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The Role of Religious Value and Environmental Knowledge on Green Purchase Behaviours of Muslim Consumers

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Abstract: Green behaviour is an increasingly important topic gaining much attention in today's society. This study examines the linkages between religious value, environmental knowledge, and green purchase behaviours from a sample of 190 Muslim consumers in Indonesia, a country with the world's largest Muslim population that accounts for about 80% of all Muslims living in Southeast-East Asia. Using partial least square (PLS), a variance-based structural equation modelling (SEM), results indicate that religious value has a positive impact on green purchase behaviours via the mediating roles of environmental concern, green purchase attitudes, and green purchase intentions. In addition, this study demonstrates that environmental knowledge is an antecedent of green purchase behaviours. To the literature, this study also confirms that religious value is a multidimensional construct (intrinsic, extrinsic, and quest) with reflective first-order and formative second-order items. Consequently, the study provides practical implications for green marketers to fine-tune their marketing strategies.

Keywords: *environment, green product, environmental knowledge, religious value, purchase behaviours, formative construct*

Introduction

Green behaviour is an important topic gaining much attention in today's society (Cronin *et al*., 2011; Paul *et al*., 2016). This trend is mainly originated by the rise in consumers' awareness and concerns about various environmental issues affected by their purchasing behaviours (Antonetti & Maklan, 2014; Johnstone & Tan, 2015). Therefore, to support the environment, consumers are increasingly using their purchasing power to buy green products (Haanpää, 2007; Paul *et al*., 2016). Consequently, green products have grown steadily around the world (Diamantopoulos *et al*., 2003; Johnstone & Tan, 2015), including in Muslim countries. A total of 1.57 billion Muslim consumers in more than 200 countries (The Forum on Religion and Public Life 2009) represent a large market for green products, partly because Muslim's religious value emphasise protection of the environment, which in turn leads to green purchase behaviours (Hassan, 2014). However, few studies investigate the relationship between religious value and green purchase behaviours (Minton *et al*., 2015; Lindridge, 2005). This study fills this gap using the conceptual framework of the Value-Attitude-Behaviour hierarchy (Vaske & Donnelly, 1999; Homer & Kahle, 1988). Religious value (RGV) is used to predict green purchase behaviours (GRB), with environmental concerns (EC), green purchase attitudes (GPA),

and green purchase intentions (GPI) as mediators. In addition, this study also examines environmental knowledge (EK) as a predictor of green purchase behaviours.
Unlike extant studies that focus on a unidimensional construct, or exclude the quest dimension (Cleveland & Chang, 2009; Lewis *et al*., 2001), the assessment of religious value in this study includes all three dimensions of religiosity - intrinsic, extrinsic, and quest (Hills *et al*., 2005; Batson *et al*., 1991). The quest dimension has recently gained special attention because it measures intellectual rather than dogmatic approaches to religion, and therefore accords with most liberal religious views (Hills *et al*., 2005). Furthermore, Hills *et al*. (2005) suggest psychologically disparate ways of being religious.

Theoretical Background and Research Hypotheses

Religious value (RGV)

RGV represents faith-based values that originate from religious traditions based on scriptures, which are embedded in an individual's life (Hassan, 2014). For Muslims, RGV refers to values derived from the Quran and hadith (sayings and traditions of the prophet Muhammad), which are the primary sources of Islamic teachings.
Driven by the notion that people could be religious in various ways (Hills *et al*., 2005), RGV expands to three dimensions - intrinsic, extrinsic, and quest. People with intrinsic orientation view religion as an end, and therefore internalise and follow it fully. They view religion as the most important aspect of life, and regard other needs with less ultimate significance. Extrinsic people view religion as a means, and therefore use religion as an instrument to achieve non-religious goals such as providing security and solace, sociability and distraction, status and self-justification (Allport & Ross, 1967, p.434). Regarding a quest orientation, Batson *et al*. (1991) suggest that religion involves open-ended and responsive dialogue about existential questions (e.g., questions about the meaning of life and death, and relationships with others) and resisting clear-cut answers. Quest individuals engage in constant questioning, and entertain doubt as a way of being religious. The following Quranic verses (translated by Sahih International) and hadith stress the importance of protecting the environment.

