EXAMINING GREEN WASHING'S IMPACT ON CIRCULAR CONSUMPTION: ROLE OF ENVIRONMENTAL CONCERNS, SUSTAINABLE INFORMATION, AND GREEN PRODUCT KNOWLEDGE

A Thesis

Submitted to the Master of Finance in Sustainable Finance Study Program at the Faculty of Economics and Business in partial fulfillment of the requirements for the degree of

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ABSTRACT

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This study examines the relationship between greenwashing and circular consumption within the context of Pakistan, an emerging economy where environmental awareness remains relatively limited. Greenwashing, defined as the practice of conveying misleading or exaggerated environmental claims, is generally perceived as a barrier to sustainable behavior. However, this research identifies a counterintuitive outcome: the perception of greenwashing may positively influence consumers' engagement in circular consumption practices, such as reducing, reusing, and recycling. Grounded in the Theory of Planned Behavior (TPB) and Norm Activation Theory (NAT), the study investigates the roles of environmental concern, sustainable information collection, and green product knowledge in shaping this relationship. Data were collected through a structured online survey involving 421 respondents, and the analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that perceived greenwashing has a significant positive effect on circular consumption, mediated by both environmental concern and the collection of sustainable information. In contrast, green product knowledge did not significantly moderate the relationship. These findings suggest that consumer skepticism toward greenwashing can prompt critical reflection and environmentally responsible actions. The study contributes to the growing literature on sustainable consumer behavior, particularly in developing countries, and emphasizes the need for transparency in environmental communication. By promoting informed, transparent, and environmentally conscious consumption, the findings offer insights relevant to sustainable finance practices, including ESG-focused investment decisions and regulatory efforts aimed at combating greenwashing. Furthermore, it highlights the importance of enhancing consumer awareness and access to credible sustainability information as a means to promote circular consumption and mitigate the negative implications of deceptive marketing practices.

Keywords**:** *Greenwashing, Circular Consumption, Sustainable Finance, Environmental Concerns, Green Product Knowledge, Sustainable Information, Consumer Behavior*

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ABBREVIATIONS DIRECTORY

GW : *Green Washing*

EC : *Environmental Concern*

GPK : *Green Product Knowledge*

SIC : *Sustainable Information Collecting*

CC : *Circular Consumption*

CHAPTER I
INTRODUCTION

1.1 Background

Greenwashing along with circular consumption establish themselves as major sustainability-related conversations which have gained prominence during the last few years. The cyclic consumption concept has been emphasized pointing that in economies it should be avoided to dispose of resources and instead, they should go in the cycle of reuse many times (Kopnina, 2019; Gomes et al., 2023). However, corporations that engage in deception regarding matters of their environmental policies and product benefits will equally be labeled greenwashing. One type of economy means the separation of product making from the waste and resource utilization (Camacho-Otero et al., 2018). There is a concept in the case of circular consumption goals, which is named greenwashing. Greenwashing is therefore often used by firms to create an impression that their actions and decisions are either for or against the environment. This has eventually impacted the trust of customers and the occurrence of the spread of fake news (Szilagyi et al., 2022). The interest in environmental questions, which have emerged in the last couple of decades, put a lot of pressure on the companies to become responsible for sustainable development. Society today, through the Consumers, Government and advocacy groups will not accept inefficiency and will see to it that the companies adopt green management system and sustainable business practices. This is about emission reductions, waste, energy source, and procurement policies. To the same extent, companies are employing green advertising and promotion tactics that assure environmentally sensitive buyers, aspects such as biodegradable casing, energy-saving products, or ethical policies. Pleasure resulting in green branding appeals to the emotions of the consumers; therefore, it gives the consumers a psychological reward that gives them satisfaction in brands they use and hence becomes loyal to these brands. That is because this has led to the increase of greenwashing, a situation where firms fake their green credentials so that they can benefit from the green consumerism. This dynamic highlighted the conflict between green market value (MV) and profit, as firms attempt to respond to changing social norms of sustainability and pursue competitive advantage simultaneously (Berrone et al., 2015). There is growing concern for the environment meaning that consumers are turning to organic products while the companies are focusing on environment friendly merchandise. In large firms, environmentally friendly activities increase buyers' perceptions, loyalty between

businesses and the community, and expensive effectiveness making sustainable a vital aspect in current enterprises. Nevertheless, while some can justify deep sustainability commitments, some may only fake them, thereby making it important to hold the organizations accountable for those commitments to reflect the transforming nature of environmental concerns (Kassaye, 2001).

Academic scholars have estimated that the consumers will reconsider the environmental sustainability and ethical buying due to the pandemic. Consumers are more aware of the sensitivity and the importance of climate change and pandemics, both of which can have adverse effects on individuals and the environment (Kooch et al., 2022; Lopes et al., 2023). Consumers try to uphold ethical and responsible consumption practices by carefully considering the sustainability of the products they intend to purchase. At this stage, the concepts of sustainable production and business practices become relevant. The production and widespread distribution of environmentally friendly and sustainable products align with consumer demands for such offerings. As a result, it is believed that the rising consumer demand for environmentally friendly and sustainable products and services facilitates a more rapid sustainable transformation for businesses and brands. Consumers visiting markets or stores often come across a significant array of green and sustainable products. There is a noticeable increase in the availability of green and sustainable products in the 21st century compared to the 20th century. With the transition of the organic and green product market from a niche to a mass market, discussions surrounding the sustainability of these products have gained importance. The predominant topic of discussion refers to the implications of greenwashing. While certain businesses are entering the market as sustainable and eco-friendly brands, it is observed that numerous established and luxury brands currently operating are undergoing a transformation towards sustainability. The primary challenge encountered by brands that have undergone sustainable transformation is the question of whether they engage in greenwashing (Hayes, 2024). Based on Kooch et al. (2022) study, consumers are increasingly aware of the environmental issues affecting global ecosystems. Consequently, they are more inclined to support businesses that they perceive as being environmentally responsible. Kishita et al., (2009) suggests that a company that integrates eco-friendly practices into its manufacturing processes and products will be more successful in meeting the increasing demand for environmentally aware items. (Ahmad and Zhang, 2020; Lopes et al., 2023) argue that a variety of factors influence the decisions that customers make while making purchases.

