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**THE IMPACT OF THREATS, COPING APPRAISAL AND DEONTIC JUSTICE TO
PURCHASE INTENTION OF BIODEGRADABLE BAGS:
THE MODERATING ROLE OF GREEN SKEPTICISM**

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ABSTRACT OF THE DOCTORAL THESIS

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CHAPTER 1: INTRODUCTION

1.1. Background

1.1.1. Practical background

The Vietnamese government is also facing a similar problem regarding plastic waste. According to a report by the International Union for Conservation of Nature, the average amount of plastic waste in Vietnam is 2.4 million tons per year, of which 0.53 million tons are uncollected (Nguyen Tai Tue et al., 2023). Plastic waste includes a wide variety of plastic products, with plastic bags accounting for 39% of the total plastic waste. On average, each household uses 60-120 plastic bags per month, putting significant pressure on the waste treatment system, which is mainly landfilling and takes hundreds of years to decompose (Pham Thi Mai Thao et al., 2021). This has resulted in Vietnam being among the top 10 countries worldwide in plastic waste production. According to another World Bank report, an estimated 2.8 million to 3.1 million tons of plastic waste are generated annually by Vietnamese consumers, the majority of which consists of soft plastic fragments, plastic bags, styrofoam food containers, and confectionery packaging, accounting for approximately 38% of the total plastic waste in Vietnam (TWB, 2022). In particular, compared to other regions nationwide, the Southeast region (before the merger) has the highest amount of plastic waste, at around 1,837 tons per day, while the collection rate is only about 90% (Nguyen Tai Tue et al., 2023). Therefore, the amount of plastic waste released into the environment will have a significant impact on the environment.g.

One feasible measure currently proposed by scientists is to promote the use of biodegradable bags to address environmental pollution and reduce plastic waste worldwide (Moshood et al., 2022). Currently, although there are no complete statistics on the rate of biodegradable bags use in Vietnam, according to a report by the Vietnam Institute for Strategic Policy Research, Industry and Trade, in January 2022, there were only about 15 members of the Vietnam Association of Environmentally Friendly Product Manufacturers, while over 1.353 businesses were producing plastic bags as of 2019 (Nguyen Dinh Dap, 2023). This means that the production and consumption rates of biodegradable bags currently account for a very small percentage compared to those of plastic bags in Vietnam..

One reason for the lack of widespread adoption of biodegradable bags is that businesses producing and selling these products in Vietnam have not yet devoted sufficient resources to promoting them. According to a report by Mordor Intelligence (2023), Vietnam is among the countries and territories with a very low compound annual growth rate (CAGR) for biodegradable plastic bags. Vietnamese consumers currently lack awareness of the threat of plastic pollution to their lives (Makarchev et al., 2022) and of their obligation to seek justice (Hoang Thi Bich Ngoc, 2018), leading to low intentions to purchase and use biodegradable bags (Mordor Intelligence, 2023). Therefore, this study was conducted to investigate the impact of cognitive processes and a sense of justice on the intention to purchase green products, such as evoking the ability to cope with fears of environmental pollution, thereby promoting consumer behavior in purchasing biodegradable bags.

1.1.2. Theoretical background

Regarding cognitive processes and justice obligations, Kotler and Armstrong (2021) note that consumer buying behavior is often governed by four main groups of factors: cultural, social, personal, and psychological; among these, psychological factors typically have a strong impact on buying behavior. More specifically, there are four main psychological factors: motivation, perception, understanding, attitude, and belief (Kotler & Armstrong, 2021). Based on these psychological factors, many scholars have developed behavioral theories, such as Ajzen's (1985) Theory of Planned Behavior (TPB) and Fishbein and Ajzen's (1975) Theory of Reasoned Action (TRA). Many previous

researchers have conducted in-depth studies of consumers' intentions to purchase green/sustainable products, focusing on the three TPB pillars: attitude, subjective norms, and perceived behavioral control (internal factors). Of these, attitude is one of the most important prerequisites driving consumer intentions to purchase green products. Therefore, many previous researchers have also focused on exploring new research directions to identify prerequisite factors that promote positive attitudes towards products among consumers. These new research directions could involve exploring the impact of psychological factors such as motivation, perceived threat (external factors), or perceived self-potential (internal factors). This also opens up many new avenues for future research.

Regarding motivation, most theories address the impact of cognitive processes on behavioral intentions, which are often governed by two main types of motivational factors: intrinsic and extrinsic (Bandhu et al., 2024). External influences trigger extrinsic motivational factors, while intrinsic factors trigger intrinsic motivation. While many motivational theories typically consider only extrinsic or intrinsic motivational factors, Protective Motivation Theory (PMT) considers both. However, it has only recently been studied in the field of green consumption. In recent times, PMT theory continues to be applied in consumer behavior studies, but in a new direction, specifically towards research on sustainable consumption, green consumption, or organic food consumption to protect the environment, as seen in studies by Ibrahim and Al-Ajlouni (2018), Kothe et al. (2019), Chen (2020a), Pang et al. (2021), Tan et al. (2022), Langbroek et al. (2017), and Bockarjova and Steg (2014).

Based on PMT theory, several researchers such as Tanner et al. (1991), Plotnikoff and Trinh (2010), and Yasami (2021) have proposed the Ordered Protective Motivation Theory (OPMT) to demonstrate the close relationship between human perception of a threat (extrinsic motivation) and the activation of their response (intrinsic motivation), thereby promoting the intention to act in response to the threat. OPMT theory can be considered an important branch of PMT theory, but it has not yet received much attention from researchers worldwide.

Most previous studies share several limitations regarding the models of PMT/OPMT theories: they have not applied other psychological factors to extend the model of protective motivation theory (Chen, 2020a); there have been no studies on actual behavior, as most studies have focused on behavioral intentions (Chen, 2020a; Ibrahim & Al-Ajlouni, 2018; Kothe et al., 2019); most studies are cross-sectional and lack longitudinal studies (Kothe et al., 2019); and there is no consensus on methods for measuring the component factors in the model (Kothe et al., 2019). Moreover, common limitations in empirical research: the research sample is limited as it largely focuses on highly educated individuals (Chen, 2020a; Ibrahim & Al-Ajlouni, 2018), and the research does not focus on a specific consumer product but only on sustainable consumption in general (Ibrahim & Al-Ajlouni, 2018; Kothe et al., 2019). These limitations create a foundation for future research to fill the gaps in PMT/OPMT theories.

In summary, previous studies applying PMT/OPMT theories to green consumption have certain limitations and identify theoretical gaps that need to be addressed (cognition-behavior and attitude-behavior). Therefore, to address the limitations of previous studies, such as Chen (2020a), and to resolve theoretical gaps in previous empirical studies, the author of this thesis will clarify the impact of factors in PMT/OPMT theories on consumers' intention to purchase biodegradable bags. Furthermore, based on ABC theory, the author of this thesis adds green skepticism as another psychological factor with a moderating role in the context of green consumption. The inclusion of green skepticism also responds to calls from previous studies, such as Chen (2020a). It is entirely consistent with the context of sustainable consumption because biodegradable bags is a new product and has not been widely communicated to consumers. Therefore, the thesis has contributed further from a theoretical perspective by expanding PMT/OPMT

theories by integrating ABCs theory to test the role of green skepticism, while also testing the relationship between other factors in the models of Ibrahim and Al-Ajlouni (2018), Almarshad (2017), and Chen (2020a), thereby laying the foundation for future studies on the intention to purchase environmentally friendly products.

1.1. Choosing the research field

First, the PMT/OPMT theory and consumer behavior have been extensively studied in several developed countries, demonstrating that well-educated consumers exhibit higher levels of environmentally protective behavior. However, the research context in Vietnam, a developing country, differs significantly from that of previous studies because Vietnamese consumer behavior differs significantly from that of consumers in developed countries. The research results on green consumer behavior applying the PMT/OPMT theory to the average consumer in Vietnam differ from those in other countries.

Furthermore, in Vietnam, many studies have previously applied theories of green consumption, such as the TPB and TRA, to examine the intention to purchase green products. However, the amount of plastic waste from plastic bags is increasing, and there is no comprehensive solution to address this issue. Therefore, the thesis author also found a new approach: researching the perceived threat to Vietnamese consumers, thereby activating cognitive mediating processes to address the threat of environmental pollution through the intention to purchase biodegradable bags.