> *Then We made you successors in the land after them so that We may observe how you will do* (Quran, 10:14).
>
> *And when he goes away, he strives throughout the land to cause corruption therein and destroy crops and animals. And Allah does not like corruption* (Quran, 2:205).
>
> *The world is a green and pleasant thing. God has made you stewards of it, and looks at how you*

Based on the verses, in Islamic teachings, human are representatives of God, entrusted to care for Earth (e.g., land, forest/crops, and wildlife/animals). Preserving the environment is a fundamental aspect of faith; activities that endanger the natural environment and resources represent corruption, and Islam strictly forbids it. Corruption here includes any form of over-exploitative and abusive behaviours toward nature such as deforestation, littering, toxic waste pollution, and improper use of pesticides. Islam also teaches about preservation of water (Quran, 16:65; 50:9), treating animals with dignity (Quran, 6:38; 16:68; and 5:4), and patching the ozone (Quran, 21:32; 40:64). To survive, humans must restore these things to harmony. For consumers, purchasing and using green products is a

way to save the environment and ensure sustainability. Accordingly, consumers with higher religious devotion should be more likely to purchase green products.

The Value-Attitude-Behaviour hierarchy and extant studies suggest that religious value predicts consumer behaviours (Minton *et al*., 2015; Lindridge, 2005; Hassan, 2014). RGV positively affects EC (Hassan, 2014). Moreover, Hassan (2014) also hypothesises a causal relationship between RGV and GPA, and between RGV and GPI. Therefore:

H1. Religious value positively affects environmental concerns.

H2. Religious value positively affects purchase attitudes.

H3. Religious value positively affects green purchase intentions.

Environmental knowledge (EK)

EK refers to knowledge about definition, causes and consequences of environmental issues (e.g., what is global warming?), and about necessary actions (e.g., how to overcome global warming issues?) (Tanner & Kast, 2003). It represents more than just simply factual information about aspects of environmental, ecological, or energy-saving phenomena; it involves collective responsibilities necessary for sustainable development (Mostafa, 2007; Diamantopoulos *et al*., 2003). It is commonly assumed that consumer knowledge about the environment drives green consumption (Johnstone & Tan, 2015; Peattie, 2010). Peattie (2010) argues that consumers are objective and always rational regarding consumption choices and behaviour, and numerous studies suggest that environmental knowledge encourages positive attitudes toward the environment (Mostafa, 2007; Tanner & Kast, 2003; Chan, 2001). Thus:

H4. Environmental knowledge positively affects green purchase attitudes.

Environmental concerns (EC)

EC denotes an individual's general orientation and concern toward environment issues (Kim & Choi, 2005), and it influences how consumers choose the types of products they purchase (Banerjee *et al*., 1995). For example, consumers with high concern for the environment purchase fuel-efficient cars, organic foods, and high-efficiency light bulbs. Extant studies suggest that the higher a consumer' EC, the more positive that consumer' attitudes toward green products (Kilbourne *et al*., 2002; Kilbourne & Pickett, 2008; Paul *et al*., 2016). Therefore:

H5. Environmental concerns positively affect green purchase attitudes.

Green purchase attitudes (GPA)

Ajzen (1991) defines attitudes as an individual's tendency to respond with some degree of favourableness or unfavourableness evaluation of objects or phenomena. The Theory of Reasoned Action (TRA) suggests that consumers' attitudes influence intentions to engage in behaviours (Ajzen, 1991). Research suggests a positive relationship between GPA and GPI (Chan, 2001; Paul *et al*., 2016; Nair & Little, 2016), and thus:

H6. Green purchase attitudes positively affect green purchase intentions.