Every product has a number of features, and the importance that consumers attach to those features varies from one product to the next. Environmental conduct is mostly studied in today's literature as a prior to intention, which is ultimately decided by environmental attitude and knowledge. But among those components of green products, substantially less is known about the variables influencing customers' attitudes towards adopting green purchasing practices (Amoako et al., 2020; Lopes et al., 2023).

Transitioning to the circular economy can actually be the only way to achieve both the goals of preserving the natural environment and creating economic growth for the future. Consequently, consumers who are environmentally conscious are in a better position to purchase circular products as asserted by (Szilagyi et al., 2022; Lopes et al, 2023). Also, the buyers want products that display their values because they are beginning to consider the impacts of their decisions to the environment. In fact, Netto et al., (2020) argued that: customers were willing to spend more when acquiring green products. However, there is a major hitch with greenwashing – something that makes it rather difficult for customers to make prudent decisions. It is therefore important that we recognize ourselves as consumers that require circular consumption techniques and the phenomenon of dubious ethical marketing which is referred to as green washing. Consumers have to be cautious to prevent being misled by green marketing strategies employed by the business (Netto et al., 2020; Schmuck et al., 2018). The article emphasizes that, to tackle green washing, companies must be answerable for their environmental claims. Perhaps, you can become a multiplier creating the conditions for a healthy, sustainable society by supporting the companies that care about the environment promoting circular consumption (Barros et al., 2020; Sassanelli and Terzi, 2023). Several instances of greenwashing are used by businesses to promote consumption, including: These are as follows: (i) Identify ecological characteristics of a product for them to represent a company’s social and ecological responsibility (ii) the practice of labeling which gives the impression that a certain product is ecological (iii) there are no seals that indicate that the product is natural and sustainable (iv) this involves gaming the viewer’s attention away from the negative features of the product while placing focus on the ethical and sustainable aspects (v) Terminology Greenwashing cannot be said to have a long history much because the concept is relatively new. However, the results have shown that recently, the number of brands and firms accused of greenwashing has increased (Da Silva Duarte et al., 2021). Actions in circular consumption include reusing, recycling and repairing and others Practices (Hollands., 2007).

On the other hand, greenwashing refers to the attempt by companies who seek to make a financial gain from the increasing environmental consciousness of the public, using misleading information or straight out lies (Szilagyi et al., 2022). Firms continue to employ adjectives such as 'environmentally sensitive,' and 'green' in their marketing strategies and this leads to "greenwashing" when the claims cannot be backed with proof. Greenwashing lies to consumers about the ecological advantage of products as well as services in order to make consumers trust and ignore actual progress in environmental stewardship. This issue emerges when firms are more concerned with image than real action, thus giving the public an unduly long period of sleep while more important environmental issues remain unsolved; it underlines the importance for advertising and traders to be held responsible for their green claims (Parguel et al., 2015). Sustainable and popular, green consumerism has become politically and economically legitimate. Nevertheless, new forms of 'greenwashing', which causes skepticism concerning the authenticity of the businesses' environmental declarations, has emerged (Kopnina, 2019; Santos et al., 2023). Misleading information degrades consumers' trust, weakens the likelihood of a purchase, and spreads negative message word-of-mouth, finally, leading to negative effects on a brand and the difficulty of recognition for truly environmentally friendly companies. In response, business organizations need to come out with truthful information as well as relevant statistics and accreditation, thereby recovering consumer's trust and retaining loyalty in the long-term (Leonidou & Skarmeas., 2015). By this, greenwashing could provide initial benefits to firms involved, through making fake eco-friendly claims and getting the attention of conscious consumers. But, in the long run, this harms the credibility of the market as a whole and the general consumers start question the legitimacy of the green claims. This crisis of trust reduces the potential for real sustainable products and confuses the picture for any honest manufacturer. In the end, greenwashing puts off long term earnings and purity of green market while frustrating the quest for other environmental objectives (Polonsky et al., 2010). Some of the researches have focused on the link between greenwashing, the goal of consuming in a circular manner, environmental issues and the effect of information on the environmental resources. Other research by Szilagyi et al. (2022) shows that environmental concerns play a crucial role when customers determine an institution's level of greenwashing. According to Zhang et al., (2018), greenwashing, has negative effects on the consumers' direct buying intension for the green products as well as the products which consumers recommend to others. In order to establish the hypotheses, the following statements made by (Pagiaslis &

Krontalis, 2014) are relevant: Environmental concerns had positive and direct effect on environmental awareness, environmental opinions, and environmental behavioral intentions.

In its research, TerraChoice Environmental Marketing established that greenwashing had emerged as a significant trend because it has grown to meet the increasing market needs of eco-conscious consumers. Since the public craze for eco-friendly products and services is rapidly rising, many firms, especially those that have not implemented environmentally friendly policies in their business, model their images green in order to access this profitable market niche. However, this trend does not benefit consumers, while simultaneously weakening the work of companies that actively seek to implement purely environmentally friendly initiatives. As awareness of the impact of products on the environment rises, green claims are sure to increase in the future as well unless there are even tougher regulations and more transparency in situations where deceptive claims are used (Dahl, 2010). TerraChoice Environmental Marketing., (2007) Seven Sins of Greenwashing presents a clear and exhaustive road-map in this regard. Every "sin" described above is a unique attempt by companies to manipulate consumers into buying more green products to gain a competitive share of the market, an act that complicates both the buyer's decision-making process and the credibility of sustainability information in the market. The following Sins are explained below:

1. The Sin of the Hidden Trade-Off: This happens when a company focuses on one sustainability factor of a product whilst disregarding the general impact it has on the environment. For instance, BP heavily invests in the green energy sources such as solar whereas only 4% of its energy mix of the energy it produces are green energy. According to the environmental group ClientEarth, BP misled consumers by using fake advertising that exaggerated BP's commitment to the fight against climate change; the group demanded more responsibility and clarity to avoid such practices and ensure the population's credibility in the words of companies on environmental issues (Robinson, 2022).

