects better utility, outstanding green image and reputation. This can create strong brand awareness associated with a brand's environmental personality which in turn increases the ease and frequency of the environmental personality of the green brand in customers' minds. In other words, the outstanding environmental personality of the green brand would feature automatically and easily in customers' minds when they make green decisions if they perceive high levels of customer value associated with this green brand. Thus, the enhanced functional value and GPV are expected to increase consumers' connection with a particular brand and their perceived ease of this brand.

Based on above discussion about the relationship between customer perceived value and green brand attachment and loyalty, this study proposes that both functional value and GPV positively influence self-brand connection, brand prominence and green brand loyalty. Hence the following have been hypothesised:

H₆. Functional value is positively associated with (a) self-brand connection, (b) brand prominence and (c) green brand loyalty.

H₇. GPV is positively associated with (a) self-brand connection, (b) brand prominence and (c) green brand loyalty.

3.6.4 CV as a mediator

In the green brand context, although some research has demonstrated that both functional and emotional benefits directly contribute in enhancing consumers' green purchase intentions (Hartmann & Apaolaza-Ibañez 2012), they have not succeeded in addressing the attitude-behaviour gap associated with green consumption. Consumers still do not make commitment

in their green brand consumption, despite the large number of ethical activities that have been performed by firms. Consequently, some scholars have focused on tools that are used to by firms/brands to communicate with consumers and enhance their market value (Schadewitz & Niskala 2010). Hence, CV may play a mediating role in the relationships between green benefits and brand loyalty (e.g., Dodds et al. 1991; Grewal et al. 2003; Sweeney, Soutar & Johnson 1999; Zeithaml 1988).

Additionally, green perceived risk might also indirectly influence green brand loyalty as it negatively influences green brand image (Lin, Lobo & Leckie 2017) and green trust (Chen & Chang 2013). In other words, consumers are not likely to perceive a green brand as being capable of satisfying their needs for green consumption owing to its distrustful image. In contrast, consumers tend to positively evaluate a brand if that brand discloses relevant green information. That information has become an important criterion for customers to attribute a firm's behaviour to intrinsic motivations to be moral, ethical and environmental (Ellen, Webb & Mohr 2006; Parguel, Benoît-Moreau & Larceneux 2011; Vlachos et al. 2009).

As suggested by the signalling theory, signals are regarded as direct communication methods utilised by the sender. They are used to exchange information and assist the receiver in interpreting the signals. Within marketing, the important role of signals in facilitating communication between consumers and companies has been confirmed, especially in the context of asymmetric information (Spence 2002; Stigler 1961; Stiglitz 2002). These signals can reflect the quality or value of products and services which serve as easy-to-acquire information cues for consumers (e.g., Kirmani 1997; Kirmani & Rao 2000; Nelson 1970). Similarly, firms should pay more attention to the critical role of information in the green marketing context owing to consumers' increasing greenwash perception (Chen & Chang 2013; Erdem & Swait 1998). In other words, consumers expect clearer information about the products and services in making their green decisions. Signals that can reflect firms' capability of satisfying consumers' expectations for quality or value would enhance brand equity.

Hence, according to the signalling theory and the foregoing discussions, this study argues that utilitarian environmental, warm glow, self-expressive benefits, green perceived risk and perceived green transparency influence brand loyalty indirectly through customer perceived value associated with green brands. This is because the ability of the firm to develop brand loyalty hinges on its ability to effectively communicate its green benefits (both utilitarian and emotional), reduce green risk and disclose green information, and thus induce consumers'

systematic evaluations of a green brand. Once consumers are convinced of a brand's value, then they are more likely to become loyal to that brand.

Similarly, brand attachment reflecting the interactive relationship between the consumer and the brand over time is regarded as a kind of longer-lasting bond connecting the customer and the brand. This brand attachment has been found to positively influence customers' purchase behaviour (Esch et al. 2006; Park et al. 2010; Schmalz & Orth 2012). Notably, satisfaction and trust significantly determine the formation of brand attachment (Esch et al. 2006). This implies that if a brand satisfies customers' expectation and creates a trustworthy image, it would strengthen the attachment. Although prior research has mentioned that green practices positively affect customers' emotional attachment in the restaurant context (Jang, Kim & Lee 2015), the relationship between them would be strengthened by developing positive green brand image (Hu et al. 2010; Namkung & Jang 2013). Specifically, consumers are more likely to identify a brand that is able to express their self-image or value and in turn form brand attachment due to the congruence between the brand and the self. This is consistent with the findings of Park et al. (2007). These authors suggest that customers seem to develop attachments to firms that have capability of fulfilling their needs to express their identity. Therefore, stronger attachments could be generated if customers experience satisfaction of their green needs, such as expectation for conventional attributes and specific green value to express their values and self-image (Bhattacharya, Korschun & Sen 2009; Vlachos 2012). Thus, this study expects that that utilitarian environmental, warm glow, self-expressive benefits, green perceived risk and perceived green transparency influence brand attachment indirectly through customer perceived value associated with green brands.

With consumers' increasing scepticism towards green brands, they are inclined to form strong greenwash perceptions, which in turn mitigate their green trust (Chen & Chang 2013). Hence, it is essential to improve the effectiveness of green branding by developing informative signals to highlight functional value and green value of green brands and thereby enhancing green brand attachment and loyalty. Overall, customer perceived value comprising of functional value and GPV is believed to have a mediating effect in addressing the effectiveness of green branding. Thus, the following hypotheses are proposed:

H₈. Utilitarian environmental, self-expressive, warm glow benefits, green perceived risk and green transparency indirectly influence self-brand connection, brand prominence and brand loyalty through functional value and GPV.

3.6.5 Green branding of physical products and services

There are similarities in the way that different brands are perceived by customers. However, differences between these types of brands can also be expected, as brands associated with services generally comprise of intangible elements (Wakefield & Blodgett 1999). In the context of physical goods, Hartmann et al. (2005) suggest that functional benefits (utilitarian environmental benefits) together with psychological benefits (warm glow, self-expressive benefits and nature experience) have significant influence on brand attitude and green purchase intention. However, the effects of warm glow and self-expressive benefits on brand attitude are absent in the context of service brands.

Additionally, previous studies suggest that consumers require more information for their decision making in the context of services as compared to physical products due to the obvious characteristic of services, i.e., intangibility (Murray & Schlacter 1990). This means that consumers would perceive greater risk for services than for tangible goods in their decision making process. Hence, consumers might perceive higher risk in the green services context and in turn decrease CV as compared to the context of physical goods (Chen & Chang 2013; Choi & La 2013). However, they might refer largely to utilitarian environmental benefits when they purchase green brands of physical goods as they can easily connect these benefits to physical products as compared to services (Sheth, Newman & Gross 1991).

More importantly, apart from service quality, the characteristic of heterogeneity enables services to influence consumers' perceptions toward a brand by a firm's behaviour (Lovelock, 2001; Zeithaml, Parasuraman, & Berry 1985). In this respect, green transparency would have a stronger effect on consumers' evaluation of a firm's performance in the brands of services as compared to the brands of physical goods. Thus, this study argues that the formation of customer value perception would be different across brands of physical goods and services, which in turn differentiate their influence on the development of green brand attachment and loyalty. Hence the following hypotheses are developed:

H₉. The formation of customer value perception and their influence on green brand attachment and loyalty are different across brands of physical goods and services.

3.6.6 Summary of research hypotheses

A conceptual model which investigates antecedents and relational outcomes of customer perceived value associated with green brands and a battery of nine hypotheses has been displayed in Figure 3.3. In particular, hypotheses H₁-H₅ address important factors influencing customer perceived value and this forms the brand communicating stage. Hypotheses H₆ and H₇ address the relationship between customers' perceived value and green brand attachment and loyalty. Hypothesis H₈ examines the indirect relationship between green benefits, risk, green transparency and green brand attachment and loyalty through customer perceived value. Finally, hypothesis H₉ examines the difference in the proposed structural relationships across brands of physical goods and services. A summary of all the research hypotheses is presented in Table 3.1.

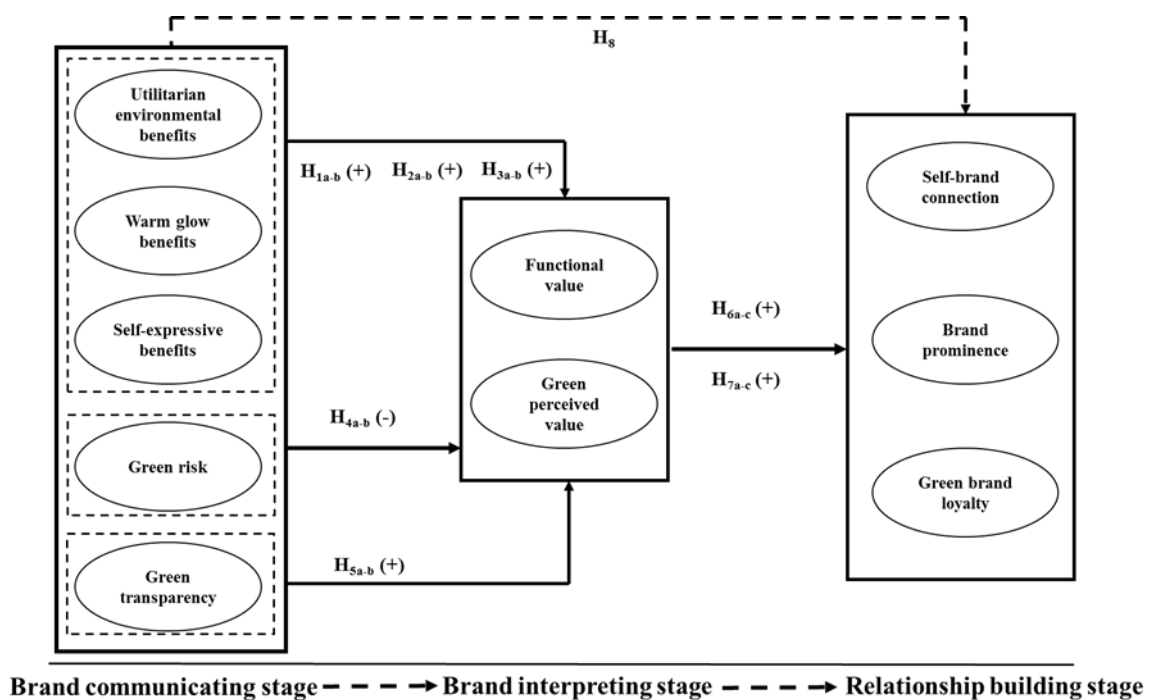


Figure 3.3 Proposed conceptual model and Hypotheses

Source: developed for this research

Table 3:1 Summary of all research hypotheses

No.	Hypotheses
H _{1a}	Utilitarian environmental benefit is positively associated with functional value
H _{1b}	Utilitarian environmental benefit is positively associated with GPV
H _{2a}	Warm glow benefit is positively associated with functional value
H _{2b}	Warm glow benefit is positively associated with GPV
H _{3a}	Self-expressive benefit is positively associated with functional value
H _{3b}	Self-expressive benefit is positively associated with GPV
H _{4a}	Green perceived risk is negatively associated with functional value
H _{4b}	Green perceived risk is negatively associated with GPV
H _{5a}	Green transparency is positively associated with functional value
H _{5b}	Green transparency is positively associated with GPV
H _{6a}	Functional value is positively associated with self-brand connection
H _{6b}	Functional value is positively associated with brand prominence
H _{6c}	Functional value is positively associated with green brand loyalty
H _{7a}	GPV is positively associated with self-brand connection
H _{7b}	GPV is positively associated with brand prominence
H _{7c}	GPV is positively associated with green brand loyalty
H ₈	Utilitarian environmental, self-expressive, warm glow benefits, green perceived risk and green transparency indirectly influence self-brand connection, brand prominence and brand loyalty through functional value and GPV
H ₉	The formation of customer value perception and their influence on green brand attachment and loyalty are different across brands of physical goods and services

3.7 Chapter summary

This chapter describes the development of the proposed conceptual model to understand factors which stimulate or hinder customer perceived value and their influence on the relationship development between customers and green brands. The proposed conceptual model was developed based on the ethical decision-making model together with signalling theory and relationship marketing theory. This model comprises of three stages to examine customers' green brand adoption behaviour and their relationship development with green brands. These stages are brand communicating stage (utilitarian environmental, warm glow

and self-expressive benefits, green perceived risk and green transparency), brand value assessment stage (functional value and green perceived value) and brand relationship stage (self-brand connection, brand prominence and green brand loyalty). Associated with the proposed conceptual model, a number of elaborate and comprehensive hypotheses have been developed to examine the relationship between the various constructs of the proposed conceptual model. A summary of all research hypotheses has been provided in Table 3.1. The methodology adopted in this study will be addressed in the following chapter.

Chapter 4 Research Methodology

4.1 Chapter overview

This chapter introduces and explains the methods adopted for data collection and data analysis relating to the research questions. The roadmap of this chapter is diagrammatically illustrated in Figure 4.1. The chapter begins with a consideration of positivism research paradigm and deductive research approach to guide the overall research design (Section 4.2). This is followed by the discussion of research context and unit of analysis (4.3). Section 4.4 explains the research design, which includes methods of data collection, development of survey instrument, examination of validity and reliability of survey instrument and design of online questionnaire. Section 4.5 provides ethical consideration relating to this research. Section 4.6 addresses a detailed data collection plan by identifying the target population and sampling frame and providing a detailed process of survey administration. Finally, data analysis methods and potential social desirability bias are introduced and discussed in sections 4.7 and 4.8.

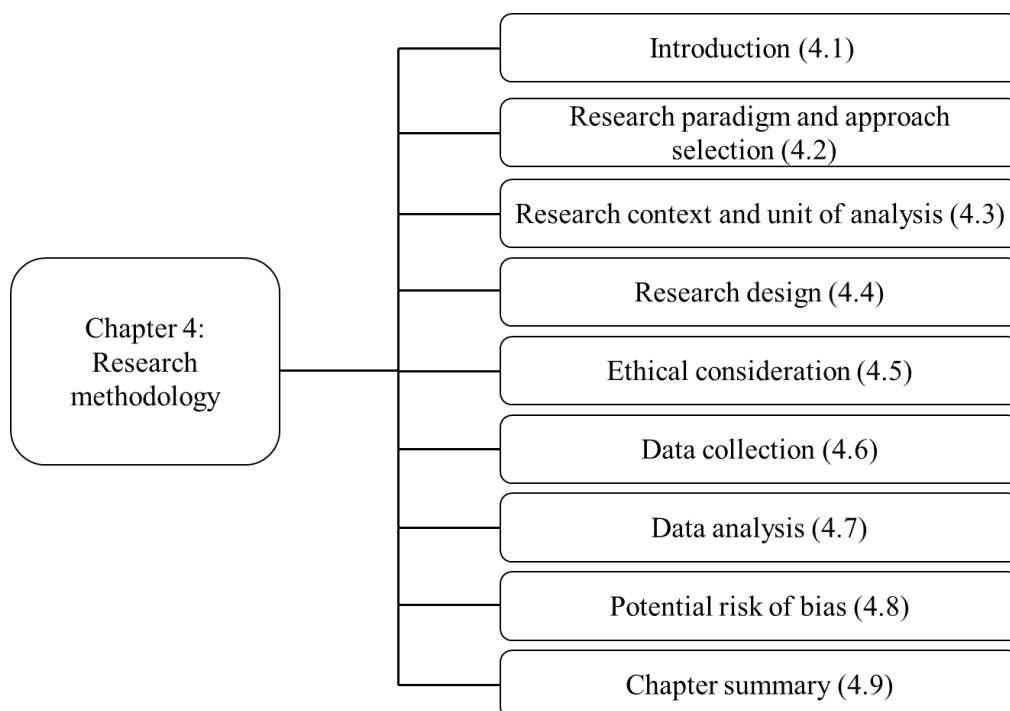


Figure 4:1 Roadmap of Chapter Four

Source: Developed for this research (adapted from Perry (1995))

4.2 Research paradigm and approach selection

The term “research philosophy” refers to the development of knowledge and the nature of that knowledge. The research philosophy that a researcher adopts reflects the way in which they view the world and this would guide them in choosing an appropriate research strategy and method (Crotty 1998; Johnson & Clark 2006). There are three approaches to research philosophy: ontological, epistemological, and methodological (Saunders, Lewis & Thornhill 2009). Ontology reflects the nature of reality. Epistemology shows how individuals are aware of what is known. Most importantly, methodology is a reflection of the nature in which the research emerges (Creswell 2013). From the perspective of research philosophy, choosing a research paradigm is an important step in undertaking research.

The term “paradigm” has been defined as “a model or framework for observation and understanding, which shapes both what we see and how we understand it” (Babbie 2004, p. 33). In simple terms, a research paradigm is a philosophical framework that provides guidelines for conducting scientific research (Creswell 2013). To fully understand how research should be conducted, several paradigms have been discussed within the marketing literature. For example, Healy and Perry (2000) present four paradigms in social sciences. These are positivism, critical theory, constructivism and realism. Neuman (2006) identifies three paradigms: positivism, interpretivism, and critical theory. Collis and Hussey (2013) focus on positivism and interpretivism. Different paradigms require different research techniques to meet the research objectives and their characteristics are presented in Table 4.1 (Saunders, Lewis & Thornhill 2009).

Table 4:1 Research Paradigm

Research Paradigm	Approach
Positivism	Focuses on seeking causal laws, careful empirical observations and often is described as a quantitative research.
Interpretivism	Usually described as a qualitative research which provides a more in-depth understanding of the topic of interest.
Constructivism	It suggests realities are socially based which will be influenced by a particular belief system and vary in different contexts
Critical Theory	It focuses on social action, socially constructed meaning and value relativism

Source: Neuman (2006), Healy and Perry (2000) and Voola (2005)

Based on the relevant characteristics of the four research paradigms, both critical theory and constructivism are inappropriate to guide a research conducted in marketing (Perry et al., 1999). There are several reasons for this. Firstly, critical theory is not suitable for business/marketing studies when asking respondents about the information regarding “historical, mental, emotional and social structures” (Guba & Lincoln 1994, p.112). Secondly, constructivism fails to consider the real economic and technological dimensions of business (Voola 2005). However, paradigms of positivism and interpretivism have been widely discussed in marketing research in relation to quantitative and qualitative methods of analysis (Collis & Hussey 2013). This study addresses the differences between these two paradigms and selects the appropriate paradigm according to this study’s research questions. What follows is a detailed overview of both interpretivism and positivism.

Interpretivism is usually described as qualitative research, which allows for a more intensive and flexible relationship with respondents and provides a more in-depth understanding of the phenomenon of interest (Collis & Hussey 2013). In contrast, positivism, one of the most widely applied paradigms in marketing research, is widely used in nature science (Collis & Hussey 2013; Saunders, Lewis & Thornhill 2009). Positivism has also been adopted in social research, where the researcher is independent of the data and maintains an objective stance (Saunders, Lewis & Thornhill 2009, p.119). Specifically, Saunders, Lewis and Thornhill (2009) explain that by selecting the positivism paradigm, researchers tend to develop hypotheses through scrutinising existing theories and a research strategy for data collection is subsequently generated.

Later on, a further examination for the development of existing theory is conducted through testing and confirming the proposed hypotheses. Based on this perspective, exact measurement (i.e., exact quantitative data analysis) and objective stance are required to answer the research questions. Particularly, when testing and confirming the hypotheses, a quantitative method needs to be used with a certain size of responses (Cavana, Delahaye & Sekaran 2001). This method usually involves testing hypotheses through the use of questionnaires, statistical analysis and experiment (Neuman 2006).

This study aims to investigate how green brand communication affects the development of customer-green brand relationship through the lens of customer value of the green brand (functional value and GPV)). The existing theories have shown that attitude might not be a good indicator of green purchase behaviour because of the “attitude-behaviour” gap. Thus, a conceptual model relating to the inter-relationships between green brand communication,

customer value of green brand and brand relationship was developed. This model requires direct and specific information to verify the proposed hypotheses. As such, the positivism paradigm would address the research objectives and was therefore adopted as the preferred research design.

The positivism paradigm focuses more on theory testing than it does on theory building (Saunders, Lewis & Thornhill 2009). Positivists usually conceptualise research from a quantitative methodological standpoint. They apply a wide range of methods, but generally use large samples to test hypotheses that are formulated with constructs that are operationalised to be measurable (Collis & Hussey 2013). After confirming the research paradigm used in this thesis, the next step is to address the research approaches. Before starting the overall research design, it is necessary to determine which approach should be used in one’s research. There are two main types of approaches. These are the deductive approach, which aims at testing theory by developing hypothesis and designing a research strategy; and the inductive approach, which attempts to develop theory through the use of data analysis (Saunders, Lewis & Thornhill 2009). Table 4.2 summarises the differences between deductive and inductive research approaches.

Table 4:2 Key differences between deductive and inductive approaches

Deductive approach	Inductive approach
<ul style="list-style-type: none"> • Attempting to test theory • Using data to test the theory • Explaining causal relationships between variables • Collecting quantitative data • The need to operationalise concepts • A highly structured approach • Researchers are independent during the research process • The need to generalise conclusions by ensuring sufficient sample size. 	<ul style="list-style-type: none"> • Attempting to build theory • Investigating relevant events to gain a further understanding • Understanding the research context closely • Collecting qualitative data • A more flexible structured approach • Researchers are part of the research process • Generalisation is not the main concern

Source: Saunders, Lewis and Thornhill (2009)

The deductive approach is adopted by researchers who intend to test the theory developed from previous literature. This approach conducts data collection to evaluate hypotheses related to existing theories. The inductive approach, in contrast, tends to build theory by

collecting data to explore a phenomenon. As discussed, positivists apply a wide range of methods, but generally they use large samples to test hypotheses that are formulated with constructs that are operationalised to be measurable (Collis & Hussey 2013). This is consistent with the characteristics of deductive approach. Therefore, given the research objectives of this study and the adoption of the positivism research paradigm, the deductive research approach was selected.

4.3 Research context and unit of analysis

4.3.1 Research context

This section addresses the specific research context. Environmental problems have aroused global attention and countries eager about their economic growth at the expense of sacrificing the environment have recently received great pressure (Liu et al. 2012). Therefore, this study has been conducted in China, which has been regarded as a developing and emerging market for green products. China, being one of the fastest growing economies in the world, has a population of around 1.4 billion (China National Bureau of Statistics 2015). Faced with global environmental pressure, the Chinese government is concerned about its environmental responsibility due to its poor performance on environmental issues (Liu et al. 2012). Hence, a number of enterprises in China tend to transform their businesses 'green' by implementing various green marketing strategies (Guerin 2009; Martinsons et al. 1997).

Additionally, prior research has suggested that consumers' commitment to purchasing environmentally friendly goods or services can help minimise environmental deterioration and serve as a powerful incentive for companies to enhance their environmental performance (Liu et al. 2012). This is consistent with previous arguments that the ability of companies to influence consumers' willingness to be involved in green consumption behaviour effectively determines the development of China's green market (Chan & Lau 2000). Thus, with the increase in consumers' environmental awareness, China in the future might become the largest green market in the world (Zhao et al. 2014). However, the implications of this study are not limited to China. This is because the green marketing research requires to be conducted from a universal perspective.

4.3.2 Unit of analysis

The unit of analysis is referred to as “the level of aggregation of the data collected during the subsequent data analysis stage” (Cavana, Delahaye & Sekaran 2001, p.119), and it is mainly determined by the research objectives. In recent times, urban residents in China have become increasingly aware of environmental issues and they are willing to increase their green consumption (Liao & Li 2010). Furthermore, one of the popular green products (i.e., organic food) has witnessed a considerable increase in eastern China (Willer & Yussefi 2010). Chen and Lobo (2012) suggest that urban Chinese cities such as Beijing, Shanghai, Shenzhen, and Chengdu are ideal areas to target green consumers. It is reasonable to target major cities in China as residents of these cities can access more green products. Also, these residents tend to have higher income and receive higher education as compared to those in rural areas (Chan 2001; Eves & Cheng 2007; Liu et al. 2014; Tang, Wang & Lu 2014).

Data were collected in four geographically dispersed cities in China (Beijing, Guangzhou, Chongqing and Hangzhou). The justification for choosing these four cities is addressed in Section 4.6. It was essential for the survey respondents to have certain knowledge of green brands. Previous studies have used a screening question to define the specific unit in organic food research to clarify “buyers” and “non-buyers” (Chen & Lobo 2012). Hence, in this study, a screening question—“have you ever purchased green brands” was asked of the respondents before they started to answer the survey. This process ensured that the data were collected only from the targeted participants. In other words, only those who had purchase experience of green brands and had a basic understanding about green brands were selected.

4.4 Research design

The research philosophy and approach determine the way in which a researcher chooses to answer their research questions. The research design is presented as a general plan of how researchers behave when answering the research question(s) (Saunders, Lewis & Thornhill 2009). Research design is generally defined as a framework of study that guides researchers to collect and analyse data (Churchill & Iacobucci 2006). A clear research design can contribute to simple and economical research procedures (Churchill & Iacobucci 2006). Therefore, the next section discusses the nature of research design, methods of data collection,

validity and reliability testing of survey instrument, the development of survey instrument, pre-test and the design of online survey instrument.

4.4.1 The nature of research design

There are three important research approaches determined by the way in which researchers ask their research questions: exploratory, descriptive and explanatory (Saunders, Lewis & Thornhill 2009). These approaches can influence the manner in which data will be collected (Kumar, Aaker & Day 2002). Specifically, exploratory research assists researchers in clarifying their understanding of a problem. This form of research is more concerned with research problems aimed at clearly defining research problems, identifying alternatives, developing hypotheses, achieving solutions for the problem, and establishing priorities for future research (Malhotra, Birks & Wills 2013). Exploratory research can be applied when there is insufficient information for researchers to conduct a research project and it usually involves an unstructured research approach (Boyce 2003). There are three principal ways in which guidance can be provided to researchers to conduct exploratory research: a search of the literature, interviewing ‘experts’ on a given subject, and conducting focus group interviews (Saunders, Lewis & Thornhill 2009).

Descriptive research aims to describe phenomena which requires prior knowledge of special hypotheses (Malhotra et al. 2004). In other words, it usually involves structured research approach and must already have “a clear statement of the problem, specific hypotheses and detailed information” (Malhotra et al. 2004 p.66).

Another important research approach, explanatory research (causal research) aims to examine the reasons behind a phenomenon and it is usually applied to explaining the relationships between variables. Thus, it usually involves a highly structured research approach and concerns more with cause and effect relationships. Also, explanatory research is more likely to help researchers understand the nature of the problem (Malhotra et al. 2004). Given the research questions developed in the current study, the differences between exploratory and explanatory research are summarised in Table 4.3.

Table 4:3 The differences between exploratory and explanatory research

Research approach	Understanding of the research problem	Usual research approach	The nature of data	Sources of findings
Exploratory research	Partially defined	Structured	Qualitative data	Focus groups or in-depth interviews
Explanatory research	Clearly defined	Highly structured	Quantitative data	Survey or census

Source: Boyce (2003) and Malhotra et al. (2004)

As discussed earlier, the research question determines the selection of a research approach (Voola 2005). An exploratory research approach can be selected in a situation when little is known and the business phenomena require a clearly clarification. As to the adoption of descriptive research, a clear statement of research questions is required to describe some phenomena. Finally, explanatory research approach is suitable for conducting a research attempting to test causality between constructs. The current study aims at investigating the relationships between the constructs (green benefits, green risk, green transparency, functional value, GPV, self-brand connection, brand prominence and green brand loyalty) and thereby has adopted an explanatory approach as the most appropriate design.

4.4.2 Methods of data collection

There are two types of data collected for statistical analysis: primary and secondary data (Saunders, Lewis & Thornhill 2009). Primary data is original data that are collected first-hand by researchers through various methods, such as experiments, surveys and interviews. Conversely, secondary data is data that is collected by someone else and is readily available, for example, through publications, journals and newspapers (Saunders, Lewis & Thornhill 2009). Collecting primary data can assist researchers in investigating the specific problems under controlled conditions. While secondary data is readily available, it is difficult for researchers to decide what is collected. Also, the quality of secondary data is not guaranteed (Saunders, Lewis & Thornhill 2009).

In the context of this study, the conceptual model relating to the inter-relationships between green brand communication, green value assessment and brand relationship necessitated

obtaining primary data, as it required specific direct information for the verification of the proposed hypotheses. Hence, to collect primary data, the survey strategy was adopted in this study as it has been widely used to verify the conceptual model aimed at examining consumers' green purchase behaviour (e.g., Chan 2001; Tang, Wang & Lu 2014; Wang, Liu & Qi 2014).

Justification for survey strategy

There are a variety of methods to collect primary data, including surveys, experiments and interviews (Neuman 2006). Among these, surveys are the most popular (Kumar, Aaker & Day 2002). Survey methods are commonly regarded as quantitative methods, which involve large sample sizes and numerous answers are obtained using questionnaires (Malhotra et al. 2004). Additionally, this method is an effective and economic way for generalising findings through representative samples to obtain information about an entire population. By using the survey strategy, explanations for the relationships between variables in the conceptual model can be investigated (Saunders, Lewis & Thornhill 2009). This study aims to investigate factors influencing consumer green brand value assessment and their influence on consumer-green brand relationship building in the proposed model. This model required quantitative data to test the related hypotheses. Hence, the survey strategy was adopted as the preferred option. Based on the data collected through the survey, empirical analysis can be undertaken, variables can be measured, and the proposed hypotheses can be tested.

Generally, there are two types of questionnaires used to collect data: self-administered questionnaires and interviewer-completed questionnaires (Saunders, Lewis & Thornhill 2009). Self-administered questionnaires are usually completed by the respondents which include the internet-mediated (web-based) and intranet-mediated questionnaires, postal questionnaires, delivery and collection questionnaires. The internet-mediated (web-based) and intranet-mediated questionnaires are survey instruments that are sent electronically to the respondents using the internet or intranet. Due to its low cost and high speed of data collection, this method is increasingly being adopted by researchers. Postal or mail questionnaires require respondents to return by post after completion. Such questionnaires usually result in low response rates and are time consuming. It is difficult to control whether or not the respondents will return or complete the questionnaires. Delivery and collection questionnaires entail questionnaires being delivered to each respondent by hand and being collected at a later stage. This method depends largely on the number of field workers and

their knowledge of the research. Additionally, it is inappropriate to adopt this method if respondents are dispersed over a wide geographical area. Interviewer-completed questionnaires are recorded by the interviewer based on each respondent's answers (Saunders, Lewis & Thornhill 2009, p.363). Such questionnaires include telephone and structured interviews. Telephone interviews require more patience and this method is not suitable for longer questions. Conducting face-to-face interviews usually result in a relatively small sample and the cost is relatively high. The selection of the survey type should comply with research objectives. Table 4.4 presents the advantages and disadvantages of three methods of self-administered questionnaires. A self-administered survey by questionnaires facilitates the gathering of large samples. It is also a simple method for both researchers and respondents, as it only requires respondents to read the questionnaires and provide their answers without needing any assistance from a trained interviewer (Hair et al. 2010). Considering that the primary objective of this study was to investigate the relationships of the constructs being researched among four geographically dispersed cities, self-administered questionnaires using internet-mediated method were determined to be an appropriate survey type.

Table 4:4 Advantages and disadvantages of self-administered questionnaires

Self-administered	Advantages	Disadvantages
Postal (mail) questionnaire	<ul style="list-style-type: none"> • Ease of administering. • Ensure visual quality of the survey instrument. • Provides anonymity. • Not particularly costly. 	<ul style="list-style-type: none"> • Careful questionnaire is needed. • Open questions usually are not useful • Control is difficult in relation to all questions being answered, meeting questions' objectives and the quality of the answers.
Delivery and collection questionnaires	<ul style="list-style-type: none"> • Flexibility of data collection. • High response rate. • Sample control and control data are high. 	<ul style="list-style-type: none"> • Perceived anonymity of the respondent is low. • Expensive in time and cost. • Potential for interviewed bias is high. • Difficult to obtain wide access. • Large sample size is difficult.
Internet (Web-based) and intranet-mediated questionnaires	<ul style="list-style-type: none"> • Facilitates diversity of questions. • Can be geographically dispersed. • The speed of the data 	<ul style="list-style-type: none"> • Low response rate. • Control on sample is low. • Control of data collection environment is low. • Sample bias due to the lack of access.

Self-administered	Advantages	Disadvantages
	collection is high. • The cost is low. • Facilitates questions requiring sensitive information.	• Difficult to assure anonymity and confidentiality.

Source: Malhotra, Birks & Wills (2004, p.142) and Saunders, Lewis & Thornhill (2009, p.421).

Adoption of online survey strategy

The online survey (internet-mediated questionnaire) is becoming more popular in green marketing research because it has various advantages. These advantages include low administration costs, speed and timeliness, ease of reaching large samples and high response rates. Most importantly, this method enables participants to provide reliable responses to sensitive questions by answering these questions anonymously online (e.g., Han, Hsu & Lee 2009; Han & Kim 2010; Han et al. 2011; Yeon Kim & Chung 2011). Respondents can complete the survey in their own time, with no involvement from a third party such as an interviewer. This reduces the likelihood of obtaining socially desirable answers (Gruber et al. 2008). Moreover, online surveys can assist researchers in reducing missing data by forcing participants to complete a question before they move to the next one, which finally would result in a much higher completion rate when compared to traditional survey methods. Also, the data collected through online surveys are directly loaded onto the computer, thus saving time and resources (Evans & Mathur 2005; Ilieva, Baron & Healey 2002).

China's economy has been ranked second in the world and the number of online users in China has increased from 3.4 billion in 2009 to 7.3 billion in 2016 (China Internet Network Information Centre, 2016). Therefore, internet access in China is relative high. However, a potential concern with online surveys is the representativeness of the general population, although several scholars have suggested that online surveys are reliable (Malhotra 2008). Previous research has demonstrated that the online population is younger and better educated than the general Chinese population (Gurney et al. 2004). This internet usage pattern has been changing and it now tends to cover all demographic segments. For example, according to China Internet Network Information (2016), more than half of the Chinese residents who are 50 years of age or above are actively involved in social networks. Additionally, the users of internet now include those who have received lower education in China. Hence, the concern on the generalisation of online survey population would become less of an issue because

internet has increasingly become popular in China. Consequently, significant segments of the population would also be covered by the online survey (Evans & Mathur 2005; Fielding, Lee & Blank 2008).

In order to reduce the potential disadvantages of online survey (i.e., sample selection and respondents lack of online experience), an experienced online market research company was recruited to administer the online survey instrument by using their consumer panels (Evans & Mathur 2005). This technique has been well applied in green marketing research (Han, Hsu & Sheu 2010; Yeon Kim & Chung 2011). The detailed process would be addressed in the section relating to survey administration.

4.4.3 Development of survey instrument

Previous validated scales were adopted to measure the constructs used in this study. These scales were selected in the context of consumers' green brand adoption behaviour and the relationship development between consumers and green brands. In order to understand respondents' opinions about a particular issue and the extent to which they hold that opinion, a scale can be used in developing a questionnaire (Boyce 2003). The Likert-type scales have been commonly used in social research because of their better levels of measurement (Babbie 2004). Such scales enable respondents to reflect their attitudes or perceptions toward the object of interest by showing the extent to which they agree or disagree. The range used in a Likert scale varies and there is no an agreement for the optimal number of these categories. However, some researchers have suggested that the larger the number of categories, the greater the range of the scale. They have also suggested that the categories between five and nine are ideal for adoption (Hair et al. 2010; Malhotra et al. 2004). Thus, this study adopts a seven point Likert scale.

A Likert-type scale anchored at 1 for strongly disagree and 7 for strongly agree was used to rate respondents' perceptions for each item. The full survey instrument is depicted in *Appendix 1A*, which includes measurement scales for green brand communication (utilitarian environmental benefits, warm glow benefits, self-expressive benefits, green perceived risk and green transparency), customer value of green brand (functional value and green perceived value) and brand relationship (self-brand connection, brand prominence and green brand loyalty). The survey instrument also contained questions relating to the demographics of the participants (e.g., age, gender, and education). The following sections provide a

description of the survey instrument, discuss the key scales used to measure the constructs, and discuss the process of survey instrument design and pre-test.

Description of the survey instrument

The entire survey instrument depicted in Appendix 1A comprises five sections. These sections are as follows:

Section one: This section investigated consumers' general knowledge about green brands in China. It required respondents to select one green brand with which they were most familiar and have recently purchased. There were seven brands selected from the top 100 green brands in China. These brands have recently been released by the Chinese Brand Journal published by Peking University. Logos and associated green claims of seven green brands were provided to facilitate respondents' understanding of the brand they selected, which in turn assisted them in completing the relevant questions regarding the green brand.

Section two: This section examined green brand communication. Respondents were required to indicate the strength of their perceptions toward benefits, risk and transparency associated with the green brand. Nineteen statements were used to operationalise constructs related to utilitarian environmental, warm glow and self-expressive benefits, green risk and green transparency by using a seven-point Likert scale.

Section three: This section investigated consumers' value perceptions toward the green brand. Nine statements were used to operationalise constructs in relation to functional value and green perceived value.

Section four: This section presented the inter-relationships between consumers and green brands. In particular, it addressed these relationships using three constructs, i.e., self-brand connection, brand prominence, and green brand loyalty. These constructs operationalised by twelve statements using a seven-point Likert scale.

Section five: This section examined the characteristics of green brand consumers by requiring respondents to answer questions relating to their demographic profile. Consumers were asked to provide their age, gender, occupation, education level and income. This section also included questions regarding consumers' daily environmental behaviour and the locations in which they purchased green products to further understand their green consumption behaviour.

Conceptualisation and operationalisation of constructs

Utilitarian environmental benefits

Hartmann and Apaolaza-Ibáñez (2012) used utilitarian environmental benefits to investigate consumers' green brand purchase intention. These researchers have suggested that utilitarian environmental benefits can have a positive influence on brand attitude and purchase intention. Furthermore, Koller et al (2011) found that green product attributes that do not pollute the environment could reflect ecological value. Hence, a scale comprising of four items adapted from Hartmann and Apaolaza-Ibáñez (2012) and Koller et al. (2011) was used to measure consumer perceptions of utilitarian environmental benefits. This scale originated from Johnson and Frank (2006), Salmela and Varho (2006) and Truffer, Markard and Wüstenhagen (2001). Table 4.5 presents the measurement items used to operationalise this construct.