Finally, at the time of previous studies worldwide, biodegradable bags products were not widely known, and plastic waste was not considered as urgent a problem as it is today; therefore, the research time, sample, and research subjects in this thesis differ from previous studies, as plastic bags pollution is a crucial issue that needs to be addressed in Vietnam, especially in the Southeast region (before the merger). The survey subjects were primarily consumers who lived and worked in the Southeast region before the merger, as this was Vietnam's highest-income region (Vietnam General Statistics Office, 2021). Consumers in the Southeast region (before the merger) generated the most plastic bags waste in the country, at approximately 716 tons per day. In comparison, the collection rate was only about 645 tons per day, resulting in about 71 tons of plastic bags waste entering the natural environment (Nguyen Tai Tue et al., 2023). Therefore, the transition to biodegradable plastic bags to protect the natural environment is currently very urgent.

In summary, based on the theoretical context, this thesis inherits and expands the protective motivation model from previous studies such as those by Kothe et al. (2019), Ibrahim and Al-Ajlouni (2018), and Chen (2020a) by combining PMT theory, OPMT theory, and ABCs theory, adding the moderating factor of skepticism to the protective motivation model. Therefore, the research results of this thesis contribute to expanding PMT and OPMT theories by clarifying the perception-behavior and attitude-behavior gaps, providing a foundation for future research on green consumer behavior. Furthermore, in practice, the research will have practical significance for businesses currently producing and selling biodegradable bags, helping them better understand their target consumers' consumption behavior and providing solutions for marketing communications to promote the purchase of this product in Vietnam.

Based on the above analysis, the topic "The impact of threats, coping appraisal and deontic justice to purchase intention of biodegradable plastic bags: the moderating role of green skepticism" is necessary to be conducted within the current theoretical and practical context to test the role of factors in the proposed research model in enhancing the intention to purchase biodegradable bags among Vietnamese consumers.

1.2. Research objectives and questions

1.2.1. Research goal

The research goal of this doctoral thesis is to explore the impact of threats, coping appraisal and deontic justice to purchase intention of biodegradable bags: the moderating role of green skepticism. Based on the research results, the author will propose managerial implications for businesses producing and selling biodegradable bags to increase consumer intention to purchase this product..

1.2.2. Research objectives

With the above research goal, this research will focus on analyzing the following specific objectives::

- (1) Identify the relationship between threats, coping appraisal, deontic justice, attitudes, and purchase intention of biodegradable bags.
- (2) Measure and evaluate the relationship between threats, coping appraisal, deontic justice, attitudes, and purchase intention of biodegradable bags.
- (3) Measure and evaluate the moderating role of green skepticism on the relationship between threat, coping appraisal, attitude, and purchase intention of biodegradable bags.
- (4) Propose managerial implications to increase consumer purchase intention of biodegradable bags for businesses producing and selling these products.

1.2.3. Research questions

To achieve the above research objectives, the study will focus on answering the following questions:

- (1) What are the relationships between threats, coping appraisal, deontic justice, attitudes, and purchase intention of biodegradable bags?
- (2) How are the relationships between threats, coping appraisal, deontic justice, attitudes, and purchase intention of biodegradable bags measured and evaluated?
- (3) How does green skepticism affect the relationship between threats, coping appraisal, attitudes, and purchase intention of biodegradable bags?
- (4) What managerial implications can be applied to businesses producing and selling biodegradable bags to enhance consumers' intention to buy these products?

1.3. Research subjects and scope

1.3.1. Research subjects

Threats, coping appraisal, deontic justice, attitudes, the purchase intention of biodegradable bags, green skepticism, and the relationship between these factors.

1.3.2. Research scope:

- The scope of the research: According to previous theories, such as TPB and TRA, consumer purchase intention is influenced by many related factors, including subjective norms, perceived behavioral control, attitudes, etc. However, analyzing the factors that affect consumer intention to purchase biodegradable bags is a broad research direction and involves many variables. Therefore, the author of this thesis considers only the perceived threat aspect, applying PMT and OPMT theories to improve attitudes and purchase intentions of biodegradable bags, and simultaneously examines the role of green skepticism in moderating the relationships among threats, coping appraisal, attitudes, and purchase intentions for biodegradable bags. In addition, the element of deontic justice is included in the thesis to clarify its impact on attitudes and purchase intentions for biodegradable bags; however, this factor can be interpreted as suggesting that consumers should take actions in society related to ethical rather than legal aspects.

- Regarding spatial scope, the thesis focuses on the Southeast region of Vietnam (before the merger) prior to the merger and examines consumers' purchase intention of biodegradable bags.

- Regarding the timeframe: The thesis was conducted from January 2022 to March 2026. The survey period was from December 2023 to February 2024.

1.4. Research methods

This study uses a combination of qualitative and quantitative methods. Qualitative research method: First, by approaching consumers interested in and aware of biodegradable bags, the author of this thesis identified the research problem. The author then extracted factors relevant to the research direction. Next, the author analyzed and tested the suitability of each factor to build a research model through one-on-one interviews with researchers specializing in Business Administration/Marketing, as well as with managers of plastic companies transitioning to biodegradable bags. Based on the suitability of the factors, the author extracted a measurement scale for the relevant factors to be used in the study. Based on the extracted scale, the author constructed a set of translated questions. Subsequently, a second round of one-on-one interviews will be conducted with researchers and managers of plastics companies transitioning to biodegradable bags to refine and develop a preliminary scale.

Quantitative Research Methodology: First, the thesis author will conduct a preliminary quantitative survey with a sample size of 440 respondents to check reliability and refine the official scale. Next, the author will conduct a formal quantitative survey by collecting consumer data from a sample of 1,400 respondents, excluding 116 ineligible respondents, resulting in a final sample of 1,284. Following this, the study will conduct reliability, convergence, and discriminant testing of the scale. Then, the study will use structural equation modeling (SEM) to analyze the multidimensional relationships among the factors in the research model. Finally, based on the research results, the author will analyze and compare them with previous studies to comprehensively synthesize the research findings, from which managerial implications will be proposed for businesses producing and selling biodegradable bags.

1.5. Theoretical and practical contributions

1.5.1. Theoretical contributions

The research findings may provide theoretical contributions to future studies as follows:

- New theoretical contributions: The study synthesized and integrated PMT, OPMT, and ABC theories. Furthermore, it systematized and demonstrated the relationship between these theories. Simultaneously, the study identified and addressed the research gap between attitudes-behavior and perception-behavior in the context of green consumption. This provides deeper insights into consumer behavior for future research.

- A new model in a new research context: the study proposed a model combining the three aforementioned foundational theories and tested it in Vietnam, yielding the following research results:

+ Threats, coping appraisal, deontic justice, and attitudes affect Vietnamese consumers' purchase intentions for biodegradable bags.

+ Threats, coping appraisal, and deontic justice are measured as high-order constructs, in the form of a hierarchical factor model (reflective-reflective), and are inherited from previous studies. Testing results in Vietnam show that these factors achieve acceptable levels and positively influence consumers' purchase intentions for biodegradable bags.

+ Future researchers may reconsider the overall relationship among the above theories and simultaneously retest the research model across different contexts (space, time, industries). Furthermore, future studies may expand the research model beyond the limitations outlined in this thesis.

- Proposed research model and measurement scales: The author has supplemented, refined, and validated the scales for all concepts in the proposed research model and developed these concepts into a set of observed variables for a specific scale in the context of green product purchasing in Vietnam..

1.5.2. Practical implications:

The research findings may provide practical value to stakeholders involved in the study, including consumers purchasing biodegradable bags, businesses producing and selling it, and the natural environment in Vietnam.

For consumers purchasing biodegradable bags, Consumers will become aware of the serious threat from plastic pollution to their own health and that of future generations, thereby encouraging their purchase and use of biodegradable bags.

For businesses producing and selling biodegradable bags, the research findings can help them better understand their target customers' psychology. Simultaneously, based on the study's management implications, these businesses can develop targeted marketing campaigns to promote the purchase of biodegradable bags in their target markets.

For the natural environment in Vietnam, this thesis aims to minimize and eliminate plastic pollution. Therefore, the research results may encourage Vietnamese consumers to purchase biodegradable bags, potentially leading to an end to the dumping of plastic waste into the natural environment. This would allow the natural environment in Vietnam to recover naturally once plastic pollution is eliminated.

For social organizations, environmental associations, lawmakers, and policymakers: The research findings from this thesis will provide a multifaceted perspective on the state of plastic pollution and the current use of biodegradable bags in Vietnam, in general, and in the Southeast region (before the merger) in particular. Based on the research results, social organizations and environmental associations can propose or contribute ideas to improve Decisions, Decrees, or Laws related to green consumption and sustainable development..