Green purchase intentions (GPI)

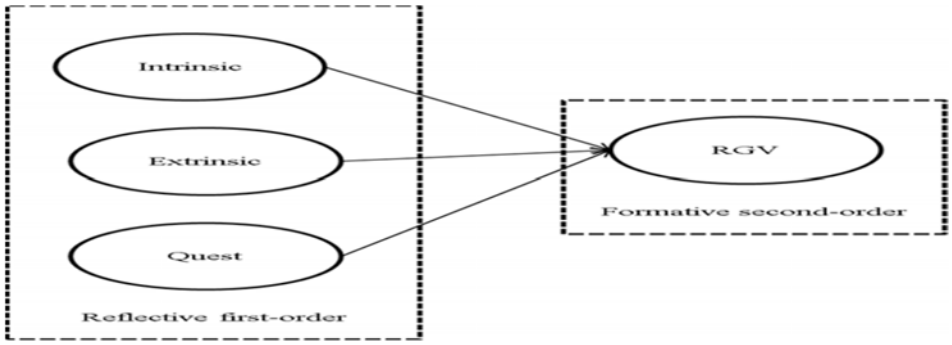
Intention is a motivational factor that influences behaviour; it indicates how hard an individual is willing to try, and how much effort he/she is planning to exert, to engage in a behaviour (Ajzen, 1991). Green purchase intentions refer to an individual's tendency or willingness to purchase green products versus non-green products in the future. Thus, the stronger the intentions to purchase green products, the more likely the purchase is made. Research suggests that GPI influences GRB positively (Mostafa, 2007; Chan, 2001; Carrus *et al*., 2008), and therefore:

H7. Green purchase intentions positively affect green purchase behaviours.

Green purchase behaviour (GRB)

In accordance with TRA and the Value-Attitude-Behaviour hierarchy, attitudes toward the purchase of green products predict green purchase intentions, which in turn predict future purchase behaviours (Ajzen, 1991; Homer & Kahle, 1988; Vaske & Donnelly, 1999). However, research that examines the link between green attitudes and behaviours demonstrates inconsistent results. Some research suggest that purchase intentions toward a product correlate positively with behaviours of purchasing the product (Chan, 2001; Mostafa, 2007). Other studies suggest that although a large number of consumers claim that they are pro-environmentalists, expressing concerns about ecological issues and intending to purchase green products, only a few behave accordingly (Gleim *et al*., 2013; Johnstone & Tan, 2015; Tanner & Kast, 2003). Gleim *et al*. (2013) and Tanner & Kast (2003) explore the gap between attitudes/intentions and behaviour, finding contributing factors such as green product prices (i.e., consumers' willingness to pay), quality/performance, trust of greenness, and availability.

Figure 1 shows a conceptual model implied by the hypotheses discussed in this study.



Methods

Data collection and sample

A survey using structured questionnaire was conducted from May 2016 to August 2016 to collect data. A non-probability data sampling method was used, specifically a purposive sampling. The unit of analysis was individual Muslim consumers in Indonesia who purchased green products within the last year. Indonesia was selected because it has the world's largest Muslim population that accounts for about 13% of all Muslims in the world (The Forum on Religion and Public Life, 2009). Finally, a total of 190 completed and valid questionnaires that met the study's requirement were used for the analyses.

Measures

The full set measures used in this study is listed in Table 1, all adapted from measures validated in extant studies. A five-point, Likert scale ranging from 1: "strongly disagree" to 5: "strongly agree" was used to collect data. The RGV construct was a multidimensional construct (reflective first-order, formative second-order) with three reflective first-order dimensions (Figure 2). Other constructs (i.e., EK, EC, GPA, GPI, and GRB) were modelled using a unidimensional construct, with multiple reflective items.

Data analysis

SmartPLS 3.0 (Ringle, Wende, & Becker, 2015) was used during data analysis. The software was selected to test the research model and hypotheses because of its appropriateness with handling several issues (Picón *et al*., 2014; Henseler *et al*., 2009).