Table 4:5 Source of measurement scale for utilitarian environmental benefits

Original Scale Item	Items used in Present Study	Sources
Brand X respects the environment	This brand respects the environment	Hartmann and Apaolaza-Ibáñez (2012), Koller, Floh, and Zauner (2011)
Brand X helps to prevent global warming	This brand helps to prevent global warming	
Brand X pollutes the environment only marginally	Products of this brand do not pollute the environment	
Overall, Brand X are environmentally friendly	Overall, products of this brand are environmentally friendly	

Warm glow benefits

The term "warm glow" has been defined as "the personal satisfaction arising from an activity independent of its impact" (Clark, Kotchen & Moore 2003, p. 239). Specifically, it is driven by one's satisfaction of affective feeling in relation to his/her altruistic actions. Therefore, warm glow has been widely examined in charitable giving research (e.g., Mayo & Tinsley 2009; Menges, Schroeder & Traub 2005; Strahilevitz & Myers 1998). Recently, warm glow has received certain attention in studies relating to green brands. In particular, Hartmann and

Apaolaza-Ibáñez (2012) investigated the influence of warm glow on consumers' purchase attitude and intention towards green energy brands.

To measure warm glow benefit, three items were adapted from Hartmann and Apaolaza-Ibáñez (2012). This scale was originally developed by Nunes and Schokkaert (2003). These items were intended to capture the 'feel good' aspect of consumers, in that they do not cause harm to the environment, or at best help protect the environment and well-being of humanity and nature. All the measurement items for warm glow are presented in Table 4.6.

Table 4:6 Source of measurement scale for warm glow benefits

Original Scale Item	Items used in Present Study	Sources
Clients of Brand X can feel good because they help to protect the environment.	With this brand, I can feel good because I help to protect the environment	Hartmann and Apaolaza-Ibáñez (2012)
With Brand X, I have the feeling of contributing to the well-being of humanity and nature.	With this brand, I have the feeling of contributing to the well-being of humanity and nature	
Clients of Brand X can feel better because they don't harm the environment.	With this brand, I can feel better because I don't harm the environment	

Self-expressive benefits

This construct has been examined as a key factor in determining brand love (Carroll & Ahuvia 2006). These authors develop two dimensions of self-expressive benefits: enhancement of the inner self and the social self. The analysis results reveal, however, that all items loaded on to one factor. Additionally, past research has revealed that self-expressive benefits impact green consumption behaviour based on signalling and competitive altruism theories. Therefore, a scale comprising four items that were originally developed by Solomon (1983) and Griskevicius et al. (2010) was adopted to measure self-expressive benefits and it has been used to predict consumers' green brand purchase intention and attitudes (Hartmann & Apaolaza-Ibáñez, 2012). Hence, this thesis adopts the scale of self-expressive benefits developed by Hartmann & Apaolaza-Ibáñez (2012) and Table 4.7 presents the measurement items.

Table 4:7 Source of measurement scale for self-expressive benefits

Original Scale Item	Items used in Present Study	Sources
With Brand X, I can express my environmental concern	With this brand, I can express my environmental concern	Hartmann and Apaolaza-Ibáñez (2012)
With Brand X, I can demonstrate to myself that I care about environmental conservation	With this brand, I can demonstrate to myself that I care about environmental conservation	
With Brand X, I can demonstrate to my friends that I care about environmental	With this brand, I can demonstrate to my friends that I care about environmental	

conservation.	conservation	
With Brand X, my friends perceive me to be concerned about the environment.	With this brand, my friends perceive me to be concerned about the environment	

Green perceived risk

Perceived risk influences customers' purchase decision owing to their increasing perceptions of uncertainty and negative consequences (Aaker 1996; Peter & Ryan 1976). In response to the greenwash issue identified in green consumption research, Chen and Chang (2012) proposed a construct called "green perceived risk". This construct has been defined as "the expectation of negative environmental consequences associated with purchase behaviour" (Chen & Chang 2012 p.506). Green perceived risk has been empirically investigated as a barrier towards green purchase likelihood (e.g., Chen & Chang 2013; Gifford & Bernard 2006) and as being a strong determinant of greenwash (Chen & Chang 2013). Hence, Chen and Chang (2012)'s scale was used to measure green perceived risk. There are four items measuring this construct, which are depicted in table 4.8.

Table 4:8 Source of measurement scale for green perceived risk

Original Scale Item	Items used in Present Study	Sources
There is a chance that there will be something wrong with environmental performance of this brand.	There is a chance that there will be something wrong with environmental performance of the product of this brand.	Chen and Chang (2012)
There is a chance that this brand will not work properly with respect to its environmental design.	There is a chance that the product of this brand will not work properly with respect to its environmental design.	
There is a chance that using this brand will negatively affect the environment.	There is a chance that using the product of this brand will negatively affect the environment.	
Using this brand would damage your green reputation or image.	Using this brand would damage my green reputation or image.	

Green transparency

With the increase in consumer scepticism toward green brands, transparency has been integrated into green management research (Vaccaro & Patiño Echeverri 2010). Transparency has been found to have had a positive influence on consumers' willingness to collaborate in environmental programs. In the context of green consumption, green transparency refers to the manner in which green brands clearly provide relevant information on their environmental policies, as well as frank admission on how their production process impacts the environment (Eggert & Helm 2003). Hence, green transparency was

operationalised using four items that were adapted from Vaccaro and Patiño Echeverri (2010). Table 4.9 summarises the measurement items for green transparency.

Table 4:9 Source of measurement scale for green transparency

Original Scale Item	Item Used in Present Study	Sources
X company explains clearly how it controls the emissions caused by its electricity production processes that could harm the environment.	This brand explains clearly how it controls the emissions caused by its production processes that could harm the environment.	Vaccaro and Patiño Echeverri (2010)
Overall, X company provides the information needed to understand the environmental impact of its electricity generation.	Overall, this brand provides the information needed to understand the environmental impact of its production processes.	
This brand provides relevant information regarding environmental issues associated with its electricity generation.	This brand provides relevant information regarding environmental issues associated with its production processes.	
The environmental policies and practices of X company are provided to customers in a clear and complete way.	The environmental policies and practices of this brand are provided to customers in a clear and complete way.	

Customer value

Researchers have generally agreed that customer value is a difficult concept to define and measure (e.g., Holbrook 2006; Woodruff 1997; Zeithaml 1988). This concept has been broadly defined as “the customer’s overall assessment of the utility of a product based on perceptions of what is received and what is given” (Zeithaml 1988, p.14). In other words, perceived value is a subjective concept, which is influenced by customers’ evaluation on “get” attributes (e.g., quality) and “give” attributes (e.g., price) for their purchase. Although several scholars argue that instead of simply focusing on functional aspects, other value components such as social value and emotional value should be taken into consideration (Sheth, Newman & Gross 1991).

Customers are, however, more likely to evaluate their purchase based on performance and costs in relation to green purchases. Prior research suggests that quality, price and convenience are important factors for consumers when they purchase organic food (Krystallis & Chrysosoidis, 2005) and traditional branding attributes, such as price and quality still influence consumers’ green brand adoption (Chen & Chang 2012; Ng et al. 2014). Hence, to comply with the research context in this thesis, functional value is regarded as one of crucial dimensions of customer value of green brands and it focuses on performance (quality) and monetary cost (price). Apart from its traditional functional value, green value should also be

included when capturing customer value of green brand (Hartmann & Apaolaza-Ibáñez 2006). The GPV proposed by Chen and Chang (2012) is based on the definition of customer perceived value developed by Patterson and Spreng (1997). This was measured as a uni-dimensional construct to capture consumers' subjective evaluation towards a green brand influenced by their environmental desires, sustainable expectations, and green needs. This scale has been widely used to predict green satisfaction, green trust, green loyalty, green brand image and green brand equity (Chen 2013; Lin, Lobo & Leckie 2017; Koller, Floh & Zauner 2011; Ng et al. 2014). Consequently, four items adapted from Sweeney and Soutar (2001) were employed to measure functional value and five items measuring green perceived value were adapted from Chen and Chang (2012). All the measurement items are presented in Table 4.10.

Table 4:10 Source of the measurement scale for customer value

Original Scale Item	Items used in Present Study	Sources
Functional value		
The product provides good performance.	The product of this brand provides good performance.	Sweeney and Soutar (2001)
The product has an acceptable standard of quality.	The product of this brand has an acceptable standard of quality.	
The product offers value for money.	The product of this brand offers value for money.	
The product is reasonably priced.	The product of this brand is reasonably priced.	
Green perceived value (GPV)		
This product's environmental functions provide very good value for you.	This brand's environmental functions provide very good value for me.	Chen & Chang (2012) Adapted from Patterson & Spreng (1997)
This product's environmental performance meets my expectations.	This brand's environmental performance meets my expectations.	
This product is environmentally friendly.	This brand is environmentally friendly.	
You purchase this product because it has more environmental benefit than other products.	This brand has more environmental benefits than other brands.	
You purchase this product because it has more environmental concern than other products.	This brand has more environmental concern than other brands.	

Self-brand connection

Past research suggests that self-brand connection plays an important role in relationship marketing and it can lead to the enhancement of relationship quality (Dwivedi 2014). This concept involves both emotional and cognitive components aimed at categorising the brand as part of the self through developing a sense of self-identity with the brand (Chaplin & John

2005; Escalas 2004; Escalas & Bettman 2003). Self-brand connection has proven to be an important determinant of brand equity, although it has not been investigated in the green brand context (Park et al. 2010). Hence, four items adapted from Dwivedi (2014) were used to measure self-brand connection. This scale was originally adapted from Escalas and Bettman (2003). The original self-brand connection scale had undergone adjustments to make it more appropriate in the green brand context. Table 4:11 presents the measurement items for self-brand connection.

Table 4:11 Source of the measurement sale for self-brand connection

Original Scale Item	Items used in Present Study	Sources
Brand X has a great deal of personal meaning for me.	This green brand has a great deal of personal meaning for me.	Dwivedi (2014)
Brand X embodies what I believe in.	This green brand embodies what I believe in.	
My brand is an important indication of who I am.	This green brand is an important indication of who I am.	
feel a strong sense of belonging to brand X.	I feel a strong sense of belonging to this green brand.	

Brand prominence

Substantial marketing benefits have been gained due to the enhancement of brand prominence, i.e., improving the effectiveness of advertising (Miller & Berry 1998), higher purchase intention and purchase likelihood (Vieceli & Shaw 2010). This construct reflects the salience of the cognitive and affective bond that connects the brand to the self through perceived ease and frequency brought into consumers' mind (Park et al. 2010). In order words, it comprises two aspects, i.e., consumers' automatic thoughts or feelings toward a brand and consumers' thoughts or feelings towards a brand which come naturally. Hence, four items adapted from Park et al., (2010) were used to measure prominence and they are presented in Table 4:12.

Table 4:12 Source of the measurement sale for brand prominence

Original Scale Item	Items used in Present Study	Sources
To what extent are your thoughts and feelings toward [Brand Name] often automatic?	When I buy a product or service, my thoughts and feelings toward this brand happen automatically.	Park et al. (2010)
To what extent are your thoughts and feelings toward [Brand Name] coming to mind instantly?	When I buy a product or service, my thoughts and feelings toward this brand happen instantly.	

To what extent does the word (brand name) automatically evoke many good thoughts about the past, present, and future?	This brand makes me automatically evoke many good thoughts about the past, present and future (e.g., technology innovation, enhancement of environment).	
To what extent to you have many thoughts about (brand name)?	I have many thoughts about this brand (e.g., concern about the brand's development).	

Green brand loyalty

Brand loyalty reflects the extent to which consumers are committed to re-purchase a preferred product or service in the future (Oliver 1999) and to express their belief that this brand is unique (Keller 2001). Brand loyalty has been investigated in the green marketing context (Chen 2013; Kang & Hur 2012; Koller, Floh & Zauner 2011). By referring to the definition of brand loyalty developed by Oliver (1999), Chen (2013) proposed a novel concept, called “green brand loyalty”, which is defined as “the level of repurchase intentions prompted by a strong environmental attitude and sustainable commitment towards an object, such as a product, a service, a company, a brand, a group, or so on” (p.197).

For the purpose of this study, green brand loyalty was measured using four items adapted from Chen (2013). These items were intended to capture the manner in which a consumer continues to purchase a green brand and are depicted in Table 4.13.

Table 4:13 Source of the measurement scale for green brand loyalty

Original Scale Item	Item Used in Present Study	Sources
I am willing to repurchase this product because of its environmental functions	I am willing to repurchase this brand because of its environmental functions	Chen (2013)
I prefer purchasing this product to other products because of its environmental performance	I prefer purchasing this brand to other brands because of its environmental performance	
I seldom consider switching to other products because of this product's environmental concern	I seldom consider switching to other brands because of this brand's environmental concern	
I intend to continue buying this product because it is environmentally friendly.	I intend to continue buying this brand because it is environmentally friendly	

4.4.4 Validity and reliability of survey instrument

Examination of validity

The validity of a survey instrument relates to whether the survey instrument is capable of measuring what the researcher intends it to measure (Saunders, Lewis & Thornhill 2009).

Three types of validity have been widely employed to test the validity of a survey instrument. These are face validity, content validity, and construct validity.

Face validity testing

Face validity is used to reflect the extent to which a measure indicates what it is intended to measure (Hair et al. 2010). In other words, it is used to indicate whether the measurement statements in the questionnaire are clear and comprehensive (Cavana, Delahaye & Sekaran 2001). Prior to the large-scale data collection, a pre-test was conducted using online questionnaires to ensure face validity. This step aims to facilitate respondents' understanding of all questions by refining the questionnaires (Saunders, Lewis & Thornhill 2009). Sixteen university students who resided in the Guangzhou (South) and Chengdu (West) cities of China, and who were familiar with green brands were employed for the pre-test. Additional questions based on previous studies regarding face validity testing were asked after participants completed the questionnaire (Saunders, Lewis & Thornhill 2009). These questions were as follows.

- How long did you spend on completing the questionnaire?
- Are there any sentences difficult for you to understand?
- Did you think the layout of the survey is clear and attractive?
- Did you think the grammar, structure and content of the questions are correct and appropriate?

Consequently, some minor changes regarding the wording and formatting were undertaken to make the statements more understandable for Chinese respondents. Additionally, those respondents who participated in the pre-tests were excluded from the main data collection process in order to ensure the validity and reliability of the final data set.

Content validity testing

After confirming the face validity of the survey instrument, the next step was to achieve content validity. Content validity refers to "the extent to which the measurement questions in the questionnaire, provide adequate coverage of the investigative questions" (Saunders, Lewis & Thornhill, 2009 p.373). To achieve "adequate coverage", the researchers can either develop their research based on elaborate literature review and discussion with experts, or

clarify the essence of each measurement question by inviting a panel of individuals. Given the research context in this study, Chinese cultural and linguistic characteristics needed to be taken into consideration in the methodology so that the meaning of the statement could be successfully and effectively interpreted (Ho, Vermeer & Zhao 2006).

McMurray, Pace and Scott (2004) suggest that there are advantages for people who can speak more than one language when conducting cross-national studies. Therefore, there exists an obvious advantage to conduct this research as the researcher possesses a bilingual capability in both Chinese and English languages. The original survey instrument was designed in English. In order to respond to the research context in this thesis, the survey instrument was then translated into Chinese using the prescribed back translation technique (Usunier 1998) (see *Appendix 1B*). This technique can detect significant misunderstanding or confusion resulting from a cross-cultural transformation (Ferle & Lee 2003; Wang et al. 2010). Using this technique, a professional translator was employed to translate the source questions from English to Chinese. These questions were later translated back to English by another translator. This process is important as it helps to ensure that the measurement items mean the same thing (Mullen 1995). Hence, this process continued until linguistic equivalence between the English and Chinese versions was ensured. Additionally, Lee et al. (2002) suggest that ‘care must be taken to ensure that apparent cross-cultural differences are real and actually do not stem from poor translation’ (p. 298). Therefore, the translated versions were also cross-checked by two other bilingual researchers who were selected from Australian and Chinese universities.

Construct validity testing

The term ‘construct validity’ refers to ‘the extent to which the measurement questions actually measure the presence of those constructs which researchers intended them to measure’ (Saunders, Lewis & Thornhill 2009 p.373). In other words, construct validity aims to reflect whether the measured variables actually represent the theoretical latent construct (Hair et al. 2010). A higher level of construct validity helps to improve the quality of each construct used in the measurement model and this is mainly examined through convergent validity and discriminant validity (Hair et al. 2010). The issue of construct validity will be examined in Chapter Five.

Examination of reliability

The term “reliability” has been defined as “the extent to which your data collection techniques or analysis procedures will yield consistent findings” (Saunders, Lewis & Thornhill 2009, p.156). There are three questions required to be considered before and during conducting a research, i.e., 1) Will the measures yield the results on other occasions?; 2) Will similar observation be reached by other observers?; and 3) Is there transparency in how sense was made from the raw data? (Easterby-Smith et al. 2008, p.109). As suggested by Robson (2002), there are four circumstances which might threaten the reliability: subject or participant error, subject or participant bias, observer error, and observer bias.

Subject or participant error reflects the potential differences in results at different times of the week. The online survey adopted in the current study allowed respondents to complete the survey at their convenience and it included weekdays and weekends. The second concern is the subject or participant bias which results from respondents’ answers mainly based on interviewers’ desirability. To reduce such bias, the anonymity of respondents to survey instrument needed to be carefully considered. In this study, a cover letter which addressed the survey purpose was provided, and respondents were free to decline or withdraw from the survey at any time. The online survey used in this study was strictly anonymous and confidential, and this aimed to minimise the subject or participant bias. Furthermore, observer error and observer bias also were barriers to improve the reliability. These threats largely result from different personnel being involved in collecting the data and different ways of asking questions and interpreting the answers. Unlike the delivery and collection questionnaires, the online survey administered by an experienced research agency did not depend on the number of field workers. Therefore, the potential observers who were required to guide the completion of the survey instrument could be reduced.

From a statistical perspective, reliability means “the degree to which a set of indicators of a latent construct is internally consistent in their measurement” (Hair et al. 2010, p.634). There are three common approaches to assessing reliability: test re-test, internal consistency, and alternative form (Malhotra, Kim & Patil 2006). Test re-test estimates of reliability are ensured by repeating the same measure on a second occasion (Cavana, Delahaye & Sekaran 2001). In this respect, the questionnaire was administered twice to respondents using different media, which to some extent would reveal difficulties experienced by the respondents (Saunders, Lewis & Thornhill 2009). To address the re-test reliability, sixteen Chinese consumers were recruited during the pre-test. The survey was first sent to them by email in

word document format and then an online version survey using a web link was sent to them after two weeks. The alternative form approach assesses the equivalency of the content of measurement items by comparing responses to alternative forms of the same questions. However, it is often difficult to address the alternative form as it usually results in the questionnaire being too long (Saunders, Lewis & Thornhill 2009 p.374).

Finally, internal consistency (which is a most commonly used measure of reliability) aims to measure the consistency of responses across either all the questions or a sub-group of the questions in the questionnaire (Saunders, Lewis & Thornhill 2009). Cronbach's alpha has been widely used to measure internal consistency of reliability (Hair et al. 2010). However, several scholars have argued that coefficient alpha underestimates the true reliability due to its lower bound. Hence, composite reliability is suggested as being an alternative approach to test the reliability (Peterson & Kim 2014). The construct reliability is usually calculated with reference to the structural equation model. It is defined as a "measure of reliability and internal consistency of the measured variables representing a latent construct" (Hair et al. 2010, p. 689). A high construct reliability indicates that there exists internal consistency. This means that all the measures all consistently represent the same latent construct. Regardless of the potential risk of underestimating reliability, coefficient alpha remains important in examining reliability. Hence, In order to maintain the internal consistency of data in this study, both coefficient alpha and construct reliability were considered in the analysis phase.

4.4.5 Design of the online survey

The pre-tested and modified questionnaire was transformed into an online version. The online survey was made available via Swinburne University of Technology's Opinio platform. The application of this platform ensured the anonymity, confidentiality and privacy of the respondents. After designing the online survey in this platform, a web link to this survey was generated and it was sent to an international market research agency, which in turn forwarded it to targeted respondents. The detailed information about data collection using online surveys has been addressed in section 4.6.3.

4.5 Ethical considerations

Concerns about research ethics have increased dramatically in marketing research (Fraedrich, Thome & Ferrell 1994; Tsalikis & Fritzsche 1989). As a consequence, researchers are expected to clearly address the manner in which data is collected and possible ethical concerns arising from the conduct of their research (Saunders, Lewis & Thornhill 2009). The term “ethics: has been defined as the “norms or standards of behaviour that guide moral choices about our behaviour and our relationships with others” (Blomberg, Cooper & Schindler 2008, p.34). Therefore, research ethics guide researchers to behave morally throughout the conduct of an entire research. In particular, several key ethical issues must be addressed during the research project, such as privacy of participants, voluntary nature of participation, consent of participants, confidentiality and anonymity (Saunders, Lewis & Thornhill 2009). In the context of this research, the main ethical considerations relating to participants’ privacy were: the right to withdraw at any time and the right to be informed. In addition, confidentiality of the information provided by the participants was also essential during the conduct of the research (Zikmund 2003).

This research was approved by Swinburne University’s Human Research Ethics Committee (SUHREC) on 23 April 2015 and the reference of the approval was SUHREC 2015/023. The university requires research that involves human intervention to be cleared by the Human Research Ethics Committee. At all stages of the research, the information sheets were used to ensure the rights of respondents regarding the clarity of information, privacy, confidentiality and voluntariness, and the obligations of the researchers to maintain ethical standards and to provide accessible contact details.

4.6 Data collection

To obtain necessary and high-quality data, a detailed data collection plan was adopted. This plan included the identification of target population and sampling frame, selection of sample size and survey administration was adopted. Each of these steps is discussed in detail within the following subsections.

4.6.1 Target population and sampling frame

Target population

The term “target population” refers to the specific group of entities that have been identified based on the objectives of a research project (Hair et al. 2010). The target population assists researchers in identifying the sources from which the data should be collected and as a result, it determines the quality of research (Saunders, Lewis & Thornhill 2009). This research focused on factors influencing mainland Chinese customers’ green brand value assessment and their influences on the relationship development between consumers and green brands. This target population should be aware of green brands. Additionally, green consumers are usually adults above 18 years old. Therefore, the data were collected from the general public who had purchase experience of green brands and were aged 18 years and above.

Sampling

Sampling is the process of selecting a segment of a population that represents the entire population (Saunders, Lewis & Thornhill 2009). The sampling frame is defined as “a complete list of all the cases in the population from which the sample will be drawn” (Saunders, Lewis & Thornhill 2009, p.214). A sampling frame is widely used to ensure the reliability and validity of a research project when it was not practical to acquire data from a population. China has a large population and consumers’ environmental awareness would be different across different areas. Therefore, it was not practical to collect data from all cities. In order to overcome the practical limitations, the sampling frame of this study was limited to consumers who had purchase experience of green brands. These consumers were based in four geographically dispersed cities of China: Beijing, Guangzhou, Chongqing, and Hangzhou.

Since its economic liberalisation in 1978, China has been one of the fastest growing economies in the world (China National Bureau of Statistics 2015). However, the income disparity between regions in China is evident and it continues to widen owing to economic reforms (Chen & Fleisher 1996; Yeon 2008). This phenomenon necessitates researchers to take into account the regional diversity and economic disparity when exploring market segments in China (Dickson et al. 2004; Ho & Tang 2006; Wong & Yu 2003). Mainland China has 22 provinces, five autonomous regions and four direct-controlled municipalities and the socio-economic status of people varies across different regions (China National Bureau of Statistics, 2015). Given the geographic location, political and commercial backgrounds, previous related studies have chosen four cities: Beijing, Shanghai, Chengdu and Guangzhou (Uncles & Kwok 2008; Wang et al. 2000; Wang & Chen 2004). Chen and

Lobo (2012) replaced Guangzhou with Shenzhen when they investigated Chinese consumers' organic food purchase behaviour. Hence, in this study the cities of Beijing, Guangzhou, Chongqing and Hangzhou were selected. These four geographically dispersed cities are depicted in Figure 4.2. The descriptions of each of four cities are provided in the following sections.



Figure 4:2 Map showing the geographic dispersion of the four selected cities

Beijing

Beijing is the political and cultural capital of China, and had a total population of 21 million reported in 2013 (Statistics Bureau of Beijing 2015). Beijing is located in the north of China and it is one of the country's largest and most prosperous cities in China. The nominal gross domestic product (GDP) in Beijing was CN¥ 1.95 trillion (US\$314 billion) in 2015. The per capital annual disposal income was CN¥ 36,469 (US\$ 5,293) in 2012 and the annual consumption level was CN¥ 39,200 (US\$5,690) in 2015 (Statistics Bureau of Beijing 2015). Notably, air pollution has become a major threat for residents of Beijing city and this has become an important economic and social concern in China. In response, the government announced measures to reduce air pollution (Sheehan et al. 2014). Additionally, Cheng and Yang (2001) found that more than 80% of Beijing residents had purchase experience of green products. As Beijing residents usually have higher incomes and awareness of environmental issues, they might be willing to purchase green brands.

Guangzhou

Guangzhou is the capital and the largest city of the province of Guangdong, which is located in southern China. This city had a population of 13 million in 2015 (Statistics Bureau of Guangzhou 2015). Guangzhou has a history of over 2200 years and it was famous for being a major terminus of the maritime Silk Road. Currently, this coastal city has been regarded as one of mainland China's leading commercial and manufacturing regions and the per capita GDP was CN¥120,515 (US \$19,459) in 2013 (Statistics Bureau of Guangdong 2014). Besides, the per capital annual disposal income was CN¥ 26,726 (US\$3,818). Previous studies have identified Guangzhou as being an important market for organic food and green products, as it is a culturally diverse and open city (Chan 2001; Yin et al. 2010). Although Guangzhou is one of most rapidly developed cities in China, it faces relatively serious environmental problems (Lo & Leung 2000). Because of these economic development and environmental issues, Guangzhou was intentionally selected for this data collection.

Chongqing

Chongqing is one of China's four direct-controlled municipalities, and it is located in Southwest China (Statistics Bureau of Chongqing 2015). This city is a major manufacturing centre and transportation hub, and has recently become one of China's "top 3 emerging megacities" as identified by the Economist Intelligence Unit (Statistics Bureau of Chongqing, 2015). Chongqing has a population of 30 million and the per capita GDP was CN¥ 22,909 (US\$3,301). Although Chongqing's overall economic performance still lags behind Beijing and Guangzhou, it has received massive government support to further develop its economy (Statistics Bureau of Chongqing 2015). The per capital annual disposal income was CN¥ 15,717 (US\$2,281) in 2015 (Statistics Bureau of Chongqing 2016).

Additionally, as Chongqing is one of the six old industrial bases in China, it has become one of the first national low-carbon pilot cities (Tan et al. 2016). In this respect, certain environmental policies have been implemented in Chongqing and enterprises there have increasingly adopted green marketing strategies to position their products/brands.

Hangzhou

Hangzhou is the capital and most populous city of Zhejiang Province, which is located in the east of China (Statistics Bureau of Hangzhou 2016). This city has a population of 21 million and the GDP of this city has increased sevenfold from CN¥156.8 billion in 2001 to CN¥1.105 trillion in 2016. The per capita GDP was CN ¥125,952 (US\$18,282) and the per capita annual disposal income was CN¥ 10,050 (US\$1,459) in 2015 (Statistics Bureau of Hangzhou, 2016). Furthermore, according to a survey conducted by Liu et al. (2009), citizens in Hangzhou have a high level of environmental consciousness and express willingness to participate environmental protection. Hence, in order to comply with the goals of the eleventh –Five Year Plan” of economic and social development, green consumption would be an envisaged consumption pattern in Hangzhou.

4.6.2 Sample size

While the sampling method determines the representativeness of a sample, the sample size determines how accurate a sample is. As a rule of thumb, the minimum ratio of observations to variables is 5:1 (Hair et al. 2010). It was envisaged that a minimum of two hundred completed and valid questionnaires from each city would possibly be obtained. Roscoe (1975) suggests that with multivariate research, the sample size should be several times larger than the number of variables used in the study. Hence the total respondents were estimated to be a minimum of eight hundred. The minimum of two hundred valid responses was necessary in order to make a comparative analysis of responses in the four cities of China.

4.6.3 Survey administration

An international market research agency was employed to collect data from their consumer panels in China after identifying the target population, sampling frames, and sample sizes. These panels are double-opt-in, research only, ESOMAR and ISO compliant. This particular market research agency has approximately 1.3 million people in China registered on their books. This means that the respondents are representative of the entire Chinese population. The targeted respondents were Chinese consumers who had purchased green brands. The practice of using consumer panels is in line with common online market research (e.g., Steenkamp & Geyskens 2006). The participants received an email and were asked for their consent to complete the online survey. The market research agency has a reward system

based on marketplace points which encourages panels' participation. Stratified sampling was used to obtain responses from various types of respondents.

Furthermore, there are strict rules for processing data collection in the research company. First, the author was required to send the final questionnaire to the company to check the length of interview and the format of the survey instrument before launching the survey. Subsequently, the questionnaire was uploaded to the computer and the formatting and the content of the questionnaire was checked before the survey instrument was distributed to the participants. There were two rounds of data collection. The first round focused on the respondents from cities of Beijing and Guangzhou and the second round included participants from Chongqing and Hangzhou.

For the actual data collection, the introductory part of the instrument contained pictures and descriptions of seven popular green brands relating to products and services available in China. These genuine green brands were selected from China's recent "Top 100 green brands" report published by the *Journal of China Brand* and they have made great environmental contributions through innovation and ethical commitment (Li 2012). In particular, these included brands that were related to electronic and electrical products, personal care products, and tourism services. The five brands associated with products were air-conditioners (Midea), washing machines (Haier), computers (Lenovo), personal care (Heborist), and home cleaning products (Chao Neng). The two brands associated with tourism services were hotels (7 Days Inn) and airlines (China Southern Airline). Respondents who had purchase experience of green brands were invited to participate. These respondents were initially asked to select one brand from the listed seven, with which they had the strongest association based on their previous purchase or identification of the logo. They were then requested to complete the survey, keeping in mind their selected green brand as the focal object and remembering the image associated with green claims of the selected green brand. Since the listed seven green brands are commonly found and used by Chinese consumers daily, the response rate was encouraging.

Finally, in total, 1013 responses were obtained. This sample size would potentially allow for some responses to be deleted if they were found to be incomplete or if it was felt that some respondents had not shown discriminant validity in their answers. For example, if a respondent "strongly agreed" with all questions that used the Likert-type scales, they would be excluded from the final sample. An initial review of the data file resulted in 167 responses being deleted as the responses revealed unengaged answers. Hence, 846 responses were

included in the final data base for the data analysis. The final anonymous excel data file was sent electronically to the researcher and converted to a SPSS data file in preparation for the data analysis.

4.7 Data analysis

The statistical software programs SPSS 23 and Mplus7.31 were used to perform the descriptive and structural equation modelling analysis. Specifically, descriptive statistics were conducted for data screening, demographic characteristics of the participants, the participants' environmental behaviour, and the distribution of the latent constructs. Furthermore, the internal consistency of the measurement scales was tested by conducting reliability via Cronbach's alpha and construct reliability. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed to assess construct validity. Following this, data analysis was conducted using the two-step approach developed by Anderson and Gerbing (1988). The first step was to produce an overall measurement model with a good fit by performing confirmatory factor analysis. The second step was to test the structural relationships that were hypothesised in the conceptual model.

4.7.1 Data screening

To ensure the data quality, it is recommended that a series of tests including detection of missing data and outliers, checking for multivariate analysis assumptions (for example, normality, linearity and homoscedasticity and multicollinearity) should be conducted (Hair et al. 2010). These tests were conducted using SPSS, and the findings are presented in Chapter Five. As this study adopted the online survey method for data collection, the issue of missing data were avoided by forcing respondents to complete a question before they moved to the next one. Hence, the evaluation of missing data is excluded in the discussions regarding data screening.

Outliers

The term “outliers” has been defined as “observations with a unique combination of characteristics which are identifiable as distinctly different from the other observations” (Hair et al. 2010, p.64). Outliers can be examined at univariate and multivariate levels. For the detection of univariate outliers, both graphical (box plots and histograms) and statistical methods (standardised scores) can be adopted (Hair et al. 2010). Given the large sample size in this study, univariate outliers were examined by converting the data values of all variables to standard scores. The potential univariate outliers can be identified if any cases with standardised scores is higher than 4 (Hair et al. 2010). Furthermore, Mahalanobis distance and Cook’s distance and leverage scores can assist in detecting multivariate outliers (Hair et al. 2010). Tabachnick and Fidell (2007) recommend that Mahalanobis distance is one of the easiest ways to detect multivariate outliers.

Multivariate analysis assumptions

To avoid assumption violation, multivariate analysis assumption (including normality, linearity and homoscedasticity) needed to be tested (Hair et al. 2010). Each of the assumptions was tested using SPSS, and the findings are reported in Chapter Five.

Normality

Normality is the most fundamental assumption in multivariate analysis, and is used to show whether an individual metric variable underlying the data set is normally distributed (Hair et al. 2010, p.71). Univariate normality for all variables is sufficient to guarantee the data quality, which means that the individual variables are normal in the univariate sense (p.71). Univariate normality be examined by either statistical or graphical methods (Tabachnick & Fidell 2007). A simple test for assessing normality is based on the skewness and kurtosis values. Skewness is used to describe the balance of the distribution, while kurtosis refers to the “peakedness” or “flatness” of the distribution as compared to the normal distribution (Hair et al. 2010, p.71). A normal distribution is identified when the values of these two measures are close to zero (Tabachnick & Fidell 2007). Values above or below zero indicate a departure from normality.

Linearity

Linearity has been defined as ~~an~~ “an implicit assumption of all multivariate techniques including factor analysis and structural equation modelling” (Hair et al. 2010, p. 76). In simple terms, this reflects a straight-line correlation between two variables, and it can be examined through scatterplots. The scatterplots would help the researchers to better identify any nonlinear characteristics. The examination of linearity can well define the nonlinear relationships.

Homoscedasticity

Homoscedasticity refers to ~~the~~ “the assumption that the dependent variables exhibit equal variance across the range of predictor variables” (Hair et al. 2010, p.74). It focuses on dependence relationships between variables, which is desirable for multivariate data analysis owing to the desirability for a wide range of the independent variable (s) when explaining the variance of the dependent variable. The Levene test is the most commonly used statistical test for homoscedasticity (Hair et al. 2010).

Multicollinearity

Multicollinearity has been defined as ~~the~~ “the extent to which a variable can be explained by the other variables in the analysis” (Hair et al. 2010, p.93). Although some scholars argue that it is difficult to avoid multicollinearity, particularly in situations involving consumer response data (Hair et al. 2010), this can become a significant concern if variables are highly correlated (Tabachnick & Fidell 2007). As a result, it is suggested that there exists some degree of collinearity if the correlation between variables is .90 or above (Hair et al. 2010).

4.7.2 Factor analysis

There are two basic methods for factor analysis: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) (Hair et al. 2010). EFA is commonly used to determine the needful number of factors to best represent the data, and the factors are usually statistical results-based instead of theory-based. In other words, EFA aims to determine the factor structure using the underlying pattern of the data. CFA is used to examine how well the measured variables represent the number of constructs. This method attempts to confirm whether the data fit a hypothesised measurement model, which is a theory-based testing

method (Hair et al. 2010). Based on the foregoing discussions, this research adopted EFA and CFA to reduce the number of items of the construct for maintaining the validity of measurement; and to examine whether the observed items fitted the hypothesised measurement model. The detailed process is reported in Chapter Five.

4.7.3 Structural equation modelling (SEM)

SEM is a statistical method that is used to analyse multivariate data, and it comprises multiple regression and factor analysis (Hair et al. 2010). This method can assess latent variables using an observable manner (measurement model) and examine hypothesised relationships between latent variables. Hence, SEM has been widely performed to investigate complex theoretical models owing to its advantage of testing multiple dependent and independent variables simultaneously (Nunkoo, Ramkissoon & Gursoy 2013). Most constructs in the current study were latent variables. Therefore, in order to reduce the predicting error and simultaneously test each relationship, SEM was selected and was performed to examine the proposed relationships.

Generally, there are two types of models included in a structural equation model which are the measurement and the structural models (Hair et al. 2010). In particular, the measurement model reflects the relationships between the observed variables and the latent variables and presents the number of indicators of the latent variable. The structural model focuses more on the relationships between various latent variables. The relationship between such models is presented in Figure 4.3.

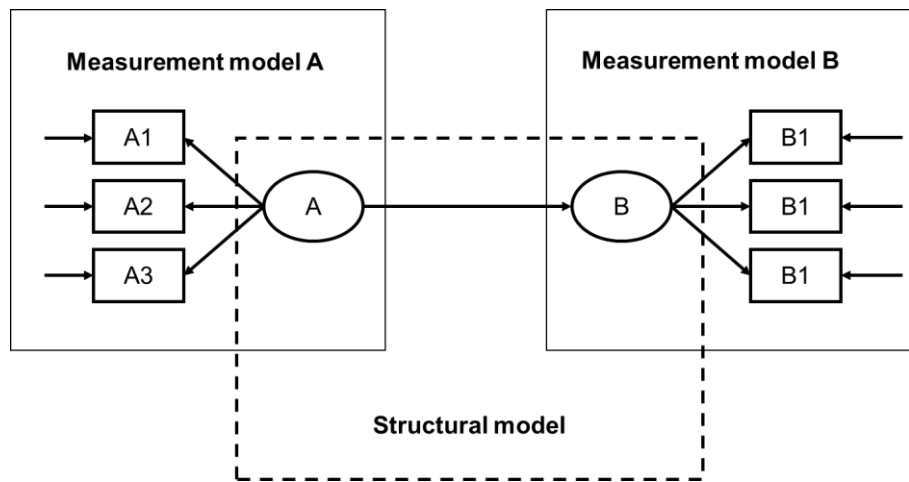


Figure 4:3 Relationship between the measurement and the structural models

Source: adapted from Nachtigall et al. (2003)

SEM is an effective statistical approach to understand relationships among various latent variables by simultaneously calculating the strength of the hypothesised relationships in the theoretical models. In order to identify whether the hypothesised relationships are supported or not, model fit statistics are used to assess these assumptions (Nachtigall et al. 2003). The standard of model fit indices will be addressed in Chapter Five. As discussed previously, SEM comprises measurement and structural models. This means that prior to conducting the structural model, the measurement model should be established first when examining the relationships between latent variables. Specially, factor analysis must be performed in order to confirm the structure of the constructs in the measurement model. EFA and CFA are two types of important factor analysis. EFA is commonly conducted for developing scale and validating constructs whilst CFA is performed to examine established structure of constructs. Prior to testing the overall structural relationships, CFA need to be conducted to ensure the model fit for each measurement model (Brown & Moore 2012).