1.6. Structure of the thesis:

The thesis consists of five chapters: Chapter 1. *Introduction*; Chapter 2. *Literature review and research model*; Chapter 3. *Research method*; Chapter 4. *Results and discussion*; Chapter 5. *Conclusion and managerial implications*.

CHAPTER 2. LITERATURE REVIEW AND RESEARCH MODEL

2.1. Concepts

2.1.1. Purchase intention of biodegradable bags

The intention to purchase green products can be understood as consumers' willingness to buy green products, thereby capturing the factors that influence their green product purchasing behavior (Ramayah et al., 2010). Similarly to the above definition, in this study, the purchase intention of biodegradable bags is defined as consumers' willingness to purchase them. At the same time, the concept would be inherited from previous studies by Ibrahim and Al-Ajlouni (2018), Tan et al. (2022), because these studies all apply the theory of protective motivation in the intention to purchase

green products; this research area is almost identical to the research direction on the purchase intention for biodegradable bags of this thesis.

2.1.2. Threat appraisal

This thesis defines threat appraisal as a cognitive process by which consumers perceive themselves to be negatively impacted by plastic pollution (perceived vulnerability) and assess its severity (perceived severity). Vulnerability can be understood as consumers' awareness of being harmed by the threat, and perceived severity can be understood as consumers' awareness of the harmful effects of products such as plastic bags on the natural environment and their own/family health. Furthermore, the thesis also considers measuring the threat factor as a higher-order factor through two component factors: vulnerability and severity, according to the perspectives of Chen (2020a), Lippke and Plotnikoff (2009), and Mady et al. (2023), due to the similar research context.

2.1.3. Coping appraisal

Trong luận án này, khả năng ứng phó được định nghĩa là một quá trình người tiêu dùng hình thành nên niềm tin họ In this thesis, coping appraisal is defined as the process by which consumers form the belief that they can cope with plastic pollution (self-efficacy) and that their actions to address it will be effective (response efficacy). Self-efficacy can be understood as consumers' perception of their ability to take action to address a threat, such as plastic pollution; response efficacy can be understood as how consumers believe that actions to address the threat will be effective and efficient in reducing plastic pollution, such as by consuming biodegradable bags. Furthermore, the thesis also considers measuring coping appraisal as a higher-order factor through two component factors: self-efficacy and response efficacy, according to the perspectives of Chen (2020a), Lippke and Plotnikoff (2009), and Mady et al. (2023), due to the similar research context.

2.1.4. Deontic justice

In this thesis, deontic justice can be understood as a process by which consumers believe they should do what is right to benefit others and society; this framework guides people in adhering to society's strict standards. Deontic justice comprises three main components: moral obligation, moral accountability, and moral outrage. Moral obligation can be understood as consumers believing they must act in accordance with fundamental moral beliefs in society, such as using biodegradable bags to avoid causing injustice to others; moral accountability is understood as an individual seeking to control their own behavior, such as limiting plastic waste – and that of others – to align with moral beliefs; and moral outrage can be understood as how consumers perceive injustice from bad actions, such as the use of plastic bags, which can create a sense of moral outrage and a willingness to seek justice. Furthermore, in line with Beugré (2012) and Cropanzano et al. (2017), the authors would measure deontic justice as a higher-order factor, clearly reflected in three component elements: moral obligation, moral accountability, and moral outrage.

2.1.5. Green skepticism

In this thesis, green skepticism is defined as doubt about the green functionality of biodegradable bags, as the products are new and consumers will inevitably have doubts about their effectiveness. This leads to the emergence of green skepticism, which influences consumer behavior in purchasing green products. The concept of measuring green skepticism in this thesis will be primarily derived from the research of Leonidou and Skarmas (2017).

2.1.6. Attitudes toward biodegradable bags

In this thesis, attitudes towards biodegradable bags are defined as consumers' preferences or dislikes for this type of product. Positive attitudes can be expressed through consumer liking, positive perceptions of the product, or a sense

of pride in purchasing biodegradable bags. Furthermore, the concept of attitude measurement in this thesis will primarily draw on the research of Alam et al. (2023) and Wang et al. (2021), as biodegradable bags are green products, and consumers' environmental attitudes will undoubtedly have a significant impact on their green product purchasing behavior.

2.1.7. Biodegradable bags

In this thesis, biodegradable bags are understood as bags made from naturally occurring, readily biodegradable materials (corn starch, potato starch, cassava starch) or from environmentally friendly biodegradable plastics.

2.2. Theories

2.2.1. The Protection Motivation theory (PMT)

Following the theoretical development of PMT by Floyd et al. (2000), Cismaru and Lavack (2006), Chen (2016a), Rainear and Christensen (2017), Almarshad (2017), Ibrahim and Al-Ajlouni (2018), Chen (2020a), Zhang et al. (2021), the relationships in the PMT model are specifically expressed as follows: When faced with a threat, people will initiate that threat through key actions (vulnerability plus severity minus inappropriate reward), and they will also respond to the threat through key actions (self-efficacy plus response efficacy minus the cost incurred when performing the response). After appraising the threat and the coping, these two factors will directly and positively influence people's protective motives, leading to their intention to act, including appropriate actions such as self-defense and inappropriate actions such as avoidance (Ibrahim and Al-Ajlouni, 2018). In addition, ethical factors (deontic justice) contribute positively, directly or indirectly, to consumers' intention to sustain consumption (Chen, 2020a; Ibrahim & Al-Ajlouni, 2018; Almarshad, 2017).

2.2.2. The Order Protection Motivation theory (OPMT)

According to scholars such as Floyd et al. (2000), Cismaru and Lavack (2006), Ibrahim and Al-Ajlouni (2018), and many others, threat appraisal and coping appraisal often occur in parallel and positively affect people's intention to act in self-defense. However, some scholars, such as Tanner et al. (1991) and Yasami (2021), remain very interested in the positive relationship between threat appraisal and coping appraisal, and they have successfully argued for this relationship and proposed a theoretical model of OPMTy through empirical studies. Therefore, this is also a new research direction for the theoretical model of OPMT in the analysis of consumers' intention to purchase green products.

2.2.3. Attitudes-Behavior-Context theory (ABCs)

The attitudes-behavior-context theory, proposed by Guagnano et al. (1995), aims to better understand human behavior. Developed from the theory of planned behavior (Ajzen, 1985), this theory explains that behavior is not only influenced by attitude, but contextual factors also govern the relationship between attitudes and behavior. A better context strengthens the relationship between attitude and behavior, whereas a worse context weakens it (Guagnano et al., 1995). Guagnano et al. (1995) also argued that context refers to external factors that support or inhibit behavior; these factors can be physical, financial, legal, and social. These factors can trigger psychological responses and may act as either the most positive promoter or the most negative inhibitor (barrier) of the intention-behavior relationship (Stern, 2000); several other contextual psychological factors, such as personal beliefs, values, and norms, also influence human behavior (Stern, 2000). Therefore, some researchers have argued that the relationship between green attitudes and green consumption may be influenced by contextual factors, such as concerns about environmental impact, as well as other psychological factors related to the environment (Ertz et al., 2016; Dhir et al., 2021).

2.3. Tổng quan các nghiên cứu trước có liên quan

This thesis primarily explores the factors influencing the relationship between attitude and behavior, with cognitive factors playing a key role. Therefore, the author will primarily review previous studies on PMT/OPMT theories using a systematic review and meta-analysis. Currently, PMT/OPMT theories are applied in the following main fields: medicine, environmental economics, social sciences (Marketing - consumer behavior), information technology, tourism, and agriculture. Among these, medicine, environmental economics, and social sciences are the three main fields most extensively studied today. Based on a general overview, the Protective Motivation Theory (PMT) model, proposed by Rogers (1975) and Rogers (1983), was refined and developed into a complete model with two main cognitive mediating processes affecting protective motivation, thereby leading to the intention to perform the recommended action to eliminate or avoid the threat by Floyd et al. (2000) and Cismaru and Lavack (2006). Drawing on PMT theory from previous studies, many scholars have applied PMT/OPMT theories across various research fields, including sustainable consumption, such as purchasing green products (Ibrahim & Al-Ajlouni, 2018; Chen, 2020a).