1. The study uses small sample size
2. The model is complex
3. The research is an incremental study
4. The model has both reflective and formative constructs.

Results

Descriptive results

Of the total respondents, 9.5% were above 35 years of age, and those between 18-24 and 25-34 constituted 25.8% and 64.7%, respectively. The majority of respondents were single (68.4%), Bachelor's degree graduates (70.5%), and employed (70.5%). There were 54.2% female, with majority of them earning more than IDR 4,650,000.

Measurement model

Results suggest that all requirements of the measurement model were met (Table 1). All reflective indicators had standardised loadings greater than 0.5, indicating that individual items were reliable (Hulland, 1999). Composite reliabilities (CR) were above 0.7 for all constructs and dimensions, suggesting internal consistency and reliability (Hair *et al*., 2014). Scores for average variance extracted (AVE) were greater than the threshold of 0.5 (Henseler *et al*., 2009), ensuring convergent validity of the constructs.

Table 1: Measurement instruments and convergent validity

Constructs and (Sources)	# of items	CR	AVE	Items	Loadings
Religious value – intrinsic (Hills *et al*., 2005; Lewis *et al*., 2001; Plante & Boccaccini, 1997)	10	0.953	0.672	I1	0.861
				I2	0.760
				I3	0.738
				I4	0.827
				I5	0.883
				I6	0.816
				I7	0.799
				I8	0.837
				I9	0.807
				I10	0.856
Religious value – extrinsic (Hills *et al*., 2005; Batson *et al*., 1991)	2	0.884	0.792	E1	0.883
				E2	0.897
				E3	-
				E4	-
Religious value – quest (Hills *et al*., 2005; Batson *et al*., 1991)	4	0.825	0.549	Q1	0.564
				Q2	0.837
				Q3	0.871
				Q4	0.648
				Q5	-
Environmental knowledge	5	0.910	0.669	EK1	0.809

(Mostafa, 2007)				EK2	0.869
				EK3	0.810
				EK4	0.794
				EK5	0.805
	4	0.879	0.645	EC1	0.785
				EC2	0.807
				EC3	0.838
Environmental concern (Dunlap *et al*., 2000; Kilbourne & Pickett, 2008; Zimmer *et al*., 1994)				EC4	0.782
				EC5	-
	5	0.936	0.746	GPA1	0.845
				GPA2	0.868
				GPA3	0.839
Green purchase attitude (Mostafa, 2007; Taylor & Todd, 1995; Sparks & Shepherd, 1992)				GPA4	0.887
				GPA5	0.878
	5	0.934	0.738	GPI1	0.891
				GPI2	0.870
				GPI3	0.917
Green purchase intention (Mostafa, 2007; Chan & Lau, 2000; Ling-yee, 1997)				GPI4	0.855
				GPI5	0.754
	5	0.863	0.561	GRB1	0.873
				GRB2	0.801
				GRB3	0.631
Green purchase behaviour (Kim & Choi, 2005; Straughan & Roberts, 1999)				GRB4	0.776
				GRB5	0.631

Note: AVE = Average Variance Extracted; CR = Composite Reliability; E3, E4, Q5, and EC5 were deleted to improve loadings and/or AVE value

Assessment of discriminant validity using the heterotrait-monotrait (HTMT) ratio of correlations indicated that all constructs achieved discriminant validity with value greater than 0.85 (Henseler *et al*., 2015) (Table 2).