2. The Sin of No Proof: This is the practice of providing lit environmental claims that have no backing by concrete proof and or any third-party endorsement. For instance, in 2020, Ryanair start a promotion advertisement of the airline as the "lowest emissions airline" in Europe, creating a flashy message geared towards the ecological aware travelers. However, the airline did not present any substantiation data or evidence to

such assertion made and such situation questions the authenticity of the environmental statements made by the airline. Sceptics and environmental NGOs mainly accused Ryanair of 'greenwashing' intending to raise consumer perceptions of the company's environmental performance. It is a sign for companies to support their sustainability statements by solid numbers and an independent audit to keep the trust of consumers and to avoid actions from the authorities (Akepa, 2024).

3. The Sin of Vagueness: This sin stems from weak definition of certain terminologies that may mislead the consumers. For instance, Lipton Ice Tea used a claim of '100% Recycled' on their product, which reflected green washing and was a deceptive to the consumers. This underlines the propensity of which consumers attention has to be ensured for accuracy in environmental liability claims (Ormesher, 2022).

4. The Sin of Irrelevance: Organizations commit this sin by presenting information that, whilst not untrue, has no environmental impact at all. That is why advertising something as 'CFC-free' is meaningless since CFCs were pulled out of use decades ago. For instance, Coca-Cola Plant Bottle has been labeled as an environmentally friendly packaging material constructed from biopolymers although bioplastics cannot be fully deemed environmentally friendly because of the adverse effects of the biopolymers on the environment when they are manufactured. This give rise to greenwashing whereby the sustainability aspects associated with the product are likely to mislead consumers (Kempi, 2021).

5. The Sin of Lesser of Two Evils: It relates to making the public overlook the harm that a product causes through propping up a minor environmental advantage or benefit. For instance, in year 2019 McDonald's initiated the use of recyclable papers to help it minimize on the use of plastics affecting its image. However, these alternatives faced significant criticism for their sustainability challenges, such as high energy and water consumption in production and complications with recycling due to chemical coatings. Despite these concerns, McDonald's continued to use these paper alternatives, which raised doubts about the company's true commitment to sustainability. Critics argue that the shift was more focused on marketing and improving public perception than on addressing the deeper environmental issues associated with packaging. This situation exemplifies "greenwashing", where a company emphasizes environmentally friendly

changes that may not result in meaningful environmental benefits. For McDonald's to prove its commitment to sustainability, it would need to ensure that the materials it uses are genuinely environmentally friendly throughout their entire lifecycle, from production to disposal (Koons, 2024).

6. The Sin of Fibbing: This occurs when companies make blatantly false claims about the environmental attributes of their products. For example, H&M's clothing recycling campaign misled consumers by promoting a higher level of sustainability than was actually achieved, with less than 35% of the clothing being truly recycled. Consumers often believe that recycling clothing is entirely sustainable, but this overlooks broader environmental issues in the fast fashion industry, such as overproduction, waste, and resource depletion. This highlights the potential for greenwashing, where brands mislead consumers about their environmental impact without addressing the core problems (*Blog | Recycle Coach*, n.d.).

7. The Sin of Worshiping False Labels: This sin involves the use of misleading certifications or seals created by the company itself to give the illusion of third-party endorsement. Such practices confuse consumers and erode trust in legitimate certifications. For instance, Fiji Water faced legal suits because it used environmental packaging that gave a wrong impression that it was an environmentally superior water bottle in that it had cut emissions. In the filed lawsuit, it claimed that green marketing was false, indicating that the company was guilty of greenwashing by giving the customers a false impression of the firm's environmental impact without substantiated evidence. This best illustrates the problem of greenwashing in the bottled water trade (Riley, 2020).

In Pakistan, a vast majority of the population including even urban dwellers is often not aware of environmental issues, the definition of concepts like circular consumption, environmental concerns, green product knowledge as well as sustainable collection of information. This is one way through which consumers are easily manipulated by the incidents of green washing as the terms 'sustainable', 'carbon footprint' and 'eco-friendly' being in circulation are unknown to many folks. For instance, consumers lack awareness about circular consumption — the use of products that can be utilized again, recycled, or goes back to the loop. Likewise, most consumers lack adequate information of green products or even sources

of credible sustainable information hence lead unknown information. While the concept of sustainability education is largely low in Pakistan, and real information easily accessible, customers are forced to buy into persuasive advertising that's fails to convey true environmental effects of their purchases in the country. This research will also examine the extent to which such business and consumer obliviousness impacts consumer behavior.

1.2 Problem Statement

As much as we know today's business world is competitive, protecting the environment must be an important goal for any organization to succeed. Therefore, it appears that every firm organization is going green. As you shop for cleaning supplies, paper towels, makeup, light bulbs, and appliances, for instance, you will find earth-friendly options for most of the products out there. Some commodities show an environmental label, and others proclaim themselves as recycled or environmentally suitable. Some products even focus on making their packaging visually greener and more nature-inspired. This strategy is now widely used and has turned out to be an effective method to attract the consumers. It is quite an unsettling fact that some companies are in the business of making false claims about their products as well as their environmental benefits, but not all of such claims are true. Some companies are doing so in order to cheat their customers. That is why it is those not involved in so-called 'greenwashing' are the real supporters of environmental sustainability. The greenwashing method is divided into different types of "failures." How companies or products could be misleading depends on how claims are being abused. Likewise, the assertion could be vague, too confusing for the customer to comprehend, or can even be totally inaccurate.