To identify relevant studies applying PMT/OPMT theories to green product purchasing behavior, the author of this thesis conducted a literature review using a meta-analysis in EndNote. Among studies applying PMT theory to research on green product or service purchasing behavior, the empirical study by Scarpa and Thiene (2011) measured and demonstrated that: the impact of lower-order factors in PMT theory related to environmental protection such as vulnerability, severity, maladaptive rewards, self-efficacy, response efficacy, and response costs strongly influenced and motivated the purchase behavior of organic food among Italian consumers. Conversely, studies by Pang et al. (2021) and Tan et al. (2022) demonstrated that only the environmental response efficiency factor had a positive effect on consumers' intention to purchase organic food ($\beta = 0.199$ and $\beta = 0.2397$). This difference in results may be due to differences in the research context, as the studies were conducted in Malaysia.

In another study examining the intention to purchase energy-saving products, Kim et al. (2012) excluded inappropriate rewards and response costs. They measured only the remaining four factors (severity, vulnerability, self-efficacy, and response efficacy). The research results showed that the vulnerability factor did not affect the intention to purchase energy-saving products, whereas the other three factors did ($\beta = 0.23$; $\beta = 0.11$; $\beta = 0.26$, respectively). The results of this study differ slightly from those of Bockarjova and Steg (2014), Langbroek et al. (2017), Zhao et al. (2016), and Chen (2020a), as these scholars all demonstrated that most factors in PMT theory have a positive or negative impact on the dependent variable, which is the intention to purchase environmentally friendly products such as electric motorcycles or energy-saving products. This shows a strong similarity between the above studies in demonstrating that factors such as severity, vulnerability, self-efficacy, response efficacy, maladaptive rewards, and response costs all affect consumers' intention to purchase environmentally friendly products.

Furthermore, the research by Ibrahim and Al-Ajlouni (2018) also reaffirmed that factors such as environmental severity, consumer vulnerability, self-efficacy, and the effectiveness of climate change response actions all strongly promote consumer intention to purchase green products. Simultaneously, research by Ibrahim and Al-Ajlouni (2018) and Chen (2020a) both address the relevance of ethical factors related to deontic justice (moral obligation, moral outrage, and moral accountability) to expand PMT theory. These factors promote and increase consumer behavior in purchasing green products to protect the environment. Therefore, ethical factors have been integrated into PMT theory because they are relevant to promoting consumer motivation for environmental protection.

Based on the studies of Ibrahim and Al-Ajlouni (2018) and Chen (2020a), the studies of Pang et al. (2021) and Tan et al. (2022) inherited, expanded, and re-tested the higher-order factors in the extended PMT theory, including: threat (severity of the environment, vulnerability of the consumer themselves), response capability (self-efficacy, response efficacy, response cost), and added the factor of attitude towards green products to explore the suitability of this model for purchasing behavior of green products such as organic food. The research results indicate that most factors in the PMT model do not have a direct impact on the intention to purchase organic food, except for the response efficacy factor, which has a β coefficient of 0.2379. This result is somewhat contrary to previous studies by Ibrahim and Al-Ajlouni (2018) and Chen (2020a).

Simultaneously, studies by Pang et al. (2021) and Tan et al. (2022) also found the total mediating role of attitude in the relationship between threat appraisal, coping appraisal, and food purchase intention, thereby reaffirming the validity of the PMT theory proposed by Floyd et al. (2000) and Cismaru and Lavack (2006) in asserting that perception can change human attitudes when faced with danger.

In summary, most previous studies have examined the impact of factors in PMT theory, such as threat (environmental severity and consumer vulnerability) and response capabilities (self-efficacy and response efficacy), on consumers' intention to purchase green products. Simultaneously, some studies have expanded PMT theory by adding factors such as obligation to justice (moral obligation, moral outrage, and moral accountability), attitudes as moderators, and moderating factors such as green trust or skepticism.

Limitations of previous studies

Based on a synthesis of studies related to PMT theory and a review of relevant research literature, this study presents several observations and identifies specific research gaps as follows:

Firstly, most previous studies applying PMT theory to research on green/sustainable consumer behavior for environmental purposes have been conducted in upper-middle-income countries. In these countries, consumers generally have greater threat appraisal, coping appraisal, and deontic justice than in developing middle-income countries like Vietnam. Therefore, most previous studies have called for expanding the application of this research model to other countries to test its suitability. This creates a gap in the research sample when applying PMT theory: a comprehensive sampling approach encompassing all segments of society in a different country should be used to better understand the mechanisms by which PMT theory's factors influence green consumer behavior.

Secondly, several previous studies, such as those by Chen (2020a), Pang et al. (2021), and Tan et al. (2022), have called for future research to add more elements to PMT theory to broaden the research model. Therefore, this is a significant gap that future studies can build on to expand PMT theory and better understand consumers' intentions to purchase different types of green products..

Thirdly, in addition to the studies mentioned above, the study also identified, through the theoretical review process, a theoretical gap in PMT theory that previous studies applying this theory had completely overlooked. Specifically, several previous studies, including Joshi and Rahman (2015), Hudayah et al. (2023), Roh et al. (2022), and Anisimova and Weiss (2023), have noted a research gap between consumer attitudes and green product purchasing behavior. Almost all of these studies called for future research to investigate the psychological factors that can positively influence the impact of attitudes on consumer behavior. Therefore, filling this research gap could help future studies better understand the mechanisms by which consumer attitudes influence consumer behavior.

Fourth, several previous studies, such as Byrd et al. (2022), Deliana and Rum (2019), Niedenthal et al. (2005), and Pizzera (2016), also noted a gap between consumer perceptions and behavior. However, very few studies applying PMT theory have addressed this gap. Therefore, filling this research gap could help future studies better understand the mechanisms by which consumer perception (threat appraisal and coping appraisal) impacts consumer behavior.

2.4. Hypotheses and the proposed research model

2.4.1. Hypotheses

Research hypotheses have been developed, including:

Hypothesis H1: Threat appraisal positively impacts consumers' purchase intention of biodegradable bags.

Hypothesis H2: Coping appraisal positively impacts consumers' purchase intention of biodegradable bags.

Hypothesis H3: Threat appraisal positively impacts coping appraisal.

Hypothesis H4: Coping appraisal mediates the relationship between threat appraisal and consumers' purchase intention of biodegradable bags.

Hypothesis H5: Attitudes positively impact consumers' purchase intention of biodegradable bags.

Hypothesis H6: Threat appraisal has a positive and direct impact on consumers' attitudes towards biodegradable bags.

Hypothesis H7: Coping appraisal has a positive and direct impact on consumers' attitudes towards biodegradable bags.

Hypothesis H8: Deontic justice positively and directly impacts consumers' attitudes towards biodegradable bags.

Hypothesis H9: Deontic justice positively impacts consumers' purchase intention of biodegradable bags.

Hypothesis H10a: Green skepticism negatively moderates the relationship between threat appraisal and the purchase intention of biodegradable bags.

Hypothesis H10b: Green skepticism negatively moderates the relationship between coping appraisal and the purchase intention of biodegradable bags.

Hypothesis H10c: Green skepticism negatively moderates the relationship between attitudes and the purchase intention of biodegradable bags.

Hypothesis H11a: Attitudes mediate the relationship between coping appraisal and the purchase intention of biodegradable bags.

Hypothesis H11b: Attitudes mediate the relationship between threat appraisal and the purchase intention of biodegradable bags.

Hypothesis H11c: Attitudes mediate the relationship between deontic justice and the purchase intention of biodegradable bags.