As to the examination of model fit, multiple regression analysis and structural equation modelling are two approaches that have been widely applied in marketing research. In this research, structural equation modelling using the software Mplus7.31 was used for CFA. Additionally, the analysis of mediator effect and moderator effect can be conducted either using multiple regression analysis or structural equation modelling (Frazier, Tix & Barron 2004; Holmbeck 1997). The key advantages and disadvantages of these two techniques are summarised in Table 4.16. Multiple regression analysis is available in most statistical

packages. However, this technique presents several disadvantages for analysis of moderator and mediator effects, such as low predictive power of test and large sample size requirement (Frazier, Tix & Barron 2004).

The structural equation modelling technique offers numerous advantages, such as unreliability control in measurement and ability to conduct moderator analysis involving interactions of both categorical and continuous variables. Additionally, this technique can control measurement errors and provide information in relation to model fit, which therefore has more flexibility as compared to the multiple regression technique (Frazier, Tix & Barron 2004). Nevertheless, a sample of at least 200 is recommended when using the structural equation modelling technique.

Given the sample size requirement of a minimum of 200 responses from each city, and the advantages of the structural equation modelling mentioned previously, this research adopted structural equation modelling to conduct CFA, mediator and moderator analysis. Additionally, some key indicators including Chi-square test with significant level, comparative fit index (CFI), Tucker-Lewis Index (TLI) and root mean squared error of approximation (RMSEA) were used to examine the model fit. The detailed information regarding to each fit index is addressed in Chapter Five.

Table 4:14 Key advantages and disadvantages of two techniques

Technique	Advantages	Disadvantages
Multiple regression	<ul style="list-style-type: none"> • it is readily available • it is accessible 	<ul style="list-style-type: none"> • it lacks power of test of the product term • it requires large sample size
Structural equation modelling	<ul style="list-style-type: none"> • it can control unreliability in measurement • it can test interactions of both categorical and continuous variables • it can control measurement error and test model fit 	<ul style="list-style-type: none"> • it requires a minimum of 200 sample size

Source: Frazier, Tix & Barron (2004)

Mediation test

Baron and Kenny's test for mediation effect has been widely applied by marketing researchers (Baron & Kenny 1986). This approach suggests that an independent variable X influences a dependent variable Y by including a mediating variable M. This relationship is presented below in Figure 4.4.

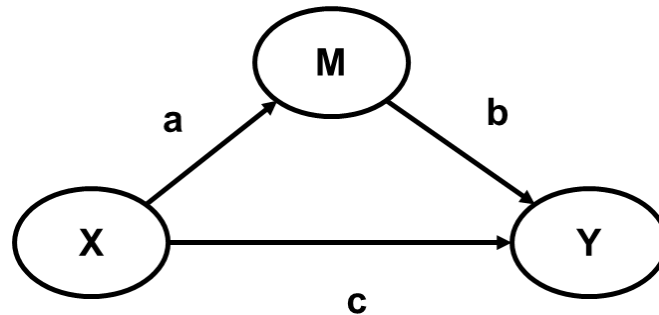


Figure 4:4 The mediating effect

Source: Baron and Kenny (1986)

As suggested by Baron and Kenny (1986, p.1176), three tests are recommended to identify the mediating effect of a variable, i.e., (i) variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e., Path a); (ii) variations in the mediator significantly account for variations in the dependent variable (i.e., Path b); and (c) when Paths a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path c is zero. In simple terms, the previously significant relation between the independent and dependent variables can be evaluated using direct and indirect effects. For example, X-Y indicates a direct effect whilst the path from X to Y via the mediator M demonstrates an indirect effect (Hair et al. 2010).

To conduct a mediation test, several relationships need to be confirmed. As suggested by Hair et al. (2010), the mediation effects can be either partial or full mediation, and there are two key steps for establishing the mediating effects. First, several relationships should be significant to ensure the occurrence of mediation, i.e., whether X-Y relationship exists (direct relationship), X-M relationship exists (relationship between the mediator and the exogenous variable) and M-Y relationship exists (relationship between the mediator and the endogenous variable). Second, the strength of mediation effect between the X-Y relationship should be identified to compare with the relationship between X-M and M-Y. For example, there is no mediation effect if the direct relationship between X and Y does not change after including M. In addition, partial mediation exists if the relationship between X and Y is reduced but is still

significant and finally full mediation exists if the relationship between X and Y is reduced and is insignificant. This provides a better understanding about how the mediating effect is produced. Thus, this study performed the mediation test to understand the relationships between green brand communication and their green brand attachment and loyalty through the lens of customer value.

Multiple group analysis

Multiple group analysis refers to the “SEM framework for testing any number or type of differences between similar models estimated for different groups of respondents” (Hair et al. 2010, p.758). This form of analysis aims to examine whether differences exist between individual group models, and it is commonly used to compare the same model across different groups of respondents. Generally, multiple group analysis involves two steps to compare the measurement model and then structural model across different groups. Therefore, an achievement of measurement model invariance is regarded as a prerequisite for making comparison at the structural model level.

Measurement invariance means to achieve invariant representations of the same construct across different groups of respondents when conducting measurement models (Hair et al. 2010). To achieve measurement invariance, there is a six-step process for group comparison. These steps include configural invariance, metric invariance, scalar invariance, factor covariance invariance, factor variance invariance, and error variance invariance. The first three types of invariance have been well established to ensure the measurement invariance. The configural invariance is the first stage in an examination of measurement invariance, and refers to “the same basic factor structure exists in all of the groups” (Hair et al. 2010, p.759), which requires a similar construct structure across different groups and these models should achieve appropriate levels of model fit and construct validity. The second stage is metric invariance which indicates the similarities of the factor loadings across different groups. Metric variance can be achieved if there is no significant change when comparing the metric model with the configural model.

Finally, scalar invariance means that the equivalence of the measured variable intercept (i.e., means) exists across different groups. Such an invariance can be achieved from an insignificant Chi-square difference test result between the scalar model with the metric model. After ensuring the measurement invariance, the structural invariance test can be conducted to

examine the similarities and differences of proposed relationships across different groups. It is usually tested by checking the Chi-square difference test for comparing the constrained model (i.e., constrain all relationships to be similar across different groups) and unconstrained model. There would be several differences of proposed relationships across different groups if the Chi-square differences test result is significant. The current study aims to understand whether the formation of customer perceived value and their influence on green brand attachment and loyalty would be different across brands of physical goods and services. Thus, the multi-group analysis is performed to answer this research question.

4.8 Potential risk of bias

Although the survey method is convenient to collect data, it suffers from social desirability bias. In other words, respondents might have provided relatively positive responses regarding environmental topics, although they were not really concerned about environmental issues (Chan & Lau 2000). Social desirability reflects people's intention of making themselves look good to satisfy the prevailing norms when they answer specific questions (Van Hemert & Van de Vijver 2002). In particular, cultural orientation might influence the level of respondents' intentions to provide socially desirable responses. For example, collectivistic cultures (which focuses on positive relationships with other groups might be prone to giving positive answers influenced by group norms (Lalwani, Shavitt & Johnson, 2006). China is a collectivistic oriented country and therefore respondents might have a higher level of social desirability when they respond to specific questions (Chan & Lau 2000). Hence, the potential risk of social desirability must be identified and is treated as being one of limitations of the present study. Furthermore, this bias might be more obvious as this research focuses on urban cities in China. Respondents in urban cities are more educated and thus they might be more cautious when answering social undesirability questions (Chan & Lau 2000).

Krumpal (2013) suggests that the degree of social desirability bias can be determined by the interviewer's characteristics and the survey situation. Therefore, in order to reduce this potential social desirability bias, a detailed information statement was provided before respondents started answering the survey. This statement addressed the detailed purpose of this research, the importance of respondents' honest cooperation by expressing their true opinion and confidentiality of data and anonymity to alleviate respondents' concern about disclosing their individual information to others.

Furthermore, the online survey facilitated the collection of reliable responses to sensitive questions as respondents are able to do the survey completely anonymously (Han & Kim, 2010). The likelihood of socially desirable answers would be reduced as respondents were free to complete the survey in their own time, and with no involvement from a third party, such as an interviewer (Gruber et al., 2008). Chan and Lau (2000) suggest that social desirability bias is unlikely to distort the research findings although researchers need to be cautioned about its influence. Therefore, the potential social desirability bias can be controlled through an effective survey instrument and data collection method which encourages respondents to answer the questions more honestly.

4.9 Chapter summary

This chapter first presented the research paradigm and the selected research approach (the quantitative method) which guided the research design. The selection of the survey method, and especially the online survey, was justified. The detailed stages of development of the survey instrument were also addressed. Prior to introducing the survey administration, concerns about research ethics were identified. Additionally, two rounds of pre-tests were employed to test the survey validity and reliability and a research company was recruited for the actual launch of data collection in four urban cities of China. SPSS and Mplus7.31 were used to analyse the data collected. The SPSS statistical program was used for descriptive analysis, including data screening, demographic and psychographic characteristics of respondents.

Also, this chapter presented an overview of the responses to the scale measurement and reliability analysis using Cronbach's alpha to test the internal consistency of the constructs. Two factor analysis methods (EFA and CFA) were discussed. This method is used to assess the items measuring the constructs and to test whether the observed variables fitted the hypothesised model of relations between the constructs. Both mediation tests and multiple group analysis were addressed to provide a clearer understanding of associated key concepts. The mediator and moderator effects were tested using structural equation modelling. Key indicators that include Chi-square test with significant level, comparative fit index (CFI), Tucker-Lewis Index (TLI) and root mean squared error of approximation (RMSEA) were used to examine the model fit. Finally, the potential risk of social desirability bias was discussed, as were attempts to reduce its influence on the final data analysis. The following

chapter addresses the analysis of data collected from the four urban cities: Beijing, Guangzhou, Chongqing, and Hangzhou.

Chapter 5 Data Analysis and Results

5.1 Introduction

This chapter reports the findings of the analysis of the structural relationships between the various constructs of the proposed conceptual model developed in chapter three. The chapter has been organised in nine sections. Figure 5.1 provides the roadmap of this chapter. Section 5.1 contains the introduction. Sections 5.2 and 5.3 present data screening and descriptive statistics, respectively. This includes the demographic profile of the survey respondents. In order to develop and test the theoretical models, section 5.4 presents the exploratory factor analysis for key constructs of the proposed conceptual framework and section 5.5 reports the confirmatory factor analysis results of all one-factor congeneric measurement models. Subsequently, the structural equation modelling (SEM) using the two-step approach is presented in section 5.6. This includes confirmation of the measurement model and hypotheses testing. Section 5.7 ascertains the mediator effects of the functional value and GPV on the relationships between green brand communication and brand relationship outcomes. Section 5.8 presents the moderating effect of brand type (brands of physical goods versus brands of services) by employing multi-group SEM. Finally section 5.9 draws a conclusion to the entire chapter.

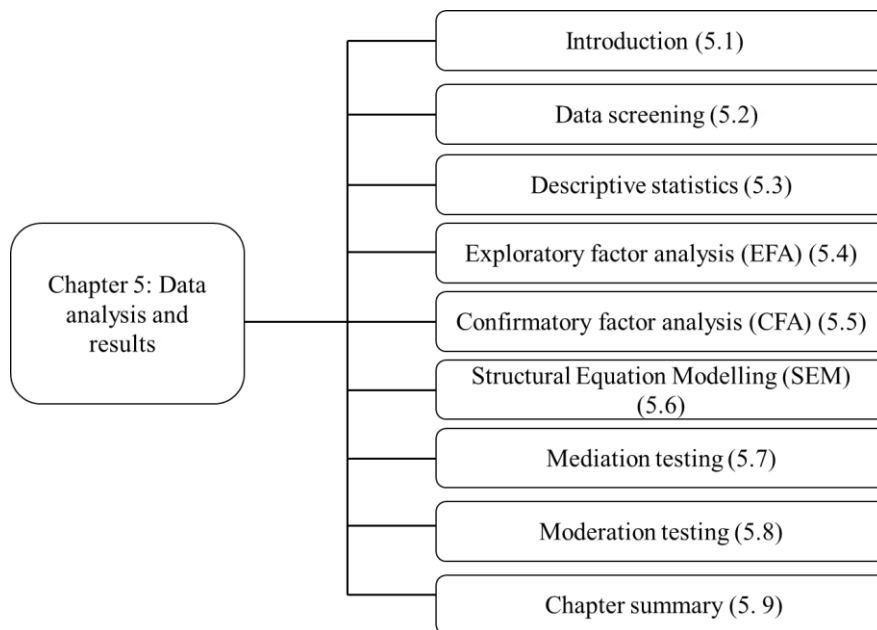


Figure 5:1 Roadmap of Chapter 5

Source: Developed for this research (adapted from Perry (1995))

5.2 Data screening

Data examination is a necessary and initial step in any analysis. In particular, the detection of missing data and outliers is regarded as an essential step for data preparation before the data analysis (Hair et al. 2010). The online survey instrument used in this research was set to the “forced answering” option. This means that the design of the survey did not allow respondents to skip questions or to answer incorrectly (Reichheld 2003). Thus, the final data file for this research contained no missing data. The next step of the data preparation process involved detection of outliers, testing for multivariate analysis assumptions and multicollinearity.

Outliers are categorised as being univariate or multivariate (Hair et al. 2010). In this regard, the first step was to examine all the variables at the univariate level by converting the data values to standard scores. Any cases with standardised scores exceeding four are potential univariate outliers as the threshold value of standard scores can be up to 4 for large sample sizes (Hair et al. 2010). The next step was to identify multivariate outliers by calculating the Mahalanobis distance. This process “measures each observation’s distance in multidimensional space from the mean centre of all observations” (Hair et al. 2010, p. 66). The threshold level for the Mahalanobis distance (D^2/df) measure is 4 in larger samples ($D^2/df > 4$, sig < 0.001) (Hair et al. 2010). These two steps were conducted to identify outliers in the data set as these can seriously influence the results of the analysis. Hence, cases with outliers were deleted. As a result of this process twenty of the 846 cases were deleted. This ensuring sample size was adequate for the conduct of SEM.

In line with the definitions of multivariate analysis assumptions and their associated testing methods described in chapter four, the problems of normality, linearity and homoscedasticity were not evident in the data. Furthermore, the correlations of the measurement variables used in the model were less than .70, providing evidence that multicollinearity did not appear to be a problem in the data.

5.3 Descriptive statistics

5.3.1 Demographic profile of respondents

A total of 826 usable online responses were obtained for this study. Descriptive analysis in relation to gender, age, income, education, marital status and occupation were conducted and details of the demographic profile of respondents are presented in Table 5.1.

Table 5:1 Demographic profile of respondents

Item		Frequency	Percentage (%)
Gender	Male	430	52.1
	Female	396	47.9
	Total	826	100.0
Age	18-25	103	12.5
	26-35	446	54.0
	36-45	217	26.3
	46-55	42	5.1
	Above 55	18	2.2
	Total	826	100.0
Income	Less than 1000	29	3.5
	1001-3000	136	16.5
	3001-5000	241	29.2
	Above 5000	420	50.8
	Total	826	100.0
Education	Below high school	12	1.5
	High school	43	5.2
	2 years college or associate degree	124	15.0
	Bachelor degree	571	69.1
	Postgraduate or above	76	9.2
	Total	826	100.0
Marital status	Single	183	22.2
	Married and without children	67	8.1
	Married and with young children	516	62.5
	Married and with adult children	54	6.5
	Divorced	6	.7
	Total	826	100.0
Occupation	Company white collar	437	52.9
	Civil servant	38	4.6
	Student	45	5.4

	Teacher	35	4.2
	Clerk	38	4.6
	Technician or researcher	125	15.1
	Self-employed	49	5.9
	Company CEO or general manager	59	7.1
	Total	826	100.0
City	Beijing	239	28.9
	Guangzhou	226	27.4
	Chongqing	170	20.6
	Hangzhou	191	23.1
	Total	826	100.0

Gender

The gender distribution was even. 47.9% of respondents were female and 52.1% were male. This is in line with demographic characteristics of the Chinese population (China Statistical Yearbook 2014).

Age

Over 50% of respondents (54%) were aged between 26 and 35 years. 26.3% of respondents were between 36 and 45 years old and 12.5% were between 18 and 25 years old. Only 2.2% were older than 55 years old. The results indicate that younger consumers prefer to select green brands.

Income

The monthly income of majority respondents was relatively high, with 50.8% of them earning more than ¥5000 (¥1=\$ 0.1444) a month. 29.2% of respondents earned between ¥3001 and ¥5000 and 16.5% earned between ¥1001 and ¥3000. Only 3.5% of respondents received less ¥1000. The results suggest that consumers who receive high monthly income are more willing to purchase green brands.

Education

9.2% of respondents had a postgraduate degree or above, 69.1% received a bachelor degree, 15.0% had a two years college or associate degree, 5.2% were educated high school and only 1.5% were educated less than high school. The results demonstrate that affluent consumers are the most important target group for green brands.

Marital status

62.5% of respondents were married with young children. 22.2% of respondents were single, 8.1% were married and without children, 6.5% were married and with adult children and only .7% were divorced, indicating that children have played an important role in consumers' decision making towards green brands.

Occupation

The majority of the respondents were company white collared workers (52.9%). 15.1% were technician or researchers, 7.1% were company CEO or general manager and other occupations were less than 6% respectively, i.e., self-employed (5.9%), student (5.4%), civil servant (4.6%), clerk (4.6%) and teacher (4.2%).

City

The proportion of four cities was distributed evenly. 28.9% of respondents were from the capital city of China, Beijing, closely followed by Guangzhou at 27.4%. In addition, 23.1% and 20.6% of respondents were from Hangzhou and Chongqing respectively. Respondents from first-tier cities tend to be more aware of green brand consumption.

In summary, all the foregoing demographic characteristics of the sample were similar to those of the Chinese population in major cities (Chen 2013; China Statistical Yearbook 2014). However, whilst only around 13% of the entire Chinese population and 40% of the Chinese population in major cities had attained a bachelor degree (Chen 2013; China Statistical Yearbook 2014), 69% of the respondents in this research were found to hold such qualifications. Thus, the number of respondents in the sample with bachelor degree was over-represented. This may be due to the fact that education has played a critical role in gaining competitiveness in major cities as compared to under developed cities. Hence, most residents in developed cities are well educated. In addition, a greater understanding of the topic under investigation was evident in a higher educational group as compared to a lesser educational group. In other words, people who have received higher education are more likely to participate in the survey than those with less education (Arbuthnot & Lingg 1975; Chan & Yam 1995). Overall, green brand consumers tend to be those who are aged between 26 and 35 years, are married with young children, receive higher education and higher monthly income.

5.3.2 Environmental behaviours of the respondents

The environmental behaviours of respondents are presented in Table 5.2. In addition to the main sets of items measuring the constructs in the proposed conceptual model, there were seven additional statements which asked the respondents about their behaviours relating to environmental issues. These questions were dichotomous (yes versus no).

Table 5:2 Respondents' involvement in environmental behaviour

Environmental behaviour	Frequency	Valid Percentage (%)
Used energy efficient appliances	674	81.6
Recycled household wastes	543	65.7
Turned off lights/electrical goods that are not necessary	721	87.3
Used public transport rather than driving	589	71.3
Bought green products	505	61.1
Restricted use of plastic bags when shopping	573	69.4
Tried to save water	4	.5

As can be seen from Table 5:2, the most frequent environmental behaviour the respondents reported was energy saving, including turning off lights/electrical goods that were not necessary (87.3%) and using energy efficient appliances (81.6%). This was followed by using public transport (71.3%), reducing the use of plastic bags (69.4%) and recycling household wastes (65.7%) respectively. Notably, 61.1% of the respondents stated that they had bought green products in the previous two weeks whilst they did poorly in saving water (.5%). Overall, the results displayed in Table 5.2 suggest that consumers' environmental awareness were more likely focused on energy saving. This might be owing to its direct benefits, such as cost savings on their electricity bills. These results are consistent with previous studies relating to green consumption as electrical and electronic green products have been commonly selected as focal objects for understanding consumers' purchase behaviour (Biswas & Roy 2015; Chen & Chang 2012; Ng et al. 2014). Furthermore, the results also demonstrate that consumers tried to behave environmentally by purchasing green products. This confirms the important role of green consumption in changing their consumption pattern. Prior to understanding respondents' environmental behaviour, two statements were used to

examine respondents' willingness to support Chinese firms which develop green brands. The results suggest that they strongly agreed that Chinese firms should develop green brands (88.7%) and they would like to support them by purchasing green products and services from them (85.6%). These results further reflect that China is potentially a global green market, hence it should be considered when investigating consumers' green purchase behaviour. Overall, the results indicated that consumers have become aware of environmental issues and most of them have a high level of environmental involvement.

5.3.3 Preference of place for the purchase of green brand

From the results shown in table 5.3, it is obvious that majority of respondents preferred to purchase green products/brands online (48.1%) and the brand outlet was their second choice, accounting for 31.1%. Nearly 21% of the respondents purchased green products in the supermarket. Online shopping is popular in China and Wu et al. (2016) claim that the Chinese e-commerce market would surpass the US market due to its online shoppers and spending power in 2016. This is in line with a recent study conducted by Ali research institute (2016) which reported that the number of online green consumers in China has witnessed a fourteen-fold increase in four years from 4.3 million in 2011 to 66 million in 2015. Therefore, online shopping has become a predominant place for consumers to buy green products and services.

Table 5:3 Green purchase place

Purchase place	Frequency	Valid Percentage (%)
Online stores	397	48.1
Brand outlet	257	31.1
Supermarket	172	20.8
Total	826	100.0

5.3.4 Selection of green brands

Seven well recognisable and commonly available green brands in China which were used in this study are presented in Table 5.4. The results show that the most commonly selected

brands were Midea, accounting for 21.9%, followed by 7 Days Inn (20.6%), China Southern Airline (15.9%), Chao Neng (15.3%), Haier (10.8%), Lenovo (8.5%) and Herborist (7.1%).

Table 5:4 Selection of green brands

Brand	Product type	Frequency	Valid Percentage
7 Days Inn	service	170	20.6
China Southern Airline	service	131	15.9
Midea	Physical goods	181	21.9
Haier	Physical goods	89	10.8
Lenovo	Physical goods	70	8.5
Chao Neng	Physical goods	126	15.3
Herborist	Physical goods	59	7.1
Total		826	100.0

5.3.5 Summary of the items used to operationalise constructs

Table 5.5 summarises the mean scores and standard deviation (SD) for each of the items that were used to operationalise the constructs of the proposed conceptual model. The scores are based on a 7-point Likert scale that ranged from 1 for strongly disagree to 7 for strongly agree. The reported mean scores of all items measuring green benefits were above 5.0 except for item labelled SS4 (4.88). Similarly, the mean scores of items measuring green transparency exceeded 5.0. These results demonstrate that respondents' perception towards green benefits and transparency of the brand they selected was positive. Interestingly, the reported mean scores of items measuring green perceived risk were 4.0 or above revealing their perception of green risk when purchasing the green brand they chose. As for items measuring functional value, GPV, green brand attachment and brand loyalty, the mean scores for all of them were greater than 5.0 except for item labelled SBC (4.91). These findings demonstrate that majority of the respondents expressed relatively positive perceptions of customer value of green brand and green brand relationship with their selected brand.

Table 5:5 Summary of mean and SD for items operationalising constructs

Statement and the latent constructs	Label	Mean	SD
<i>Green benefits: utilitarian environmental benefits</i>			
This brand respects the environment	UE1	5.62	1.054
This brand helps to prevent global warming	UE2	5.42	1.101
Products of this brand do not pollute the environment	UE3	5.62	.980
Overall, products of this brand are environmentally friendly	UE4	5.08	1.186
<i>Green benefits: warm glow benefits</i>			
With this brand, I can feel good because I help to protect the environment	WG1	5.68	1.008
With this brand, I have the feeling of contributing to the well-being of humanity and nature	WG2	5.46	1.130
With this brand, I can feel better because I don't harm the environment	WG3	5.61	1.053
<i>Green benefits: self-expressive benefits</i>			
With this brand, I can express my environmental concern	SS1	5.17	1.217
With this brand, I can demonstrate to myself that I care about environmental conservation	SS2	5.21	1.135
With this brand, I can demonstrate to my friends that I care about environmental conservation	SS3	5.31	1.145
With this brand, my friends perceive me to be concerned about the environment	SS4	4.88	1.313
<i>Green risk</i>			
There is a chance that there will be something wrong with environmental performance of the product of this brand	GR1	3.98	1.625
There is a chance that the product of this brand will not work properly with respect to its environmental design	GR2	4.16	1.695
There is a chance that using the product of this brand will negatively affect the environment	GR3	4.13	1.631
Using this brand would damage my green reputation or image	GR4	2.90	1.689
<i>Green transparency</i>			
This brand explains clearly how it controls the emissions caused by its production processes that could harm the environment	GT1	5.29	1.102
Overall, this brand provides the information needed to understand the environmental impact of its production processes	GT2	5.24	1.086
This brand provides relevant information regarding environmental issues associated with its production processes	GT3	5.31	1.073
The environmental policies and practices of this brand are provided to customers in a clear and complete way	GT4	5.14	1.163
<i>Brand evaluation: functional value</i>			
The product of this brand provides good performance	FV1	5.33	1.050
The product of this brand has an acceptable standard of quality	FV2	5.38	1.042
The product of this brand offers value for money	FV3	5.26	1.123
The product of this brand is reasonably priced	FV4	5.32	1.096
<i>Brand evaluation: green perceived value</i>			
This brand's environmental functions provide very good value for me	GPV1	5.24	1.044

Table 5:5 Summary of mean and SD for items operationalising constructs

Statement and the latent constructs	Label	Mean	SD
This brand's environmental performance meets my expectations	GPV2	5.36	1.060
This brand is environmental friendly	GPV3	5.21	1.107
This brand has more environmental benefits than other brands	GPV4	5.31	1.141
This brand has more environmental concern than other brands	GPV5	5.30	1.154
<i>Brand relationship: self-brand connection</i>			
This brand has a great deal of personal meaning for me	SBC1	5.22	1.147
This brand embodies what I believe in	SBC2	5.29	1.174
This brand is an important indication of who I am	SBC3	4.91	1.132
I feel a strong sense of belonging to this brand	SBC4	5.27	1.238
<i>Brand relationship: brand prominence</i>			
When I buy a product or service, my thoughts and feelings toward this brand happen automatically	BP1	5.43	1.089
When I buy a product or service, my thoughts and feelings toward this brand happen instantly	BP2	5.42	1.175
This brand makes me automatically evoke many good thoughts about the past, present and future (e.g., technology innovation, enhancement of environment)	BP3	5.49	1.099
I have many thoughts about this brand (e.g., concern about the brand's development)	BP4	5.50	1.148
<i>Brand relationship: green brand loyalty</i>			
I am willing to repurchase this brand because of its environmental functions	GBL1	5.57	1.067
I prefer purchasing this brand to other brands because of its environmental performance	GBL2	5.46	1.105
I seldom consider switching to other brands because of this brand's environmental concern	GBL3	5.58	1.103
I intend to continue buying this brand because it is environmentally friendly	GBL4	5.61	1.045

5.4 Exploratory factor analysis (EFA)

Exploratory factor analysis (EFA) is generally used to parsimoniously represent a large set of measured variables and to validate whether the items of the scales load onto a single latent construct (Hair et al. 2010). The ideal outcome is that the pattern of factor loadings exhibits a simple structure, meaning that “each item loads strongly on only one factor and has near-zero loadings on all the other factors” (Swisher, Beckstead & Bebeau 2004, p.787). In order to ascertain whether the measurement items loaded on the relevant constructs, EFA for green brand communication, brand value assessment and brand relationship were performed.

Principal components analysis

The purpose of principal components analysis is to summarise most of the original information (variance) in a minimum number of factors for prediction purposes (Hair et al. 2010). This has been commonly used in the analysis of psychological data (Pallant & Tennant 2007; Todman & Dugard 2007). Additionally, there are two types of rotation in factor analysis, i.e., orthogonal and oblique (Hair et al. 2010). In orthogonal rotation, factors are always rotated at the right angle to each other meaning that these factors are uncorrelated to each other. On the contrary, oblique rotation assumes that the factors are correlated, providing more freedom in selecting the position of factors as compared to orthogonal rotation. In reality, only few constructs in the real world are uncorrelated (Hair et al. 2010). Moreover, oblique rotation method can assist in identifying theoretically meaningful factors or constructs. Hence, the principal components that factor extraction with Varimax (oblique rotation) were selected in this study in order to derive the factor loadings.

Factor loadings and identifying the number of factors

Factor loadings are defined as “the correlation between the original variables and the factors” (Hair et al. 2010, p.92), which outline weighted combination of the variables’ loadings on each factor, within the range of 0 to 1 (Pallant & Tennant 2007). Notably, the square loading is the amount of the variable’s total variance accounted for by the factor due to a factor loading representing the correlation of the variable and the factor. Therefore, factor loadings in the range of .30 to .40 are considered to meet the minimal level for interpretation of structure and loadings equal to .50 or above are considered practically significant (Hair et al. 2010). To better interpret the structure, this study applied a threshold of .40 to determine whether the item should be removed or retained. Additionally, to assess the suitability of the data for EFA, the Kaiser-Meyer Olkin Measure (KMO) of Sampling Adequacy together with Bartlett’s test of Sphericity were chosen. Accordingly, the data is suitable for EFA testing when KMO is above .50 and Bartlett’s test of Sphericity is significant (Hair et al. 2010).

There are two most commonly used criteria for extracting the number of factors: latent root and scree test criteria (Hair et al. 2010). The latent root criterion specifies that any individual factor should account for the variance of at least a single variable if it is to be retained for

interpretation” (Hair et al. 2010, p.109). This means that factors with latent roots (i.e., eigenvalues) greater than 1.0 are considered significant whilst they are considered insignificant when their eigenvalues are below 1.0. In addition, scree test is another efficient criterion for identifying the optimum number of factors that can be extracted. The rationale is that it aims at avoiding the dominance of unique variance in the common variance structure when extracting the number of factors. More specifically, the scree test is derived by plotting the latent roots against the number of factors in their order of extraction. The shape of the resulting curve is used to evaluate the cut-off point” (Hair et al. 2010, p.110). Hence, the scree plot provides a visual approach to estimate the number of factors. Compared to the latent root criterion, scree test generally results in more factors. Nevertheless, the number of factors selected for retention relies on several considerations (Hair et al. 2010, p.111). The recommended procedure is as follows: First, select factors with eigenvalues greater than 1.0. Second, decide the appropriate number of factors based on research objects or previous studies. Third, ensure that there are adequate factors to achieve over 60% of variance. Fourth, extract the number of factors by checking the inflection point using scree plot to obtain a higher common variance. Finally, the number of factors can be adjusted in order to produce the best solution.

Scale reliability

Cronbach’s alpha coefficients were used to examine the internal consistency of measurement scales (Hair et al. 2010). Cronbach’s alpha measures the reliability of the scale to ascertain the inter-statement consistency (Cavana, Delahaye & Sekaran 2001). Cronbach’s alpha values above .70 (Hair et al. 2010) are considered acceptable, and values above .80 are preferable. Finally, as most constructs were measured using previously validated scales, this study performed EFA for green brand communication, brand value assessment and brand relationship separately instead combining all the items of those constructs. Details of the EFA are presented in the section to follow.

5.4.1 EFA for green brand communication

There are 19 items used to reflect consumers' perceptions of green branding initiatives. In order to provide a clear structure of factors, EFA is performed and the associated details are depicted in Table 5.6.

Table 5:6 EFA for green brand communication

Statement and the latent constructs	Factor loadings	Eigen value	Variance explained (%)	Cronbach's alpha
Factor 1: Utilitarian environmental benefits		6.165	35	.75
UE1. This brand respects the environment	.59			
UE2. This brand helps to prevent global warming	.72			
UE3. Products of this brand do not pollute the environment	.81			
Factor 2: Warm glow benefits		2.035	12	.76
WG1. With this brand, I can feel good because I help to protect the environment	.79			
WG2. With this brand, I have the feeling of contributing to the well-being of humanity and nature	.75			
WG3. With this brand, I can feel better because I don't harm the environment	.79			
Factor 3: Self-expressive benefits		1.484	9	.79
SS1. With this brand, I can express my environmental concern	.75			
SS2. With this brand, I can demonstrate to myself that I care about environmental conservation	.80			
SS3. With this brand, I can demonstrate to my friends that I care about environmental conservation	.77			
SS4. With this brand, my friends perceive me to be concerned about the environment	.67			
Factor 4: Green perceived risk		1.032	6	.89
GR1. There is a chance that there will be something wrong with environmental performance of the product of this brand	.86			
GR2. There is a chance that the product of this brand will not work properly with respect to its environmental design	.90			
GR3. There is a chance that using the product of this brand will negatively affect the environment	.89			
Factor 5: Green transparency		.966	6	.81
GT1. This brand explains clearly how it controls the emissions caused by its production processes that could harm the environment	.69			
GT2. Overall, this brand provides the information needed to understand the environmental impact of its production processes	.78			
GT3. This brand provides relevant information regarding environmental issues associated with its production processes	.72			
GT4. The environmental policies and practices of this brand are provided to customers in a clear and complete way	.60			

An examination of the communalities table revealed that all the items loadings were greater than .40 except for item labelled UE4 (.27). This suggested that item UE4 accounted for very little variance and was deleted. Also, item GR4 cross-loaded on factor 2 (.45) and factor 4 (.45) and hence this item was deleted. An EFA on the rest of the 17 items was re-run after deleting items UE4 and GR4.

The KMO of Sampling Adequacy had a value of .880 and Bartlett's test of Sphericity was significant ($\chi^2 = 2773.751$, $p < .000$), indicating that the data were suitable for an EFA. The principal component factoring revealed a five-factor solution with each eigenvalue greater than 1.0 except for factor 5 (.965). The total variance explained for the five-factor solution was 68%. The first dimension of green brand communication included three items with factor loadings greater than .40. This dimension was labelled utilitarian environmental benefits and it explained 35% of the performance variance with a reliability coefficient (Cronbach's alpha) of .75. The second dimension was labelled warm glow benefits. It comprised of three items with factor loadings over .40. This dimension explained 12% of the total variance and the reliability coefficient was .76. The third dimension was labelled self-expressive benefits. It comprised of four items with factor loading above .40. This dimension explained 9% of the total variance and the reliability coefficient was .79. The fourth dimension was labelled green perceived risk comprising three items with all factor loadings greater than .40. This dimension explained 7% of the total variance and the reliability coefficient was .89. The fifth dimension was labelled green transparency comprising four items with factor loadings over .40. This dimension explained 6% of the total variance and the reliability coefficient was .81. Hence, a five-factor structure was recommended as is evident from the Scree Plot (see *Appendix 3, Table A*). The Cronbach's alpha value of all factors were above .70, indicating good internal consistency of the sample data.

5.4.2 EFA for green brand value assessment

Nine items adapted from previously validated scales are used to measure functional value and GPV and the results of EFA are depicted in Table 5.7.

Table 5:7 EFA for green brand value assessment

Statement and the latent constructs	Factor loadings	Eigen value	Variance explained (%)	Cronbach's alpha
Factor 1: Functional value		4.798	53	.84
FV1.The product of this brand provides good performance	.79			
FV2.The product of this brand has an acceptable standard of quality	.77			
FV3.The product of this brand offers value for money	.78			
FV4.The product of this brand is reasonably priced	.76			
Factor 2: Green perceived value		1.056	12	.85
GPV1.This brand's environmental functions provide very good value for me	.68			
GPV2.This brand's environmental performance meets my expectations	.81			
GPV3.This brand is environmental friendly	.81			
GPV4.This brand has more environmental benefits than other brands	.76			
GPV5.This brand has more environmental concern than other brands	.62			

The results reveal that all the items loadings were greater than .40. Additionally, the data were suitable for an EFA owing to the value of KMO of Sampling Adequacy being .904 and Bartlett's test of Sphericity was significant ($\chi^2= 3401.498$, $p<.000$). A two-factor solution with eigenvalues greater than 1.0 was identified by principal component factoring. The details of the analysis are presented in *Appendix 3, Table B*. The total variance explained for the two-factor solution was 65%. The first dimension of brand evaluation comprised of four items with factor loadings greater than .40. This dimension was labelled customer perceived functional value and it explained 53% of the value variance with a reliability coefficient (Cronbach's alpha) of .84. The second dimension was labelled green perceived value and it comprised of five items with factor loadings greater than .40. This dimension explained 12% of the total variance and the reliability coefficient was .85.

5.4.3 EFA for green brand relationship

As for measuring the relationship between consumers and green brands, there are 12 items used to measure self-brand connection, brand prominence and green brand loyalty. The details of the EFA are displayed in Table 5:8.

Table 5:8 EFA for green brand relationship

Statement and the latent constructs	Factor loadings	Eigen value	Variance explained (%)	Cronbach's alpha
Factor 1: Self-brand connection		4.275	43	.81
SBC2. This brand embodies what I believe in	.78			
SBC3. This brand is an important indication of who I am	.77			
SBC4. I feel a strong sense of belonging to this brand	.77			
Factor 2: Brand prominence		1.055	15	.80
BP1. When I buy a product or service, my thoughts and feelings toward this brand happen automatically	.79			
BP2. When I buy a product or service, my thoughts and feelings toward this brand happen instantly	.83			
BP4. I have many thoughts about this brand (e.g., concern about the brand's development)	.80			
Factor 3: Green brand loyalty		1.043	10	.86
GBL1. I am willing to repurchase this brand because of its environmental functions	.76			
GBL2. I prefer purchasing this brand to other brands because of its environmental performance	.76			
GBL3. I seldom consider switching to other brands because of this brand's environmental concern	.83			
GBL4. I intend to continue buying this brand because it is environmentally friendly	.78			

As depicted in Table 5.8 all the items loadings were greater than .40 except for item labelled SBC1 (.35). This indicated that item SBC1 accounted for very little variance and therefore it was deleted. Also, item BP3 was deleted as it cross-loaded. After removing items of SBC1 and BP3, the EFA was re-run on the rest of 10 items.