It is a common thing in the current market to see organizations practicing greenwashing by deliberately misleading and making false statements in order to attract environmentally conscious consumers. The spread of social media created the problem of distinguished fact and fiction from which misleading statements on green products or circular consumption influence the purchasing decision. Some works have shown that greenwashing can cause the consumer confusion even discourage the development of the environmental products. As much as green products have become more important in terms of sustainability, and environmental concerns, research is still very limited in focusing on the patterns of consumer green product knowledge with both greenwashing and circular consumption. This research aims to address the gap of

green washing knowledge and how variables help us to reduce greenwashing affect towards circular consumption.

1.3 Research Questions

After reviewing and analyzing the findings previously available in the literature, the following research questions have been formulated in the context of Pakistani consumers:

1. How does greenwashing influence consumers' engagement in circular consumption?
2. How do environmental concerns, sustainable information collection, and green product knowledge influence the relationship between greenwashing and circular consumption?

1.4 Study Objectives

1. To examine the influence of greenwashing on consumers' engagement in circular consumption.
2. To investigate the roles of environmental concerns, sustainable information collection, and green product knowledge in shaping the relationship between greenwashing and circular consumption.

1.5 Significance of Study

This study is significant for several reasons. The first and foremost reason is that the problem chosen for research concerns greenwashing and its impact on consumer decisions which means that it exists in the realm of decision making that is environmentally friendly such as recycling and reusing objects. This is a process by which organizations give an immoral or misleading impression about their level of Corporate Social Responsibility to the environment. This results in confusion and hampers people’s ability to trust those companies or even the environmentally friendly products they sell. For those who are sincere to the environment and its conservation this can be times frustrating and evoking of discouragement. Consumers care about the environments but greenwashing undermines their ability to feel good about shopping. Such behaviors in this study are informed by greenwashing and other factors such as the concerns people have for the environment, availability of adequate information about green products, and their awareness of sustainable products. While in developed countries, many scholars have paid attention to the studies of greenwashing and the associated consequences,

there is a lack of research for greenwashing effects on circular consumption in the Pakistani context, particularly with regards to the perception of Pakistani consumers.

Researchers in developed countries have already explored greenwashing and its consequences while, to the best of the author's knowledge, previous studies conducted in Pakistan has not investigated the influence of greenwashing on circular consumption least of all from the consumer's perspective in Pakistan. This research comes as an attempt to fill this academic gap and investigate concrete trends in the area of sustainable consumption that is still developing, and where consumer awareness of greenwashing is not fully developed either. Since research in this area has not previously been conducted, specifically in emerging markets, this research is addressing this literature gap and offers a review of the factors that are particular to Pakistan's consumers. More precisely, it analyzes the impact of greenwashing on a rather novel phenomenon in the context of Pakistan – circular consumption. The findings of this study discuss the implication of environmentally sensitive concerns, sustainable information, and green product information for understanding circular consumption in Pakistan. The novelty of this research is in presenting recommendations specific to Pakistan, as well as enhancing the theoretical body of work on sustainable development (SD).

1.6 Scope of the Study

This study aims to explain how values of people, and their perception on environment affects their behavior to embrace green/circular consumption patterns. The target is to get detailed data about the consumers; their age, sex, occupation and place of domicile, their values and attitudes regarding environment, their understanding about green products, awareness about green-washing and sustainable information about the product. And from such elements, we envision an understanding about how they foster good practices, such as the recycling and reusing and the selection of green products. To gather such information, we created an online survey wherein participants had no restrictions on profession or background. Targets are university students, professors, employees from private and public companies, other professionals in order to have opinions of different kind. In order to get a clear view of how these aspects differ with regards to lifestyle and region, the survey was conducted on people from urban and rural Pakistan.

In this population sample of 300 participants, the study seeks to determine the participants' understanding of the concept of greenwashing and their attitude towards circular consumption. Through the collection of this information, we are confident to establish trends or characteristics that depict how factors such as environmental concern and sustainable product knowledge motivate the right consumption behavior. This understanding can help companies, policymakers, and educators create strategies to support genuine sustainable practices and improve trust in eco-friendly initiatives.

1.7 Study Outline

The literature review was presented in the second chapter of the thesis. This paper reviews relevant academic literature, discussing the most important concepts and definitions related to greenwashing and environmental issues, the collection of sustainable information, knowledge of green products, and circular consumption. In this regard, this chapter also underlines the gaps in the literature, helping readers understand the importance of this present research. The third chapter of the dissertation outlines the research approach. This chapter details the methodologies adopted in data collection and analysis. The subsequent sections of this chapter deal with research design, the instrument used to collect data, the sampling methods followed, and the data processing done.

Results and Discussion: This section, the fourth in sequence, presents results and discussion. We present results from data analysis and debate the findings. Presentation of results will be made using tables, graphs, or charts to ensure clarity of the results. The discussion part would give an interpretation to the results and do an analysis of meaning in relation to the study questions and hypotheses.

Conclusions and Recommendations would be presented at the fifth and last chapter of the dissertation. This would then present the main finding of the study, identify the assessment from the hypotheses of the research, and give an overall conclusion. We would like also to recommend areas where further research is jeopardized because of the limitations of the study; hence, suggesting avenues that could be carried out in the future.

CHAPTER II
LITERATURE REVIEW

This chapter explores the theory, definitions, concepts, and literature review on greenwashing, circular consumption and influence of other variables including environmental concerns, green product knowledge, sustainable information on greenwashing and circular consumption. Furthermore, it provides information on other variables and their mutual effect, as well as the connections between them. The author addresses in his work the assumption checking theories, theoretical framework, research models, and hypotheses.