2.4.2. Research model

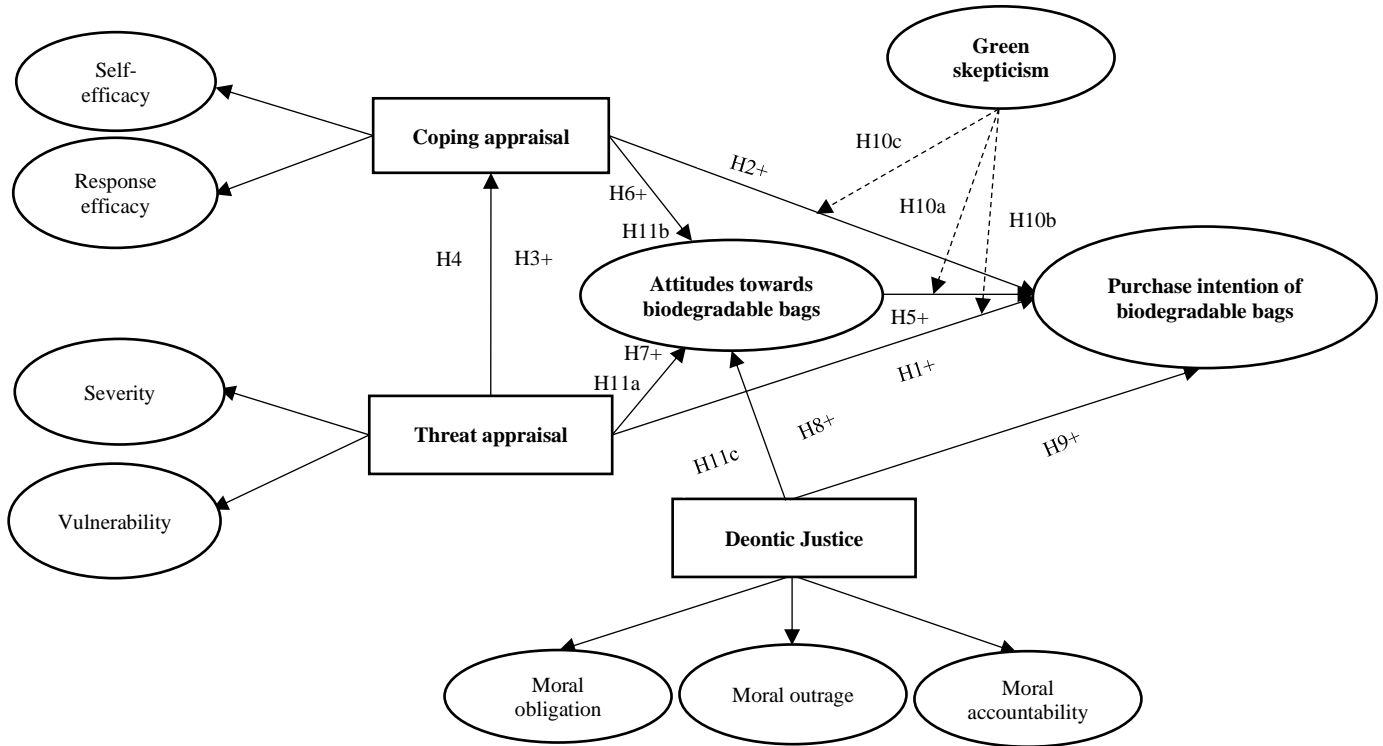


Figure 2.1. The proposed research model

CHAPTER 3. RESEARCH METHODS

3.1. Research process

The research process of this thesis includes: Defining research objectives, conducting one-on-one interviews with the target group to identify factors, then establishing the research model, developing a preliminary survey questionnaire, conducting a preliminary quantitative survey, conducting a formal quantitative survey, testing structural coefficients of the pathway, testing the pathway coefficients using bootstraps, examining the impact of moderating variables, and drawing conclusions and managerial implications for the study.

3.2. Qualitative research design:

First, based on theoretical foundations and practical discussions, the author of this thesis identified the main objective as promoting the purchase of green products such as biodegradable bags to reduce environmental pollution and protect future generations. Next, through one-on-one interviews, the author consulted with researchers in the consumer behavior context and business managers in the packaging manufacturing sector to identify elements for the research model and refine it, thereby developing a preliminary measurement scale.

3.3. Preliminary quantitative research design

Based on scales refined through in-depth interviews with researchers and managers of plastic packaging manufacturing companies transitioning to biodegradable packaging, a preliminary survey questionnaire will be designed. After conducting direct surveys of 300 consumers at supermarkets/convenience stores and 140 consumers on online platforms residing in Ho Chi Minh City prior to the merger, the study filtered the data using Excel to exclude

inappropriate responses. After excluding 16 unsuitable respondents, a final preliminary survey sample of 424 respondents was obtained. The survey was conducted in December 2023. Preliminary quantitative analysis results indicate that three observed variables have relatively low outer loadings coefficients: PV6 (0.540), PI5 (0.475), and MOB2 (0.610). Typically, outer loadings coefficients below 0.7 can be excluded to increase the scale's reliability and convergent validity, as well as improve the model's fit. However, since the entire study achieved high reliability and convergent validity, Cronbach's Alpha coefficient and composite reliability (ρ_c) are greater than 0.7; the average variance extracted (AVE) is greater than 0.5; and all coefficients meet the requirements (Hair et al., 2022).

Furthermore, the observed variables PV6, PI5, and MOB2 are all highly important and significant within their respective scales. Furthermore, since this is a preliminary survey, the author of the thesis will not remove any observed variables but will only consider the appropriate sets of indicators for the scale. In addition, all observed variables in the model achieve discriminant validity when the HTMT index is below 0.85 (Henseler et al., 2015). From this, the author of the thesis has determined the official scale.

3.4. Formal quantitative research design

The formal quantitative research was conducted after the scales were finalized based on the preliminary quantitative results. The survey sample size was set at 1,400 respondents, comprising 700 consumers from supermarkets/convenience stores and 700 from online platforms, all residing in the Southeast region before the merger. The author then filtered the data using Excel to exclude inappropriate responses. After excluding 16 inappropriate respondents, a final preliminary survey sample of 116 respondents was obtained. The survey was conducted in February 2024. The filtered dataset was then subjected to exploratory factor analysis and general method bias testing in SPSS. Finally, the final dataset was entered into SmartPLS software to evaluate the linear structural model.

CHAPTER 4. RESULTS AND DISCUSSION

4.1. Descriptive statistics

4.1.1. Results of demographic statistics

Of the 1,400 respondents, 118 were excluded for invalid responses, leaving a sample of 1,284 with valid responses, yielding a response rate of 91.7%. Regarding gender, 679 respondents (52.88%) were female, and 605 (47.12%) were male. Regarding marital status, 954 respondents (74.3%) were married. Meanwhile, 330 respondents, representing 25.70% of the sample, were unmarried. In terms of age, the 35-45 age group had the highest percentage of respondents, with 417 individuals, accounting for 32.48% of the sample. Next, the 46-54 age group comprised 389 people, accounting for 30.30% of the sample. Following that was the age group from 25 to 34 with 345 participants, representing 26.87% of the sample. The remaining group, aged 18-25, comprised 89 respondents, accounting for 6.93% of the sample, while the over-55 group had the fewest respondents, with 44, representing 3.43% of the sample. Regarding educational level, 951 respondents had a university degree, representing 74.07% of the sample. Among those surveyed, 166 respondents (12.39% of the sample) had a college degree, while 67 respondents (5.22% of the sample) had a postgraduate degree. 57 respondents (4.44% of the sample) indicated a secondary education level, while 43 respondents (3.35% of the sample) indicated the lowest level of education, including middle school or high school. Regarding income among survey participants, 646 respondents (50.31% of the sample) reported their income as between 15 and under 20 million VND; 250 respondents (19.47% of the sample) reported their income as between 10 and under 15 million VND. In total, 197 respondents, representing 15.34% of the sample, reported their income as

between 20 million VND and 30 million VND; 111 respondents, representing 8.64% of the sample, reported their income as below 10 million VND. Meanwhile, 66 participants, representing 5.14% of the sample, reported their income as between 30 million VND and 40 million VND. Finally, 14 participants (1.09% of the total) reported incomes exceeding 40 million VND.

4.1.2. Normal distribution test

The author performed a normality test on the dataset using the Kurtosis and Skewness coefficients analysis method in SPSS software; the results showed that the Kurtosis and Skewness coefficients of the observed variables were all within the range of ± 1.96 , which means that the dataset has a normal distribution (Hair et al., 2022).

4.1.3. Common method bias

To eliminate methodological bias, the author also applied the Harman single-factor test to the dataset. The results in Table 4.2 below show that a single factor accounts for only 25.775% of the total variance (<50%), indicating that the dataset does not exhibit methodological bias (Cooper et al., 2020).

4.2. Exploratory factor analysis (EFA)

The results show that 10 factors were extracted based on the criterion of eigenvalues greater than 1; thus, these 10 factors best summarize the information from the 44 observed variables included in the EFA analysis. The total variance extracted by these 10 factors is 66.343%, which is > 50%; therefore, these 10 factors explain 66.343% of the data variance among the 44 observed variables (Hair et al., 2022). In addition, through the EFA analysis, the author of the thesis eliminated two observed variables, PV6 and PI5, because PV6 showed mixed loadings across two factors, and PI5 had a factor loading coefficient below 0.4. The remaining scale has 42 observed variables that meet the conditions for conducting the linear structural model test.