Table 2: Heterotrait-monotrait (HTMT)

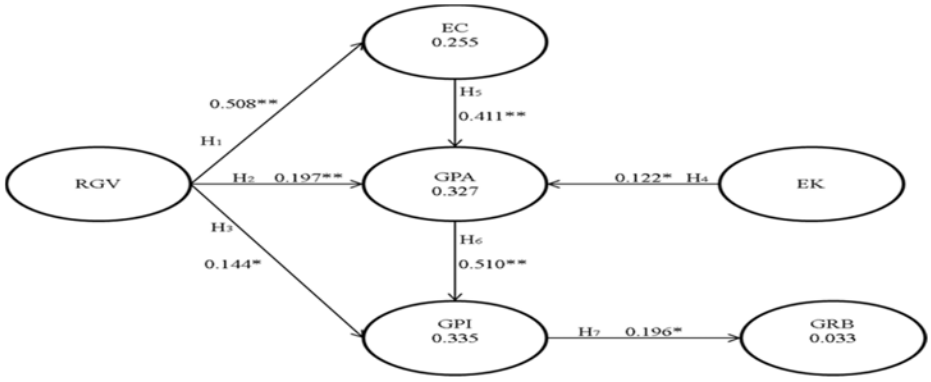
	EC	EK	GPA	GPI	GRB	RGV
EC						
EK	0.320					
GPA	0.631	0.264				
GPI	0.563	0.374	0.621			
GRB	0.136	0.216	0.135	0.200		
RGV	0.580	0.149	0.458	0.396	0.186	

Structural model

Evaluations of path coefficients (standard beta), standard error, corresponding t-values, effect sizes (f^2), explanatory power (R^2), predictive capability (Q^2), and variance inflation factor (VIF) are shown in Table 3. The statistical significance of a path coefficient was assessed by looking at the values of standard errors and t-statistics produced from the

bootstrapping procedure with 5000 resamples (Henseler *et al*., 2009). Figure 1 shows path coefficients and explanatory power in the model.

Figure 1. Research model, path coefficients, and explanatory power of the model.



Note: t-values > 1.645 (p < 0.05); t-values > 2.33** (p<0.01)*

Standard betas in Figure 1 suggest an interesting finding - wide difference between beta values for the GPA-GPI (H_6) and GPI-GRB (H_7) links. It indicates that although GPA translates effectively into GPI, the translation of GPI into GRB is very low. Regarding the explanatory power of the model, GPA, GPI, and GRB are explained by 32.7%, 33.5%, and 3.3% of the variance, respectively (Figure 1 and Table 3). The model presents three substantial and one weak explanatory power (Cohen, 1988).

Table 3: Results of the structural model analysis (hypothesis testing)

Hypothesis	Relationship	Std Beta	Std Error	t-value	Decision	VIF	f^2	R^2	Q^2
H_1	RGV -> EC	0.508	0.063	8.029**	Supported	1.000	0.349	0.255	0.160
H_2	RGV -> GPA	0.197	0.082	2.408**	Supported	1.355	0.043	0.327	0.237
H_3	RGV -> GPI	0.144	0.069	2.106*	Supported	1.210	0.026	0.335	0.239
H_4	EK -> GPA	0.122	0.056	2.166*	Supported	1.094	0.020		
H_5	EC -> GPA	0.411	0.091	4.514**	Supported	1.464	0.174		
H_6	GPA -> GPI	0.510	0.067	7.633**	Supported	1.210	0.327		
H_7	GPI -> GRB	0.196	0.091	2.146*	Supported	1.000	0.040	0.033	0.011

Note: t-values > 1.645* (p < 0.05); t-values > 2.33** (p<0.01)

Shown in Table 3, all hypotheses were supported and significant, with p-values less than 0.05 and 0.01. In addition to statistical significance, results also suggest substantive significance (effect size, f^2). Relationships in this study suggest substantive impact with one strong, two moderate, and four weak effects (Cohen, 1988). This study assessed predictive capability of the model using the blindfolding procedure (Hair *et al*., 2014; Henseler *et al*., 2009), results suggest that all four endogenous constructs achieved predictive relevance because their respective Q^2 were greater than zero (Hair *et al*., 2014). Multicollinearity was also assessed. Acceptable value of VIF should be less than 3.3 (Picón *et al*., 2014). In this study, the VIF values ranged from 1 to 1.464, so none of them was greater than 3.3, suggesting no multicollinearity problem between indicators.