2.1 Theories

2.1.1 Theory of Planned Behavior

Ajzen (1991) The Theory of Planned Behavior (TPB) is a social psychology theory that underpins the influences that affect individuals' intentions as well as their subsequent actions. It studies the role of attitudes, normative influence, and behavioral control into the behavioral pattern. According to this theory, someone's motivation to act in a particular way is regarded to be the most significant factor that determines whether or not they will actually do it. These intentions are shaped by three factors:

2.1.1.1 Attitude

This concept is all about determining whether a particular person's behavior is considered right or wrong. Emotions can be steered by expectations of receiving desirable outcomes as a result of behavior and estimates of whether receiving these outcomes have been achieved or not.

2.1.1.2 Personal beliefs and societal expectations

The social norm (subjective norm) concept presents the reflection that others may apply on an individual's actions or behavior. Individuals' views can be modified in a way based on how much determination they express while following their beliefs and how they interpret people's opinions about their actions.

2.1.1.3 Perceived behavioral Control is an important factor to consider.

This relates to the way individual can perceive the intensity or easiness of carrying a particular behavior. The influence on the perception of the factors that help or hinder behavior, along with the individual's ability to overcome these barriers, are primary determinants of perceived behavioral control.

Study shows the consumers' reaction to greenwashing and its impact on their intention to participate in circular consumption. It provides a better understanding of consumers' actions in a circular economy. The relationship can be seen by applying the Theory of Planned Behavior. This theory of greenwashing is aimed at revealing its effects on shaping public opinion, e.g., environmental issues. Not only this, it affects subjective norms which can be observed through people's gathering of sustainable information. Furthermore, it shapes perceived behavioral control that is reflected in circular consumption intentions. The study provides a deeper understanding of the contradicting situation where consumers tend to react to deceptive green practices by embracing sustainable behaviors to some degree. The results show that consumers are alerted and more concerned when they are misdirected in environmental marketing practices. Such doubts then shape their intention to participate in the sustainable consumption (DALLUS, 2023).

2.1.2 Norm Activation Theory

The Activation Norm Theory by Schwartz (1977), as discussed in Lopes et al. (2023), explores how norms, shaped by personal values, drive pro-social behaviors. This theory is particularly relevant when considering issues like greenwashing, as it helps explain how individuals react to such challenges. This theory consists of three variables: consequences boldness, the responsibility-consciousness and the personal norms. Thus, this theory fully matches when people can react to an issue, e.g., the greenwashing ploy, and the personal values can back them up, for instance, an individual's concern for the environment. Eventually, their actions, including seeking knowledge to promote sustainability, will come in line with this issue.

2.2 Variables

2.2.1 Greenwashing

The concept of "greenwashing" has its roots in "whitewashing," a term that denotes the act of concealing, masking, or camouflaging. The initial usage can be traced back to American environmentalist Jay Westerveld in 1986. Westerveld claims that hotels engage in greenwashing by encouraging consumers to reuse towels under a cloak of environmental concern; however, the underlying motivation appears to be profit rather than genuine care for the environment. Greenwashing refers to the practice of making "insincere, dubious, inflated, or misleading environmental claims" (Cherry & Sneirson, 2012). In recent times, green washing has been misused by some organizations to give a wrong impression about their products, initiatives or corporate activities falling under the green category and yet they do not actually meet the required environmental standards or norms (Lee et al., 2017). Greenwashed actions represent a form of strategic reputation management, wherein organizations render their odd practices.

Organizations may employ three components of deception: confusion, fronting, and posturing (Laufer, 2003). Confusion arises from complex forms, structures, and procedures within organizations. Organizations mitigate confusion by regulating and hindering the circulation of documents and information to regulatory bodies and legal authorities. Fronting encompasses the act of undermining the seriousness of the issue, revealing or disseminating overstated assertions, deploying visual marketing to imply an environmentally friendly connection, highlighting the ambiguities linked to the issue, recognizing the problem by scrutinizing existing organizations, and rebranding to distance from previous affiliations. The accomplishment is achieved via the representations of retained counsel, compliance officers, ethics officers, and ethics committees. Posturing involves the strategic use of "front groups" or coalitions to advocate for or against solutions or legislation, as well as to advance moderate "middle ground" positions. This includes utilizing data to imply that these front groups possess substantial public or grassroots backing, and leveraging them to analyse, define, and redefine industrial standards. Posturing aims to persuade both internal customers and external stakeholders regarding ethical conduct.

As an academic discipline, marketing's involvement in the greenwashing topic has been quite intense. (Contreras-Pacheco et al., 2018; Nyilasy et al., 2013; Szabo and Webster, 2020) tend to place core focus on consumers and the general public decision-making process. Moreover, this literature about green washing has highlighted the detrimental outcomes of such conduct, especially for the consumers (Chen & Chang, 2012; Nyilasy et al., 2013). Greenwashing is primarily implemented through communication media, particularly advertising. The literature on green marketing defines two categories of greenwashed advertising: claim greenwashing and executional greenwashing. It is asserted that greenwashing occurs through the employment of vague or debatable terminology, the creation of misleading assertions, and the strategic omission of essential information from claims (Kangun et al., 1991). In essence, the claim is that greenwashing represents "deception, omission of truth, or ambiguity in communication. At the same time, executional greenwashing involves the incorporation of nature-inspired elements in advertising, including the use of colours associated with nature (such as blue and green), perceived elements (like birds and ocean sounds), and illustrations of natural landscapes (such as mountains and forests) (Parguel et al., 2015). Thus, there was a noted surge in public interest regarding greenwashing as well as the magnitude of 'greenwashing' dialogues and research in recent times (Gatti et al., 2021). Consumers often don't buy goods from businesses which are associated to greenwashing, regretting getting involved in such practices due to it creating a negative perception of them. Greenwashing is a marketing strategy, which is employed to mislead consumers by portraying the products in a false light about their minor or no positive effect on the natural world (Setiawan, 2022).