4.3. Testing Structural equation modelling (SEM)

4.3.1. PLS-Algorithm coefficients of first-order factors

The results show that all discriminant values are below the threshold of 0.85, and all observed variables exhibit discriminant validity (Henseler et al., 2015). Furthermore, the reliability of the scale is accepted when the Cronbach's alpha coefficient (CA) is greater than 0.7, the composite reliability (CR) is greater than 0.7, and the average variance extracted (AVE) is greater than 0.5. In addition, the outer loadings of the observed variables are all greater than 0.708. The research results show that the scale achieves reliability and convergent validity (Hair et al., 2022). Moreover, the results show that all first-order variables meet the testing criteria for higher-order variables. The variance inflation factors (VIFs) for all observed variables ranged from 1.413 to 2.711 (< 3), indicating no multicollinearity (Hair et al., 2022).

4.3.2. PLS-Algorithm coefficients of second-order factors

According to Henseler et al. (2015), the model's prediction coefficient is set to 0.08 as a measure of the model's fit to market data (Goodness-of-Fit [GoF]). According to Table 4.8, the standardized root mean square residual (SRMR) of the model is 0.064 (below 0.08), and the NFI coefficient is 0.802 (above 0.8), indicating that the proposed research model is appropriate (Hair et al., 2022).

After extracting data for the latent variables, the author proceeded to the second step of the SEM analysis for higher-order variables. The results showed that the out-factor loadings of the observed variables were all greater than 0.708. The reliability and convergent validity of the scale are accepted when the Cronbach's alpha (CA) and composite reliability (CR) are greater than 0.7. The average variance extracted (AVE) is greater than 0.5 (Hair et al., 2022). The

variance inflation factors (VIFs) of all observed variables (including latent variable scores) range from 1.443 to 2.37. In addition, all VIF values are less than 3, indicating that multicollinearity does not occur (Hair et al., 2022). Furthermore, the results indicate that all HTMT values are below 0.85, indicating that the observed variables exhibit discriminant validity (Henseler et al., 2015).

4.4. Path coefficients

The thesis author conducted bootstrapping using a sample size of 10,000 to evaluate the linear structural model. Following Chin (1998) and Hair et al. (2022), the authors tested the coefficient of determination (R^2), statistical significance, and relevance of the path coefficients. The results showed that all path coefficients in the model were statistically significant, as evidenced by the 95% confidence interval. The excluded confidence interval indicates that all relationships are supported, as indicated by p-values less than 0.05 for all relationships.

The results showed that the standardized β coefficients for the direct relationships between $ATT \rightarrow PI$, $TA \rightarrow PI$, $CAP \rightarrow PI$, $TA \rightarrow CAP$, $TA \rightarrow ATT$, $CAP \rightarrow ATT$, $DJ \rightarrow ATT$, and $DJ \rightarrow PI$ were 0.351, 0.186, 0.118, 0.234, 0.224, 0.197, 0.190, and 0.116, respectively. This indicates that attitudes, threat appraisal, coping appraisal, and deontic justice positively influence the purchase intention of biodegradable bags. These findings show a positive correlation between higher attitudes (ATT), coping appraisal (CAP), deontic justice (DJ), threat (TA), and purchase intention (PI), consistent with PMT theory. Therefore, hypotheses H1, H2, H3, H5, H6, H7, H8, and H9 are all supported.

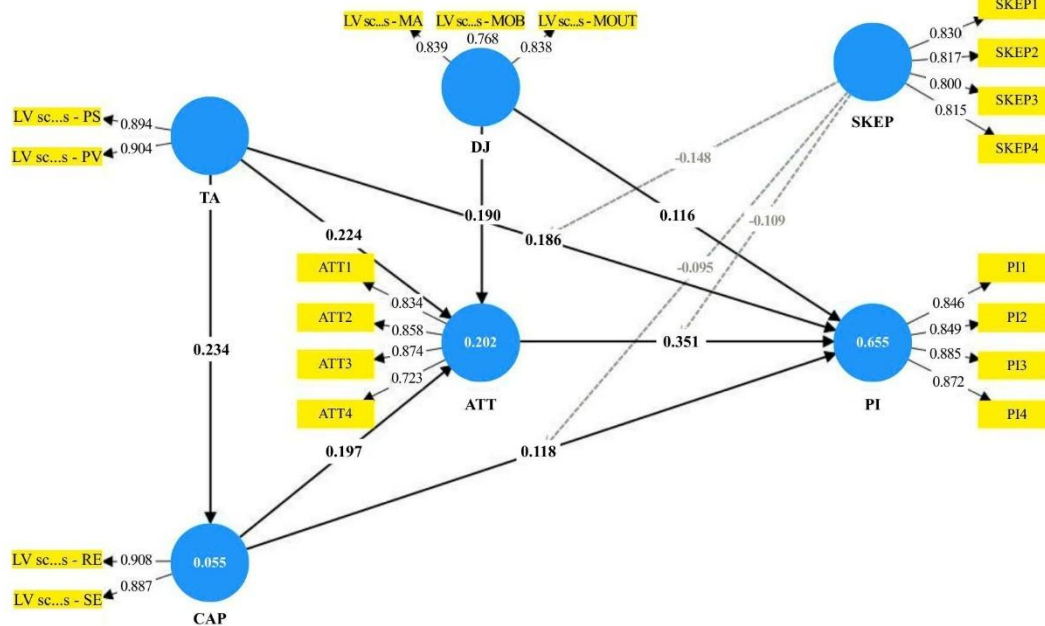


Figure 4.1. Results of PLS-SEM analysis of the research model

The standardized beta coefficients for the mediating relationships between $TA \rightarrow CAP \rightarrow PI$ are 0.028, $TA \rightarrow ATT \rightarrow PI$ are 0.079, $CAP \rightarrow ATT \rightarrow PI$ are 0.069, and $DJ \rightarrow ATT \rightarrow PI$ are 0.067, suggesting that hypotheses H4, H11a, H11b, and H11c propose that attitudes (ATT) and coping appraisal (CAP) are partial mediators in the model, as indicated by standardized beta values of 0.028, 0.079, 0.069, and 0.067, respectively.

The results also demonstrated the moderating effect of green skepticism (SKEP) on the relationships between $ATT \rightarrow PI$, $TA \rightarrow PI$, and $CAP \rightarrow PI$, as indicated by standardized β values of -0.109, -0.148, and -0.095, respectively.

These findings provide empirical support for hypotheses H10a, H10b, and H10c, indicating that an increase in SKEP leads to a significant decrease in the influence of ATT, TA, and CA on PI.

The adjusted R^2 coefficient for ATT was 0.2, suggesting that factors such as deontic justice, threat appraisal, and coping appraisal accounted for only 20% of the variability in attitude. The adjusted R^2 coefficient for CAP was 0.054, indicating that threat appraisal accounted for only 5.4% of the variability in responsiveness. Finally, the adjusted R^2 coefficient of PI was 0.653, indicating that most of the factors—deontic justice, threat appraisal, coping appraisal, attitudes, and green skepticism—explained 65.3% of the variability in purchase intention. The adjusted R^2 coefficient of purchase intention was considered appropriate in the field of social science research, while the coefficients for attitude and resilience were low.

4.5. Predictive capability of the model

The results indicate that the observed Q^2 values for the variables ATT, CA, TA, and PI are all above 0, suggesting that the model has a good predictive fit. Only three of the ten observed variables have PLS-SEM_RMSE indices smaller than LM_RMSE. The proposed model has low predictive power (Shmueli et al., 2019) due to the novelty of biodegradable bags for consumers in the entire pre-integration Southeast region of Vietnam, leading to low intention to purchase this type of product. The PLS-SEM_RMSE index was selected based on the normal distribution of the MV PLS-SEM error plot (Shmueli et al., 2019).