The KMO of Sampling Adequacy had a value of .863 and Bartlett's test of Sphericity was significant ($\chi^2= 3094.556, p<.000$), providing support that the data were suitable for an EFA. Then a three-factor solution was generated based on principal component factoring and the eigenvalue of these three factors were higher than 1.0 (see *Appendix 3, Table C*). The total variance explained for the three-factor solution was 68%. The first dimension of brand relationship labeled self-brand connection comprised of three items. This dimension explained 43% of the value variance with a reliability coefficient of .81. The second dimension labelled brand prominence included three items with factor loadings greater than .40. This dimension explained 15% of the total variance and the reliability coefficient was .80. The third dimension was labeled green brand loyalty comprising four items with factor loadings greater than .40. This dimension explained 10% of the total variance and the reliability coefficient was .86.

5.4.5 Summary of the latent constructs based on the EFA

After conducting a series of EFAs, several items were deleted and a summary of the EFA analysis is depicted in Table 5:9.

Table 5:9 Summary of the EFA analysis

Item and the latent constructs	Number retained	Items retained	Items removed
Green brand communication			
Utilitarian environmental benefits	3	UE1, UE2, UE3	1
Warm glow benefits	3	WG1, WG2, WG3	0
Self-expressive benefits	4	SS1, SS2, SS3, SS4	0
Green perceived risk	3	GR1, GR2, GR3	1
Green transparency	4	GT1, GT2, GT3, GT4	0
Green brand value assessment			
Functional value	4	FV1, FV2, FV3, FV4	0
Green perceived value	5	GPV1, GPV2, GPV3, GPV4, GPV5	0
Green brand relationship			
Self-brand connection	3	SBC2, SBC3, SBC4	1
Brand prominence	3	BP1, BP2, BP4	1
Green brand loyalty	4	GBL1, GBL2, GBL3, GBL4	0

The results reveal that a total of eight items were deleted. For the final constructs, all the Cronbach alpha values were between .75 and .89. In addition, each of the remaining constructs were operationalised by at least three items. The numbering of the items are similar to those shown earlier in Table 5.5.

5.5 Confirmatory factor analysis (CFA)

SEM provides a number of advantages as compared to multiple regression analysis. For example, it is able to ensure reliability in measurement and provides information relating to model fit. In addition, it enables moderator analysis involving interactions of both categorical and continuous variables (Frazier, Tix & Barron 2004). Hence, this study used the SEM technique to examine the structural relationships which were assumed in the proposed in the conceptual model. As it is recommended that the measurement model needs to fit the data in SEM, this study first examined the congeneric model of each construct to confirm the unidimensional validity and convergent validity using confirmatory factor analysis (CFA).

Maximum likelihood estimation (ML) is the most widely employed method in structural equation models, which is a “procedure that iteratively improves parameter estimates to minimize a specified fit function” (Hair et al. 2010, p.632). Some researchers have suggested the ML method can perform well with sample sizes exceeding 500 when the normality assumption is acceptable (Tabachnick & Fidell 2007). The sample size in this study was 826 and hence, the ML method was selected and employed. An overall measurement model comprising of the total items of all the constructs was examined to ascertain construct validity and reliability following the two-step approach developed by Anderson and Gerbing (1988).

Confirmatory factor analysis (CFA) is an approach which specifies the variables which load onto factors and therefore it is used to confirm the existence of the factor structure (Byrne, 2013). A congeneric measurement model for each construct can be developed using CFA and it is used to assess the convergent validity of the construct being measured (Steenkamp & Van Trijp, 1991). The confirmation of convergent validity of each congeneric measurement model can assist in improving the validity of the overall measurement model. Hence, the following sections report construct validity and reliability, fit indices, and the findings of each congeneric measurement model.

5.5.1 Construct validity and reliability

As numerous latent constructs were used in this study, the first step of SEM was to define individual constructs through the investigation of construct validity, which is referred to as “the extent to which a set of measured variables actually represent the theoretical latent construct they are designed to measure” (Hair et al. 2010, p.631). This process assures the quality of each construct of the overall measurement model and subsequent path diagram analysis (Hair et al., 2010). These authors suggest that construct validity is examined using convergent validity and discriminant validity. Following the assessment of one-factor congeneric measurement models, an overall measurement model was analysed. This measurement model comprising all latent constructs and their respective measured variables enabled discriminant validity testing and confirms construct validity (Hair et al., 2010).

Construct validity

Both convergent validity and discriminant validity should be examined to assure construct validity. Notably, convergent validity implies that the items which are indicators of a specific construct should converge or share a high proportion of variance (Hair et al. 2010, p. 709). To achieve convergent validity, all factor loadings should be statistically significant (Anderson & Gerbing 1988). Furthermore, average variance extracted (AVE) is another approach of assessing convergent validity. To achieve adequate convergence, the value of AVE should be .50 or above (Hair et al. 2010). Discriminant validity ensures that the measured variables used to capture a particular latent construct contribute distinctly to that construct and tests the extent to which each construct correlates with other constructs. In other words, discriminant validity measures whether a construct is truly distinct from others (Hair et al. 2010). The average variance extracted (AVE) estimate is used to measure discriminant validity and should achieve a greater value than the squared correlation estimate. This would indicate that the latent construct explains the variance in its associated measured variables more than other constructs in the model (Hair et al. 2010).

Construct reliability

The reliability was investigated as it is a necessary element of validity testing. It assesses the extent to which measured variables are internally consistent (Hair et al. 2010) and free from random measurement error (Kline 2015). Cronbach's coefficient alpha is the most widely used measurement of reliability, however it is criticised as construct weights are constrained to be equal and therefore they underestimate reliability (Peterson & Kim 2013). The construct reliability measure is often used with SEM and allows construct weights to vary (Peterson & Kim 2013) and therefore it is also included in determining reliability (Hair et al. 2010). The key validity and reliability indices and analysis thresholds are summarised in Table 5:10.

Table 5:10 Reliability and validity indices

Indicators	Threshold	Reference
Construct reliability	>.70	Fornell and Larcker 1981; Hair et al. 2010
Cronbach's alpha	>.70	De Vaus 2002; Nunnally and Bernstein, 1994
Average Variance Extracted	>.50 (must exceed the square of the correlations between	Fornell and Larcker 1981; Hair et al. 2010

	constructs to achieve discriminant validity)	
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Source: De Vaus, 2002; Fornell & Larcker, 1981; Hair et al. 2010; Nunnally & Bernstein, 1994

5.5.2 Descriptive fit indices

There are two types of indices used to evaluate the overall fit of the measurement model: absolute model fit indices and incremental fit indices. Absolute model fit indices provide a direct measure of how well the model specified by the researcher reproduces the observed data (Hair et al. 2010). Chi-square statistic (χ^2), Normed Chi-square (χ^2/df), Goodness-of-Fit (GOF) index, Standardised root mean residual (SRMR) and Root mean square error of approximation (RMSEA) are included in this category. In particular, the conventional method for assessing the fit of a CFA model is the Chi-square test. A Chi-square test compares the observed and estimated covariance matrices (Hair et al. 2010, p. 630). A model is considered to be acceptable when the p-value of the Chi-square is non-significant at the 95% confidence interval ($p > 0.05$) (Hair et al. 2010).

Chi-square, however, is extremely sensitive to sample size (Hair et al. 2010). It is expected to be insignificant with its p-value higher than .01, but an insignificant χ^2 is hard to obtain with a sample size greater than 200. The Chi-square statistic nearly always rejects the model when large sample sizes are used and therefore significant p-values are expected in such situation (Hair et al. 2010, p.672). The Chi-square test assumes multivariate normality and severe deviations from normality may result in model rejections, even when the model is properly specified (McIntosh, 2007). In other words, the Chi-square test would become less meaningful for complex models with a large number of observed variables (Hair et al. 2010).

To reduce the potential drawbacks of Chi-square test, Hooper, Coughlan and Mullen (2008) suggest the use of Normed Chi-square (χ^2/df), in which the degree of freedom should serve as a standard to judge whether χ^2 is bigger or small. While the acceptable value of the ratio between Chi-square and degree of freedom is below 3:1, the threshold of ratio can be up to 5:1 for large sample sizes (Hair et al. 2010). Furthermore, RMSEA tells us how well the model, with unknown but optimally chosen parameter estimates, would fit the population's covariance matrix (Byrne 2013). It better represents how well a model fits a population, not just a sample used for estimation (Hu & Bentler 1999). RMSEA is commonly reported with

Chi-square as it aims at correcting the shortfalls associated with Chi-square, i.e., sample size and model complexity. It is generally regarded as a measure for examining the badness of fit. RMSEA values between .05 and .08 are considered to be acceptable and values below .05 suggest best fit. Similarly, another badness-of-fit measure is SRMR. It is used to compare fit across models and a high value of the SRMR demonstrates that there are potential issues relating to outliers (Cunningham 2008). In that case, the lower the value of the SRMR, the better is the model fit. Generally, a value of the SRMR exceeding .10 suggests poor fit and it should be .08 or less when the number of variables is less than 30 with large sample sizes (Hair et al. 2010).

While absolute fit indices measure how well the model fits in comparison to no model at all (Hair et al. 2010), incremental fit indices (Hooper, Coughlan & Mullen 2008) are a group of indices that do not use the χ^2 in its raw form but compares the χ^2 value to a baseline model. Incremental fit indices are different from absolute fit indices in that they assess how well the estimated model fits relative to some alternative baseline model (Hair et al. 2010). The most widely reported indices are the Tucker-Lewis Index (TLI) and the Comparative Fit Index (CFI). The Tucker-Lewis Index (TLI) compares the chi-square of the specified model to the null model and it is recommended that a TLI value close to 1 suggests a good model fit. However, the TLI can be frequently more than 1 especially when being presented in over-fitting models. The Comparative Fit Index (CFI) is the most widely used index as it has less sensitivity to model complex. CFI values above .95 are usually associated with a model that fits well when the number of variables is between twelve and thirteen with the sample size greater than 250. Also, values which are greater than 0.90 can indicate a reasonable fit of the model. This is especially the case when the number of variables exceeds 30 (Hair et al 2010).

Taking account of the model complexity and large sample size, this study has reported the Chi-square statistic (χ^2), its degrees of freedom (df) and p value, Normed Chi-square (χ^2/df), RMSEA, SRMR, CFI and TLI. Each construct model in this study was tested against these fit indices and their related cut-off values are shown in Table 5:11.

Table 5:11 Model Fit Indices

Model Fit Indices	Abbreviation	Type	Acceptable level
Chi-square	χ^2	Absolute fit	p>.05
Normed chi-square	χ^2/df	Absolute fit	5:1
Tucker-Lewis Index	TLI	Incremental fit	>.90
Comparative Fit Index	CFI	Incremental fit	>.90
Root Mean-Square Error of Approximation	RMSEA	Absolute fit	<.05 (best) .05-.08 (acceptable)
Standardised Root Mean Residual	SRMR	Absolute fit	<.08

Source: Hair et al. (2010, p. 672)

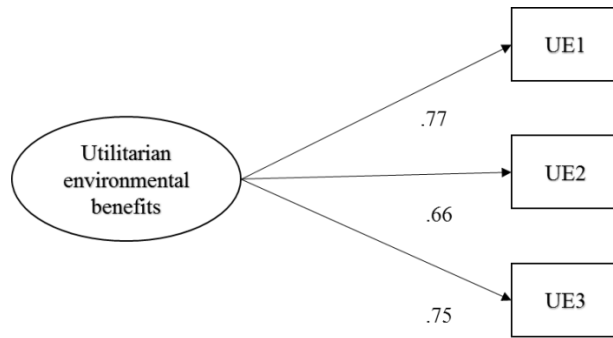
5.5.3 Findings from the CFA

Convergent validity is defined as “the items that are indicators of a specific construct should converge or share a high proportion of common variance” (Hair et al. 2010, p.709). In order to improve the accuracy of an overall measurement model, one-factor congeneric measurement models which allow all cross-loadings to be fixed at zero, were tested using Mplus 7.31. A range of fit indices including χ^2 and associated df, CFI, TLI, RMSEA, SRMR were used in this study to test the fit of the measurement models.

An explanation for each of the one-factor congeneric measurement models and the corresponding fit indices is given in the following section. The standardised factor loadings between each measured variable and their latent variables were also observed, with values above .70 indicating ideal convergent validity and values above .50 suggesting acceptable convergent validity (Hair et al. 2010). Details of CFA results are depicted in *Appendix 4*.

Measurement model for Utilitarian environmental benefits (UE)

The one-factor congeneric measurement model for utilitarian environmental benefits consist of three items (the initial item UE4 was removed through the process of EFA), i.e., item UE1, UE2 and UE3. The modified model is presented in figure 5.2.



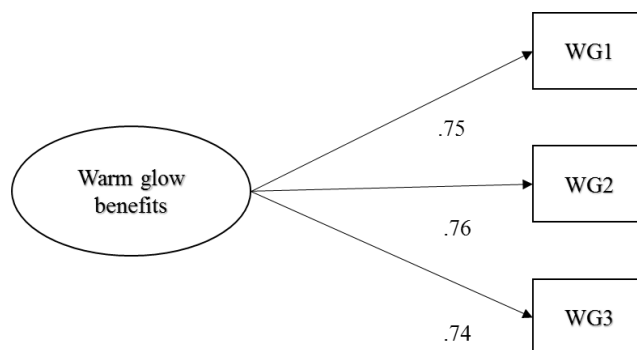
Chi-square (df = 1) = .16 p=.69, TLI= 1.00, CFI=1.00, RMSEA= .00 and SRMR= .01

Figure 5:2 Measurement model –Utilitarian environmental benefits

The model fit indices were $\chi^2 (1) = .16$, $p=.69$, CFI=1.00, TLI=1.00, RMSEA=.00 and SRMR=.01. The results showed that both RMSEA and SRMR values fell below .50, CFI and TLI indices were both above .95, which indicated an excellent good fit of the proposed model to the data. Hence, the construct of utilitarian environmental benefits was measured by three items.

Warm glow benefits (WG)

The one-factor congeneric measurement model for warm glow benefits comprised of three items, i.e., WG1, WG2 and WG3. The model fit indices were $\chi^2 (1) = 2.27$, $p=.13$, CFI=1.00, TLI=1.00 RMSEA=.039 and SRMR=.04. The results demonstrated that RMSEA value reached the ideal level of .04 (<.05) and SRMR value was below .08. In addition, both CFI and TLI indices were above .95. Hence, the three items were used to measure warm glow benefits and the measurement model is presented in figure 5.3.

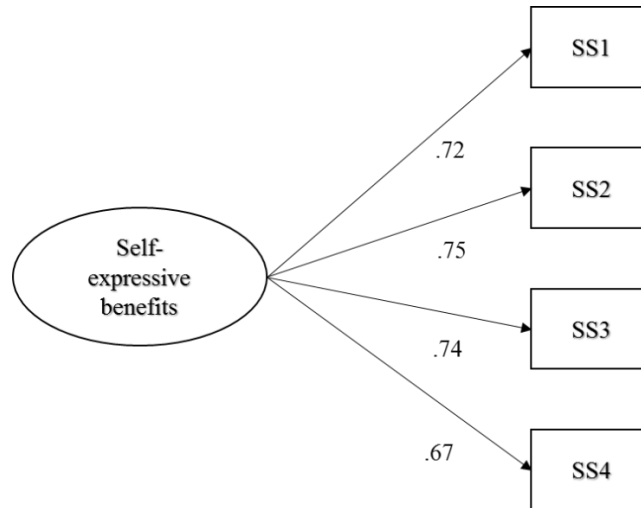


Chi-square (df = 1) = 2.27 p=.13, TLI= 1.00 CFI=1.00, RMSEA= .04 and SRMR=.04

Figure 5:3 Measurement model –Warm glow benefits

Self-expressive benefits (SS)

The one-factor congeneric measurement model for self-expressive benefits achieved acceptable goodness-of-fit with respect to the fit indices depicted in Figure 5.4.



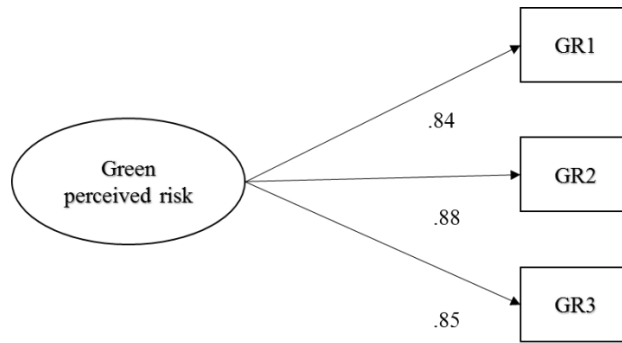
Chi-square (df = 2) = 6.41 p=.04, TLI= 1.00 CFI=.99, RMSEA= .05 and SRMR=.01

Figure 5:4 Measurement model –Self-expressive benefits

While the chi-square result of the measurement model was found to be significant, other fit indices revealed an acceptable fit to the data (CFI =1.00, TLI =.99, RMSEA =.05, SRMR=.01). In addition, all but one item met the ideal threshold value of .70. Nevertheless, item four (SS4= .67) achieved an acceptable factor loading of above .50 and therefore, the convergent validity of the model was supported. Hence, the four-item measurement model was accepted.

Green perceived risk (GR)

The one-factor congeneric measurement model for green perceived risk comprised three items (item GR4 was deleted in the process of EFA), i.e., GR1, GR2 and GR3. The measurement model is presented in figure 5.5.



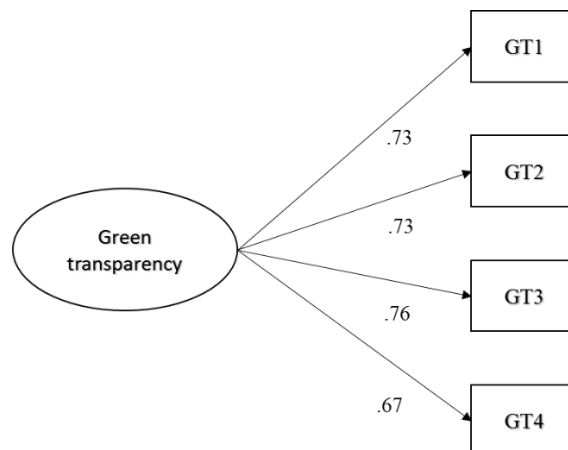
Chi-square (df = 1) = .98 p=.32, TLI= 1.00 CFI=1.00, RMSEA= .00 and SRMR=.02

Figure 5:5 Measurement model –Green perceived risk

The model fit indices were $\chi^2 (1) = .98$, $p=.32$, CFI=1.00, TLI=1.00, RMSEA=.00 and SRMR=.02. Both CFI and TLI indices were higher than .95 and the RMSEA and SRMR values achieved the ideal level (<.05). Hence, the three items were used to measure green perceived risk.

Green transparency (GT)

The one-factor congeneric measurement model for green transparency achieved satisfactory goodness-of-fit with respect to the fit indices described in Figure 5.6.



Chi-square (df = 2) = 3.20 p=.20, TLI= 1.00 CFI=1.00, RMSEA= .03 and SRMR=.01

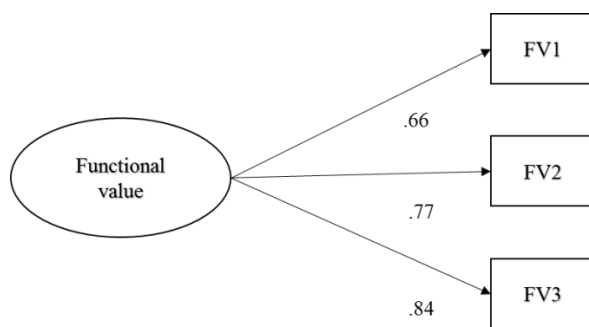
Figure 5:6 Measurement model –Green transparency

All but one item met the ideal threshold value of .70. Item GT4 was retained in the model as it has achieved an acceptable factor loading of above .50 and was supported by relevant theory. In addition, no cross-loading was found and therefore items GT1, GT2, GT3 and GT4 was used to measure green transparency.

Functional value (FV)

The initial one-factor congeneric measurement model for functional value comprised of four items, i.e., FV1, FV2, FV3 and FV4. The model fit indices were $\chi^2 (2) = 52.356$, $p=0.00$, CFI=.96, TLI=.89 and RMSEA=.18. Although CFI met the minimum required standard, other indices showed that there was room for model improvement. Previous research suggests that standardised loadings, modification indices (MI) and standardised residuals are three common criteria to re-specify the model (Hair et al. 2010). A standardised loading should be .50 or higher, and ideally .70 or higher (Hair et al. 2010). The modification index is an estimate of the decrease in chi-square that will be obtained if a particular path is relaxed (Jöreskog & Bollen 1993). These authors state that a MI of greater than 9.0 might indicate cross-loading problems and it is worth attending to. A standardised residual covariance table displays the discrepancy between actual covariance and those estimated by the model. Jöreskog and Bollen (1993) also suggest that a score above 2.58 ($p<.005$) is considered large and needs more attention.

The initial measurement model results showed that all items achieved an acceptable factor loading of above .5. However, the modification index indicated that item FV4 cross-loaded with item FV1 and item FV3 ($MI>9$). Therefore, item FV4 was deleted. After modification, the chi-square value was 2.22 with 1 degree of freedom ($p>.01$). RMSEA and SRMR values fell below .05, CFI and TLI indices were both above .95, which indicated an excellent fit of the proposed model to the data. Hence, the construct of functional value was measured by three items and the measurement model is presented in Figure 5.7.

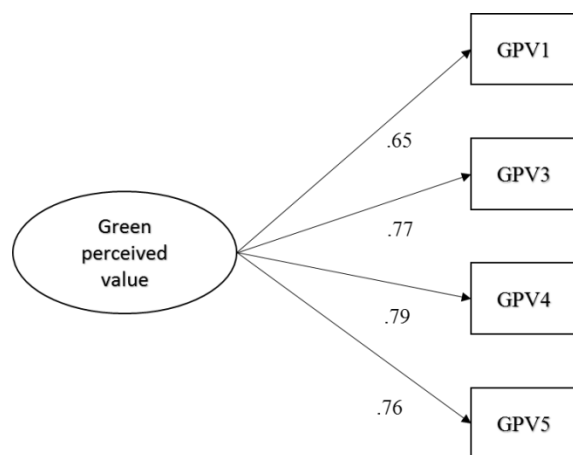


Chi-square (df = 1) = 2.22 p=.14, TLI= 1.00 CFI=1.00, RMSEA= .04 and SRMR=.04

Figure 5:7 Measurement model –Functional value

Green perceived value (GPV)

The results of the one-factor congeneric measurement model for GPV using five items indicated that there was room for improvement. The model fit indices were $\chi^2(5) = 65.617$, $p = .00$, CFI=.97, TLI=.94 and RMSEA=.12. All factor loadings were above 0.5 and the MI indices showed that item GPV5 had an issue with cross-loading. Therefore, item GPV2 was deleted and the model was re-run. The modified model achieved excellent goodness-of-fit and the results are presented in Figure 5.8.



Chi-square (df = 2) = 2.36 p=.31, TLI= 1.00 CFI=1.00, RMSEA= .02 and SRMR=.01

Figure 5:8 Measurement model -Green perceived value (GPV)

Self-brand connection (SBC)

The one-factor congeneric measurement model for self-brand connection consisted of three items, i.e., SBC2, SBC3 and SBC4. The model fit indices were $\chi^2(1) = .62$, $p = .43$, CFI=.1.00,

TLI=1.00, RMSEA=.00 and SRMR=.02, which indicated that the measurement model for self-brand connection achieved excellent goodness-of-fit. In Figure 5.9, item SBC2, SBC3 and SBC4 met the ideal threshold value of .7 providing support of convergent validity for the model.

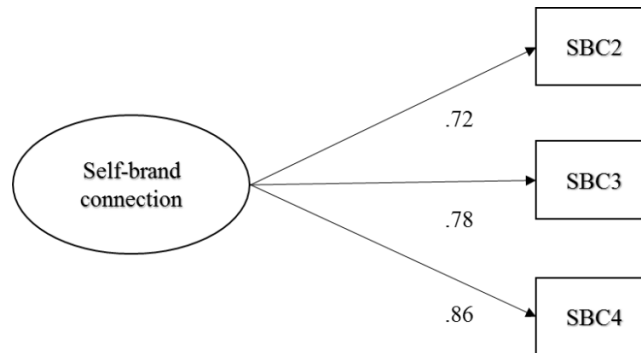
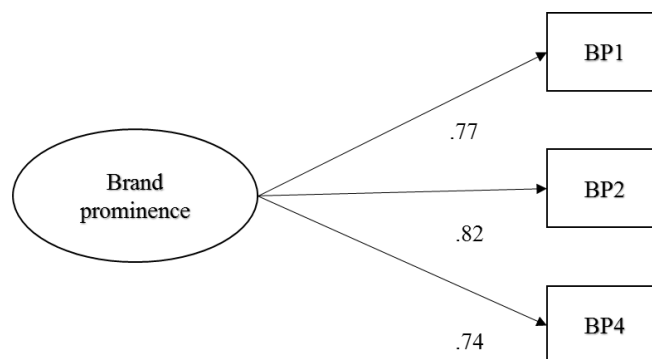


Figure 5:9 Measurement model –Self-brand connection

Chi-square (df = 1) = .62 p=.43, TLI= 1.00 CFI=1.00, RMSEA= .00 and SRMR=.02

Brand prominence (BP)

The one-factor congeneric measurement model for brand prominence included three items, i.e., BP1, BP2 and BP4. The results in Figure 5.10 showed that the chi-square value was .61 with 1 degree of freedom ($p > .01$), RMSEA and SRMR values fell below .5, CFI and TLI indices were both higher than .95. These findings indicated an excellent good fit of the proposed model to the data. In addition, all three items met the ideal threshold value of 0.7 and the convergent validity of the model was supported.

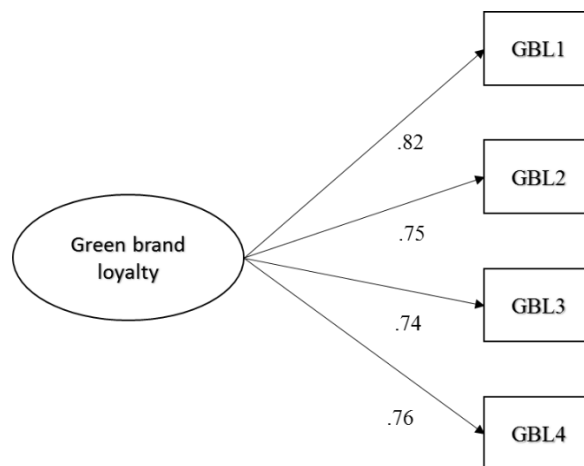


Chi-square (df = 1) = 0.61 p=.43, TLI= 1.00 CFI=1.00, RMSEA= .00 and SRMR=.02

Figure 5:10 Measurement model –Brand prominence

Green brand loyalty (GBL)

The one-factor *congeneric* measurement model for green brand loyalty comprising of four items, i.e., GBL1, GBL2, GBL3 and GBL4 achieved excellent goodness-of-fit with respect to the model fit indices. All four items met the ideal threshold value of .7 providing support of convergent validity of the model and the results are depicted in Figure 5.11.



Chi-square (df = 2) = 5.38 p=.07, TLI= 1.00 CFI=.99, RMSEA= .05 SRMR=.01

Figure 5:11 Measurement model –Green brand loyalty

5.5.4 Summary of the CFA analyses

A series of CFAs were conducted to achieve model fit for each congeneric measurement model. Summary of CFA analysis is provided in Table 5.12.

Table 5:12 Summary of CFA analysis

One-factor congeneric measurement model	Number retained	Retained items	Items removed	Model fit indicators				Range of factor loadings (>.50)
				χ^2 (p>.05)	CFI (>.90)	TLI (>.90)	RMSEA (<.08)	
Utilitarian environmental benefits	3	UE1, UE2, UE3	0	.69	1.00	1.00	.00	.66-.77
Warm glow	3	WG1,	0	.13	1.00	1.00	.04	.74-.75

One-factor congeneric measurement model	Number retained	Retained items	Items removed	Model fit indicators				Range of factor loadings (>.50)
benefits		WG2, WG3						
Self-expressive benefits	4	SS1,SS2, SS3,SS4	0	.00	.97	.98	.04	.67-.75
Green perceived risk	3	GR1,GR 2,GR3	0	.32	1.00	1.00	.00	.84-.88
Green transparency	4	GT1, GT2, GT3, GT4	0	.20	1.00	1.00	.03	.67-.76
Functional value	3	FV1,FV2 ,FV3	1	.14	1.00	1.00	.04	.66-.84
Green perceived value	4	GPV1, GPV3, GPV4, GPV5	1	.31	1.00	1.00	.02	.65-.79
Self-brand connection	3	SBC2, SBC3, SBC4	0	.43	1.00	1.00	.00	.72-.86
Brand prominence	3	BP1, BP2, BP4	0	.43	1.00	1.00	.00	.74-.82
Green brand loyalty	4	GBL1, GBL2, GBL3, GBL4	0	.07	.99	1.00	.05	.74-.82

Note: UE: Utilitarian environmental benefits; WG: Warm glow benefits; SS: Self-expressive benefits; GR: Green perceived risk; GT: Green transparency; FV: Functional value; GPV: Green perceived value; SBC: Self-brand connection; BP: Brand prominence; GBL: Green brand loyalty.

As shown in Table 5.12, the results of the confirmatory analyses revealed that two further items were removed and two modified models achieved excellent goodness-of-fit. Additionally, most measurement models had a p-value of the chi-square as being non-significant at the 95% confidence interval ($p > .05$) except for the measurement model of self-expressive benefits. However, other fit indices revealed an acceptable fit to the data in this model ($CFI > .90$, $TLI > .90$ and $RMSEA < .08$). Finally, all items achieved an acceptable factor loading of above .50, ranging from .65 to .88 and therefore the convergent validity of each model was supported. The details of the analysis of all CFA models were presented in *Appendix 4*.

5.6 Full structural equation modelling (SEM)

The two-step approach developed by Anderson and Gerbing (1988) was employed to analyse the data and the statistical software program Mplus7.31 was used to perform the analysis. The reliability and validity of the overall measurement model was estimated using confirmatory analysis (CFA) in the first step. Next, structural equation modelling (SEM) with a maximum likelihood method was employed to examine the relationship between the ten main constructs of the proposed conceptual model. Specifically, prior to the hypotheses tests, convergent validity and discriminant validity of overall measurement model were ascertained in the first step.

5.6.1 Testing for overall measurement model

Measurement model fit

An overall measurement model comprising of all constructs was examined using CFA. The model fit summary of the overall measurement model is depicted in Table 5:13.

Table 5:13 Model fit summary of overall measurement model

χ^2	df	p	Normed Chi-square	CFI	TLI	RMSEA	SRMR
1053.855	482	0.00	2.2	.96	.96	.04	.03

The results of the overall measurement model demonstrated that although the chi-square result of the measurement model was found to be significant, other fit indices revealed a satisfactory fit to the data. The normed chi-square value was below 3 and RMSEA and SRMR values were below .05. In addition, both CFI and TLI exceeded .95. Hence, the fit of the overall measurement model was achieved. No further modification was required to improve the model fit.

Construct validity of overall measurement model

After confirming the measurement model fit, the next step was to examine the construct validity of the overall measurement model. As discussed previously, construct validity can be achieved by ensuring convergent validity and discriminant validity. Convergent validity reflects the extent to which items are strongly loaded on a single factor (Hair et al. 2010). This can be achieved when factor loadings of items are significant and are above .50 (Rencher 2002). The convergent validity of individual measurement models was achieved and this would improve the convergent validity of overall measurement models. The composite reliabilities (CR) and average variance extracted (AVE) for each construct are depicted in Table 5.14, which indicate that convergent validity was achieved since all factor loadings were significant. The standard factor loadings of all measurement items well exceeded the recommended .50 cut-off (Rencher 2002). As for discriminant validity, it focuses on the extent to which a construct is truly distinct from other constructs (Hair et al. 2010 p. 710). The average variance-extracted value (AVE) is commonly used to assess discriminant validity. The AVE should be greater than the squared correlation estimate in order to achieve discriminant validity (Hair et al. 2010, p.710). In addition, relatively high correlation between any two constructs cannot provide discriminant validity. As indicated in Table 5.14, the AVE values were .53 for utilitarian environmental benefits, .56 for warm glow benefits, .52 for self-expressive benefits, .73 for green perceived risk, .52 for green transparency, .58 for functional value, .55 for GPV, .62 for self-brand connection, .60 for brand prominence and .59 for green brand loyalty. The AVE values of all constructs in this study exceeded the threshold of .50 (Fornell & Larcker 1981), meeting the requirement of achieving convergent validity. Furthermore, the correlations between the ten constructs ranged from -.21 to .70 with no value over .80 (Table 5.15). Table 5.15 demonstrates that all squared correlations coefficients were below AVEs, revealing adequate discriminant validity (Fornell & Larcker 1981).

Construct reliability of overall measurement model

As discussed earlier, Cronbach's alphas and composite reliability (CR) were computed to assess construct reliability. The results of Table 5.14 demonstrate that Cronbach's alphas for all constructs ranged from .76 to .85. Additionally, it is suggested that reliability estimate between .60 and .70 are acceptable and a value of .70 or above indicates strong composite reliability (Hair et al. 2010). The values of CR in this study were .77 (utilitarian environmental benefits), .79 (warm glow benefits), .81 (self-expressive benefits), .89 (green

perceived risk), .81 (green transparency), .81 (functional value), .83 (GPV), .83 (self-brand connection), .82 (brand prominence) and .85 (green brand loyalty) respectively. These values ranged from .77 to .89 (Table 5.14), all exceeding the recommended cut-off values of .70 (Nunnally & Bernstein 1994). Hence, the construct reliability of the overall measurement model was confirmed.

Table 5:14 Measures and reliabilities

Constructs	Standardised factor loadings
Utilitarian environmental benefits (UE) ($\alpha = 0.76$, CR = 0.77 and AVE = 0.53)	
This brand respects the environment.	.75
This brand helps to prevent global warming.	.66
Products of this brand do not pollute the environment.	.76
Warm glow benefits (WG) ($\alpha = 0.79$, CR = 0.79 and AVE = 0.56)	
With this brand, I can feel good because I help to protect the environment	.72
With this brand, I have the feeling of contributing to the well-being of humanity and nature	.77
With this brand, I can feel better because I don't harm the environment	.75
Self-expressive benefits (SS) ($\alpha = 0.81$, CR = .81 and AVE = .52)	
With this brand, I can express my environmental concern	.72
With this brand, I can demonstrate to myself that I care about environmental conservation.	.73
With this brand, I can demonstrate to my friends that I care about environmental conservation.	.74
With this brand, my friends perceive me to be concerned about the environment.	.70
Green perceived risk (GR) ($\alpha = 0.89$, CR = .89 and AVE = .73)	
There is a chance that there will be something wrong with environmental performance of this brand.	.84
There is a chance that this brand will not work properly with respect to its environmental design.	.88
There is a chance that using this brand will negatively affect the environment.	.85
Green transparency (GT) ($\alpha = 0.81$, CR = .81 and AVE = .52)	
This brand explains clearly how it controls the emissions caused by its production processes that could harm the environment.	.75
Overall, this brand provides the information needed to understand the environmental impact of its production processes	.70
This brand provides relevant information regarding environmental issues associated with its production processes.	.73
The environmental policies and practices of this brand are provided to customers in a clear and complete way	.70
Functional value (FV) ($\alpha = .80$, CR = .81 and AVE = .58)	
The product of this brand provides good performance	.74
The product of this brand has an acceptable standard of quality	.75
The product of this brand offers value for money	.80
Green perceived value (GPV) ($\alpha = 0.83$, CR = 0.83 and AVE = 0.55)	
This brand's environmental functions provide very good value for me.	.70
I purchase this brand because it is environmental friendly.	.75

Table 5:14 Measures and reliabilities

Constructs	Standardised factor loadings
I purchase this brand because it has more environmental benefits than other brands.	.76
I purchase this brand because it has more environmental concern than other brands.	.76
Self-brand connection (SBC) ($\alpha = 0.83$, CR = 0.83 and AVE = 0.62)	
This brand embodies what I believe in.	.78
This brand is an important indication of who I am.	.76
I feel a strong sense of belonging to this brand.	.83
Brand prominence (BP) ($\alpha = 0.82$, CR = 0.82 and AVE = 0.60)	
My thoughts and feelings toward this brand happen automatically.	.76
This brand makes me automatically evoke many good thoughts about the past, present, and future.	.80
I have many thoughts about this brand.	.77
Green brand loyalty (GBL) ($\alpha = 0.85$, CR = 0.85 and AVE = 0.59)	
I am willing to repurchase this brand because of its environmental functions	.81
I prefer purchasing this brand to other brands because of its environmental performance	.75
I seldom consider switching to other brands because of this brand's environmental concern	.76
I intend to continue buying this brand because it is environmentally friendly	.75

Note: χ^2 (482) =1053.855, χ^2/df =2.2, CFI=.96, TLI=.96, RMSEA=.038; α =Cronbach's alpha, CR=Construct reliability and AVE=Average variance extracted

Table 5:15 Correlations and average variance extracted values

Constructs	1	2	3	4	5	6	7	8	9	10
1. Utilitarian environmental benefits	<i>.53</i>									
2. Warm glow benefits	.66**	<i>.56</i>								
3. Self-expressive benefits	.42**	.39**	<i>.52</i>							
4. Green perceived risk	-.25**	-.21**	-.26**	<i>.73</i>						
5. Green transparency	.63**	.54**	.56**	-.35**	<i>.52</i>					
6. Functional value	.58**	.51**	.48**	-.23**	.59**	<i>.58</i>				
7. Green perceived value	.65**	.61**	.52**	-.34**	.69**	.60**	<i>.55</i>			
8. Self-brand connection	.55**	.49**	.48**	-.31**	.61**	.62**	.70**	<i>.62</i>		
9. Brand prominence	.51**	.51**	.43**	-.25**	.52**	.67**	.59**	.59**	<i>.60</i>	
10. Green brand loyalty	.60**	.57**	.42**	-.27**	.56**	.67**	.64**	.65**	.64**	<i>.59</i>
Mean	5.56	5.59	5.14	4.09	5.24	5.32	5.26	5.16	5.45	5.55
SD	.86	.89	.96	1.49	.88	.92	.90	1.08	.97	.90

Note: All correlations are significant at the .01 level** (2-tailed).

Average variance extracted (AVEs) are shown on the diagonal (bold and italicised).