Consumers can be quickly influenced to think they are making environmentally friendly decisions, as eco-friendly brands possess a distinctive capacity to trigger positive emotions. These brands frequently associate with principles like sustainability, ethical responsibility, and environmental stewardship, which strongly connect with consumers aiming to make a positive impact on the planet. Consequently, the acquisition of environmentally friendly products creates a sense of ethical fulfilment or personal integrity, thereby enhancing consumers' satisfaction with their decisions. This appeal, usually described as the 'feel good factor', creates a psychological payoff for brand loyalty The relative emotional attachment put consumers at the mercy of shameless practices such as willful misrepresentation of corporate environmental impact or 'greenwash'. Saying phrases like 'green' 'natural ', 'sustainable' and at the same

time using associated colors, logos or seals, organizations build a deceptive wall of green wash with no accountability. Many consumers believe these statements without questioning the authenticity of those claims on their own as people receive a psychological benefit from using environmentally friendly products which is greater than the amount of effort they need to invest in learning all the necessary details. This dynamic shows that the level of sense making rises to the level of emotion, thus making it possible for companies to capitalize on the divergence between perception and truth. For this reason, the consumer often ends up recommending herself/himself to products or practices that have minimum environmental benefits, believing they are making a significant positive impact (Hartmann & Ibáñez, 2006).

2.2.2 Circular Consumption

Circular consumption is sustainable consumption wherein the objective of the circular consumption system or network is to minimize waste and to maximize the utilization of resources in the way that keep product and material in the use of reuse, repair or recycle, or regenerate for as long as technically possible. The circular economy plays an important role within the reuse of the material value of used products, and in shaping a more sustainable form of consumption which is based on the reuse of resources and the minimization of waste production (MacArthur Ellen, 2013). The principle of circular economy is the approach to the economic growth that supplementing with the consumption of the necessary resources. It is centered on redesigning the process by which products are manufactured and utilized in order to minimize waste and much more effectively utilize resources. This strategy requires altering production procedures and modifying behavior, turning people into ‘reduce, reuse and recycle’ conformists and not ‘throwaway’ citizens. According to it, the goal is to develop a relatively stable model of sustainable development that would contribute to the environmental welfare and at the same time would not hinder economic growth (European Commission, 2014). Refurbishment is another light some strategy within the circular economy concept because of the possibility to retain a high original value. Collection and restoration of used products by a professional company is referred to as refurbishment. To the new consumers these products are sold after they have been restored to its functional and satisfactory state (Rathore et al., 2011). They suggest that further adoption of circular economy business models and sustainable business models enable shifts in production and consumption practices. Bocken., (2017) noted that these models are centered on sustainable process redesigns and changes for consumers’

buying circles. Such actions are activities like recycling and refurbishing of materials and components at the end use of products, or reducing the amounts of material and component scrap. With regard to this aspect, businesses and consumers can cooperate in deciding on the fate of products involve interests in making products last long and promoting recycling and reuse. It is typically associated with the concept of sustainable development which implies a constant search for ways to live fulfilling life without aggravating the problem of exhaustion of resources.

Sustainable consumption, therefore, is the consumption of goods and services meeting the need of consumers in a manner that is not detrimental due to resource extraction for production and usage of these products, (Cooper., 2013). It promotes moderation whereby people can use up products and services without exerting so much pressure on the natural resources within a given society, and within the innocent generations of people. The consumers are central to the circular economy because they determine its outcomes. The notion of circular consumption relates to the idea of circular economy and both refer to the strategies that are environmentally-friendly, aimed at minimizing the wastes that are produced and the decoy of instruments used and the use of the circular consumption pillars. It can therefore be far from certain that they are willing to buy into circular products, based on the fact that circular economy aims at redesigning the existing 'take-make-dispose' model by designing products that are used for as long as possible before being repaired, remanufactured or recycled (Gallaud & Laperche., 2016). The circular economy focuses on three main principles: three primary steps that we ought to collectively adopt into practices known as reduce, reuse, recycle or 3R. All these actions are used in the stages of production, distribution and consumption. The aim of sustainable manufacturing here advocated is to avoid waste, to preserve matter, and to derive as much utility out of matter as is feasible. These principles, as underlined by Ghisellini et al., (2016), are basic for a Circular economy (CE) because they stress the reclamation of value embedded in waste streams for their reintroduction into supply networks. This approach moves on from the widely practiced 'extract, manufacture, dispose' model and instead sustains materials in use at their highest utility and for as long as possible. With these aspects in mind, the circular economy goes beyond minimizing the impact on the environment while promoting a improved usage of resources balancing the concept where materials remain useful throughout their lifetimes.

The Reduce, reuse and recycle continuum is a cornerstone of circular economy where each component playing very essential role in controlling wastes and enhancing resource productivity. The reduce principle aims at the overall number of resources consumed throughout the utilization processes and during production. It underlines that efficiency should be increased in order to reduce loss and the negative output on the environment (Ghisellini et al., 2016). This approach is helpful in minimizing on the over use of resources and energy in the system hence making them sustainable. The reuse principle is aimed at using existing Material, products, or components several times for the identical function rather than disposal. This helps to minimize the number of products that need to be manufactured – the process which demands lots of resources including raw materials and power. The use of recycled parts is cost-effective and sustainable for the same reasons and there is no need to spend money on manufacturing (Castellani et al., 2015). The recycle principle one of the forms of usage of waste material where waste materials can be reused in their original form or in a new form for end use or for use in manufacturing or as parts. Recycling provides that the materials which would have been waste and chucked away will instead undergo a process to produce useful commodities. This decreases the requirement for new materials and contributes to the closing of resource loops in providing supply chains (European Parliament and the Council of the European Union., 2008). Collectively, these principles form the basis that waste and material that is generally considered as undesirable and valueless is actually a beneficial stream which can be redeployed in the economy. The circular economy is a model that organizes the valorizations of waste, which are materials that may be considered as waste, by turning them into new products; this model produces environmental, economic, and social values. Indeed, green supply chain management alleviates negative impacts of organizational actions on environment, opens up fresh opportunities for profit-making, and fosters improved quality of life (Hazen et al., 2017; Coderoni & Perito, 2020). This approach shows that circular economy hidden possibilities may avert the traditional ways through which goods are produced, consumed, and disposed.