4.6. Importance-performance analysis

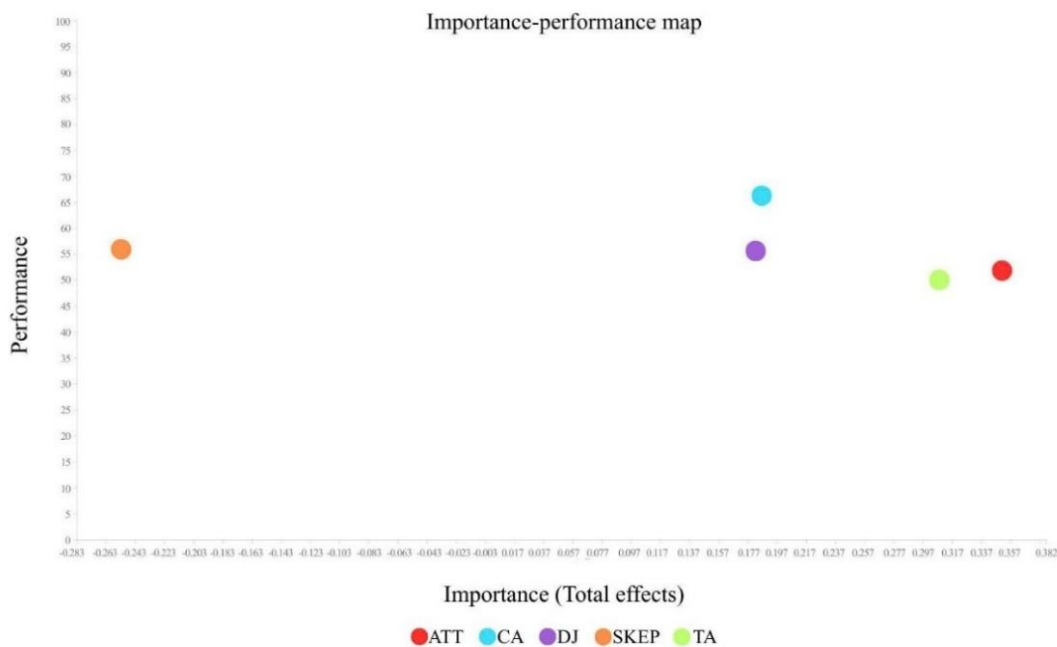


Figure 2 Results of the importance-performance chart.

The results of the importance-performance analysis of the research model indicate that 5 factors play independent, mediating, and moderating roles in affecting the dependent variable. According to the research results, the attitude factor has the strongest overall impact on the purchase intention for biodegradable bags, with a coefficient of 0.351, while its importance is only 51.904. This result indicates that respondents currently have low attitudes towards biodegradable packaging (the overall average value of ATT is only 3.08). Conversely, the coping appraisal factor, although having a relatively low overall impact on purchase intention of biodegradable bags (coefficient of 0.187), is

highly endorsed by consumers, with a high importance level (66.291). This result shows that respondents currently have a high level of consensus regarding the coping appraisal factor (the average values of the two component factors of responsiveness: SE is 3.68 and RE is 3.69). Therefore, based on the research results, priority should be given to improving consumer consensus on the factors in the following order: Attitudes, Threat appraisal, Green skepticism, Deontic justice, and Coping appraisal. The entire importance-performance analysis is shown in Figure 4.2.

4.7. Discussion

The results show that hypotheses H1 and H2 are both supported, meaning that threat appraisal (TA) and coping appraisal (CAP) positively and directly influence the purchase intention for biodegradable bags, with β coefficients of 0.186 and 0.118, respectively. The results of hypotheses H1 and H2 are similar to previous studies by Ibrahim and Al-Ajlouni (2018), Chen (2020), and Bockarjova and Steg (2014), meaning that factors such as higher threat and coping appraisals will increase the intention to eliminate environmental threats, such as the intention to purchase biodegradable bags. However, this study's results differ from those of Tan et al. (2022) and Pang et al. (2021): only the intrinsic coping appraisal positively and directly influences the intention to purchase organic food, unlike most studies on PMT. The difference may lie in the mediating impact of subjective norms and attitudes on the adoption of environmentally supportive behaviors.

The study's results support hypothesis H9, demonstrating that deontic justice extends PMT theory and positively affects the purchase intention of biodegradable bags ($\beta = 0.116$). The research shows that when consumers perceive a responsibility to perform ethical actions to protect future generations or society, they will proactively form the intention to purchase biodegradable packaging to address emerging issues such as plastic pollution. These findings are consistent with previous research by Ibrahim and Al-Ajlouni (2018) and Chen (2020). Furthermore, hypothesis H5 is supported, indicating that attitudes have the most significant and positive impact on the purchase intention of biodegradable bags, with a β coefficient of 0.351. These results are also entirely consistent with findings from studies by Qi and Ploeger (2021) and Sadiq et al. (2023): the more consumers feel they have an obligation to do justice, the greater their intention to purchase green products.

The research results also support hypothesis H3, demonstrating that threat appraisal positively influences coping appraisal, as indicated by a β coefficient of 0.234. The results show that the threat occurs before the evaluation of response strategies, as demonstrated in studies by Plotnikoff and Trinh (2010) and Yasami (2021). Furthermore, hypothesis H4 is supported by a β coefficient of 0.028, indicating that coping appraisal mediates the relationship between threat appraisal and the purchase intention of biodegradable bags. This result is consistent with the two studies by Plotnikoff and Trinh (2010) and Yasami (2021). In summary, threat appraisal has both direct and indirect effects on the purchase intention of biodegradable bags, mediated by coping appraisal.

Hypotheses H6 and H7 were accepted, demonstrating that threat appraisal and coping appraisal positively influence consumers' attitudes towards biodegradable bags, with β coefficients of 0.224 and 0.197, respectively. These findings support Cismaru and Lavack's (2006) argument that factors in PMT theory influence attitudes towards behavior. These research results are quite similar to those of previous studies, such as Baldassare and Katz (1992), Chen (2016a), Pang et al. (2021), and Tan et al. (2022). Furthermore, hypothesis H8 was supported by a β coefficient of 0.190, indicating that the deontic justice has a positive, direct effect on changes in consumers' attitudes. The research results indicate that when consumers feel obligated to uphold justice to protect their families, society, and their

community's living environment, their attitudes towards green products increase significantly. This result is quite similar to previous studies such as those by Shaw and Shiu (2002), Dean et al. (2008), and Kumar et al. (2023).

Hypotheses H11a, H11b, and H11c are supported, suggesting that attitudes mediate the relationship between threat appraisal and purchase intention, response appraisal and purchase intention, and deontic justice and purchase intention. The β coefficients for these relationships are 0.079, 0.069, and 0.067, respectively. This result is consistent with studies conducted by Pang et al. (2021), Tan et al. (2022), and Kumar et al. (2023). Furthermore, studies by Pang et al. (2021) and Tan et al. (2022) showed that attitudes fully mediated the factors of the PMT model and purchase intention. However, in this study, attitudes only play a partial mediating role.

The β coefficient of -0.109 provides evidence supporting hypothesis H10a, suggesting that the relationship between attitudes and purchase intention of biodegradable bags weakens as green skepticism increases. Results similar to those of Uddin et al. (2023) indicate that Asian consumers exhibit significant skepticism towards new products. Hypotheses H10b and H10c, with β coefficients of -0.148 and -0.095, respectively, are supported, suggesting that green skepticism significantly influences the relationships between threat appraisal and coping appraisal and the purchase intention of biodegradable bags. As skepticism towards environmental claims increases, the relationships between assessing potential risks and purchase intention, as well as between assessing how to address those risks and purchase intention, become less robust. The research results show a gap in the cognitive-behavioral literature, as argued by Byrd et al. (2022), Deliana and Rum (2019), Niedenthal et al. (2005), and Pizzera (2016).

CHAPTER 5. CONCLUSION AND IMPLICATIONS

5.1. Conclusion

This thesis was conducted to analyze and test the relationships among coping appraisal, threat appraisal, attitudes, and purchase intention for biodegradable bags. Additionally, the thesis examines the mediating role of coping appraisal, attitudes, and the moderating role of green skepticism. Based on the research results, the author proposes managerial implications for businesses producing and selling biodegradable bags to increase consumers' intention to purchase it. The research results show that the thesis has achieved its initial objectives, specifically:

(1) Based on the research hypotheses and the research model constructed, the results showed that there were relationships between threat appraisal, coping appraisal, attitudes, deontic justice, and consumers' purchase intention of biodegradable bags in the Southeast region before the merger.

(2) The thesis measured the impact level of the factors in the research model: attitudes have the most significant impact on consumer intention to purchase ($\beta = 0.351$), followed by threat appraisal ($\beta = 0.186$), coping appraisal ($\beta = 0.118$), and deontic justice ($\beta = 0.116$). In addition, coping appraisal partially mediated the relationship between threat appraisal and purchase intention ($\beta = 0.028$). In addition, attitudes partially mediate the relationship between the coping appraisal and purchase intention ($\beta = 0.069$), threat appraisal and purchase intention ($\beta = 0.079$), and deontic justice and purchase intention ($\beta = 0.067$).