5.6.2 Common method bias

The common method bias was utilised to further confirm the quality of the data. This method considers biases resulting from respondents' answers to questions in relation to various factors. These factors include social desirability bias, scale formats and item context effects (e.g., scale length or context-induced mood) (Podsakoff et al. 2003). The data collection was conducted in China and there could be the possibility of social desirability bias when respondents reported their answers positively. This issue is evident in the collectivistic culture, such as that prevalent in China. In simple terms, respondents who hold collectivism perspectives are more likely to provide positive answers to the questions regarding environmental issues and thereby resulting in a high level of social desirability (Lalwani, Shavitt & Johnson 2006). This problem is particularly obvious in urban cities where respondents are more concerned about social undesirability questions (Chan & Lau 2000). In

this respect, Podsakoff et al. (2003) have developed a general factor approach to detect this problem. The results presented in Table 5:16 indicated a poor fit when all survey items were considered part of one general factor, confirming that the data used in this study did not have problems with common method bias (Podsakoff et al. 2003).

Table 5:16 Common method bias -Goodness of fit indices

χ^2	df	p	CFI	TLI	RMSEA
4541.177	527	0.00	0.74	0.72	0.10

5.6.3 Hypothesis testing

Structural equation modelling with maximum likelihood was employed to test the hypotheses presented in Figure 3.3 in chapter three. The full structural model comprised 34 indicators and 143 free parameters with a sample size of 826. The Chi-square value of the full structural model was 1070.540 with a 486 degree of freedom ($p < .01$). The normed Chi-squared value ($\chi^2/d.f.$) was 2.2 and both CFI and TLI were above .95. Additionally, RMSEA and SRMR values were below .08. These indices revealed a good fit to the data although the Chi-square value of the structural model was significant (see Table 5:17). The details of analysis results are depicted in *Appendix 5*.

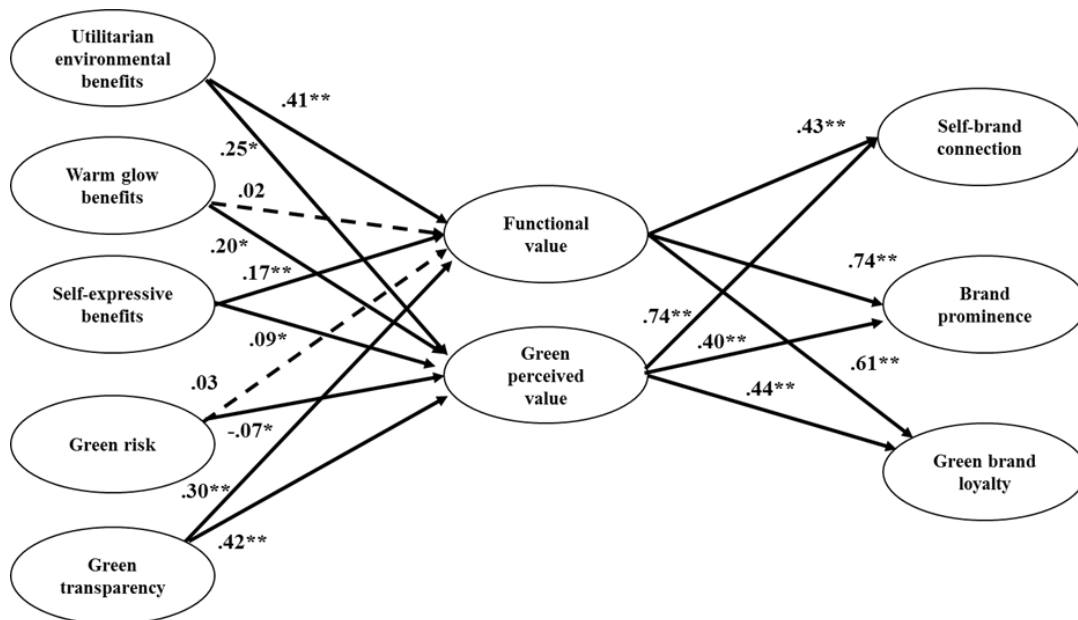
Table 5:17 Model fit summary of full structural model

χ^2	df	p	Normed Chi-square	CFI	TLI	RMSEA	SRMR
1070.540	486	0.00	2.2	.96	.96	.04	.03

The results shown in *Appendix 5* suggest that the squared multiple correlations of functional value, GPV, self-brand connection, brand prominence and green brand loyalty were .21, .37, .22, .26 and .24 respectively. As suggested by Cohen (1988), squared multiple correlations of .25 can present large effects in behavioural sciences. Hence, the full structural model in this study revealed that green benefits, green perceived risk together with green transparency explained 21% of the total variation in functional value, 37% in GPV. In turn, both functional value and GPV explained 22% of the total variation in self-brand connection, 26% in brand prominence and 24% in green brand loyalty. Hence, consumers' perceptions

toward green brand communication presented a moderate effect on functional value and a large effect on GPV. In addition, customer value had a moderate effect on self-brand connection and green brand loyalty and had a large effect on brand prominence.

The full structural model fitted the data well and it was appropriate to conduct hypothesis testing. The proposed structural relationships were tested by examining the path coefficients between the constructs. Figure 5:12 presents the results with standardised path coefficients between key constructs and majority of the hypotheses in this study were supported (see Table 5:18).



Chi-square (df = 486) = 1070.540, χ^2 /df = 2.2, TLI = .96 CFI = .96, RMSEA = .04 and SRMR = .03

Figure 5:12 Full structural relationships of this research

Table 5:18 Results of the structural model

Hypotheses	Structural relationships	Std. coefficient	Results
H _{1a}	Utilitarian environmental benefits → Functional value	.41**	Supported
H _{1b}	Utilitarian environmental benefits → Green perceived value	.25*	Supported
H _{2a}	Warm glow benefits → Functional value	.02	Not supported
H _{2b}	Warm glow benefits → Green perceived value	.20*	Supported
H _{3a}	Self-expressive benefits → Functional value	.17**	Supported
H _{3b}	Self-expressive benefits → Green perceived value	.09*	Supported
H _{4a}	Green perceived risk → Functional value	.03	Not supported
H _{4b}	Green perceived risk → Green perceived value	-.07*	Supported
H _{5a}	Green transparency → Functional value	.30**	Supported
H _{5b}	Green transparency → Green perceived value	.42**	Supported
H _{6a}	Functional value → Self-brand connection	.43**	Supported
H _{6b}	Functional value → Brand prominence	.74**	Supported
H _{6c}	Functional value → Green brand loyalty	.61**	Supported
H _{7a}	Green perceived value → Self-brand connection	.74**	Supported
H _{7b}	Green perceived value → Brand prominence	.40**	Supported
H _{7c}	Green perceived value → Green brand loyalty	.44**	Supported

Note: **p < .01, *p < .05.

5.6.4 Discussion relating to hypothesis testing

Hypothesis One

H1: Consumers perceived utilitarian environmental benefits are positively associated with customer value of green brand, i.e., (a) functional value and (b) green perceived value (GPV).

The results of Table 5.18 demonstrate that utilitarian environmental benefits significantly influenced consumers' functional value associated with green brands. The standardised direct effect of the utilitarian environmental benefits on functional value was .41 (p<.01). That is, when this variable increases by 1 standardised deviation, functional value increases by .41 standardised deviation (Cunningham 2008). Hence, H_{1a} is supported. Likewise, utilitarian

environmental benefits had a significant influence on GPV ($p < .05$) and the standardised coefficient estimate was .25. The results imply that GPV can increase by .25 standardised deviation when utilitarian environmental benefits increase by 1 standardised deviation, providing support for H_{1b}.

Utilitarian environmental benefit, focusing on providing environmental functionality is a strong determinant to both functional value and green perceived value. In other words, customer value of green brand can be enhanced through increasing utilitarian environmental benefits. Notably, utilitarian environmental benefit performed better in predicting functional value ($\beta = .41, p < .01$) than it did in predicting GPV ($\beta = .25, p < .05$).

Hypothesis Two

H2: Consumers perceived warm glow benefits are positively associated with (a) functional value and (b) GPV.

The results of Table 5.18 revealed that the direct effect of warm glow benefits on functional value was found to be insignificant ($\beta = .02, p > .05$) and thereby H_{2a} was not supported. In contrast, the direct effect of warm glow benefits on GPV was significant ($p < .05$). Hence, H_{2b} was supported. The standardised coefficient estimate was .20. This means that GPV would achieve an increase of .20 standardised deviation when warm glow benefits increased by 1 standardised deviation.

Warm glow benefit, reflecting consumers' needs for moral satisfaction had a positive influence on GPV while its direct effect on functional value was not determined.

Hypothesis Three

H3: Consumers perceived self-expressive benefits are positively associated with (a) functional value and (b) GPV.

The results (refer to Table 5.18) demonstrated that self-expressive benefits had a significant and positive influence on functional value ($p < .01$). The standardised direct effect of self-expressive benefits on functional value was .17, which means that, when self-expressive benefit increased by 1 standardised deviation, functional value increased by .17 standardised deviation. Thus, H_{3a} was supported. Similarly, self-expressive benefits were positively

associated with GPV and the standardised coefficient estimate was .09 ($p < .05$). That is, GPV increased by .09 standardised deviation when self-expressive benefit increased by 1 standardised deviation. Hence, H_{3b} was supported.

Self-expressive benefits, reflecting consumers' needs for social image had significant influences on functional value and GPV. In particular, the direct effect of self-expressive benefits on functional value was much stronger than the effect of self-expressive benefits on GPV.

Hypothesis Four

H4: Green perceived risk is negatively associated with (a) functional value and (b) GPV.

As revealed in Table 5.18, the negative influence of green perceived risk on functional value was not significant ($\beta = .03, p > .05$) and therefore H_{4a} was not supported. On the contrary, the direct effect of green perceived risk on GPV was significant and it negatively influenced GPV ($p < .05$). Specifically, the standardised direct effect of green perceived risk on GPV was .07 and this indicates that GPV decreased by .07 standardised deviation when green perceived risk increased by 1 standardised deviation. Thus, H_{4a} was supported.

Green perceived risk, reflecting consumers' risk perceptions towards green consumption, to some extent will diminishes their trust on green brands and this in turn reduces GPV. However, there was no direct relationship between green perceived risk and functional value. Hence, in order to increase customer value of green brand, green perceived risk needs to be addressed.

Hypothesis Five

H5: Consumers perceived green transparency is positively associated with (a) functional value and (b) GPV.

The results presented in Table 5.18 suggest that green transparency was positively linked to functional value ($p < .01$) and GPV ($p < .05$) respectively. Hence, H_{5a} and H_{5b} were both supported. The standardised direct effect of green transparency on functional value was .30 and that on GPV was .42. In simple terms, the functional value increased by .30 standardised

deviation and GPV increased by .42 standardised deviation when green transparency increased by 1 standardised deviation.

Green transparency, focusing on consumers' needs for transparent information relating to green products and services as well as corporate behaviour positively influenced customer value of green brand, i.e., functional value and GPV. Notably, as green transparency directly contributed in satisfying consumers' green needs, its impact on GPV was stronger than on functional value.

Hypothesis Six

H6: Functional value is positive associated with (a) self-brand connection, (b) brand prominence and (c) green brand loyalty.

The results (refer to Table 5.18) demonstrated that functional value was positively associated with all dimensions of green brand relationship, including that on self-brand connection ($\beta = .43, p < .01$), brand prominence ($\beta = .74, p < .01$) and brand loyalty ($\beta = .61, p < .01$). In other words, when functional value increased by 1 standardised deviation, self-brand connection increased by .43 standardised deviation, brand prominence increased by .74 standardised deviation and green brand loyalty increased by .61 standardised deviation, providing support for H_{6a} , H_{6b} and H_{6c} .

Functional value, emphasizing on traditional functionality associated with green brands is still an important driver in enhancing the positive relationship between consumers and green brands. In particular, its influences on brand prominence and green brand loyalty are relatively strong.

Hypothesis Seven

H7: GPV is positive associated with (a) self-brand connection, (b) brand prominence and (c) green brand loyalty.

The results (see Table 5.18) demonstrated that GPV also positively impacted self-brand connection ($\beta = .74, p < .01$), brand prominence ($\beta = .40, p < .01$) and brand loyalty ($\beta = .44, p < .01$). Therefore, H_{7a-7c} were supported. When GPV increased by 1 standardised deviation,

self-brand connection increased by .74 standardised deviation, brand prominence increased by .40 standardised deviation and brand loyalty increases by .44 standardised deviation.

GPV, reflecting consumers' perceived net benefits based on their green needs and expectation can lead to self-brand connection, brand prominence and brand loyalty if their green needs are met.

Hypothesis Eight

H₈. Utilitarian environmental, self-expressive, warm glow benefits, green perceived risk and green transparency indirectly influence self-brand connection, brand prominence and brand loyalty through functional value and GPV.

The results of this study demonstrated that two of the green benefits, i.e., utilitarian environmental ($\beta = .41, p < .01$) and self-expressive benefits ($\beta = .17, p < .01$) together with green transparency ($\beta = .30, p < .01$) positively influenced functional value. However, the influences of warm glow benefits ($\beta = .02, p > .05$) and green perceived risk ($\beta = .03, p > .05$) on functional value were not significant. Likewise, utilitarian environmental benefits, warm glow benefits, self-expressive benefits and green transparency positively influenced GPV while green perceived risk negatively influenced GPV. Specifically, green benefits, including utilitarian environmental benefits ($\beta = .25, p < .05$), warm glow benefits ($\beta = .20, p < .05$) and self-expressive benefits ($\beta = .09, p < .05$) and green transparency ($\beta = .42, p < .01$) were positively linked with GPV respectively. Finally, green perceived risk negatively impacted GPV ($\beta = -.07, p < .05$). Hence, H_{1a-1b}, H_{2b}, H_{3a-3b}, H_{4b} and H_{5a-5b} were all supported whilst H_{2a} and H_{4a} were rejected.

Additionally, functional value was positively associated with self-brand connection ($\beta = .43, p < .01$), brand prominence ($\beta = .74, p < .01$) and brand loyalty ($\beta = .61, p < .01$). In a similar vein, GPV positively influenced self-brand connection ($\beta = .74, p < .01$), brand prominence ($\beta = .40, p < .01$) and brand loyalty ($\beta = .44, p < .01$), providing support for H_{6a-6c} and H_{7a-7c}. Moreover, the influences of green brand communication (i.e., utilitarian environmental benefits, warm glow benefits, self-expressive benefits, green perceived risk and green transparency) on green brand relationship (i.e., self-brand connection, brand prominence and brand loyalty) were found to be not significant (refer to *Appendix 5*). In other words, these findings revealed that the dimensions of green brand communications, i.e., utilitarian

environmental, warm glow and self-expressive benefits, green perceived risk and green transparency had no direct influence on green brand equity dimensions, i.e., self-brand connection, brand prominence and brand loyalty. However, they could influence the relationship dimensions through functional value and GPV. In particular, all green branding dimensions had significant influence on GPV while only utilitarian environmental benefits, self-expressive benefits and green transparency had positive influence on functional value. Interestingly, both functional value and GPV had positive impacts on self-brand connection, brand prominence and brand loyalty. That is, utilitarian environmental and self-expressive benefits and green transparency indirectly influenced self-brand connection, brand prominence and brand loyalty through both functional value and GPV. However, warm glow benefits and green perceived risk indirectly influenced self-brand connection, brand prominence and brand loyalty only through GPV. Hence, both functional value and GPV play significant mediating roles in the relationship between green brand communication and green brand relationship, providing support for H₈.

The specific direct and indirect relationships among these constructs are discussed in the following section.

5.7 Mediation testing

As discussed previously, several relationships need to be confirmed before establishing the mediating effects (Hair et al. 2010). For example, a partial mediation effect is presented when the relationship between independent and dependent variables is significant as well as when the relationship between independent and dependent variables and the mediator is significant. However, when the relationship between the independent and dependent variables diminishes and is insignificant, a full mediation can be identified. In this study, the direct relationship between green brand communication and green brand relationship dimensions were insignificant. Nevertheless, there was evidence supporting the significant relationship between dimensions of green brand communication and functional value and GPV. Also, the influences of functional value and GPV on green brand relationship dimensions were found to be significant. Hence, the mediation effect of customer perceived value in explaining the manner in which green brand communication affect green brand relationship development was evident and the full mediation of customer perceived value was identified. In order to

understand the full mediating role of customer value, the direct, indirect and total effects of various dimensions of green brand communication on green brand relationship were further examined. The findings of this examination are summarised in Table 5:19.

Table 5:19 Direct, indirect, and total effects of determinants on relational outcomes

Predictors	Self-brand connection			Brand prominence			Green brand loyalty		
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect
Utilitarian environmental benefits	-.13	.36**	.23	-.25	.42**	.17	-.07	.39**	.32*
Warm glow benefits	-.06	.15	.09	.19	.09	.28**	.16	.09	.25**
Self-expressive benefits	-.02	.15**	.13*	.00	.17**	.17**	-.09	.15**	.06
Green perceived risk	-.03	-.04	-.07*	-.05	-.00	-.05	-.05	-.01	-.06
Green transparency	-.05	.44**	.39**	-.20	.37**	.17	-.18	.37**	.19*

Note: **p < .01, *p < .05. P-value is the probability or chance that the null hypothesis is true. The lower the p-value, the less likely the result is if the null hypothesis is true, and consequently the more 'significant' the result is, in the sense of statistical significance (Cavana, Delahaye & Sekaran 2001).

5.7.1 Discussion relating to brand determinants and green brand relationship The results (see Table 5.19) indicated that utilitarian environmental benefits had a total effect of .23 ($p > .05$) on self-brand connection, comprising of the direct effect of -.13 ($p > .05$) and the indirect effect of .36 ($p < .01$). Also, utilitarian environmental benefits presented a total effect of .17 ($p > .05$) on brand prominence, comprising of the direct effect of -.25 ($p > .05$) and the indirect effect of .42 ($p < .01$). Similarly, this dimension had a total effect of .32 ($p < .01$) on green brand loyalty, comprising of the direct effect of -.07 ($p > .05$) and the indirect effect of .39 ($p < .01$). The results demonstrate that the indirect effects of utilitarian environmental benefits on self-brand connection, brand prominence and brand loyalty were significant at .01 level, indicating that the influences of utilitarian environmental benefits on self-brand connection, brand prominence and green brand loyalty were fully mediated by customer value.

Warm glow benefits had a total effect of .09 ($p > .05$) on self-brand connection with a direct effect of .15 ($p > .05$) and an indirect effect of -.06 ($p > .05$). This dimension also exhibited a total effect of .28 ($p < .01$) on brand prominence with a direct effect of .19 ($p > .05$) and an

indirect effect of .09 ($p > .05$) and a total effect of .25 ($p < .01$) on green brand loyalty with direct and indirect effects of .16 ($p > .05$) and .09 ($p > .05$) respectively. The findings suggest that the influence of warm glow benefits on green brand relationship was only mediated by GPV.

Self-expressive benefits exhibited a total effect of .13 ($p < .01$) on self-brand connection with a significant indirect effect of .15 ($p < .01$) and had a total effect of .17 ($p < .01$) on brand prominence with a significant indirect effect of .17 ($p < .01$). Similarly, this dimension had a total effect of .06 ($p > .05$) on green brand loyalty, comprising of a significant indirect effect of .15 ($p < .01$). The results indicate that the indirect effects of self-expressive benefits on self-brand connection, brand prominence and brand loyalty were significant at .01 level, showing that the customer value fully mediated the relationship between self-expressive benefits and green brand relationship.

The total of effect of -.07 ($p < .01$), -.05 ($p > .05$), -.06 ($p > .05$) of green perceived risk on self-brand connection, brand prominence and green brand loyalty were found. The indirect effects of this dimension on self-brand connection, brand prominence and green brand loyalty were -.04 ($p > .05$), -.00 ($p > .05$) and -.01 ($p > .05$) respectively indicating that these indirect effects were insignificant at .05 level. This suggests that the influence of green perceived risk on green brand relationship dimensions was only mediated by GPV.

As for green transparency, it presented a total of effect of .39 ($p < .01$) on self-brand connection, comprising of the direct effect of -.05 ($p > .05$) and the indirect effect of .44 ($p < .01$). It also had a total effect of .17 ($p > .05$) on brand prominence with a significant indirect effect of .37 ($p < .01$) and a total effect of .19 ($p < .01$) on green brand loyalty with a significant indirect effect of .37 ($p < .01$). The results demonstrated that the indirect effects of green transparency on green brand relationship dimensions were significant at .01 level, hence the mediating role of customer value in the relationship between green transparency and green brand relationship dimensions were confirmed.

More importantly, utilitarian environmental benefits had a stronger total effect on green brand loyalty as compared to other green brand dimensions. Furthermore, both warm glow benefits and self-expressive benefits exhibited a stronger total effect on brand prominence. In particular, the total effect of warm glow benefits was stronger than self-expressive benefits. Moreover, both green perceived risk and green transparency had a stronger total effect on

self-brand connection while green transparency presented a much stronger total effect on self-brand connection as compared to other green branding dimensions. Lastly, utilitarian environmental benefits presented the strongest indirect effect on both brand prominence and green brand loyalty whilst green transparency exhibited the strongest indirect effect on self-brand connection.

5.7.2 Discussion relating to the mediating roles of functional value and GPV

The results in Table 5.18 demonstrated that the mediation effects of functional value and GPV were evident when investigating the relationship between green brand communication and green brand relationship. The specific indirect effects of the dimensions of green brand communication on three relational outcomes are depicted in Table 5:20.

Table 5:20 Specific indirect effects of determinants on relational outcomes

Effects	Mediators		Total indirect
	FV	GPV	
UE-SBC	.18**	.18*	.36**
UE-BP	.31**	.10	.41**
UE-GBL	.25**	.11*	.36**
WG-SBC	.01	.15*	.15
WG-BP	.01	.08*	.09
WG-GBL	.01	.09*	.10
SS-SBC	.07**	.07*	.14**
SS-BP	.12**	.04	.16**
SS-GBL	.10**	.04	.14**
GR-SBC	.01	-.05*	-.04
GR-BP	.02	-.03*	-.01
GR-GBL	.02	-.03*	-.01
GT-SBC	.13**	.31**	.44**
GT-BP	.22**	.17**	.39**
GT-GBL	.18**	.19**	.37**

Note: **p < .01, *p < .05. UE = Utilitarian benefits; WG = Warm glow benefits, SS = Self-expressive benefits, GR=Green perceived risk, GT=Green transparency, FV=Functional value, GPV=Green perceived value, SBC=Self-brand connection, BP=Brand prominence, GBL=Green brand loyalty.

First, functional value and GPV presented similar mediation effects when considering the influence of utilitarian environmental benefits on self-brand connection, i.e., the relationship

between utilitarian environmental benefits and self-brand connection was mediated by functional value ($\beta = .18, p < .01$) and GPV ($\beta = .18, p < .05$). Nevertheless, functional value exhibited a stronger mediation effect than GPV when investigating the relationship between utilitarian environmental benefits and brand prominence and the relationship between utilitarian environmental benefits and green brand loyalty. In particular, functional value had a mediation effect of .31 ($p < .01$) whilst GPV presented a mediation effect of .10 ($p > .05$) on the relationship between utilitarian environmental benefits and brand prominence. Also, functional value had a mediation effect of .25 ($p < .01$) whilst GPV exhibited a mediation effect of .11 ($p < .05$) on the relationship between utilitarian environmental benefits and green brand loyalty.

Second, as to the influence of warm glow benefits on the three relational outcomes, GPV was found to significantly mediate their relationships but the mediation effect of functional value was not found to be significant. Specifically, GPV had a significant mediation effect on the relationship between warm glow benefits and self-brand connection ($\beta = .15, p < .05$), the relationship between warm glow benefits and brand prominence ($\beta = .08, p < .05$) and the relationship between warm glow benefits and green brand loyalty ($\beta = .09, p < .05$). However, the mediation effect of functional value was insignificant in these relationships.

Third, both functional value and GPV significantly mediated the relationship between self-expressive benefits and self-brand connection. That is, functional value and GPV had a similar mediation effect of .07 ($p < .05$) on the relationship between self-expressive benefits and self-brand connection. However, only functional value presented a significant mediation effect on the relationship between self-expressive benefits and brand prominence ($\beta = .12, p < .01$) and the relationship between self-expressive benefits and green brand loyalty ($\beta = .10, p < .01$).

Fourth, the relationships between green perceived risk and the three relational outcomes were only mediated by GPV. In particular, the mediation effects of functional value on the three relational outcomes were insignificant whilst GPV had a mediation effect of -.05 ($p < .05$), -.03 ($p < .05$) and -.03 ($p < .05$) on the relationships between green perceived risk and self-brand connection, brand prominence and green brand loyalty respectively.

Finally, both functional value and GPV had significant mediation effect on the relationships between green transparency and the three relational outcomes, i.e., self-brand connection, brand prominence and green brand loyalty. In particular, GPV presented a stronger mediation effect on the relationship between green transparency and self-brand connection ($\beta = .31, p < .01$) as compared to that of functional value ($\beta = .13, p < .01$).

5.8 Moderation testing

A moderating effect occurs when a third variable or construct changes the relationship between two related variables or constructs (Baron & Kenny 1986). In simple terms, the effect of one variable on the dependent variable is conditional upon the value of another variable. A moderator variable can be metric or nonmetric. Nonmetric moderators are usually related to categorical variables, such as gender, age, or other respondent characteristics. To conduct moderation test with categorical variables, respondents should be grouped first and then multi-group analysis can be applied (Hair et al. 2010). Metric moderators are continuous or metric variables, which can be evaluated using structural equation modelling. Similarly, multi-group analysis can be conducted if continuous variables can be categorised in a way that makes sense.

Furthermore, creating interaction terms using a regression approach is widely adopted to test the moderating effect of a continuous or metric variable. However, taking this approach with multiple-item constructs is complicated owing to various factors. This study aimed at investigating the moderating effect of a categorical variable, i.e., brand type on the formation of consumer-green brand relationship and therefore, multi-group SEM was adopted. The following sections address the descriptive statistics for two types of brands and the process of multi-group analysis.

5.8.1 Descriptive statistics

Descriptive statistics were performed for brands of physical goods and services. Both means of ten constructs and their inter-correlations are presented in *Appendix 6*, Tables 6A (for service brand; n=301) and 6B (for physical goods brand; n=525). In both tables, the correlations are presented under the diagonal (bold and italicised) and the squared correlations

are shown above the diagonal. Although the sample size between these two brands is unequal, this has become a common phenomenon when conducting comparative study between groups with different size (Boyle & Magnusson 2007; Garbarino & Johnson 1999). In addition, the test for measurement invariance suggests that it would not be an issue when performing comparative analysis with different sample sizes of two groups (Byrne 1998). Also, the results depicted in Tables 6A and 6B demonstrate that both construct reliability and validity were achieved in the contexts of brands of physical goods and services. The values of construct reliability (CN) and Cronbach's alpha were acceptable (ranging from .76 to .90 for CN, and .76 to .90 for Cronbach's alpha) and all AVEs were greater than the squared correlation estimate.

5.8.2 Multi-group analysis

Multiple-group analysis is a SEM framework for testing types of differences between similar models estimated for different groups. A general framework is used to compare measurement models and structural models across groups (Hair et al. 2010). It is assumed that measurement model invariance is a prerequisite for making comparisons at the structural model level. To test moderation, the structural path is constrained to be equivalent across groups and then the Chi-square change with degree of freedom is compared. If there is a significant change in the Chi-square between the constrained and unconstrained models, then it can be concluded that moderating effect exists (Dabholkar & Bagozzi 2002).

Prior to comparing structural relationships across groups, full measurement invariance should be confirmed. In particular, configural invariance (factor structure invariant), metric invariance (factor loadings invariant) and scalar invariance (measurement intercepts invariant) have been widely used to examine measurement invariance (Hair et al. 2010). Configural invariance is used to examine whether the factor structure on the baseline model achieves adequate fit when both groups are tested simultaneously and freely. This means that configural invariance can be achieved if the basic model structure is invariant across groups (Hong, Malik & Lee 2003). Once configural invariance is confirmed, the next step is to test metric invariance. This invariance test ensures that the measurement items respond in the same way across different groups (Steenkamp & Baumgartner 1998). This can be examined by constraining the factor pattern coefficients to be equal across groups (Hong, Malik & Lee

2003; Steenkamp & Baumgartner 1998). Finally, scalar invariance tests for the equality of the measured variable intercepts on the construct. This invariance test is required if any comparisons of level (e.g., mean scores) are made across groups (Hair et al. 2010). However, in order to continue a multi-group analysis, several studies point out that partial measurement invariance is also acceptable due to the increasing complexity of models (Byrne, Shavelson & Muthén 1989). In other words, if configural invariance and metric invariance are achieved, partial invariance is deemed to have been reached (Vandenberg & Lance 2000). Therefore, three types of invariance test were conducted before proceeding to multi-group analysis.

5.8.3 The moderating effect of brand type

As some differences relating to the formation of consumers' value perceptions toward green brands associated with physical goods and services were identified, this study conducted a multi-group analysis to investigate the differences across brands of physical goods and services. The following sections presented the findings of measurement invariance and structural invariance tests.

Measurement invariance test

Configural invariance

Firstly, a separate examination of the two groups was conducted in the measurement model. The model fit indices for the two baseline groups were: for physical goods group, $\chi^2 (482) = 926.711$, $P = .000$, $\chi^2 / df = 1.9$, CFI = .95, TLI = .94 and RMSEA = .043, and for the services group, $\chi^2 (482) = 828.765$, $p = .000$, $\chi^2 / df = 1.7$, CFI = .95, TLI = .94 and RMSEA = .047. Hence, these two models were acceptable.

The two groups were then analysed simultaneously to get the model fit for the configural model. The model fit indices were: $\chi^2 (964) = 1755.476$, $p = 0.000$, $\chi^2 / df = 1.8$, CFI = .95, TLI = .94 and RMSEA = .045. The findings of Table 5.21 revealed that the fit of the configural invariance model was satisfactory, which indicated that it is appropriate to assume that the factor structure was similar across the two groups of green brand.

Table 5:21 Results of measurement invariance test

Model	χ^2	df	$\Delta\chi^2$	Δ df	Significance level (p)	Test results
Configural model	1755.476	964	--	--	.000	Configural invariance
Metric model	1772.865	988	17.389	24	.832	Full metric invariance
Scalar model	1804.302	1022	31.437	34	.594	Full scalar invariance

Metric invariance

To test for metric invariance, the measurement weight was set to be the same for both groups and then compared with the configural model. The full metric invariance was tested by constraining the factor loadings of the items which were equal for both groups. As a result, a non-significant increase of χ^2 from 1755.476 to 1772.865 ($\Delta\chi^2 = 17.389$ with Δ df = 24 and $p = .832$) was found, in support of the similarity of the factor loadings between the two groups. Hence, full metric invariance was achieved, hence scalar invariance test was next performed.

Scalar invariance

A full scalar invariance was tested to compare the latent means between the two groups. Essentially, the intention was to check the Chi-square difference between an unconstrained model which allowed the measurement intercepts to be free across the two groups and a constrained model that constrained the intercepts equally. The results demonstrated that the hypothesis of equal intercepts was supported as there was a non-significant increase of χ^2 from 1772.865 to 1804.302 when evaluating scalar invariance model against the metric invariance model ($\Delta\chi^2 = 31.437$ with Δ df = 34 and $p = .594$). As a result, scalar variance was also supported in this study. In conclusion, the structural invariance between both groups was achieved and thus, the next stage was to test whether the structural model was invariant across the two groups.

Testing for multiple-group invariance

Once the measurement invariance was established, the model was then tested for the path invariance in the structure model. The results of the structural invariance test revealed a Chi-square statistic of 1891.925 (df = 1054) when relaxing all equality on the structural coefficients. Then a significant increase of χ^2 from 1891.925 to 1917.518 ($\Delta\chi^2 = 25.593$ with $\Delta df = 14$ and $p = 0.029$) was found by adding constraints on all the structure weights, which suggests that the differences between the two groups were significant, indicating the presence of a moderation effect. The results of the multi-group SEM analysis are summarised in Table 5.22. Therefore, further analysis was conducted to test each single-path of the constrained model with those of the unconstrained model.

Table 5:22 Results of multi-group analysis

Model	χ^2	df	$\Delta\chi^2$	Δdf	Significance level (p)
Unconstrained	1891.925	1054	--	--	.000
Constrained	1917.518	1068	25.593	14	.029*
Constrained path	χ^2	B_{goods}	B_{services}	$\Delta\chi^2(1)$	Test results
UE → FV	1901.882	.62**	.21	9.957	Significant different across groups
SS → FV	1892.128	.17**	.13	0.203	
GT → FV	1899.708	.07	.53**	7.783	Significant different across groups
UE → GPV	1892.963	.33**	.13	1.038	
WG → GPV	1892.321	.16	.25**	0.396	
SS → GPV	1894.880	.02	.19**	2.955	
GR → GPV	1892.545	-.06	-.11*	0.62	
GT → GPV	1891.962	.41**	.40**	0.037	
FV → SBC	1894.131	.41**	.28**	2.206	
FV → BP	1893.870	.72**	.55**	1.945	
FV → GBL	1895.092	.63**	.46**	3.167	
GPV → SBC	1896.309	.51**	.70**	4.384	Significant different across groups
GPV → BP	1893.107	.21**	.31**	1.182	
GPV → GBL	1894.567	.31**	.47**	2.651	

Note: **p < .01, *p < .05. UE = Utilitarian benefits; WG = Warm glow benefits, SS = Self-expressive benefits, GR=Green perceived risk, GT=Green transparency, FV=Functional value, GPV=Green perceived value, SBC=Self-brand connection, BP=Brand prominence, GBL=Green brand loyalty.

Discussion relating to the results of moderation test

Significant differences in the Chi-square statistics were found for three of the fourteen individual paths, i.e., from utilitarian environmental benefits to functional value (p=.002), green transparency to functional value (p=.005) and from GPV to self-brand connection

($p=.036$). The structural relationships in the context of brands of physical goods and services are presented in Figure 5:13 and Figure 5:14.

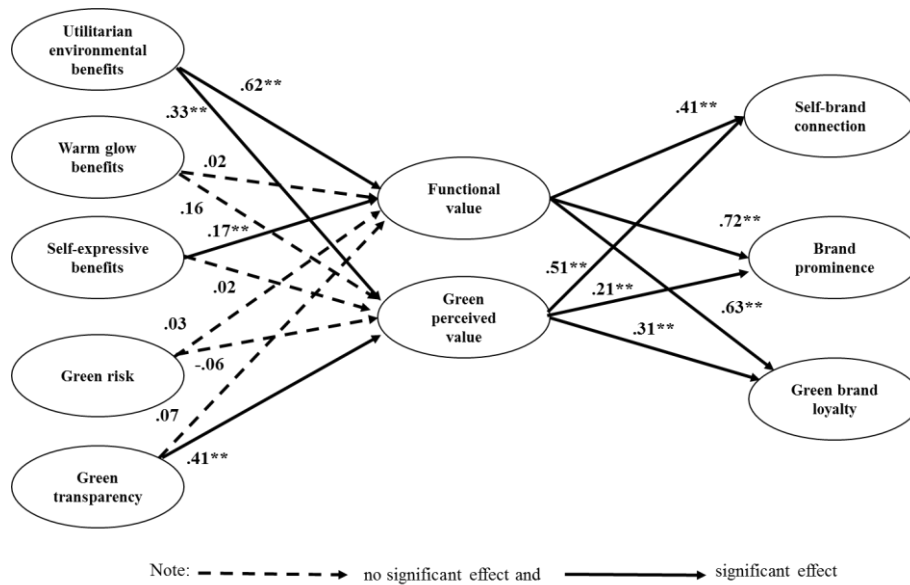


Figure 5:13 Structural relationships in the context of brands of physical goods

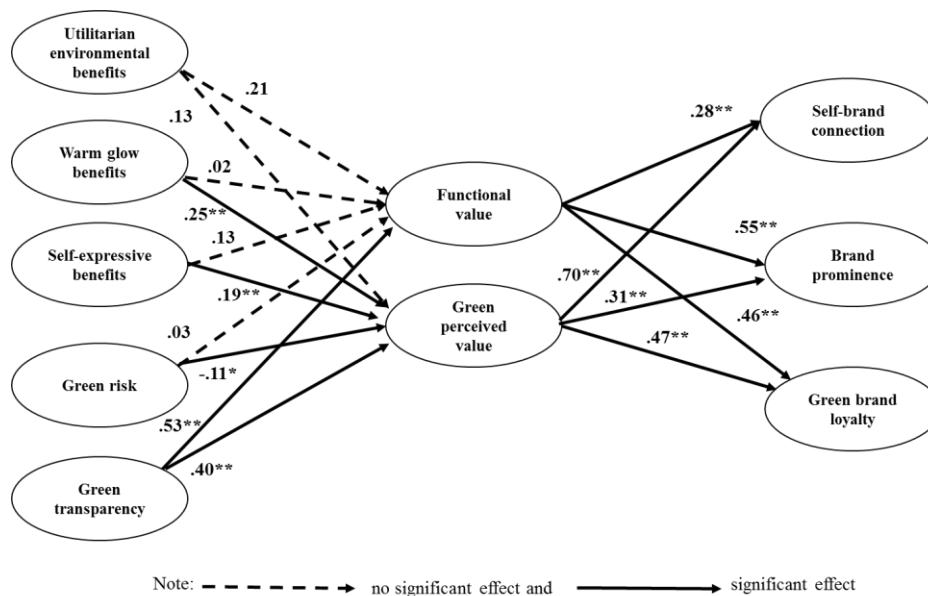


Figure 5:14 Structural relationships in the context of brands of services

Consumers perceived the linkage between green value and self-brand connection to be stronger for brands of services as compared to that for physical goods. Similarly, they

perceived that the linkage between green transparency and functional value was also evident in brands associated with services whilst this direct relationship was absent in brands associated with goods. In contrast, consumers perceived that the linkage between utilitarian environmental benefits and functional value was evident in brands associated with physical goods whilst there was no direct relationship in brands associated with services.

In addition, although consumers' perceptions of antecedents to GPV across two groups of brands were not significantly different, the formation of their green value perception across these two types of brands was still different. For example, warm glow and self-expressive benefits and green transparency contributed in enhancing GPV in brands of services while utilitarian environmental benefits together with green transparency were positively associated with GPV of brands associated with physical goods.

Finally, it is notable that functional value presented a stronger effect on brand prominence in the context of both brands associated with physical goods and services as compared to GPV, while GPV had a stronger effect on self-brand connection than functional value did in the context of both brands of physical goods and services. Lastly, in the context of brands of physical goods, functional value presented a stronger effect on green brand loyalty as compared to GPV while this influence became slightly weaker as compared to GPV in the context of brands of services.