Although the concepts of environmentally sustainable products are of interest to many consumers, they are not very definitive about actually incorporating the products into their daily purchases (Cronin et al., 2010). So, why does this gap exist? Studies reveal a number of factors that may explain the foregoing behavior. Certain consumers find greener consumer goods to be lacking certain desirable characteristics or attributes (Luchs et al., 2010), or assume

these products to be of inferior quality, performance or safety (Wang et al., 2018). However, there are options for circular consumption and despite that many consumers consider such options as inconvenient or not viable enough (Selvefors et al., 2019). Another key challenge for circular consumption is the apathy and unawareness which in turn affects the transition from linear operations and models and to circular ones (Kirchherr et al., 2018). As a result, it is also important to enhance the knowledge of citizens in regard to circular consumption practices. Consumer awareness of circularity has to be promoted alongside tackling existing concerns that relate to quality and availability of circular type products among others so as to increase take up rate to circular products among businesses.

2.2.3 Environmental Concerns

Environmental concern means the level of consciousness that a society or group of persons or an individual has for environmental challenges and the environment. Such apprehensions stem from becoming aware of anthropogenic influences, such as air and water pollution, emission of greenhouse gases, loss of forests and wildlife, global warming, environmental degradation and depletion of natural resources. Environmental issues embrace a very broad range of topics that relate to the sustenance and sustainability of systems and structural systems in the earth. It is something like environmental degradation, climate change, loss of species and their habitat; which impacts the biophysical environment and society in a rather large manner (Lopes et al., 2023). Self-initiated external consumer pressures are highly influential when customers have environmental awareness when purchasing environmentally sensitive products. In other words, Environmental concerns are about how much people appreciate the effect they produce on the earth (None & Datta, 2011). Such concerns include environmental topics such as the depletion of natural resources, environmental pollution, climatic change, and generally the sustainability of goods and services (Majeed et al., 2021). The study has also revealed the fact that environmental awareness and concern does translate into environmental activism in buying behavior. For example, Chen et al., (2022) established that consumers with ecological consciousness consider implementing green consumerism. In the same way, Lin & Syrgabayeva., (2016) established that those who are concerned about ecology are willing to get products that are a bit costly than others since they are environmentally friendly. This indicates that the so called ‘green’ consumers are willing not

only to make informed choices but also willing to spend on sustainable products (Dasgupta et al., 2023).

Environmental perceptions are positively related to the extent to which people are willing to engage in active endeavor or make numerous sacrifices for the environmental cause. If a person is concerned about an issue, then they are likely to engage in behaviors related to that issue — for instance, recycle, or purchase environment friendly products. Such attitudes make people more willing to make personal sacrifices that save the planet and the environment, for instance buying expensive environment friendly products or changing their lifestyle (Aldrich et al., 2006). According to the research, environmental concern is a crucial factor affecting the consumption pattern. People are much more likely to make decisions that are sustainable and healthier for the environment when they know about environmental problems and care for them deeply. This concern tends to push people into practicing behaviors that help them to minimize impacts on the environment (Minton & Rose, 1997; Roberts and Bacon, 1997). Studies demonstrate that educative approach towards environmental concern fails to prompt repeated ecological behavior ((Bang et al., 2000; Kollmuss and Agyeman, 2002; Poortinga et al., 2004; Wang, 2016). But recent research shows that it is no longer just the four people's issues, they have turned out to be global issues. Introducing themselves to the readers, the authors prove that people in different countries are concerned about the environment and willing to express it (Franzen & Vogl, 2013; Givens & Jorgenson, 2013; Hadler & Haller, 2011, 2013).

Environmental concern (EC) means the level of consciousness of the population in environmental problems and its readiness to resolve those problems (Dunlap and Jones, 2002). Out of these two aspects it has been considered as an essential factor that defines the propensity to engage in environmentally friendly practices of the kind like consumption. For instance, people believed that eating organic food is an environmentally protective behavior and a way of protecting ecology and being sustainable (De-Magistris & Gracia, 2016). Using data, it can be established that consumers high in EC exhibit more favorable or sustainable purchasing behaviors for example; frequent patronage of organic foods (Asif et al. 2017, Pham et al. 2018 and Molinillo et al. 2020), and willingness to pay a premium for green products because of social and health concerns (Birch et al., 2018). In addition to its own effects, EC also has interfacing effects with other variables that affect consumer behavior. It has been found to moderate other negatively framed environmental communications by making consumers feel

responsible or guilty: this makes them choose environmentally friendly products (Amatulli et al., 2017). Moreover, EC increases the effect of consumer values on the intention of buying sustainable products since the relationship is considerably enhanced when significant product characteristics pose values that are environmentally helpful (Kushwah et al., 2019; Asif et al., 2018).

So, in the context of greenwashing and circular consumption, EC has an incredibly important part. The media socializes consumers with the skills to debunk greenwashing messages and adjust consumption patterns according to unrecognized false environmental appeals. However, EC promotes behaviors associated with circular consumption in the manner of recycling, reusing, and minimizing their waste. These insights underscore importance of EC as a variable that is useful to consider when investigating how greenwashing distorts sustainable consumption.