Discussion and Conclusions

This study suggests that RGV positively affects GRB through mediation by EC, GPA, and GPI. GPA and GPI mediate the relationship between EK and GRB (Appendix A).

Theoretical implications

This study contributes to the literature in several ways. First, this study found that religious value positively influences green purchase behaviours. RGV affects GPA directly and indirectly by mediation from EC. GPA predicts GPI, which in turn affects GRB. Consequently, these findings provide empirical support to the Values-Attitude-Behaviour hierarchy and TRA, particularly attitudinal components, and its applicability to predict green purchase behaviours of Muslim consumers. Second, this study corroborates the applicability of a multidimensional RGV construct in the context of Muslim consumers. For RGV, formative dimensions are more appropriate since not all dimensions of RGV correlated highly. Particularly, quest had a low correlation with the extrinsic dimension, and a negative correlation with the intrinsic dimension (Appendix B). Third, outcomes suggest that multiple determinants influence GRB. From strongest to lowest, GPI, GPA, RGV, EC, and EK were predictors of GRB (Appendix A). Findings also suggest that purchases of green products involve cognitive and affective decision-making. Before making a purchase decision, consumers might search for product information and evaluate all alternatives, or simply buy green products based on religious beliefs.

Practical implications

The outcomes of this study also have practical implications. RGV positively influenced GRB, which suggests that consumers who are more religious are more likely to purchase green products. This finding reminds marketers of the importance of preserving religious value. Marketers involved in green messaging should acknowledge religious value to avoid offending consumers who practise religion, for example by carefully selecting the language or emphasising religious behaviour. They should also make better use of religious value to advance green purchase behaviours by highlighting that green behaviours are part of religious teachings, and by engaging in them, consumers receive blessings from God. Emphasising religion might be beneficial to marketers because religion transcends geographic bounds, providing applicability to marketers worldwide. Consequently, marketers should gain insights from consumer information because religious value is easy to ascertain through self-reports.

Findings also suggest that consumers' knowledge influences green purchase behaviours. Messages that marketers convey in their green advertisements should appeal to consumers' rationality. Marketers should get involved in educating consumers on the importance of environment protection, which indirectly boosting sales of green products and delivering the message that people's actions make a difference.

The low beta value of 0.196 between GPI and GRB deserves special attention because it is much lower than the beta value between GPA and GPI, which was 0.510. This gap might be attributed to barriers to green purchases, as extant literature suggests (Gleim *et al*., 2013; Tanner & Kast, 2003). Examples include consumers' low-incomes (or green products priced expensively), perceptions that green products offer inferior performance or are lower quality, consumers' lack of trust in the greenness of a product (and the organisation that produces it), and unavailability of green products in Muslim society in comparison to developed countries. This study provides insights for green marketers to

tailor strategies that advance green purchase behaviours, particularly eliminating or reducing barriers. They should employ integrated marketing strategies such as targeting only middle- and high-income consumers (or minimising production and distribution costs to sell green products at a lower price), effective advertisements to change consumers' perception towards green products' quality, involvement in environmental causes to improve a company's image, and partnerships/alliances with distributors/channels in Muslim countries.

Finally, local governments should take initiatives to expedite green purchases through legislation and effective environmental policies, for instance by requiring companies to include green policies in their long-term strategies.

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Appendix

Appendix A. Mediation effect

From	To	Direct effect	Indirect effect	Total effect
RGV	EC	0.508		0.508
	GPA	0.197	0.209	0.406
	GPI	0.144	0.207	0.351
	GRB		0.069	0.069
EK	GPA	0.122		0.122
	GPI		0.062	0.062
	GRB		0.012	0.012
EC	GPA	0.411		0.411
	GPI		0.210	0.210
	GRB		0.041	0.041
GPA	GPI	0.510		0.510
	GRB		0.100	0.100
GPI	GRB	0.196		0.196

Appendix B. Correlation between RGV dimensions

	EXT	INT	QUE
EXT			
INT	0.708		
QUE	0.031	-0.070	
RGV	0.784	0.993	-0.077