(3) The research results of the thesis also show the important moderating role of green skepticism in the relationships between attitude - purchase intention, threat - purchase intention, and ability to cope - purchase intention. Specifically, green skepticism plays a negative moderating role in the relationship between attitudes and the purchase

intention of biodegradable bags ($\beta = -0.109$), coping appraisal and the purchase intention of biodegradable bags ($\beta = -0.095$), and threat appraisal and the purchase intention of biodegradable bags ($\beta = -0.148$).

(4) Based on the research results, managerial implications will be proposed for plastic companies in Vietnam to shift production towards biodegradable packaging to comply with new regulations set by the Vietnamese Government and adapt to the current environmental pollution. The thesis also provides further evidence supporting the PMT theory, particularly in its relationship with the OPMT and ABC theories in the current context. In addition, the gap between perception and behavior, as well as between attitude and behavior, has been shown to exist in previous studies by Deliana and Rum (2019), Niedenthal et al. (2005), and Pizzera (2016).

Finally, the thesis's research results can serve as a reference for future studies on green consumption. At the same time, based on the research results, the author of the thesis has also summarized the study's limitations, thereby providing directions for future research..

5.2. Managerial implications

Based on the research results, this thesis will propose managerial implications to help businesses operating in the biodegradable packaging sector or producing plastic packaging transition their production. The specific managerial implications are proposed based on an assessment of the importance and overall impact of the factors, as follows:

(1) Attitudes towards biodegradable bags (ATT):

Overall, the combined results of beta and mean indicate that ATT is a highly influential factor. However, the psychological foundation of consumers remains insufficient to fully transform into sustainable green behavior. Therefore, solutions need to simultaneously enhance positive feelings, reinforce perceptions, reduce skepticism through scientific transparency, and strengthen social pride. When these four elements are consistently strengthened, ATT will become the central driver promoting the intention to use biodegradable packaging sustainably and effectively.

(2) Threat appraisal (TA):

Regarding the threat appraisal (TA), businesses need to address this need with practical solutions such as providing visual guidance on how to reduce exposure to plastic in daily life, developing a "biodegradable packaging software" to help find places to buy these products, and providing a community platform where consumers can share experiences and support each other in purchasing the products. Social media campaigns encouraging specific green actions, combined with support from consumer protection organizations to affirm the right to use safe, environmentally friendly products, will help shift perceived vulnerability (PV) from a passive feeling of being threatened to an active sense of control. When consumers feel they have the tools, information, and community support, PV is no longer a barrier but becomes a motivator for green consumption choices. Given that TA has demonstrated a combined impact of 0.293 on purchase intention, simultaneously raising Severity and Vulnerability in a controlled manner would help transform the environmental threat from an abstract perception into a concrete, powerful motivator for the use of biodegradable packaging.

(3) Green skepticism (SKEP):

Overall, given that SKEP negatively moderates key relationships within the model and that its average values reflect a significant level of skepticism, it can be asserted that managing green skepticism is not merely a supplementary measure but a prerequisite for enhancing the effectiveness of any strategy aimed at promoting green consumer behavior. Transparent product lifecycle management through technology, providing clear quantitative information,

and creating environmental experiences within the community are three crucial pillars for transforming skepticism into trust, thereby positively promoting consumers' intention to purchase green products.

(4) Deontic justice (DJ):

Overall, with the Deontic justice (DJ) having both direct and indirect impacts on attitudes (ATT), and the average values of moral obligation (MOB), moral responsibility (MA), and moral outrage (MOUT) all at average levels, it can be seen that the moral foundation has been formed but is not yet strong enough to shape behavior. Therefore, businesses need to enhance the consumer's DJ by both raising awareness and activating emotions, linking them to specific, observable, and measurable behavioral mechanisms. Then, the purchase of green products, such as biodegradable bags, will not only reflect individual choices but also serve as symbols of social responsibility and justice within the community.

(5) Coping appraisal:

With a direct β impact of 0.118 on PI and an indirect impact through ATT (0.069), along with average SE and RE values ranging from moderate to high, the coping appraisal (CAP) plays a strategic role in connecting perceptions, beliefs, and green consumer behavior. Therefore, governance implications need to be oriented towards both enhancing individual capacity, strengthening systemic trust, and transparently contributing to the environment. When consumers feel they have the capacity, tools, and reliable information, and are recognized by the system, CAP will be maximally effective, promoting the intention and behavior of using biodegradable packaging sustainably and spreading it throughout the community.

5.4. Limitations and future directions

The thesis also has some limitations due to its unique characteristics; future studies may explore these limitations, specifically as follows:

First, this thesis was conducted in the former Southeast region of Vietnam (before the merger), which has a relatively high average income compared to other geographical regions in Vietnam. Consumers in other regions of Vietnam have different cultural backgrounds and income levels, leading to different behavioral intentions. Therefore, future studies could examine the desire to purchase biodegradable plastic bags across other regions of Vietnam with varying income levels or cultural backgrounds.

Second, the author of the thesis focused only on analyzing the psychological aspect, particularly green skepticism, within the framework of the study. This focus resulted in the model's elements explaining only 65.3% of purchase intention for biodegradable bags. Future research could explore additional psychological variables, such as hope or belief, to better understand consumer purchase intentions and broaden the scope of the proposed research model.

Third, Cismaru and Lavack (2006) argued that the elements of PMT theory influence attitudes alone, without considering other elements of TPB or TRA theory, such as subjective norms or perceived behavioral control. Meanwhile, this thesis has demonstrated a close relationship between TPB, TRA, and OPMT/PMT theories. Therefore, integrating the component elements and extending the combination of these theories could also be considered in future studies.

Fourth, green skepticism also encompasses various forms, such as skepticism about environmental messages or a product's green features. In this thesis, the author primarily measures skepticism toward a product's green features. Therefore, future studies could consider measuring other factors, such as skepticism about the product's environmental message.

Fifth, the author has conducted tests on control variables, including age, gender, income, education level, and marital status. However, the test results showed that these control variables were not significant. Therefore, future studies could further test the impact of control variables, such as consumer occupation characteristics or residential area, on the intention to purchase biodegradable packaging.

Sixth, the adjusted R^2 coefficients for attitudes and coping appraisal were quite low (20% and 5.4%, respectively), indicating that, in addition to the factors in the research model, many other factors may also influence attitudes and coping appraisal. Future studies could consider integrating stimulus factors into the SOR (Stimulus-Organism-Responses) model, such as advertising and promotional strategies, or awareness of greenwashing, to expand the research model.

Finally, due to time constraints, this study used a cross-sectional design and convenience sampling. Future researchers should conduct a long-term study to comprehensively examine the effects of coping appraisal, threat appraisal, attitudes, deontic justice, and green skepticism on consumers' purchase intentions for biodegradable bags. Furthermore, this study focused only on behavioral intention, whereas many factors influence the transformation of intention into actual behavior. Therefore, future studies could adopt a long-term research design to examine the transformation from intention to purchase biodegradable bags to actual behavior, which is also an important research trend.

LIST OF PUBLISHED SCIENTIFIC WORKS

1. Le Nguyen; Nguyen Thi Lien Hoa. (2024). Stimulation of Purchase Behavior Toward Biodegradable Bags: The Role of Green Skepticism. *Emerging Science Journal* (ISSN: 2610-9182), 8/3, 855-874. DOI: <https://doi.org/10.28991/esj-2024-08-03-04>.
2. Nguyen Le; Thanh Thi Bui. (2024). Climate change worry and purchase behavior towards biodegradable plastic bags: the new approach. *International Journal of Sustainable Development and Planning* (ISSN: 1743-7601), 20/1, 161-172. DOI: <https://doi.org/10.18280/ijstdp.200116>.
3. Nguyễn Thị Liên Hoa, Lê Nguyên. (2023). Định hướng tiêu dùng bao bì phân hủy sinh học – giải pháp cho sự tăng trưởng bền vững dựa trên mô hình lý thuyết động cơ bảo vệ. Hội thảo khoa học quốc gia kinh tế tuần hoàn - hướng đi cho phát triển bền vững, 2023 (ISBN: 978-604-80-8756-2), pp. 154-163
4. Nguyen Le, The Nguyen Huynh (2025). A meta-analysis on application of protection motivation theory toward green purchase behavior. In: Nguyen, N.T.H., Santos, J.A.C., Solanki, V.K., Mai, A.N. (eds) *Proceedings of the 6th International Conference on Research in Management and Technovation. ICRMAT 2025. Springer Proceedings in Business and Economics*. Springer, Singapore