5.9 Chapter summary

A detailed data analysis has been presented in this chapter. Prior to data analysis, outliers, normality and multicollinearity were examined in order to improve the quality of the data. Twenty outliers were detected and the issues of normality and multicollinearity were not a concern in this study. Then, the demographic profiles and respondents' environmental behaviour were reported. The results demonstrated that the majority of green brand consumers were those who were married with young children and aged between 26 and 35 years. Also, they earned relatively high monthly income and had higher education. Additionally, Chinese consumers tend to be involved in environmental activities and their awareness of environmental issues is relatively high. Also, online shopping has become a popular channel for Chinese consumers and is important for them to purchase green products and services.

In order to confirm the validity and reliability of the data, both EFA and CFA were conducted. EFA was first performed to examine whether the measurement items are loaded on a single latent construct. A few items were deleted in the process of EFA due to the issues of low factor loadings and high cross-loading. Then, a series of CFAs were performed to validate the findings generated from the EFA. After achieving convergent validity of each congeneric measurement model, an overall measurement model was examined and its associated reliability and validity were confirmed. Consequently, the model fit of the full structural model was examined and achieved.

The proposed hypotheses were tested by examining the path coefficients and majority of the hypotheses were supported. In simple terms, green benefits, green perceived risk and green transparency significantly influenced functional value and GPV which in turn impacted self-brand connection, brand prominence and green brand loyalty. However, the influences of warm glow benefits and green perceived risk on functional value were not evident. Additionally, the mediation testing was conducted and the full mediation roles of functional value and GPV in the relationships between the dimensions of green benefits, green perceived risk, green transparency and green brand relationship dimensions were confirmed. Their indirect effects through functional value and GPV were also tested. Finally, multi-group analysis was performed to examine the moderating role of brand type. Several relationships were found to be significantly different between brands of physical goods and services, i.e., the relationship between utilitarian environmental benefits and functional value, the relationship between green transparency and functional value and the relationship between GPV and self-brand connection. Importantly, the formation of consumers' green value perception was also different across these two types of brands. Building on the findings of the analysis, the next chapter will provide an elaborate discussion, recommendation and conclusions. Several limitations of this study will also be addressed in the next chapter.

Chapter 6 Discussion, Recommendation and Conclusion

6.1 Introduction

This study aimed to investigate factors influencing customer perceived value associated with green brands. It has also examined the effect of these factors on the relationship development between customers and green brands. Essentially, this study sought to provide answers to the three key research questions elicited as a consequence of gaps in the extant literature. The introduction of this study was presented in Chapter One. The relevant streams of literature in relation to the development of the conceptual framework were outlined in Chapter Two. Then each stage of the proposed conceptual framework was discussed in chapter three. This was followed by an academically rigorous methodology presented in Chapter Four. The hypotheses were examined through the data analysis presented in Chapter Five.

The current chapter presents an in-depth discussion of the research findings, addressing significant implications for both theory and practice. This chapter also provides future research directions and a discussion of the potential limitations of this research. More specifically, this chapter begins with a discussion of the characteristic of consumers of green brands (section 6.2). The overall results in relation to the proposed relationships between the constructs of the conceptual model are discussed (section 6.3). Subsequently, using the findings of the data analysis, answers are provided to the three research questions. The implications of the findings relating to the first research question which focuses on the influential dimensions of customer perceived value associated with green brands are discussed in section 6.4. Section 6.5 provides a discussion of the second research question which relates to the influence of the inclusion of customer perceived value in the relationships between green benefits, green risk, green transparency, and relational outcomes. The discussion of the third research question regarding the moderation effect of brand types is addressed in section 6.6. Section 6.7 addresses the theoretical and practical contributions of this study, as well as recommendations and practical implications. Section 6.8 addresses the limitations of this research. Section 6.9 advances suggestions for future research direction. Finally, the conclusion is presented in section 6.10. A roadmap of this chapter is presented in figure 6.1.

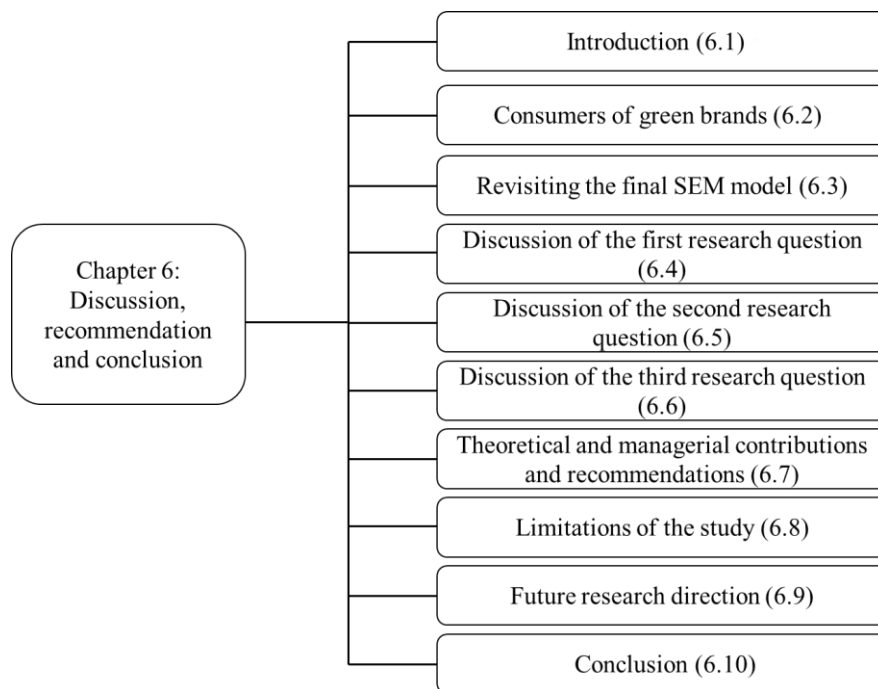


Figure 6:1 Roadmap of Chapter Six

Source: Developed for this research (adapted from Perry (1995)).

6.2 Discussion relating to green brand consumers

Green consumers are those who express their willingness to prefer environmentally friendly products or services when making decisions relating to their consumption (Noonan & Coleman 2013). Green consumers have become an important target group for marketers to promote their green brands. The demographic profile of green consumers for the purpose of segmentation has been well established. Their profile generally includes gender, age, education level, and income (Diamantopoulos et al. 2003; Tseng & Hung 2013). The majority of previous studies have examined the correlation between demographic variables and green consumers (e.g., Chen, Lobo & Rajendran 2014; do Paco & Raposo 2010; Han et al. 2011). For example, women tend to exhibit stronger green consumer behaviour as compared to men (do Paco & Raposo 2010; Han et al. 2011). This might be possible because women are more emotional than men when they consider the impact on others resulting from their actions (Straughan & Roberts 1999).

Additionally, compared to older consumers, the younger ones display stronger green consumer behaviour (Han et al. 2011; Rowlands et al. 2003). It can be argued that young consumers are more likely to accept new products and become more aware of environmental issues (Straughan & Roberts 1999). Generally, consumers who are aged below 40 years have strong consuming power (Tseng & Hung 2013). Likewise, educational level is another variable that has been commonly associated with green consumer behaviour (Chen, Lobo & Rajendran 2014; do Paço & Raposo 2010). It is suggested that consumers who have higher education are more likely to present stronger green consumer behaviours than the less educated ones owing to their better understanding and higher involvement of environmental issues (Diamantopoulos et al. 2003).

Furthermore, it is generally believed that consumers who have higher income levels display stronger green consumer behaviours than those who earn low incomes. The reasons for these findings are because the higher income consumers are capable of sacrificing costs to support green causes, hence preferring green products and services (Straughan & Roberts 1999). Overall, previous studies demonstrate that consumers who are female, young and have a higher income and level of education are more likely to practice green consumer behaviour. Additionally, due to the important role of children in the family decision-making process, marital status is also considered important in green consumption behaviour (Brécard et al. 2009). Majority of green consumers are married and it can be argued that nowadays consumers take more account of their personal consequences in their decision-making process (Chan & Lau 2000; Vermeir & Verbeke 2006).

Mainland China was selected as the country where data were collected in this study due to its great potential for developing the green market. The respondents of this study were evenly distributed in terms of gender, with about 52.1% of the respondents being male. Most of the respondents were young, aged between 26 and 35 years; the majority were married and had younger children. The majority of respondents received relatively high monthly incomes and majority had at least a bachelor's degree. The profile of respondents by way of age and monthly income was similar to that reported in previous studies of green consumers in urban cities. Essentially, they were those who received high monthly income and were less than 40 years of age (Chen 2013; Chen & Lobo 2012; Liu et al. 2012). More than 60% of the respondents in this study had attained at least a bachelor's degree and this figure was over-represented as compared to the data provided in the National Bureau of Statistics of China. A possible explanation for this has been addressed in previous studies in so far as (a) the effect

of education on developing competitiveness is more evident in major cities than that in rural areas; and (b) those who receive higher education are more likely to participate in the survey due to their better understanding of the survey (Arbuthnot & Lingg 1975; Chan & Yam 1995). These findings are in line with most recent green consumption studies which reported that more than 50% of respondents held bachelor degrees (Lin & Huang 2012).

Furthermore, the findings of this study suggest that generally speaking, Chinese consumers have recently become aware of environmental issues and their purchasing habits have been somewhat changed owing to their increasing environmental concerns. Additionally, online shopping has been overwhelmingly embraced by Chinese green consumers. This is consistent with the current trend in China in that there was a fourteen-fold increase of the number of online green consumers in the four years between 2011 and 2015 (Ali Research Institute 2016). Also, brand outlets are gaining prominence in selling green products and services. Therefore, multiple channels focusing on both online platforms and offline brand outlets are essential for companies to increase consumers' green brand consumption. Overall, these findings further support the idea that most green consumers in China are affluent, young, married with young children and more educated.

6.3 Revisiting the final SEM model

In order to address relevant questions, an integrative model comprising of influential factors (i.e., green benefits, green risk and green transparency), customer perceived value (i.e., functional value and green value) and brand relational outcomes (i.e., self-brand connection, brand prominence and green brand loyalty) was proposed. This conceptual model was underpinned on the argument that CV is an alternative approach to the TPB approach in investigating customer purchase behaviour towards green brands. This model extended the concept of customer perceived value to include functional value and GPV and addressed its uniqueness in the green brand context. Additionally, antecedents of customer perceived value associated with green brands were discussed. These relationships were further examined to understand the effectiveness of communication between customers and green brand through green initiatives. These influential factors include utilitarian environmental benefits, warm glow and self-expressive benefits, green perceived risk, and green transparency.

The results of the SEM model revealed that the increase of utilitarian environmental and self-expressive benefits and green transparency resulted in an enhancement of customer perceived value by increasing both functional value and GPV. Warm glow benefits and green perceived risk significantly influenced customer perceived value by impacting GPV. In particular, warm glow benefits were positively associated with GPV, whilst green perceived risk negatively affected GPV. This means that essentially green initiatives which emphasise utilitarian environmental and self-expressive benefits enhance customer perceived functional value and GPV. Although the effects of warm glow benefits and green perceived risk on functional value were not evident, warm glow benefits were positively related to GPV and green perceived risk negatively influenced GPV. That is, the provision of warm glow benefits is also important to increase customer perceived value associated with green brands as these benefits can lead to the increase in GPV.

Furthermore, the reduction of green perceived risk is required to increase GPV, which in turn enhances customer perceived value. Importantly, green transparency, reflecting the corporate practice of providing environmental information was observed to have a positive influence on both functional value and GPV. In other words, customers tend to perceive that the brand they purchase is value for money and can deliver a certain level of green value if their expectations relating to transparent information are met. The results of the SEM also revealed that GPV can be increased either by providing green benefits and green transparency or by diminishing the green risk.

Essentially, the findings of this study demonstrated that the influential dimension constructs (i.e., green benefits, green risk and green transparency) were related to relational outcomes (i.e., self-brand connection, brand prominence and green brand loyalty) through the mediatory effects of functional value and GPV. The results of the SEM suggest that the increase of functional value and GPV can directly enhance customers' attachment and loyalty to green brands whilst there were no direct relationships between the influential dimension constructs and relational outcomes. Hence, the full mediation effects of functional value and GPV were confirmed. In particular, utilitarian environmental benefits presented a stronger total effect on green brand loyalty than the other green brand dimensions. Warm glow benefits had the strongest total effect on brand prominence and green transparency exhibited the strongest total effect on self-brand connection as compared to other dimensions of green brand communication.

The mediation effects of functional value and GPV varied. For example, the functional value was regarded as a stronger mediator than GPV in examining the influence of utilitarian environmental benefits on brand prominence and green brand loyalty. However, the mediation effects of functional value were not determined in the relationship between green perceived risk and three relational outcomes. This relationship was only fully mediated by GPV. In contrast, the influences of self-expressive benefits on brand prominence and green brand loyalty were only fully mediated by functional value. Notably, green transparency was found to be a strong determinant of functional value and GPV and the relationship between green transparency and the three relational outcomes were fully mediated by both functional value and GPV.

Moreover, there were significant differences in brands of physical goods and services, i.e., the relationship between utilitarian environmental benefits and functional value, the relationship between green transparency and functional value and the relationship between GPV and self-brand connection. More specifically, the influence of GPV on self-brand connection was stronger in brands of services than the brands of physical goods. Similarly, the relationship between green transparency and functional value was significant in brands of services whilst this relationship was not found in brands of physical goods. Conversely, in the context of brands of physical goods, utilitarian environmental benefit was a strong determinant of functional value whilst this direct relationship was not evident in brands associated with services. These linkages indicate that different branding strategies are required for brands of goods and services. These findings contribute in accurately identifying the determinants that influence customer perceived value associated with green brands and in the relationship development between customers and green brands, providing significant implications for both theory and business practice. The details of a set of action plans relating to key research findings of this study are presented in *Appendix 6*. The following sections will discuss findings relating to all the research questions.

6.4 Discussion of findings relating to research question one

The first research question was aimed at investigating the factors which stimulate or hinder the customer perceived value associated with green brand. The findings revealed that utilitarian environmental, warm glow and self-expressive benefits, green transparency and

green risk were significant determinants of GPV, whilst only utilitarian environmental and self-expressive benefits and green transparency had direct influences on the functional value. The first research question as previously articulated in Chapter One reads as follows:

What are the factors which stimulate or hinder the customer perceived value associated with green brands?

Research question one was addressed by analysing the first stage of the proposed conceptual model. This stage was tested and validated using a series of hypotheses (H₁-H₅). The hypotheses tests performed on the constructs of the SEM revealed that utilitarian environmental benefit, self-expressive benefit and green transparency positively influenced functional value. Additionally, utilitarian environmental, warm glow and self-expressive benefits together with green transparency positively impacted GPV, whilst green risk negatively influenced GPV. The subsequent sections address details of how the various constructs of the influential stage impacted functional value and GPV. A detailed discussion of each of these significant constructs and hypotheses follows:

6.4.1 Utilitarian environmental benefit

H_{1a} (which hypothesised that utilitarian environmental benefit has a positive influence on functional value) was accepted.

The results of the final best-fit SEM (Figure 5.12) demonstrate that utilitarian environmental benefit had an effect of .41 on the functional value. The evidence of this outcome is clearly indicated in *Appendix 5*. Kline (2015) suggests that the higher the standardised regression weights in the SEM, the more important the construct is in predicting the results. This therefore reveals that utilitarian environmental benefit associated with green initiatives is the most important construct which positively influences customer perceived functional value.

Previous research suggests that price and quality are two leading obstacles which contribute to a reluctance among consumers to purchase green products and services (D'Souza et al. 2006; Gleim et al. 2013). Consumers do not compromise on product or services quality in green offerings and they tend to be less forgiving to companies that provide low-quality green products (D'Souza et al., 2006). In other words, if consumers perceive that a green brand has

a high quality, their perceived functional value would be enhanced. The findings of this research demonstrate that utilitarian environmental benefit is positively related to functional value. The results are congruous with previous studies (Hartmann & Ibanez 2006; Koller, Floh & Zauner 2011; Krystallis & Chrysohoidis 2005) which suggest that green functionality acts as a signal of excellent quality and eco-performance delivers indirect long-term personal benefits for consumers. For example, hybrid vehicles usually make use of technology to reduce CO₂ emissions and bring about better fuel economy in the long run. This implies that to increase customer perceived functional value, utilitarian environmental benefits need to be well communicated.

H_{1b} (which hypothesised that utilitarian environmental benefit has a positive influence on GPV) was accepted.

The results of the final best-fit SEM revealed that utilitarian environmental benefit had an effect of .25 on GPV (Figure 5.11). These findings indicate that provision of utilitarian environmental benefits can satisfy customers' expectations relating to environmental concerns and green functionality. That is, utilitarian environmental benefits gained by providing superior environmental performance positively lead to the increase in GPV. This is in line with prior research conducted by Chen and Chang (2013). These authors suggest that customers' perceptions of environmental excellence associated with green products are positively associated with their green satisfaction and green trust. In this regard, if organisations can deliver superior environmental functionality of a green brand, customers might regard this brand as being capable of making contributions to the environment and in turn satisfying their environmental expectations.

Taking account of the findings relating to H_{1a} and H_{1b}, utilitarian environmental benefit is an important determinant of customer value which enhances functional value and GPV. In order to provide superior utilitarian environmental benefits, green innovation has been adopted as a significant approach to position green brands and achieve corporate competitive advantage (Chen, Lai & Wen 2006). This type of innovation includes green product and green processes. Green product innovation signifies the important role of technologies in green product development, which relates to energy-saving, green product designs and recycling packaging. Most companies have focused on green products innovation to increase consumers' awareness of the green functionality of their green products. However, this is inadequate in

improving consumers' knowledge about the utilitarian environmental benefits that a green brand can offer. In this regard, organisations should pay more attention to their green innovation strategy by implementing green products and green processes innovations from consumers' perspectives to increase their awareness of green benefits associated with green brands.

6.4.2 Warm glow benefit

H_{2a} (which hypothesised that warm glow benefit has a positive influence on functional value) was not supported.

The results of the final best-fit SEM indicate that the warm glow benefit construct had direct effect of .02 on the functional value (Figure 5.11). These findings demonstrate that a direct relationship between warm glow benefit and functional value as being weak and relatively unimportant. The findings reveal that customers to some extent would not compromise on product or service quality and pay premium, although they have experienced moral satisfaction in green brand consumption. This finding contradicts that of a previous study which found that consumers would like to pay a premium for green brands if they feel better about themselves (Hartmann & Apaolaza Ibáñez 2006). The reasons might be because conventional quality is another important factor which contributes to functional value. Although consumers are willing to pay a higher price for green brands to fulfil their moral satisfaction, their perceived overall functional value would be mitigated if they perceive that the green brand has a relatively poor quality.

H_{2b} (which hypothesised that warm glow benefit has a positive influence on GPV) was accepted.

The results of the final best-fit SEM (Figure 5.12) demonstrate that warm glow benefit had an effect of .20 on GPV. This reveals that warm glow benefit positively impacts GPV. This is in agreement with the study of Hartmann and Apaolaza-Ibáñez (2006, 2012), who argue that warm glow benefit (which reflects consumers' impure altruism motivations) is a key factor influencing consumers' intention to purchase green brands. Consumers who are concerned about moral satisfaction are more likely to have strong GPV as warm glow benefit satisfies

their expectations relating to their good feelings. This results in a contribution to the improvement of the environmental common good.

Considering both H_{2a} and H_{2b}, it is evident that warm glow benefit can influence consumers' value perception towards a green brand by increasing their perceived green value, although the increase of functional value was not evident. An argument for this might be that impure altruism could motivate consumers to purchase green brands as their moral satisfaction would be met associated with their purchase. In order to increase consumer perceived warm glow benefits, organisations can introduce certificates which recognise the extent to which consumers contribute to the environment and society (Lilley & Slonim 2014).

6.4.3 Self-expressive benefit

H_{3a} (which hypothesised that self-expressive benefit has a positive influence on functional value) was accepted.

The results of the final best-fit SEM (Figure 5.11) demonstrate that self-expressive benefit has a direct effect of .17 on functional value. This suggests that consumers who receive more green benefits relating to their needs for social approval and reputation are more likely to have a positive functional values associated with green brands. Previous studies suggest that numerous positive brand-related outcomes can result from making consumers feel superior, which symbolises their status in society. The outcomes of these studies have included positive brand attitude, brand love, and positive word-of-mouth (Carroll & Ahuvia 2006; Hartmann & Apaolaza-Ibáñez 2006; Hwang & Kandampully 2012). Similarly, if green initiatives can signal consumers' social status and their capability of sacrificing resources for environment protection, their perceived functional value associated with green brands can be strengthened. In simple terms, they might be willing to pay a price premium for a green brand whose functionality they believe is better than conventional products.

H_{3b} (which hypothesised that self-expressive benefit has a positive influence on GPV) was accepted.

Noticeably, the results (*Appendix 5*) of the final SEM (Figure 5.12) revealed that there was a significant relationship between self-expressive benefit and GPV. It had an effect of .09 on GPV. It is evident that although the influence of self-expressive benefit on GPV was slightly weaker than that on functional value, it is still an important determinant in enhancing GPV. These findings are in accord with recent studies which indicate that an increase of self-expressive benefits results in positive green brand image regarding environmental performance, concerns and promises (Lin, Lobo & Leckie 2017). As a consequence, customers' perception of green value would be strengthened through their satisfaction with environmental expectations.

Given the findings relating to H_{3a} and H_{3b}, it is evident that self-expressive benefits contribute to the increase of customer value by enhancing functional value and GPV. Brands that help consumers to express themselves either at the inner or social level would generate brand love and positive word-of-mouth (Wallace, Buil & de Chernatony 2014). Hence, the results of these hypotheses further confirm the influence of self-expressive benefits on enhancing consumers' positive emotions toward a brand which assist them in expressing themselves. In order to enhance self-expressive benefits, consumers' needs for social approval and reputation should be considered in products design, packaging and advertising which would make their green consumption more visible. The role of peer groups should also be considered in benefits programs as it can shape consumers' purchase behaviour. Hence, organisations may position green brands by providing benefits that can satisfy consumers' needs for social status and self-esteem. This would, in turn, strengthen their identity among peer groups.

6.4.4 Green perceived risk

H_{4a} (which hypothesised that green perceived risk has a negative influence on functional value) was not supported.

The results of the final best-fit SEM (Figure 5.12) demonstrate that green perceived risk had an effect of .03 on functional value. This therefore displays a relatively weak relationship between green perceived risk and functional value, meaning that the proposed hypothesis was not supported. Previous studies suggest that consumers' risk perception is negatively

associated with their perceived value for money (Sweeney, Soutar & Johnson 1999) and satisfaction (Eid 2011; Johnson, Sivadas & Garbarino 2008). However, the influence of customers' risk perception in terms of negative environmental outcomes associated with their purchase behaviour on their perceived functional value was not evident. This discrepancy could be attributed to customers' lack of knowledge regarding the effect of green risk on the long-term economic value.

H_{4b} (which hypothesised that green perceived risk has a negative influence on GPV) was accepted.

The results of the final best-fit SEM suggest that the green perceived risk construct had a direct effect of $-.07$ on GPV. This finding reveals that green perceived risk is negatively related to GPV, which is supported by previous studies. This suggests that green perceived risk negatively influenced green trust, and green satisfaction (Chen & Chang 2012, 2013) and green brand image (Lin, Lobo & Leckie 2017). More specifically, if customers perceive risks associated with their purchase of green brands, their trust towards green brands would be weakened and negative emotions would be generated. Consequently, GPV would be reduced. Based on the findings relating to H_{4a} and H_{4b}, it is proven that consumers' green risk perceptions significantly influenced customer value by reducing their green perceived value. The relationship between green perceived risk and functional value was weak and this might be because consumers would not compromise quality, even though they sense a low green risk associated with their green brand purchase. However, consumers' value perceptions associated with green brands were still impacted by green perceived risk as it was negatively related to GPV. Hence, in order to reduce green perceived risk, clear green claims and certified environmental labelling would be essential.

6.4.5 Green transparency

H_{5a} (which hypothesised that green transparency has a positive influence on functional value) was accepted.

The results of the final best-fit SEM (Figure 5.12) demonstrate that the green transparency construct had a direct effect of $.30$ on functional value. This indicates that green transparency

plays a relatively important role in positively influencing functional value. Previous researchers have argued that consumers require more detailed information for their green decision making as green brands usually carry higher prices than non-green brands (Meise et al. 2014). Additionally, the transparency relating to information about sustainability in expressing corporate social responsibility (CSR) and overall product evaluation can be enhanced by generating positive CSR associations (Brown & Dacin 1997). The findings of this study are consistent with the foregoing arguments as the increase of green transparency can facilitate consumers' understanding of green options. This, in turn, can generate positive overall product evaluation.

H_{5b} (which hypothesised that green transparency has a positive influence on GPV) was accepted.

The green transparency construct had an effect of .42 on GPV. This suggests that green transparency significantly influences GPV. The influence of green transparency on GPV is greater as compared to the other four influential dimensions. This finding reinforces the application of the attribution theory in the green brand context. Based on the attribution theory, customers perceive that green transparency assists them in attributing a firm's actions to their intrinsic motivations. This, in turn, would satisfy their green expectations (Ellen, Webb & Mohr 2006; Parguel, Benoît-Moreau & Larceneux 2011; Vlachos et al. 2009). This finding also supports the argument that green transparency helps in reducing the negative impact of greenwash and facilitates the value communication between consumers and green brands (Brunk 2010; Lavorata 2014; Nyilasy, Gangadharbatla & Paladino 2014; Vaccaro & Echeverri 2010).

Regarding H_{5a} and H_{5b}, the results demonstrate that the green transparency construct does significantly influence customer perceived functional value and GPV. This can be explained by the ethical decision making model, which suggests that people's ethical judgement and behavioural intention can be influenced by either teleological or deontological evaluations (Hunt & Vitell 1986). This implies that apart from desirable benefits, customers are more likely to positively evaluate brands if these brands can offer clear information regarding their environmental policies and their associated environmental production process (Brunk 2010; Eggert & Helm 2003; Lavorata 2014). Hence, green transparency is a relatively effective approach in delivering both functional value and GPV, which in turn would facilitate effective communication between customers and green brands.

6.5 Discussion of findings relating to research question two

The second research question as previously articulated in Chapter One reads as follows:

What is the influence of the inclusion of customer perceived value in the relationships between green brand communication and green brand attachment and loyalty?

This research question has been answered by the analysis of the mediation effects of the functional value and GPV of the proposed conceptual model. Hypotheses six and seven were developed to address this issue.

6.5.1 The mediating role of functional value

H_{6a} (which hypothesised that functional value is significantly related to self-brand connection) was accepted.

H_{6b} (which hypothesised that functional value is significantly related to brand prominence) was accepted.

H_{6c} (which hypothesised that functional value is significantly related to green brand loyalty) was accepted.

The results (*Appendix 5*) of the SEM demonstrate that the functional value construct had a direct effect of .43 on self-brand connection. This means that the functional value positively impacts self-brand connection. Additionally, the functional value construct presents a direct effect of .74 on brand prominence, indicating that functional value plays a relatively important role in forming brand prominence. Moreover, the output of the SEM demonstrates that functional value exhibited a direct effect of .61. This suggests that the positive relationship between functional value and green brand loyalty is significant.

According to previous discussions on antecedents and relational outcomes of functional value, the results of this study indicate that utilitarian environmental benefit has a total effect of .23 on self-brand connection. This comprises a significant indirect effect of .18 via functional value, whilst the direct effect of this relationship is insignificant. Furthermore, it has a total effect of .17 on brand prominence, consisting of a significant indirect effect of .31 via functional value whilst the direct relationship between them is not evident. Similarly, the

direct effect of utilitarian environmental benefit on green brand loyalty is absent (-.07) whilst it has a significant indirect effect of .25 on green brand loyalty via functional value. Therefore, it becomes evident that the influences of utilitarian environmental benefit on self-brand connection, brand prominence and loyalty are fully mediated by functional value. Interestingly, the mediating effect of functional value in the relationship between utilitarian environmental benefit and green brand loyalty is much stronger than that in the relationships between utilitarian environmental benefit and green brand attachment.

The self-expressive benefit (which focuses on customers' expectations for social approval and outer self-esteem) has a total effect of .13 on self-brand connection, a total effect of .17 on brand prominence, and a total effect of .06 on green brand loyalty respectively. Notably, the direct influences of self-expressive benefit on green brand attachment and loyalty are insignificant; and have significant indirect influences on self-brand connection (.07), brand prominence (.12) and brand loyalty (.10) via functional value. In this respect, the mediating role of functional value in the relationship between self-expressive benefit and green brand attachment and loyalty is confirmed.

The results of this study also suggest that the green transparency construct has a total effect of .39 on self-brand connection, which comprises of a significant indirect effect of .13 and an insignificant direct effect of .05. Furthermore, the green transparency construct has a total effect of .17 on brand prominence, comprising of a significant indirect effect of .22 via functional value and an insignificant direct effect of .20. Moreover, green transparency does not present a significant direct effect on green brand loyalty (-.18) while it has a significant indirect effect of .18 on green brand loyalty via functional value. Hence, it is evident that the relationships between green transparency and self-brand connection, brand prominence and brand loyalty are fully mediated by functional value.

In summary, green benefits associated with customers' expectations for environmental functionality and social approval and outer self-esteem as well as green transparency need to be well communicated. Doing this will signal that a green brand has competitive quality and is reasonably priced. This would in turn create positive relationships between consumers and green brands, i.e., self-brand connection, brand prominence, and green brand loyalty. The findings of this research confirm the significant effect that functional value has on green brand attachment (i.e., self-brand connection and brand prominence) and green brand loyalty

as supported by Fournier (1998), Papista and Krystallis (2013), and Sirohi et al. (1998), Valenzuela et al. (2010). This research extends their findings in the green brand context that functional value can lead to attached and loyal relationships owing to a brand's environmental concerns and commitment.

6.5.2 The mediating role of GPV

H_{7a} (which hypothesised that GPV is significantly related to self-brand connection) was accepted.

H_{7b} (which hypothesised that GPV is significantly related to brand prominence) was accepted.

H_{7c} (which hypothesised that GPV is significantly related to green brand loyalty) was accepted.

The results of SEM demonstrate that GPV has a direct effect of .74 on self-brand connection, suggesting that GPV has a relatively strong and positive influence on self-brand connection. Furthermore, the influence of GPV on brand prominence has also been confirmed as the results of this study show that the GPV construct had a direct effect of .40 on brand prominence. Moreover, the GPV construct had a direct effect of .44 on green brand loyalty. This suggests that the enhancement of green brand loyalty can be achieved by increasing GPV.

As mentioned earlier, green benefits (i.e., utilitarian environmental, warm glow and self-expressive benefits), green risk and green transparency have direct influences on GPV. Therefore, there could possibly be some mediation effect of GPV on the influencing dimensions and green brand attachment and loyalty. The results of mediation test (Table 5.19 and 5.20) demonstrate that the indirect effects of green benefits, including utilitarian environmental (.18), warm glow (.15), and self-expressive benefits (.07) on self-brand connection via GPV are significant. They also exhibit positive influences on brand prominence indirectly via GPV with effects of .10, .08 and .04 respectively.

Moreover, as to the influences of green benefits on green brand loyalty via GPV, utilitarian environmental benefit has a significant indirect effect of .11; warm glow benefit presents a significant indirect effect of .09; and self-expressive benefit exhibits an indirect effect of .04.

Conversely, green benefits have no direct influences on self-brand connection, brand prominence and green brand loyalty. In other words, the mediating role of GPV in the relationships between green benefits and green brand attachment and loyalty has been verified. Importantly, green perceived risk also has an indirect effect on self-brand connection (-.05), brand prominence (-.03) and green brand loyalty (-.03) via GPV as it impacts GPV directly and in turn GPV enhances green attachment and loyalty. That is, GPV fully and negatively mediates the relationship between green perceived risk and green brand attachment and loyalty. Finally, the indirect relationships between green transparency and self-brand connection (.31), brand prominence (.17) and brand loyalty (.19) via GPV are significant while their direct relationships are not significant. In this regard, the influences of green transparency on self-brand connection, brand prominence and brand loyalty are fully mediated by GPV.

Overall, targeting GPV is an effective approach in communicating green branding initiatives to develop strong relationship between consumers and green brands. Previous studies suggest that GPV has significant influences on green trust, green satisfaction, green loyalty (Chen 2013) and green brand equity (Ng et al. 2014), whilst its relationship with brand attachment has been underestimated. Additionally, an examination of brand attachment comprising of self-brand connection and brand prominence has not been conducted in the context of green brands. The findings of this research confirm that GPV is a strong factor which contributes in developing green brand attachment besides the predominant outcomes associated with green trust and satisfaction. More importantly, the results from this study in relation to the mediating role of GPV are supported by Ng et al. (2014) who conclude that GPV fully mediates the relationship between brand credibility and green brand equity. Hence, green benefits and green transparency as well as the reduction of green risk need to be well communicated to increase consumers' GPV which in turn would strengthen their attachment and loyalty towards green brands.

6.5.3 Summary of findings relating to research question two

The foregoing discussions indicate that both functional value and GPV have mediation effects on the relationships between green brand communication and green brand attachment and loyalty. Specifically, functional value and GPV equally mediated the relationship

between utilitarian environmental benefits and self-brand connection and the relationship between self-expressive benefits and self-brand connection. Hence, the offerings of utilitarian environmental and self-expressive benefits that can create functional value and GPV would lead to strong self-brand connection.

Additionally, functional value exhibits a stronger mediation effect on several key relationships as compared to GPV, i.e., the relationship between utilitarian environmental benefits and brand prominence, the relationship between utilitarian environmental benefits and green brand loyalty, the relationship between green transparency and brand prominence. This means that more resources should be put in creating functional value linking to the utilitarian environmental benefits and green transparency for strengthening brand prominence and achieving green brand loyalty.

In contrast, GPV presents a greater mediation effect on the relationship between green transparency and self-brand connection and green brand loyalty as compared to functional value. This reveals that the influence of green transparency on self-brand connection and green brand loyalty is determined by GPV. Notably, the mediation effect of functional value has been found to be significantly evident in the relationship between self-expressive benefits and brand prominence and green brand loyalty whilst the mediation effect of GPV in these relationships was found to be not significant. In other words, the influence of self-expressive benefits on brand prominence and green brand loyalty mainly results from the enhancement of functional value. Interestingly, when investigating the relationships between warm glow benefits, green perceived risk and green brand attachment and loyalty, the mediation effect of GPV is particularly evident whilst the effect of functional value is absent. That is, the influence of warm glow benefits on self-brand connection, brand prominence and green brand loyalty is largely dependent on the increase of GPV. Similarly, the negative effect of green perceived risk on self-brand connection, brand prominence and green brand loyalty is significant when the GPV has been reduced.

6.6 Discussion of findings relating to research question three

The third research question as previously articulated in Chapter One is:

How do the proposed relationships among constructs vary among brands of physical goods and services?

The results of this study (Table 5.20) demonstrate that there was a significant increase of Chi-square value ($\Delta\chi^2 = 25.593$ with $\Delta df = 14$ and $p = 0.029$) by adding constraints on all the structure weights, meaning that the differences between the brands of physical goods and services were significant. This therefore provides evidence that there is a moderation effect of brand type in the proposed relationships. In particular, the differences between brands of physical goods and services were significant in the relationship between utilitarian environmental benefit and functional value, the relationship between green transparency and functional value and the relationship between GPV and self-brand connection. As compared to brands of physical goods, customers' green value perceptions tend to have a stronger influence on self-brand connection when they purchase service brands. Additionally, the role of green transparency in increasing functional value is particularly evident in brands associated with services. However, this direct relationship is weak and relatively unimportant in brands of physical goods. Previous literature focusing on service industries suggests that customers rely on the attributes or "cues" to assist them in making decisions, especially in the service context owing to its intangibility (Crane & Clarke 1988; Shostack 1977).

Furthermore, most services depend on physical components to deliver their benefits despite their attribute of intangibility. Moreover, corporate social responsibility associations have positive influences on brand identification and customer satisfaction (He & Li 2011). Similarly, the findings of this study confirm the influence of customers' green value perceptions relating to both tangible and intangible components in their connection to the green brand. This implies that customers are more likely to develop strong brand connections when they receive higher level of GPV in brands of services. These results also demonstrate that customers rely on green transparency to enhance their perceived functional value. This is in line with previous studies (Lee et al. 2010; Matten & Moon 2007) which suggest that CSR association can positively influence brand evaluation of quality attributes. Green transparency, an important form of CSR, therefore would generate positive brand evaluation relating to quality attributes and in turn would increase functional value.

However, the findings of this study are somewhat different in regards to the influence of green transparency on functional value in the context of physical goods. The direct relationship between green transparency and functional value is not significant, although

several scholars agree that overall product evaluation can be enhanced by generating CSR associations in physical goods brands (Brown & Dacin 1997). The reason for this might be that customers require more information to evaluate a green brand especially in the context of service brands owing to their intangibility. In contrast, customers of physical brands may be satisfied by the visible quality to make judgments of their green transparency.

In the context of physical goods, the findings of this study suggest that the direct effect of utilitarian environmental benefit on functional value is evident whilst this effect does not present itself in brands of services. This concurs with the observation reported in previous studies (Berry 1980; Shostack 1977; Zeithaml et al. 1985). Essentially, these studies argue that service products might be easily regarded as a low threat to the environment because of their characteristics of intangibility, perishability, and diversity, as well as the simultaneous occurrence of their production and consumption. Hence, the provision of utilitarian environmental benefits is an important cue for customers to evaluate brand quality in brands associated with physical goods. It is, however, difficult for customers to attribute utilitarian environmental benefits to superior quality in brands associated with services.

These findings suggest that adaptation is necessary before applying the fast-moving consumer goods approach to services branding (Balmer, Maignan & Ferrell 2001). Despite there being no significant differences across two groups of brands when examining customers' perceptions of antecedents to GPV, the formation of their green value perception across these two types of brands is still different. For instance, only utilitarian environmental benefit and green transparency have positive and direct influences on GPV of brands associated with physical goods whilst in brands of services, it is evident that emotional benefits comprising of warm glow and self-expressive benefits together with green transparency directly influence GPV. Additionally, green perceived risk negatively influences GPV in brands of services but this direct relationship is not significant in brands of physical goods. These findings support those of previous studies (Morrison & Crane 2007) which reveal that emotions play an influential role in determining customers' satisfaction and loyalty towards brands of services. As Murray and Schlacter (1990) state, customers would perceive greater risk for services as compared to goods. The findings of this research support and extend the study conducted by Murray and Schlacter (1990) in the context of green brands by investigating the influence of green perceived risk on GPV in both brands of services and physical goods. As expected, the effect of green perceived risk on GPV is evident in brands of services.

6.7 Implications of this study

With an increase in customers' environmental awareness, companies are increasingly adopting green marketing strategies to differentiate themselves from their rivals. More specifically, most of them position their brands as being green using environmental innovations, the use of green labels and trademarks as well as effective environmental management systems. However, customers' green purchase behaviour is not always influenced by these green initiatives associated with a brand. In addition, customers' green sceptical attitudes toward green brands have recently dramatically increased owing to organisations' greenwash behaviour. As a result, genuine companies' green investment will be undermined and consumers' confidence in green brands might be dampened without effective communication between consumers and green brands. In this respect, the purpose of this research was to develop a model that incorporates the effects of green benefits, green risk and green transparency associated with green initiatives on two dimensions of customer perceived value and their influences on three major relational consequences, i.e., self-brand connection, brand prominence and green brand loyalty. Previous studies focusing on green branding have mainly used TRA and TPB to predict green purchase intention and they have not considered both the functional value and GPV to reflect customer perceived value associated with green brands. The findings of this study with respect to the nexus between green brand communication (i.e., green perceived benefits, green perceived risk, green transparency), customer perceived value (i.e., functional value and GPV) and relational outcomes (i.e., self-brand connection, brand prominence and brand loyalty), has provided significant implications for both academics and practitioners.

6.7.1 Theoretical implications

This study has made several important theoretical contributions. First, the customer value approach suggested by Papista and Krystallis (2013) has been extended to include dimensions of functional value and GPV to investigate the process of customers' adoption of green brands and their relationship development with green brands. This study is the first of its kind in developing an integrated model which combines both conventional value and green value constructs to capture customer perceived value associated with green brands. Firstly, the study's findings will enhance existing knowledge about the customer value approach in green

consumption research; and provides an explanation for the gap between customers' positive environmental attitudes and their actual purchase behaviour of green brands. More importantly, the study has addressed customers' value perceptions toward green brands in the Chinese context, which broadens the green branding research to include developing countries.

Secondly, this study has applied the ethical decision-making model in examining the main determinants which stimulate or hinder customer perceived functional value and GPV. The study provides empirical evidence to verify the applicability of this model for solving green brand related issues. The influencing factors emphasise the corporate practice of providing environmental information, i.e., green transparency apart from considerations of green benefits and green risk. The findings of this research demonstrate that green benefits and risk which are derived from teleological evaluation have direct influences on functional value and GPV. In particular, utilitarian environmental, warm glow and self-expressive benefits are positively associated with GPV while green perceived risk negatively influences GPV. In this respect, the provision of green benefits is important for satisfying customers' environmental expectations. Also green perceived risk exacerbated by greenwash diminishes GPV.

Furthermore, non-green aspects of customers' value considerations are required to be included in green offerings in order to successfully capture customers' attention. This study attributes green brand constructs to the conventional value construct to examine their interactive relationships. The results suggest that utilitarian environmental and self-expressive benefits are able to increase customer perceived functional value whilst the influences of warm glow benefit and green risk on functional value are relatively weak, indicating their low importance. Interestingly, green transparency derived from deontological evaluation strongly influences both functional value and GPV. In other words, customers attribute a firm's behaviour to intrinsic motivations if it provides them with relevant information and communication which in turn would enhance functional value and GPV. Thus, this study facilitates the understanding of the determinants of customers' overall brand evaluations associated with green brands and contributes to the body of knowledge by integrating green brands with the broader research framework of corporate social responsibility.

Thirdly, green brand attachment is comprised of two key dimensions, i.e., self-brand connection and brand prominence. This is supported by Park et al. (2010). The idea of these researchers has been adopted for examining factors influencing the relationship development

between customers and green brands. Most importantly, it has provided valuable insights into current studies of the effectiveness of green branding. The full mediation effects of the functional value and GPV are confirmed in this study, which further verifies the applicability of the signalling theory in explaining the potential failure of green initiatives aimed at directly generating positive relational outcomes.

Finally, this study provides a new understanding of green brand strategies by investigating the differences of the structural relationships between brands of physical goods and services. The findings of this research suggest that there are significant differences in the relationship between utilitarian environmental benefit and functional value, the relationship between green transparency and functional value, and the relationship between GPV and self-brand connection across brands of physical goods and services. This facilitates an understanding of factors that influence the process of customers' adoption of green brands and their relationship development with green brands in green service branding.

6.7.2 Practical implications

The findings of this study offer some important managerial implications for organisations intending to implement green marketing and corporate social responsibility strategies. These findings suggest that a well-implemented green branding strategy can lead to more effective green communication, higher customer value and more attached and loyal relationships, thus lending support to the green marketing initiative in general. Although there is no consensus among researchers regarding which kind of green persuasion strategy would be the most effective, the results of this study concur with those of Hartmann et al. (2005), who suggest that a combination of functional attributes with emotional benefits produces the strongest perceptual effects. These scholars argue that purely providing emotional benefits would result in weaker brand attitude effects. That is, the provision of both functional and emotional benefits is significant for effective green positioning strategies.

Similarly, communication campaign planners are required to deliver real environmental benefits and emotional benefits associated with green brands to enhance customer perceived value. Notably, the findings of this research provide a somewhat different outcome, that is, that real utilitarian environmental benefit is still a more important cue to signal customer

value relating to green brands as compared to emotional benefits. Therefore, communication campaign planners should implement branding strategies by focusing on the creation of environmentally sound functional attributes sustained by emotional benefits. To be more specific, organisations should deliver superior environmental functionality to strengthen customers' brand associations. For example, green innovation programs, including green product and green process innovations can be adopted since they minimise production waste and increase productivity and enhance corporate green brand image (Chen, Lai & Wen 2006; Chen 2008).

Additionally, environmental labelling programme provides another approach for organisations to strengthen customers' beliefs in relation to the environmental performance of the green brand (Montoro Rios et al. 2006). As customers are generally sceptical of green advertising, it could be more useful to ratify a brand's environmental benefits using an independent certification body. These researchers have demonstrated that environmental labels help to strengthen beliefs regarding the environmental performance of the brand, as well as increase confidence in the judgements made on related performance.

Emotional benefits including warm glow and self-expressive benefits also had significant influences on customer perceived value associated with green brands. Hence, warm glow, aimed at providing consumers' moral satisfaction, should be included when considering an organisation's benefit programs. This would assist in building customers' affective attitudes toward a green brand. Additionally, green advertising campaigns adopted by organisations should be effective in assisting consumers in expressing their needs for social approval or external personal expression. Moreover, green perceived risk negatively influenced GPV. This finding indicates that if organisations wish to enhance customer GPV by improving the effectiveness of their green campaigns through offering green functional and emotional benefits, the reduction of green perceived risk is another alternative path in reaching this goal. For example, a more reliable information channel between consumers and manufacturers is required to reduce green risk perceptions. Therefore, a positive GPV can result if these organisations can lower the green perceived risks of their consumers.

Priority should be given to transparency of green initiatives, and this should be effectively communicated to consumers as it helps to reduce green scepticism and increase green trust. Therefore, clear product information, effective communication procedures and disclosure of

annual green practice reports would go a long way in enhancing customers' perceptions relating to a firm's green transparency.

Essentially, this research offers significant practical contributions on the development of customer-brand relationship in the green marketing context. Unlike previous research which focussed on enhancing green attachment only through self-brand connection (Jang, Kim & Lee 2015), this study includes another important dimension, brand prominence as supported by Park et al. (2010) to effectively investigate the drivers of green brand attachment. The results of this research extend and empirically examine the study conducted by Papista and Krystallis (2013), which argues that there are direct relationships between customer value and relationship quality. Additionally, prior research mainly addressed green satisfaction and green trust when attempting to investigate determinants of green brand loyalty (Chen 2013; Martínez 2015). This study confirms the direct relationship between customer value and brand loyalty associated with a green marketing approach. Hence, green marketing strategies in relation to the development of satisfying customers' expectation are effective for developing strong brand identity and creating brand arousals and are imperative for a brand loyalty programme.

This study identifies the gap between customers' experience of green initiatives and green brand attachment and loyalty. This relationship is fully mediated by customer perceived functional value and GPV. Thus, organisations should use different communication strategies to create customer-based functional value and green value as perceived by customers. In particular, this study demonstrates that utilitarian environmental and self-expressive benefits are found to have direct positive effects on both functional value and GPV. Therefore, both utilitarian environmental and self-expressive benefits need to be considered by organisations when they intend to enhance green brand attachment and loyalty through creating functional value and GPV.

Furthermore, this study suggests that green transparency is a key antecedent of functional value and GPV. This, in turn, would strengthen brand attachment and loyalty. Therefore, companies should communicate information truthfully and transparently to reduce consumers greenwash perceptions so as to improve the effectiveness of loyalty program and customer-relationship management. Moreover, as suggested, the warm glow of giving contributes significantly towards achieving green purchase intention as compared to utilitarian benefit

(Hartmann & Apaolaza-Ibáñez 2012). This study demonstrates that the effects of warm glow benefit on green brand attachment and loyalty can be presented through GPV, indicating that again, organisations should include this type of benefit in their incentives programs. Notably, green perceived risk is a key barrier in developing attached and loyal relationships with customers as the effects of green perceived risk on green brand attachment and loyalty are fully mediated by GPV. Hence, if organisations want to develop strong relationships with customers, they should provide a more reliable information channel for consumers to gain more knowledge about the manufacturers.

Finally, the structural relationships in this study are significantly different between brands of physical goods and services. The development of green brand attachment and brand loyalty varies across brands of physical goods and services and the direct influence of GPV on self-brand connection is stronger for brands of services than physical goods. Similarly, the direct effect of green transparency on functional value is evident in brands of service while this relationship is absent in brands of physical goods. In contrast, the influence of utilitarian environmental benefit on functional value is stronger for brands of physical goods as compared to those of services. These findings suggest that adaptation is necessary before applying the fast-moving consumer goods approach to services branding (Balmer, Maignan & Ferrell 2001). For instance, for services brands, intangibility is a main concern for customers to purchase green services and therefore organisations should allocate more resources in increasing GPV and providing green transparency to create unique green brand personality and strengthen customer perceived quality.

Noticeably, there is a clear need to address environmental functionality if organisations implement green branding strategy for physical goods. Environmental functionality is a key cue for customers to evaluate a green brand's quality. More importantly, the formation of customer green value perceptions across these two groups of brands is different. Consumer perceived green transparency is an important driver to increase GPV in both groups of brands. Utilitarian benefits promote GPV in brands associated with physical good, but this relationship is insignificant in brands associated with services. Warm glow and self-expressive benefits promote GPV in brands of services, but these relationships are insignificant in the brands of physical goods. This is consistent with the findings of Morrison and Crane (2007) in that emotions play a more influential role in determining customers' satisfaction and loyalty towards brands of services. Similarly, green perceived risk diminishes

GPV in brands of services but this relationship is not found in the brands of physical goods. Hence, green branding strategies need to be diverse across intangible brands of services and tangible brands of physical goods.

Additional managerial implications can be provided for organisations based in China. The results of this research suggest that Chinese green companies should have a systematic framework to promote and communicate their brand as a “green brand” in a way that the customers can comprehend the message. Initiatives such as providing green benefits, reducing green risk and creating green transparency are effective for these companies to enhance attachment and loyalty links with the customers since they assist in adding the functional value and green value of the brand. Furthermore, this study demonstrates that Chinese green consumers are mainly from affluent regions with relatively high monthly income and have received higher education. Therefore, the Chinese government should offer incentives for green activities and improve the general public’s green knowledge by creating an environmentally oriented educational and pedagogical system. The government should endeavour to strengthen citizens’ beliefs that environmental behaviour will not only improve the quality of the environment, but will also increase the economic value of green brands in the long run.

6.8 Limitations of this study

Although this thesis is based on sound literature and methodological foundations, specific limitations are acknowledged. These limitations are highlighted in the following section.

The first limitation addressed in this thesis is related to the dimensions used in the research model. Although the proposed conceptual model has addressed the dimensions that are central to the research questions, there are several other possible dimensions that could also influence the relationships proposed in the conceptual model. In particular, with regard to the customer value construct, there are still a number of possible aspects of value perceptions that could be specifically addressed to identify the value of green brands.

The second limitation relates to the generalisation of the findings. Although this study provides both theoretical and managerial values as a construct, it was mainly conducted in the

context of green brands in four major cities of China. Therefore, generalisation of the findings beyond the green industry and the target population should be made with caution.

The third limitation is linked to the cross-sectional design of this thesis. The most evident disadvantage of such design is an ignorance of the dynamics of the environment and therefore, it might fail to monitor customers' value perceptions and the related strategies dynamically through a cross-sectional study. Nevertheless, the cross-sectional approach is still effective in testing the hypothesised relationships. A longitudinal study would be desirable, even though this was not possible for cost and time reasons in this study.

The fourth limitation concerns the adoption of the back translation technique in the design of the survey instrument. Owing to the potential disadvantage of misinterpretation of this technique, this study acknowledges this as one of limitations even though these issues have been carefully considered in the process of the survey design.

The fifth limitation is related to the lack of multi-group analysis of four major cities. The one-way analysis of variance (ANOVA) was used to determine whether there were any statistically significant differences in the means of utilitarian environmental benefits, green perceived risk, GPV, self-brand connection and green brand loyalty across the four cities. The results depicted in Appendix 8 demonstrate that the means of key constructs used in the current study were not significantly different across the four groups. Hence, it would be appropriate to conduct multi-group analysis to examine whether there are any differences of structural relationships across the four cities.

The sixth limitation considers the application of Baron and Kenny's approach for the mediation test. In order to examine the mediated effect for significance, the standard error of the effect is required. In particular, estimates of the standard error can fluctuate widely especially when the sample size is small (Preacher & Hayes 2004). Although the sample size of current study is relatively large and the calculation of standard error is quite stable, Bootstrapping has been regarded as a more powerful method that derives a more accurate estimate as compared to Baron and Kenny's approach (Hayes 2009). Hence a more advanced technique such as the bootstrapping method proposed by Hayes is desirable for future research.

6.9 Future research directions

In addition to the limitations identified above, the following are additional directions for future research that may be explored. Comparative studies between customers of different countries would be valuable in capturing the influence of cultural differences on the development of customer value perceptions and its effect on customer-green brand relationship building. Although green scepticism is increasing dramatically in China, further research would be beneficial by replicating and extending the conceptual model proposed in this study to other countries to increase the generalization of the research findings. In addition, owing to the different resources between first-tier and second-tier cities, a comparative study of four major cities would also be interesting for future research.

The insights in this study provided an analysis that broadens the picture of the current understanding in the literature of green branding and green consumption. In doing so, when examining the customer value concept in future quantitative studies, it is also important to consider more relevant dimensions that might contribute to customer perceived value associated with green brands and investigate the influences of psychographic factors on the formation of customer perceived value. Additionally, future studies that consider using both qualitative and quantitative methods would enrich a body of knowledge of determinants that might influence customers' adoption of green brands and their willingness to enhance attached and loyal relationships with green brands.

6.10 Conclusion

This study examined factors influencing customer perceived value associated with green brands and their influences on green brand attachment and loyalty. The findings of this study demonstrate that the customer value approach effectively contributes in investigating consumers' green brand adoption behaviour and the formation of strong relationship between consumers and green brands. Specifically, utilitarian environmental, warm glow, self-expressive benefits, green transparency together with green perceived risk derived from both deontological and teleological perspectives are crucial determinants of customer value in the green consumption context. Additionally, customer value (which comprises functional value and GPV) significantly influences self-brand connection, brand prominence, and green brand

loyalty. These results provide new insights in increasing green consumption behaviour via the customer value approach and improving the effectiveness of communication between customers and green brands.

This study's findings also confirm the mediating role of customer value in the relationships between dimensions of green brand communication and three green brand equity related outcomes. This provides a solution for improving the effectiveness of green branding strategy, and contributes in theory and practice to green branding, corporate social responsibility, and relationship marketing. What is particularly noteworthy is that this study compares the differences between customers' value perceptions on brands of physical goods and services, which are absolutely vital for green product branding and services branding. Also, this study was conducted in the context of China, which has been regarded as an emerging green market. This enriches the body of knowledge of green consumption among consumers from developing backgrounds. Despite several of the limitations which have been identified in this study, such as, generalisation and cross-sectional design, this study serves as a good starting point for relevant future meaningful investigation.

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Appendices

Appendix 1 Survey instrument

Appendix 1A: Survey Instrument in English

Survey of mainland Chinese consumers' value perceptions and brand selection of green products and services

Based on your knowledge and experience, please answer the following questions to the best of your ability. Your responses will be kept strictly confidential and no individual responses will be included in the research outputs, only aggregated results will be mentioned. This is purely an academic piece of research, and has no commercial interests. The findings of this research will contribute in understanding Chinese consumers' perceptions of green attributes relating to products, services and different brands. This will result in theoretical and managerial implications. Hence, your cooperation in answering this survey is much appreciated.

SECTION 1: This section seeks to obtain your general knowledge about green brands in China

1. Have you heard about green brands?

(1) No (Thank you for your time, you need not continue this survey)

(2) Yes (Please proceed to answer the questions below)

2. Do you think that it is necessary for Chinese firms to develop green brands?

(1) Yes (2) No

3. If Chinese firms are committed to develop green brands, would you support and buy their products or services?

(1) Yes (2) No

4. A list showing the top 100 green brands in China has recently been released by the Chinese Brand Journal published by Peking University and the following 7 brands (7 Days Inn, China Southern Airlines; Midea, Haier, Lenovo, Chaoneng, Herborist) are among those green brands. Please select ONE of these 7 brands with which you are most familiar and have recently purchased a service or product from (Note: the following options include some products or services of the brands and their associated green claims)

SEVEN DAYS INN (Services include tourist and business accommodation)



- *实施系统的绿色营销策略
- *整体设计简洁，充分利用空间
- *提倡回收利用理念，减少一次性垃圾

CHINA SOUTHERN AIRLINE (Domestic and International air travel)



- *提出“绿色飞行”理念，加大节能减排工作
- *秉承“绿色飞行，绿色服务，绿色消费，绿色创新”服务理念
- *组织和鼓励乘客参与环保活动，减少一次性塑料的使用

MIDEA (Products include air-conditioners, rice cookers, refrigerators and electrical home appliances)



- *提出“产品节约型，生产节约型和环境友好型”的绿色经营策略
- *提出“绿色制造，绿色产品，绿色社会”三大经营目标
- *大力研究和开发白色家电变频技术，节能低碳技术

HAIER (Products include air-conditioners, washing machines, refrigerators and electrical home appliances)



- *将社会效益放在企业发展首位，始终贯彻绿色环保理念
- *严格控制产品制造过程，监测有害物质，增强产品环保性能



LENOVO (Products include desktop computers, laptops, monitors and general computer equipment)



- *秉承对所生产的产品全程负责的理念
- *对于产品生命周期结束的产品，提供全面回收服务
- *与第三方环保监测机构合作，推出具有环保认证的电子产品

CHAONENG (Products include laundry detergents, laundry powders, soaps and various cleaning products)



- *纳爱斯集团下的绿色洗涤品牌
- *采用天然椰子油生产，被誉为绿色清洁的节能洗涤先锋

HERBORIST (Products include facial cleansers, moisturising creams, toners and skin care lotions)



- *中草药护理品牌
- *运用现代科技与传统中草药精华相结合，减少化学成分，崇尚天然植物配方
- *倡导“包装回收”活动，减少废物污染

SECTION 2: Perceived benefits, risks and ethical concerns toward the green brand you chose

Keep in mind the brand and its associated picture that you selected in **question 4**. Please answer the following statements, using the scale of 1 to 7. Please note that selecting 1 means that you “strongly disagree” with the statement, whilst selecting 7 means that you “strongly agree”. There are no right or wrong answers. All we are interested in is a number that best shows the strength of your agreement with a particular attribute of that brand.

		Strongly disagree						Strongly agree
2.1	This brand respects the environment	1	2	3	4	5	6	7
2.2	This brand helps to prevent global warming	1	2	3	4	5	6	7
2.3	Products of this brand do not pollute the environment	1	2	3	4	5	6	7
2.4	Overall, products of this brand are environmentally friendly	1	2	3	4	5	6	7
2.5	With this brand, I can feel good because I help to protect the environment	1	2	3	4	5	6	7
2.6	With this brand, I have the feeling of contributing to the well-being of humanity and nature	1	2	3	4	5	6	7
2.7	With this brand, I can feel better because I don't harm the environment	1	2	3	4	5	6	7
2.8	With this brand, I can express my environmental concern	1	2	3	4	5	6	7
2.9	With this brand, I can demonstrate to myself that I care about environmental conservation	1	2	3	4	5	6	7
2.10	With this brand, I can demonstrate to my friends that I care about environmental conservation	1	2	3	4	5	6	7
2.11	With this brand, my friends perceive me to be concerned about the environment	1	2	3	4	5	6	7
2.12	There is a chance that there will be something wrong with environmental performance of the product of this brand	1	2	3	4	5	6	7
2.13	There is a chance that the product of this brand will not work properly with respect to its environmental design	1	2	3	4	5	6	7
2.14	There is a chance that using the product of this brand will negatively affect the environment	1	2	3	4	5	6	7
2.15	Using this brand would damage my green reputation or image	1	2	3	4	5	6	7
2.16	This brand explains clearly how it controls the emissions caused by its production processes that could harm the environment	1	2	3	4	5	6	7
2.17	Overall, this brand provides the information needed to understand the environmental impact of its production processes	1	2	3	4	5	6	7
2.18	This brand provides relevant information regarding environmental issues associated with its production processes	1	2	3	4	5	6	7
2.19	The environmental policies and practices of this brand are provided to customers in a clear and complete way	1	2	3	4	5	6	7

SECTION 3: Value perceptions of the green brand that you selected

		Strongly disagree						Strongly agree
3.1	The product of this brand provides good performance	1	2	3	4	5	6	7

3.2	The product of this brand has an acceptable standard of quality	1	2	3	4	5	6	7
3.3	The product of this brand offers value for money	1	2	3	4	5	6	7
3.4	The product of this brand is reasonably priced	1	2	3	4	5	6	7
3.5	This brand's environmental functions provide very good value for me	1	2	3	4	5	6	7
3.6	This brand's environmental performance meets my expectations	1	2	3	4	5	6	7
3.7	This brand is environmental friendly	1	2	3	4	5	6	7
3.8	This brand has more environmental benefits than other brands	1	2	3	4	5	6	7
3.9	This brand has more environmental concern than other brands	1	2	3	4	5	6	7

SECTION 4: Interactions and Relationships with the Green Brand You Chose

		Strongly Disagree							Strongly agree
4.1	This brand has a great deal of personal meaning for me	1	2	3	4	5	6	7	
4.2	This brand embodies what I believe in	1	2	3	4	5	6	7	
4.3	This brand is an important indication of who I am	1	2	3	4	5	6	7	
4.4	I feel a strong sense of belonging to this brand	1	2	3	4	5	6	7	
4.5	When I buy a product or service, my thoughts and feelings toward this brand happen automatically	1	2	3	4	5	6	7	
4.6	When I buy a product or service, my thoughts and feelings toward this brand happen instantly	1	2	3	4	5	6	7	
4.7	This brand makes me automatically evoke many good thoughts about the past, present and future (e.g., technology innovation, enhancement of environment)	1	2	3	4	5	6	7	
4.8	I have many thoughts about this brand (e.g., concern about the brand's development)	1	2	3	4	5	6	7	
4.9	I am willing to repurchase this brand because of its environmental functions	1	2	3	4	5	6	7	
4.10	I prefer purchasing this brand to other brands because of its environmental performance	1	2	3	4	5	6	7	
4.11	I seldom consider switching to other brands because of this brand's environmental concern	1	2	3	4	5	6	7	
4.12	I intend to continue buying this brand because it is environmentally friendly	1	2	3	4	5	6	7	

SECTION 5: Basic personal information

The following questions are for classification purpose only, and will be kept strictly confidential.

The following questions are for classification purpose only, and will be kept strictly confidential.

5.1 In the last two weeks, which of the following have you done? _____ (You can select more than one answer)

(1) Used energy efficient appliances (2) Recycled household wastes, eg. compost, newspapers, bottles (3) Turned off lights/electrical goods that are not necessary (4) Used public transport rather than driving (5) Bought green products (6) restricted use of plastic bags when shopping (7) tried to save water (8) None of these

5.2 Where would you prefer to buy green products from?

(1) Online stores (2) Supermarket (3) Brand outlet

5.3 Please indicate your gender

(1) Female (2) Male

5.4 Please indicate your age group _____

(1) 18-25 (2) 26-35 (3) 36-45 (4) 46-55 (5) Above 55

5.5 Please indicate your disposable average monthly income? _____

(1) Less than RMB 1,000 (2) Between RMB 1,000-3,000 (3) Between RMB3, 000-5,000

(4) More than RMB 5,000

5.6 Please indicate your marital status

(1) Single (2) Married and without children (3) Married and with young children (4) Married and with adult children (5) Divorced

5.7 Please specify the highest level of education you have completed

(1) Below high school (2) High school (3) 2 Years college or associate degree

(4) Bachelor degree (5) Postgraduate or above

5.8 Please indicate your occupation

(1) Company white collar (2) Civil servant (3) Student (4) Teacher (5) Clerk

(6) Technician or Researcher (7) Self-employed (8) Company CEO or General Manager

5.9 Please indicate which city are you located in?

(1) Beijing (2) Guangzhou (3) Chongqing (4) Hangzhou

Appendix 1B: Survey Instrument translated into Chinese

关于中国消费者绿色价值感知和绿色产品及服务的品牌选择调查

根据您的知识和经验，请尽您所能回答以下问题。您的作答将被严格保密，任何个人的选择不会被列入研究成果，只有汇总结果会被提及。这是一份纯学术研究，没有涉及任何商业意图。这份研究成果将有利于了解中国顾客对产品、服务和不同品牌环保属性的认知，这将具有一定的理论和管理意义。因此，我们对您的合作将十分感激。

第一部分：旨在了解您对中国绿色品牌的认知情况

1. 您听说过绿色品牌吗？

(1) 没有 (谢谢您的参与，您无需继续作答)

(2) 有 (请您继续回答下列问题)

2. 您认为中国企业需要发展绿色品牌吗？(限单选)

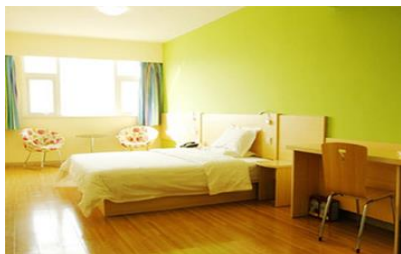
(1) 需要 (2) 不需要

3. 如果中国企业致力于发展绿色品牌，您愿意支持并购买他们的产品或服务吗？(限单选)

(1) 愿意 (2) 不愿意

4. 北京大学中国品牌研究中心在《中国品牌》杂志发布了 2011 年度中国绿色品牌百强榜单，以下七个品牌被纳入其中，请选择 **1** 个您最为熟悉并最近购买过其产品或服务的绿色品牌 (注：下列选项中包含每个品牌所拥有的产品和服务以及它宣称的环保内容)

七天连锁酒店 (旅游住宿和商务住宿)



*实施系统的绿色营销策略

*整体设计简洁，充分利用空间

*提倡回收利用理念，减少一次性垃圾

中国南方航空 (国内和国际航行)



- *提出“绿色飞行”理念，加大节能减排工作
- *秉承“绿色飞行，绿色服务，绿色消费，绿色创新”服务理念
- *组织和鼓励乘客参与环保活动，减少一次性塑料的使用

美的（空调、电饭煲、冰箱和其他家电用品）



- *提出“产品节约型，生产节约型和环境友好型”的绿色经营策略
- *提出“绿色制造，绿色产品，绿色社会”三大经营目标
- *大力研究和开发白色家电变频技术，节能低碳技术

海尔（空调、洗衣机、冰箱和其他家电用品）



- *将社会效益放在企业发展首位，始终贯彻绿色环保理念
- *严格控制产品制造过程，监测有害物质，增强产品环保性能

联想（台式电脑、手提电脑、显示器和其他电脑设备）



- *秉承对所生产的产品全程负责的理念
- *对于产品生命周期结束的产品，提供全面回收服务
- *与第三方环保监测机构合作，推出具有环保认证的电子产品

超能（洗洁精、肥皂、洗衣粉 和各类清洁产品）



- *纳爱斯集团下的绿色洗涤品牌
- *采用天然椰子油生产，被誉为绿色清洁的节能洗涤先锋

佰草集（洗面乳、润肤霜、爽肤水和其他护肤品）



- *中草药护理品牌
- *运用现代科技与传统中草药精华相结合，减少化学成分，崇尚天然植物配方
- *倡导“包装回收”活动，减少废物污染

第二部分：旨在了解您对您所选绿色品牌在益处、风险以及道德三方面的感知情况

根据您所选的品牌并参考对应的图片和内容,请使用7点量表回答表中陈述。请注意：选择数字1就意味着您对下表中的陈述表示“非常不同意”，而选择数字7则表示“非常同意”。您的作答无对错之分,我们所感兴趣的是最能够代表您对所选品牌特定属性的同意程度的数字。

		非常不同意					非常同意	
		1	2	3	4	5	6	7
2.1	这个绿色品牌尊重环境	1	2	3	4	5	6	7
2.2	这个绿色品牌在一定程度上能够为防止全球变暖作出贡献	1	2	3	4	5	6	7
2.3	这个绿色品牌产品对环境造成的负面影响是轻微的	1	2	3	4	5	6	7
2.4	总体上说,这个绿色品牌的产品是比较环保的	1	2	3	4	5	6	7
2.5	使用这个绿色品牌,我感觉很好因为我在消费过程中也能够为环境出一份力	1	2	3	4	5	6	7
2.6	使用这个绿色品牌,我能感受到自己为人类福祉和大自然做出贡献	1	2	3	4	5	6	7
2.7	使用这个绿色品牌,我的内心能够得以平和,因为我在尽力减少对环境的损害	1	2	3	4	5	6	7
2.8	使用这个绿色品牌,我能够表达自己对环境的关心	1	2	3	4	5	6	7
2.9	使用这个绿色品牌,我能够向自己表达自己对环境的关心	1	2	3	4	5	6	7
2.10	使用这个绿色品牌,我能够向我的朋友们表达我对环境的关心	1	2	3	4	5	6	7
2.11	使用这个绿色品牌,我身边的朋友们会察觉到 I 比较重视环保	1	2	3	4	5	6	7
2.12	这个品牌的环保表现可能存在一定的问题	1	2	3	4	5	6	7
2.13	这个品牌的环保设计可能无法适当运作	1	2	3	4	5	6	7
2.14	使用这个品牌可能会对环境产生负面影响	1	2	3	4	5	6	7
2.15	使用这个品牌有可能会损坏我的环保名声或形象	1	2	3	4	5	6	7
2.16	该品牌能够清晰解释如何控制生产中的环境污染问题	1	2	3	4	5	6	7
2.17	总体来说,该品牌能够提供关于其生产过程环境影响的相关信息	1	2	3	4	5	6	7
2.18	该品牌能够公开其生产过程中涉及的环境问题	1	2	3	4	5	6	7
2.19	该品牌提供给顾客的环保方针和政策是清晰真实的	1	2	3	4	5	6	7

第三部分：旨在了解您对所选绿色品牌的价值感知

		非常不同意							非常同意
3.1	这个品牌的产品能够提供很好的功能	1	2	3	4	5	6	7	
3.2	这个品牌的产品质量是可以接受的	1	2	3	4	5	6	7	
3.3	较之其他品牌的同类产品, 这个品牌是物有所值的	1	2	3	4	5	6	7	
3.4	这个品牌的产品价格是合理的	1	2	3	4	5	6	7	
3.5	这个品牌的环保功能为我提供很好的价值	1	2	3	4	5	6	7	
3.6	这个品牌的环保表现符合我的期望	1	2	3	4	5	6	7	
3.7	我购买这个品牌是因为它具有环境友好型的特性	1	2	3	4	5	6	7	
3.8	我购买这个品牌是因为它比其他品牌具有更多环保益处	1	2	3	4	5	6	7	
3.9	我购买这个品牌是因为它比其他品牌更注重环保	1	2	3	4	5	6	7	

第四部分：旨在了解您与您所选绿色品牌之间的互动关系

		非常不同意							非常同意
4.1	这个品牌对我而言，有许多个人意义	1	2	3	4	5	6	7	
4.2	这个品牌体现了我的信念（比如保护环境，履行道德责任）	1	2	3	4	5	6	7	
4.3	这个品牌是体现“我是谁”的重要标志之一	1	2	3	4	5	6	7	
4.4	这个品牌的环保贡献能够增强我对它的归属感	1	2	3	4	5	6	7	
4.5	当我打算要选择某个特定产品时，这个品牌会自动出现在我脑海	1	2	3	4	5	6	7	
4.6	当我打算要选择某个特定产品时，这个品牌会很快出现在我的脑海	1	2	3	4	5	6	7	
4.7	这个品牌让我不自觉地联想到关于过去、现在和将来的美好事物（比如技术和理念创新和环境改善）	1	2	3	4	5	6	7	
4.8	我对这个品牌有很多想法（比如关注这个品牌的发展）	1	2	3	4	5	6	7	
4.9	基于该品牌的环保功能，我愿意重新购买该品牌	1	2	3	4	5	6	7	
4.10	基于该品牌的环保表现，跟同类产品的其他品牌相比，我更愿意购买这个品牌	1	2	3	4	5	6	7	
4.11	基于该品牌对环境的关注，我很少考虑选择其他品牌	1	2	3	4	5	6	7	
4.12	基于该品牌是绿色环保品牌，我会继续购买该品牌	1	2	3	4	5	6	7	

第五部分：个人基本信息（以下的问题旨在分类，将予严格保密）

6.1 在过去的两个星期里，您进行了以下哪些行为？（可多选）

- (1) 使用节能电器 (2) 回收生活垃圾（如堆肥、报纸、瓶罐等） (3) 关掉不必要的电灯或电器
(4) 使用公共交通 (5) 购买环保产品 (6) 购物时慎用塑料袋 (8) 以上都没有

6.2 您通常更喜欢从哪些渠道购买环保产品？

- (1) 网购 (2) 超市 (3) 品牌专卖店

6.3 请选择您的性别

- (1) 女 (2) 男

6.4 您的年龄段是属于_____

- (1) 18-25 岁 (2) 26-35 岁 (3) 36-45 岁 (4) 46-55 岁 (5) 55 岁以上

6.5 您的可支配月收入是_____

- (1) 低于 1000 人民币 (2) 1000-3000 人民币 (3) 3000-5000 人民币 (4) 5000 人民币以上

6.6 您现在所处的婚姻状态是_____

- (1) 单身 (2) 已婚，未有孩子 (3) 已婚，孩子未成年 (4) 已婚，孩子已成年
(5) 离异

6.7 您的最高学历是_____

- (1) 高中以下 (2) 高中 (3) 大专或同等学历 (4) 大学本科 (5) 硕士研究生或以上

6.8 您的职业是_____

- (1) 公司白领 (2) 公务员 (3) 全日制学生 (4) 教师 (5) 文员/店员/接待员
(6) 专业技术人员或研究员 (7) 个体经营者 (8) 公司老板

6.9 您现在所居住的城市是_____

- (1) 北京 (2) 广州 (3) 重庆 (4) 杭州

感谢您抽空答题，为此表示十分感激！

Appendix 2: Ethics approval

To: Dr Antonio Lobo/Ms Jialing Lin, FBL

Dear Tony and Jialing

SHR Project 2015/023 The influence of value perception and attachment on customer-based green brand equity: A study in mainland China

Dr Antonio Lobo, FBL; Ms Jialing Lin, Dr Civilai Leckie

Approved Duration: 23-04-2015 to 30-04-2017 [Adjusted]

I refer to the ethical review of the above project revised protocol by Swinburne's Human Research Ethics Committee (SUHREC). Your responses to the review, as emailed today, were put to a Committee delegate for consideration.

I am pleased to advise that, as submitted to date, ethics clearance has been given for the above project to proceed in line with standard on-going ethics clearance conditions outlined below.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the *National Statement on Ethical Conduct in Human Research* and with respect to secure data use, retention and disposal.
- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.
- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.
- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project. Information on project monitoring, self-audits and progress reports can be found at: <http://www.research.swinburne.edu.au/ethics/human/monitoringReportingChanges/>
- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact the Research Ethics Office if you have any queries about on-going ethics clearance, citing the project number. A copy of this email should be retained as part of project record-keeping.

Best wishes for the project.

Yours sincerely

Keith

Keith Wilkins
Secretary, SUHREC & Research Ethics Officer
Swinburne Research (H68)
Swinburne University of Technology
P O Box 218
HAWTHORN VIC 3122
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Appendix 3: Details of EFA results

Table A: Results of the EFA for green brand communication

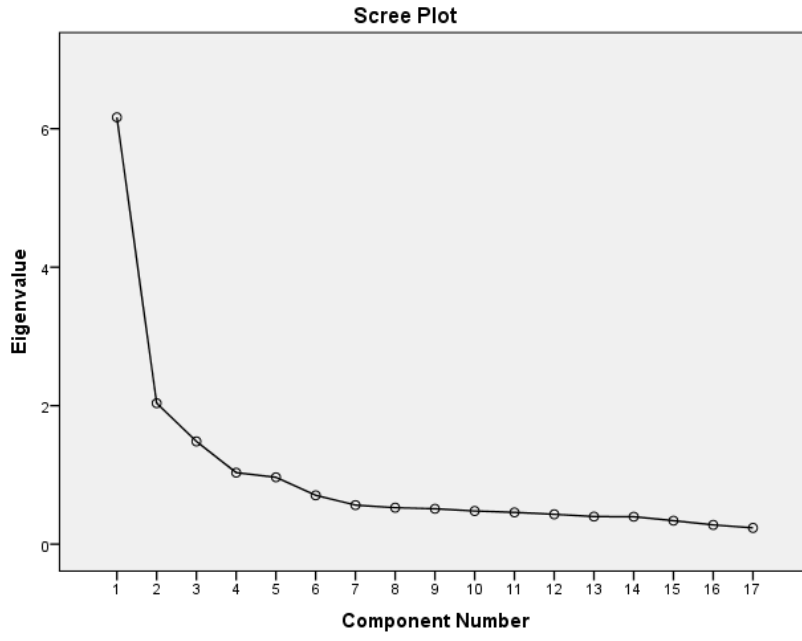
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.880
Bartlett's Test of Sphericity	Approx. Chi-Square	2773.751
	df	136
	Sig.	.000

Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.926	34.856	34.856	5.926	34.856	34.856	2.581
2	2.062	12.128	46.985	2.062	12.128	46.985	2.480
3	1.523	8.958	55.943	1.523	8.958	55.943	2.469
4	1.124	6.609	62.552	1.124	6.609	62.552	2.192
5	.995	5.856	68.407	.995	5.856	68.407	1.907
6	.689	4.053	72.461				
7	.603	3.548	76.008				
8	.583	3.431	79.439				
9	.512	3.012	82.451				
10	.502	2.953	85.404				
11	.456	2.683	88.087				
12	.424	2.492	90.579				
13	.398	2.340	92.919				
14	.362	2.127	95.045				
15	.330	1.941	96.986				
16	.267	1.570	98.557				
17	.245	1.443	100.000				

Extraction Method: Principal Component Analysis.



Pattern Matrix^a

	Component				
	1	2	3	4	5
ss2 With this brand, I can demonstrate to myself that I care about environmental conservation	.804	-.087	.099	.175	.094
ss3 With this brand, I can demonstrate to my friends that I care about environmental conservation	.767	-.067	.215	.123	.086
ss1 With this brand, I can express my environmental concern	.752	-.097	.192	.122	.119
ss4 With this brand, my friends perceive me to be concerned about the environment	.674	-.083	.211	.046	.305
gr2 There is a chance that the product of this brand will not work properly with respect to its environmental design	-.114	.900	-.096	-.031	-.079
gr3 There is a chance that using the product of this brand will negatively affect the environment	-.078	.893	-.105	-.065	-.076
gr1 There is a chance that there will be something wrong with environmental performance of the product of this brand	-.090	.864	-.175	-.103	-.085
gt2 Overall, this brand provides the information needed to understand the environmental impact of its production processes	.208	-.108	.784	.193	.044
gt3 This brand provides relevant information regarding environmental issues associated with its production processes	.180	-.190	.723	.211	.205
gt1 This brand explains clearly how it controls the emissions caused by its production processes that could harm the environment	.186	-.133	.691	.271	.214
gt4 The environmental policies and practices of this brand are provided to customers in a clear and complete way	.319	-.090	.599	.101	.349
wg1 With this brand, I can feel good because I help to protect the environment	.149	-.059	.119	.794	.191
wg3 With this brand, I can feel better because I don't harm the environment	.141	-.064	.216	.785	.122
wg2 With this brand, I have the feeling of contributing to the well-being of humanity and nature	.121	-.082	.266	.753	.173
ue3 Products of this brand do not pollute the environment	.193	-.102	.145	.076	.808
ue2 This brand helps to prevent global warming	.155	-.103	.221	.188	.719
ue1 This brand respects the environment	.123	-.039	.145	.348	.593

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table B: Results of the EFA for green brand value assessment

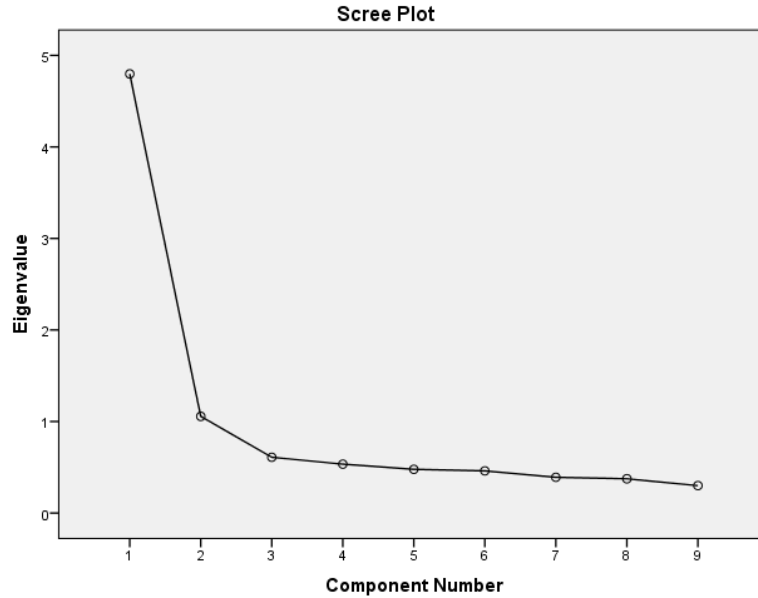
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.904
Bartlett's Test of Sphericity	Approx. Chi-Square	3401.498
	df	36
	Sig.	.000

Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.798	53.308	53.308	4.798	53.308	53.308	3.019
2	1.056	11.734	65.042	1.056	11.734	65.042	2.835
3	.609	6.769	71.812				
4	.534	5.935	77.747				
5	.478	5.310	83.057				
6	.461	5.119	88.176				
7	.390	4.337	92.513				
8	.374	4.161	96.673				
9	.299	3.327	100.000				

Extraction Method: Principal Component Analysis.



Pattern Matrix^a

	Component	
	1	2
gpv2 This brand's environmental performance meets my expectations	.807	.203
gpv3 This brand is environmental friendly	.806	.221
gpv4 This brand has more environmental benefits than other brands	.755	.290
gpv1 This brand's environmental functions provide very good value for me	.681	.308
gpv5 This brand has more environmental concern than other brands	.619	.382
fv1 The product of this brand provides good performance	.255	.789
fv3 The product of this brand offers value for money	.247	.783
fv2 The product of this brand has an acceptable standard of quality	.271	.768
fv4 The product of this brand is reasonably priced	.317	.756

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table C: Results of the EFA for green brand relationship

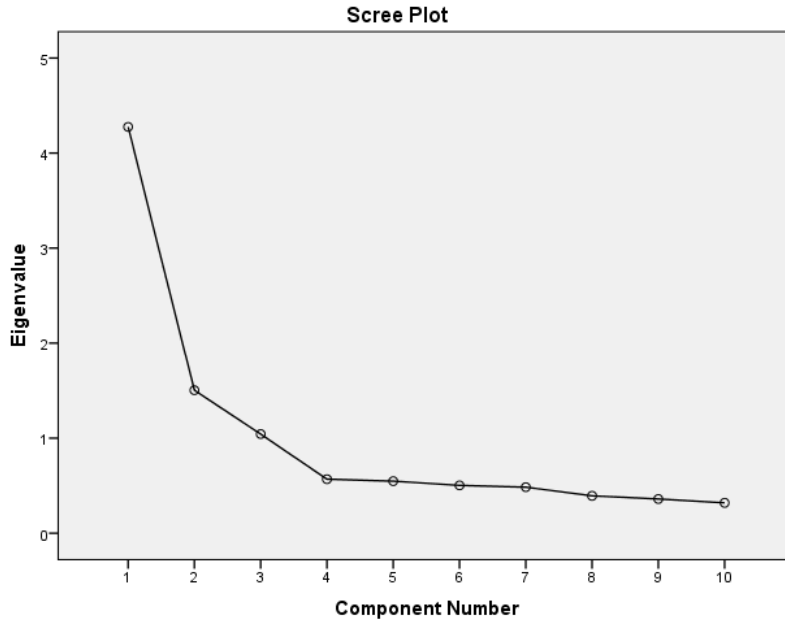
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.863
Bartlett's Test of Sphericity	Approx. Chi-Square	3094.556
	df	45
	Sig.	.000

Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.275	42.754	42.754	4.275	42.754	42.754	2.648
2	1.505	15.048	57.801	1.505	15.048	57.801	2.177
3	1.043	10.429	68.230	1.043	10.429	68.230	1.999
4	.569	5.685	73.915				
5	.548	5.479	79.394				
6	.503	5.032	84.426				
7	.485	4.846	89.272				
8	.393	3.932	93.204				
9	.360	3.603	96.806				
10	.319	3.194	100.000				

Extraction Method: Principal Component Analysis.



Pattern Matrix^a

	Component		
	1	2	3
gb13 I seldom consider switching to other brands because of this brand's environmental concern	.833	.186	.068
gb14 I intend to continue buying this brand because it is environmentally friendly	.777	.244	.188
gb11 I am willing to repurchase this brand because of its environmental functions	.763	.116	.113
gb12 I prefer purchasing this brand to other brands because of its environmental performance	.757	.211	.112
bp2 When I buy a product or service, my thoughts and feelings toward this brand happen instantly	.209	.828	.183
bp4 I have many thoughts about this brand (e.g., concern about the brand's development)	.262	.796	.151
bp1 When I buy a product or service, my thoughts and feelings toward this brand happen automatically	.193	.787	.254
sbc2 This brand embodies what I believe in	.116	.175	.784
sbc3 This brand is an important indication of who I am	.144	.181	.774
sbc4 I feel a strong sense of belonging to this brand	.101	.150	.773

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Appendix 4: Details of CFA results

	Outputs	Standardised Factor Loadings
Utilitarian environmental benefits	<p>Chi-Square Test of Model Fit</p> <p>Value 0.161 Degrees of Freedom 1 P-Value 0.6884</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.000 90 Percent C.I. 0.000 0.068 Probability RMSEA <= .05 0.883</p> <p>CFI/TLI CFI 1.000 TLI 1.004</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.010</p>	<p>UE BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>UE1 0.766 0.021 37.195 0.000 UE2 0.657 0.019 33.968 0.000 UE3 0.751 0.025 29.630 0.000</p>
Warm glow benefits	<p>Chi-Square Test of Model Fit</p> <p>Value 2.272 Degrees of Freedom 1 P-Value 0.1317</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.039 90 Percent C.I. 0.000 0.090 Probability RMSEA <= .05 0.774</p> <p>CFI/TLI CFI 0.998 TLI 0.995</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.040</p>	<p>WG BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>WG1 0.749 0.018 41.315 0.000 WG2 0.758 0.023 32.489 0.000 WG3 0.737 0.018 39.965 0.000</p>
Self-expressive benefits	<p>Chi-Square Test of Model Fit</p> <p>Value 6.410 Degrees of Freedom 2 P-Value 0.0406</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.052 90 Percent C.I. 0.000 0.099 Probability RMSEA <= .05 0.793</p> <p>CFI/TLI CFI 0.997 TLI 0.990</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.010</p>	<p>SS BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>SS1 0.720 0.023 32.004 0.000 SS2 0.754 0.021 35.356 0.000 SS3 0.741 0.022 33.803 0.000 SS4 0.668 0.025 27.220 0.000</p>

Green perceived risk	<p>Chi-Square Test of Model Fit</p> <p>Value 0.977 Degrees of Freedom 1 P-Value 0.3230</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.000 90 Percent C.I. 0.000 0.092 Probability RMSEA <= .05 0.681</p> <p>CFI/TLI CFI 1.000 TLI 1.000</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.020</p>	<p>GR BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>GR1 0.835 0.012 69.444 0.000 GR2 0.879 0.013 69.933 0.000 GR3 0.849 0.012 70.978 0.000</p>
Green transparency	<p>Chi-Square Test of Model Fit</p> <p>Value 3.199 Degrees of Freedom 2 P-Value 0.2020</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.027 90 Percent C.I. 0.000 0.079 Probability RMSEA <= .05 0.699</p> <p>CFI/TLI CFI 0.999 TLI 0.997</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.010</p>	<p>GT BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>GT1 0.734 0.022 33.431 0.000 GT2 0.726 0.022 32.866 0.000 GT3 0.756 0.021 35.664 0.000 GT4 0.667 0.024 27.400 0.000</p>
Functional value	<p>Chi-Square Test of Model Fit</p> <p>Value 2.223 Degrees of Freedom 1 P-Value 0.1360</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.038 90 Percent C.I. 0.000 0.109 Probability RMSEA <= .05 0.480</p> <p>CFI/TLI CFI 0.998 TLI 0.995</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.040</p>	<p>FV BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>FV1 0.664 0.019 34.720 0.000 FV2 0.770 0.019 40.003 0.000 FV3 0.839 0.022 38.912 0.000</p>

Green perceived value	<p>Chi-Square Test of Model Fit</p> <p>Value 2.358 Degrees of Freedom 2 P-Value 0.3076</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.015 90 Percent C.I. 0.000 0.072 Probability RMSEA <= .05 0.788</p> <p>CFI/TLI CFI 1.000 TLI 0.999</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.010</p>	<p>GV BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>GPV1 0.649 0.024 26.832 0.000 GPV3 0.765 0.020 38.983 0.000 GPV4 0.790 0.019 42.103 0.000 GPV5 0.760 0.020 38.606 0.000</p>
Self-brand connection	<p>Chi-Square Test of Model Fit</p> <p>Value 0.619 Degrees of Freedom 1 P-Value 0.4315</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.000 90 Percent C.I. 0.000 0.084 Probability RMSEA <= .05 0.755</p> <p>CFI/TLI CFI 1.000 TLI 1.001</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.020</p>	<p>SBC BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>SBC2 0.716 0.018 40.642 0.000 SBC3 0.783 0.017 45.338 0.000 SBC4 0.860 0.018 46.564 0.000</p>
Brand prominence	<p>Chi-Square Test of Model Fit</p> <p>Value 0.612 Degrees of Freedom 1 P-Value 0.4342</p> <p>RMSEA (Root Mean Square Error Of Approximation) Estimate 0.000 90 Percent C.I. 0.000 0.084 Probability RMSEA <= .05 0.757</p> <p>CFI/TLI CFI 1.000 TLI 1.001</p> <p>SRMR (Standardized Root Mean Square Residual) Value 0.020</p>	<p>BP BY Estimate S.E. Est./S.E. Two-Tailed P-Value</p> <p>BP1 0.769 0.017 44.627 0.000 BP2 0.815 0.020 40.553 0.000 BP4 0.742 0.017 42.506 0.000</p>

Green brand loyalty	Chi-Square Test of Model Fit				
	Value	5.376			
	Degrees of Freedom		2		
	P-Value	0.0680			
	RMSEA (Root Mean Square Error Of Approximation)				
	Estimate	0.045			
	90 Percent C.I.	0.000	0.093		
	Probability RMSEA <= .05		0.481		
	CFI/TLI				
	CFI	0.998			
	TLI	0.993			
	SRMR (Standardized Root Mean Square Residual)				
	Value	0.010			
		GBL BY	Estimate	S.E. Est./S.E.	Two-Tailed P-Value
	GBL1	0.818	0.017	48.988 0.000	
	GBL2	0.747	0.019	38.539 0.000	
	GBL3	0.743	0.020	37.950 0.000	
	GBL4	0.760	0.019	39.989 0.000	

Appendix 5: Details of Structural model results

Model fit of the full structural model

MODEL FIT INFORMATION

Number of Free Parameters 143

Loglikelihood

H0 Value -36530.493

H1 Value -35995.223

Information Criteria

Akaike (AIC) 73346.986

Bayesian (BIC) 74021.459

Sample-Size Adjusted BIC 73567.343

($n^* = (n + 2) / 24$)

Chi-Square Test of Model Fit

Value 1070.540

Degrees of Freedom 486

P-Value 0.0000

RMSEA (Root Mean Square Error Of Approximation)

Estimate 0.038

90 Percent C.I. 0.035 0.041

Probability RMSEA \leq .05 1.000

CFI/TLI

CFI	0.962
TLI	0.956

Chi-Square Test of Model Fit for the Baseline Model

Value	15847.301
Degrees of Freedom	561
P-Value	0.0000

SRMR (Standardized Root Mean Square Residual)

Value	0.030
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Results of structural relationships

GPV ON	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
UE	0.250	0.115	2.179	0.029
WG	0.198	0.081	2.451	0.014
SS	0.090	0.043	2.064	0.039
GR	-0.066	0.029	-2.232	0.026
GT	0.422	0.082	5.134	0.000
FV ON	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
UE	0.413	0.141	2.935	0.003
WG	0.020	0.100	0.196	0.845
SS	0.167	0.051	3.254	0.001
GR	0.027	0.035	0.775	0.439
GT	0.296	0.099	3.003	0.003
SBC ON	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
UE	-0.132	0.136	-0.968	0.333
WG	-0.068	0.094	-0.721	0.471
SS	-0.006	0.049	-0.125	0.900
GR	-0.037	0.033	-1.127	0.260
GT	-0.058	0.103	-0.566	0.571
FV	0.428	0.054	7.962	0.000
GPV	0.737	0.091	8.095	0.000
BP ON	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
UE	-0.255	0.150	-1.705	0.088
WG	0.196	0.101	1.947	0.052

SS	0.006	0.053	0.122	0.903
GR	-0.047	0.036	-1.308	0.191
GT	-0.208	0.109	-1.898	0.058
FV	0.743	0.061	12.132	0.000
GPV	0.403	0.090	4.469	0.000
GBL ON	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
UE	-0.033	0.139	-0.240	0.810
WG	0.146	0.0095	1.532	0.126
SS	-0.073	0.048	-1.505	0.132
GR	-0.048	0.032	-1.503	0.133
GT	-0.189	0.105	1.803	0.071
FV	0.611	0.055	11.142	0.000
GPV	0.441	0.085	5.179	0.000

Note: UE: utilitarian environmental benefits; WG: warm glow benefits; SS: self-expressive benefits; GR: green perceived risk; GT: green transparency; FV: functional value; GPV: green perceived value; SBC: self-brand connection; BP: brand prominence; GBL: green brand loyalty.

Appendix 6: Descriptive statistics for green brands

Table 6A: Correlation matrix and AVE statistics for the service context

Constructs	1	2	3	4	5	6	7	8	9	10
1. Utilitarian environmental benefits	.53	.41	.18	.03	.45	.35	.38	.23	.25	.36
2. Warm glow benefits	<i>.64**</i>	.55	.12	.02	.30	.26	.36	.14	.25	.31
3. Self-expressive benefits	<i>.43**</i>	<i>.34**</i>	.51	.06	.34	.27	<i>.30</i>	.22	.25	<i>.04</i>
4. Green perceived risk	<i>-.17**</i>	<i>-.14**</i>	<i>-.25**</i>	.71	.08	.03	.07	.06	.04	.05
5. Green transparency	<i>.67**</i>	<i>.55**</i>	<i>.58**</i>	<i>-.29**</i>	.52	.40	.48	.29	.36	.35
6. Functional value	<i>.59**</i>	<i>.52**</i>	<i>.52**</i>	<i>-.16**</i>	<i>.63**</i>	.60	.44	.42	.46	.44
7. Green perceived value	<i>.62**</i>	<i>.60**</i>	<i>.55**</i>	<i>-.26**</i>	<i>.69**</i>	<i>.66**</i>	.51	.46	.42	.41
8. Self-brand connection	<i>.48**</i>	<i>.38**</i>	<i>.47**</i>	<i>-.25**</i>	<i>.54**</i>	<i>.65**</i>	<i>.68**</i>	.61	.30	.36
9. Brand prominence	<i>.50**</i>	<i>.50**</i>	<i>.50**</i>	<i>-.21**</i>	<i>.60**</i>	<i>.68**</i>	<i>.65**</i>	<i>.55**</i>	.55	.48
10. Green brand loyalty	<i>.60**</i>	<i>.56**</i>	<i>.43**</i>	<i>-.23**</i>	<i>.59**</i>	<i>.66**</i>	<i>.64**</i>	<i>.60**</i>	<i>.69**</i>	.61
Construct reliability (CN)	.77	.78	.80	.88	.78	.82	.80	.83	.78	.86
Cronbach's alpha	.76	.78	.80	.88	.78	.81	.80	.82	.78	.86
Mean	5.47	5.57	5.10	4.21	5.15	5.24	5.22	5.04	5.42	5.49
SD	.86	.88	.96	1.42	.83	.92	.85	1.06	.94	.91
Skewness	-.37	-.66	-.56	-.50	-.22	-.47	-.60	-.71	-.70	-.43
Kurtosis	-.07	.54	.18	-.64	-.23	-.02	.38	.05	.34	.12

Note: All correlations are significant at the .01 level** (2-tailed).

Average variance extracted (AVEs) are shown on the diagonal (bold and italicised).

Table 6B: Correlation matrix and AVE statistics for the physical goods context

Constructs	1	2	3	4	5	6	7	8	9	10
1. Utilitarian environmental benefits	.52	.46	.18	.08	.37	.32	.45	.34	.27	.35
2. Warm glow benefits	<i>.68**</i>	.57	.17	.06	.29	.25	.38	.30	.26	.34
3. Self-expressive benefits	<i>.42**</i>	<i>.41**</i>	.53	.07	.30	.21	<i>.25</i>	.22	.15	.17
4. Green perceived risk	<i>-.29**</i>	<i>-.25**</i>	<i>-.26**</i>	.76	.14	.07	.14	.11	.07	.08
5. Green transparency	<i>.61**</i>	<i>.54**</i>	<i>.55**</i>	<i>-.37**</i>	.55	.31	.48	.41	.23	.29
6. Functional value	<i>.57**</i>	<i>.50**</i>	<i>.46**</i>	<i>-.26**</i>	<i>.56**</i>	.58	.32	.37	.44	.45
7. Green perceived value	<i>.67**</i>	<i>.62**</i>	<i>.50**</i>	<i>-.38**</i>	<i>.69**</i>	<i>.57**</i>	.59	.50	.32	.41
8. Self-brand connection	<i>.58**</i>	<i>.55**</i>	<i>.47**</i>	<i>-.33**</i>	<i>.64**</i>	<i>.61**</i>	<i>.71**</i>	.63	.37	.45
9. Brand prominence	<i>.52**</i>	<i>.51**</i>	<i>.39**</i>	<i>-.27**</i>	<i>.48**</i>	<i>.66**</i>	<i>.57**</i>	<i>.61**</i>	.64	.37
10. Green brand loyalty	<i>.59**</i>	<i>.58**</i>	<i>.41**</i>	<i>-.29**</i>	<i>.54**</i>	<i>.67**</i>	<i>.64**</i>	<i>.67**</i>	<i>.61**</i>	.58
Construct reliability (CN)	.76	.80	.80	.90	.83	.80	.85	.83	.84	.85
Cronbach's alpha	.76	.80	.82	.90	.83	.80	.85	.83	.84	.84
Mean	5.61	5.59	5.17	4.02	5.30	5.37	5.29	5.22	5.47	5.59
SD	.86	.90	.96	1.53	.91	.92	.93	1.08	1.00	.89
Skewness	-.92	-.76	-.57	-.24	-.39	-.54	-.67	-.86	-.57	-.65
Kurtosis	.91	.76	.35	-.78	-.15	.43	.77	.83	.14	.60

Note: All correlations are significant at the .01 level** (2-tailed).

Average variance extracted (AVEs) are shown on the diagonal (bold an italicised).

Appendix 7: Action plans associated with research findings of this study

Research questions	Key research findings	Implications of the current study	Action plans for organisations
<p>Research question one:</p> <p>What are the factors which stimulate or hinder the customer perceived value associated with green brands?</p>	<p><i>Utilitarian environmental benefit</i> positively influences functional value and GPV.</p>	<p>1. Provision of green functionality is an effective approach to increase customers' belief that the brand has superior quality and presents reasonable price.</p> <p>2. Utilitarian environmental benefit assists in satisfying customers' green needs and in turn enhance their green value perceptions.</p>	<p>1. Organisations should apply green innovation strategy into their product and process to deliver superior green functionality. Additionally, educational campaigns need to be organised to increase consumers' green knowledge.</p> <p>2. Organisations can position their brands through providing utilitarian environmental benefits to signal their conventional quality.</p>
	<p><i>Warm glow benefit</i> positively influences GPV but it has no direct influence on functional value.</p>	<p>The findings suggest that although providing warm glow benefits fails to add functional value for customers directly, it can contribute in delivering superior green value by increasing customers' moral satisfaction.</p>	<p>There is a need for organisations to capitalise on the image of green brands as being able to achieve moral self-fulfilment. Organisations should design moral satisfaction driven slogans throughout advertising campaigns and present customers' possible environmental contribution in the packaging.</p>
	<p><i>Self-expressive benefit</i> positively influences functional value and GPV.</p>	<p>1. The findings indicate that a satisfaction of customers' needs for social approval via green brand consumption can influence their belief that the purchased green brand is well functional and reasonably priced.</p> <p>2. Provision of self-expressive benefits is able to satisfy customers' needs for green to</p>	<p>1. Organisations should endeavour to focus on customers who care about social approval and reputation. Green marketing strategies should promote the attributes that can signal customers' status and their capability of sacrificing resources for environment protection.</p> <p>2. Peer group influence plays a</p>

		be seen” and thereby enhancing GPV.	powerful role in shaping customers’ purchase behaviour. Organisations may position green brands through providing benefits that can satisfy customers’ needs for social status and self-esteem to strengthen their identity among peer groups. green advertising campaigns adopted by organisations should be effective in assisting customers in expressing their needs for social approval or external personal expression as these customers who regard themselves as ecologists would not buy a brand if they feel that it does not adequately reflect their ideology
	<i>Green perceived risk</i> negatively influences GPV while its direct effect on functional value is not evident.	This study suggests that despite the direct relationship between green perceived risk and functional value is not significant, customers are still sensitive about negative environmental consequences associated with their purchase behaviour. An increase in customers’ green risk perception can result in brand dissatisfaction and distrust and in turn reduce GPV.	Organisations should provide a more reliable information channel to decrease green risk perception. For example, it could be more useful to ratify a brand’s environmental benefits through an independent certification body and environmental labels need to be presented to strengthen consumers’ beliefs regarding the environmental performance of the brand. They should improve the packaging of their products to signal quality.
	<i>Green transparency</i> positively influences functional value and GPV	1. The findings demonstrate that provision of clear information on a firm’s environmental policies as well as frank admission on how its production process impacts the environment can increase	1. As the more transparent information the customers receive, the higher functional value they might perceive, the organisations should invest more resources in truthfully and transparently reporting their

		<p>functional value for customers.</p> <p>2. A firm's moral commitment via providing transparent information leads to the reduction of customers' sceptical attitudes toward corporate green initiatives and therefore GPV can be enhanced.</p>	<p>environmental contribution.</p> <p>2. Organisations should communicate information truthfully and transparently to reduce customers' perceptions of greenwash.</p>
<p>Research question two:</p> <p>What are the influences of the inclusion of functional value and GPV in the relationships between green brand communication and green brand attachment and loyalty?</p>	<p><i>Functional value</i> positively influences self-brand connection, brand prominence and green brand loyalty</p>	<p>It is evident that functional value, derived from a trade-off between quality and price is still an important factor influencing the relationship between customers and green brands. customers tend to be more attached and loyal to the green brand if they perceive a high-level functional value. Particularly, an increase of functional value can enhance the link between a green brand and customers' self-concept and arouse customers' attention easily and dominantly. Additionally, customers' retention for a brand based on its environmental performance and concerns can be increased by delivering functional value.</p>	<p>Organisations should improve consumer perceived functional value by satisfying their expectations in relation to traditional quality. In addition, relevant technologies need to be applied into green production to cut down the price of green products and services.</p>
	<p><i>GPV</i> positively influences self-brand connection, brand prominence and green brand loyalty</p>	<p>The findings suggest that a delivery of GPV is an effective approach to enhance green brand attachment and green brand loyalty. GPV has a relatively strong influence on building a link between a green brand and a customer's self-concept.</p>	<p>Organisations should address customers' environmental concerns and their expectations for environmental functionality to strengthen GPV. Furthermore, organisations can invest more resources in increasing GPV to highlight a green brand's characteristics and include GPV into brand loyalty programme.</p>

	<p><i>Functional value</i> fully mediates the relationships between green benefits (i.e., utilitarian environmental and self-expressive benefits), green transparency and relational outcomes (i.e., self-brand connection, brand prominence and brand loyalty)</p>	<p>1. Influencing dimension constructs associated with green initiatives have no direct effects on self-brand connection, brand prominence and green brand loyalty. In other words, improvement of green benefits, green transparency and reduction of green risk is difficult to build up attached and loyal relationships with the consumers directly.</p> <p>2. Utilitarian environmental and self-expressive benefits as well as green transparency can influence self-brand connection, brand prominence and green brand loyalty via functional value.</p>	<p>1. Organisations should ensure traditional quality and provide competitive price for green products and services to maximise customer perceived functional value and therefore the relationships between customers and green brands can be enhanced.</p> <p>2. To increase functional value, organisations can alternatively emphasise the delivery of utilitarian environmental and self-expressive benefits and it is necessary to possess green transparency.</p>
	<p><i>GPV</i> fully mediates the relationships between green benefits (i.e., utilitarian environmental, warm glow and self-expressive benefits), green risk, green transparency and relational outcomes (i.e., self-brand connection, brand prominence and brand loyalty)</p>	<p>This study implies that provision of green benefits and green transparency can positively influence self-brand connection, prominence and brand loyalty through GPV. Additionally, the reduction of green risk is able to assist in developing the attached and loyal relationship between customers and green brands by increasing GPV.</p>	<p>To enhance green brand attachment and loyalty, organisations can improve customers' GPV by satisfying their expectations relating to green benefits. For instance, environmental functionality should be ensured and warm glow, aimed at providing customers' moral satisfaction should be include in an organisation's benefit programs. Similarly, self-expressive benefit, reflecting customers' needs for social approval should be included in brand identity development. Priority should be given to transparency of green initiatives. Organisations should provide clear product</p>

			information, effective communication procedures and disclosure of annual green practice to enhance customers' perceptions relating to a firm's green transparency. Finally, a more reliable information channel between customers and manufacturers is required to decrease green risk perception.
How do the proposed relationships among constructs vary among brands of physical goods and services?	<i>There are significant differences between the brands of physical goods and services in the relationship between utilitarian environmental benefits and functional value, relationship between green transparency and functional value and relationship between GPV and self-brand connection. Additionally, the formation of GPV across these two types of brands is different</i>	<ol style="list-style-type: none"> 1. The findings suggest that compared to brands of physical goods, consumers perceived the links between GPV and self-brand connection to be stronger in brands of services. 2. Green transparency presents an evident influence on functional value in brands associated with services while this direct relationship is absent in brands associated with goods. 3. Although there is no direct relationship between utilitarian environmental benefits and functional value in the context of service brands, this relationship is evident in brands associated with physical goods. 4. Utilitarian environmental benefits and green transparency play active roles in enhancing GPV in brands of physical goods while in the context of service brands, warm glow and self-expressive benefits and green transparency make evident contributions in increasing GPV. 	Green branding strategies need to be diverse across intangible brand of services and brands of physical goods. Particularly, organisations should focus on increasing warm glow and self-expressive benefits and transparency to enhance GPV and in turn strengthen self-brand connection when developing service-branding strategies. Furthermore, green transparency should be set priority as it also exhibits a strong effect on functional value in brands associated with services. For developing product-branding strategies, utilitarian environmental benefits and green transparency should be emphasised to increase functional value and GPV and thereby enhancing self-brand connection.

Appendix 8: ANOVA Analysis of four cities

Table A: Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence interval for mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Utilitarian environmental benefits	Beijing	239	5.6276	.78819	.05098	5.5272	5.7281	2.67	7.00
	Guangzhou	226	5.4838	.89442	.05950	5.3665	5.6010	2.67	7.00
	Chongqing	170	5.4902	.87644	.06722	5.3575	5.6229	3.00	7.00
	Hangzhou	191	5.6108	.88345	.06392	5.4847	5.7369	1.00	7.00
	Total	826	5.5561	.85965	.02991	5.4974	5.6148	1.00	7.00
Green perceived risk	Beijing	239	4.0404	1.56906	.10149	3.8405	4.2404	1.00	7.00
	Guangzhou	226	4.1224	1.45933	.09707	3.9311	4.3137	1.00	7.00
	Chongqing	170	4.1706	1.46457	.11233	3.9488	4.3923	1.00	7.00
	Hangzhou	191	4.0489	1.47373	.10664	3.8385	4.2592	1.00	7.00
	Total	826	4.0916	1.49444	.05200	3.9895	4.1937	1.00	7.00
Green perceived value	Beijing	239	5.3149	.88639	.05734	5.2019	5.4278	1.50	7.00
	Guangzhou	226	5.1980	.91123	.06061	5.0786	5.3175	2.00	7.00
	Chongqing	170	5.1971	.93786	.07193	5.0551	5.3391	2.25	7.00
	Hangzhou	191	5.3364	.88763	.06423	5.2097	5.4631	1.75	7.00
	Total	826	5.2636	.90489	.03149	5.2018	5.3254	1.50	7.00
Self-brand connection	Beijing	239	5.2036	1.12663	.07288	5.0601	5.3472	1.00	7.00
	Guangzhou	226	5.1637	1.03720	.06899	5.0278	5.2997	1.33	7.00
	Chongqing	170	5.0588	1.10426	.08469	4.8916	5.2260	1.00	7.00
	Hangzhou	191	5.1728	1.02874	.07444	5.0259	5.3196	1.67	7.00
	Total	826	5.1558	1.07507	.03741	5.0823	5.2292	1.00	7.00
Green brand loyalty	Beijing	239	5.6276	.90018	.05823	5.5129	5.7423	1.75	7.00
	Guangzhou	226	5.5111	.92159	.06130	5.3903	5.6319	2.75	7.00
	Chongqing	170	5.5206	.90054	.06907	5.3842	5.6569	2.25	7.00
	Hangzhou	191	5.5327	.86369	.06249	5.4095	5.6560	2.00	7.00
	Total	826	5.5518	.89762	.03123	5.4905	5.6131	1.75	7.00

Table B: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Utilitarian environmental benefits	Between Groups	3.715	3	1.238	1.680	.170
	Within Groups	605.964	822	.737		
	Total	609.679	825			
Green brand loyalty	Between Groups	1.984	3	.661	.820	.483
	Within Groups	662.741	822	.806		
	Total	664.725	825			
Self-brand connection	Between Groups	2.215	3	.738	.638	.591
	Within Groups	951.298	822	1.157		
	Total	953.513	825			
Green perceived value	Between Groups	3.365	3	1.122	1.372	.250
	Within Groups	672.170	822	.818		
	Total	675.534	825			
Green perceived risk	Between Groups	2.250	3	.750	.335	.800
	Within Groups	1840.263	822	2.239		
	Total	1842.513	825			

Table C: Multiple Comparisons

Tukey HSD							
Dependent Variable	(I) CITY	(J) CITY	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Utilitarian environmental benefits	Beijing	Guangzhou	.14384	.07966	.271	-.0612	.3489
		Chongqing	.13742	.08614	.382	-.0843	.3592
		Hangzhou	.01679	.08333	.997	-.1977	.2313
	Guangzhou	Beijing	-.14384	.07966	.271	-.3489	.0612
		Chongqing	-.00642	.08717	1.000	-.2308	.2180
		Hangzhou	-.12704	.08439	.435	-.3443	.0902
	Chongqing	Beijing	-.13742	.08614	.382	-.3592	.0843
		Guangzhou	.00642	.08717	1.000	-.2180	.2308
		Hangzhou	-.12062	.09053	.542	-.3537	.1124
	Hangzhou	Beijing	-.01679	.08333	.997	-.2313	.1977
		Guangzhou	.12704	.08439	.435	-.0902	.3443
		Chongqing	.12062	.09053	.542	-.1124	.3537
Green brand loyalty	Beijing	Guangzhou	.11655	.08331	.500	-.0979	.3310
		Chongqing	.10703	.09009	.635	-.1249	.3389
		Hangzhou	.09489	.08715	.696	-.1295	.3192
	Guangzhou	Beijing	-.11655	.08331	.500	-.3310	.0979
		Chongqing	-.00953	.09116	1.000	-.2442	.2251
		Hangzhou	-.02166	.08825	.995	-.2489	.2055
	Chongqing	Beijing	-.10703	.09009	.635	-.3389	.1249
		Guangzhou	.00953	.09116	1.000	-.2251	.2442
		Hangzhou	-.01213	.09468	.999	-.2559	.2316
	Hangzhou	Beijing	-.09489	.08715	.696	-.3192	.1295
		Guangzhou	.02166	.08825	.995	-.2055	.2489
		Chongqing	.01213	.09468	.999	-.2316	.2559
Self-brand connection	Beijing	Guangzhou	.03991	.09981	.978	-.2170	.2969
		Chongqing	.14480	.10793	.537	-.1331	.4227
		Hangzhou	.03085	.10441	.991	-.2379	.2996
	Guangzhou	Beijing	-.03991	.09981	.978	-.2969	.2170
		Chongqing	.10489	.10922	.772	-.1763	.3861
		Hangzhou	-.00906	.10574	1.000	-.2813	.2631
	Chongqing	Beijing	-.14480	.10793	.537	-.4227	.1331
		Guangzhou	-.10489	.10922	.772	-.3861	.1763
		Hangzhou	-.11395	.11343	.747	-.4060	.1781
	Hangzhou	Beijing	-.03085	.10441	.991	-.2996	.2379
		Guangzhou	.00906	.10574	1.000	-.2631	.2813
		Chongqing	.11395	.11343	.747	-.1781	.4060

Green perceived value	Beijing	Guangzhou	.11684	.08390	.504	-.0991	.3328
		Chongqing	.11779	.09073	.564	-.1158	.3514
		Hangzhou	-.02153	.08777	.995	-.2475	.2044
	Guangzhou	Beijing	-.11684	.08390	.504	-.3328	.0991
		Chongqing	.00095	.09181	1.000	-.2354	.2373
		Hangzhou	-.13838	.08888	.404	-.3672	.0904
	Chongqing	Beijing	-.11779	.09073	.564	-.3514	.1158
		Guangzhou	-.00095	.09181	1.000	-.2373	.2354
		Hangzhou	-.13933	.09535	.462	-.3848	.1061
	Hangzhou	Beijing	.02153	.08777	.995	-.2044	.2475
		Guangzhou	.13838	.08888	.404	-.0904	.3672
		Chongqing	.13933	.09535	.462	-.1061	.3848
Green perceived risk	Beijing	Guangzhou	-.08197	.13883	.935	-.4394	.2754
		Chongqing	-.13014	.15012	.822	-.5166	.2563
		Hangzhou	-.00842	.14522	1.000	-.3823	.3654
	Guangzhou	Beijing	.08197	.13883	.935	-.2754	.4394
		Chongqing	-.04817	.15191	.989	-.4392	.3429
		Hangzhou	.07355	.14706	.959	-.3050	.4521
	Chongqing	Beijing	.13014	.15012	.822	-.2563	.5166
		Guangzhou	.04817	.15191	.989	-.3429	.4392
		Hangzhou	.12172	.15777	.867	-.2844	.5279
	Hangzhou	Beijing	.00842	.14522	1.000	-.3654	.3823
		Guangzhou	-.07355	.14706	.959	-.4521	.3050
		Chongqing	-.12172	.15777	.867	-.5279	.2844