2.2.4 Sustainable Information Collection

It can be defined as current and scientifically verified and tractable information and knowledge, and tractable intelligence in deliberate, specific pursuit of sustainable development goals and the future sustainable society. G. M. Gomes et al. (2022) revealed that consumers who consider environmental issues as important will enable circular consumption mechanisms. Rourke and Ringer, (2015) found that consumers do not react equally to sustainability information. Others are less concerned or even worse, they are less willing to purchase a product when it carries a "sustainable" label. However, consumers who are already committed to sustainability issues tend to engage with this information and incorporate it into their purchasing decisions. For these consumers, positive sustainability information—especially health-related details that appeal to personal benefits—significantly enhances their willingness to purchase. This highlights the importance of sustainable information collection, which involves gathering and disseminating clear, transparent data that helps these committed consumers make informed choices aligned with their values.

Sustainability labels have the capacity to influence consumers' purchase intentions and their willingness to pay (Aprile et al., 2012; De Magistris & Gracia, 2016; Ertz et al., 2017; Rossi & Rivetti, 2020; Vecchio & Annunziata, 2014; Testa et al., 2013; Potter et al., 2021; Feuβ et al., 2022; Duckworth et al., 2022); however, these labels cannot serve as a universal

mechanism to aid individuals in making more sustainable choices (Torma & Thøgersen, 2021). The differences in effectiveness can be attributed to several factors, including the characteristics of the label itself, the context of the purchase (e.g., Majer et al., 2022), the particular item in question, or the geographical context (e.g., Rousseau, 2015). Moreover, the attitude toward the environment (e.g. Bickart & Ruth, 2012; Siraj et al., 2022) as well as factors such as perceived knowledge, education level psychometric profile, gender, age, marital status, household size, income level (Peschel et al., 2016; Koistinen et al., 2013; de Magistris & Gracia, 2016). There is evidence that those consumers with higher education level tend to have higher perception about sustainability labels (Aprile & Punzo, 2022) and respond to sustainably labeled products as more 'virtuous' than those with low education levels (Mancini et al., 2017). Also, the use of labels can depend on the form of the labels, for instance the color of labels, the style of the text, the manner in which the label is configured and other types of labels as pointed out by (Rihn et al., 2019; Neumayr & Moosauer, 2021; Donato & Adıgüzel, 2022). Central to this assumption is consumers' knowledge of the claims on the label (Samant and Seo., 2016) as well as their trust in the label (Taufique et al., 2019; Taufique et al., 2017; D'Souza et al., 2019). The vast array of labels that characterizes the market and which has ill-defined and inconsistent criteria causes confusion (Brécard, 2014) as well as increases the cost of searching and the perceived risk when navigating this system, especially when faced with the phenomenon of "greenwashing." The proliferation of sustainability labels can amplify consumer uncertainty and confusion (Harbaugh et al., 2011), thereby producing a paradox: rather than diminishing information asymmetry, it can escalate doubt among consumers, producing negative responses (Sirieix et al., 2012; Engels et al., 2010) and making consumers wary of sustainability claims.

Marketing communication strategies development in the current complex and competitive global economy has been trailed with lots of hassles. It is important for organizations to compete more vigorously, meet higher levels of consumer expectations and report on matters more frequently. An effective organizational strategy is crucial in order to successfully progress towards organizational goals and possible risks. Ethical issues have become a major consideration when choosing products by most consumers due to the origin, manufacturing, and transportation of goods, besides overall social and environmental effects on the planet. Mitigating these concerns is central to establishing trust and, therefore, sustainable revenue growth (Auger et al., 2008; Shaw & Clarke, 1998). Sustainability labeling

for food products has a significant role for providing choices to the consumer and facilitating consumption for realizing sustainable food systems. However, Cook et al., (2023) in his research, revealed that Consumer understanding of sustainability information is still constrained and agencies this as a barrier to behavior change. Although such labeling can indeed influence attitudes and buying patterns in a certain way, the results derived from realistic consumer settings do not show such effects to be very strong. Furthermore, consumers are willing to pay a premium for sustainability labelled goods where global research reveals organic labels are the most rewarded. This underlines the need for enhancing the comprehensibility of the used labels and raising public awareness of them to the fullest extent. Consumers need specific and rich sustainability information to make purchase decisions consistent with their environmental attitudes. However, the current low level of transparency regarding product origin, supply chain, and production methods complicates this process. This increased opaqueness leads to suspicion and erodes customers' trust towards sustainability disclosures which are linked to greenwashing. Thus, IF SIC has goals that correlate to the organization of circular consumption, then companies and brands must declare clear and easy to understand sustainability metrics. Such action not only entitles 'green' consumer action but also promotes sustainable consumption decision abroad the line of circular economies to minimize the environmental effects based on (Marucheck et al., 2011; Roth et al., 2008).

2.2.5 Green Product Knowledge

Green product awareness is consumer awareness of the environmental characteristics of goods and the effects of the green products on the environment (Wang et al., 2019). Lack of information among consumers may create a gap between stated attitude and behavior in as much as green products are concerned. Green products, alternatively referred to as environmentally friendly products, are products that are manufactured with the most negligible impact on the environment. Consumers who are knowledgeable about green products prefer the ecologically friendly products more than their opposite (Ahmed et al., 2020).

An insight on the consumers' environmental knowledge is relevant in grasping and hence encouraging knowledge on green products. It reveals their understanding about the consequences of their decisions regarding the environment, which is very important in support of consumer responsible behaviours (Fryxell and Lo., 2003). This knowledge helps conquer consumer perceptibility in green products, thus has an impact on the consumers' attitude and

behaviour towards green consumerism (Yadav and Pathak., 2016). Informed consumers are more likely to trust brands that genuinely engage in sustainable practices. Knowledge of this sort can not only facilitate environmentally sound choices, but also help fill the gap between people's concern for the environment on the one hand, and consumer behaviour on the other (Ajzen, 1991). As such, green product knowledge emerges as an essential determinant of favourable attitude and purchase intention regarding the firm's sustainable initiatives and environmental responsibility (Han et al., 2009).

2.3 Hypothesis Development

2.3.1 Greenwashing and Circular Consumption

There is a noticeable discrepancy between the amount of greenwashing talk and quantifiable actions right now (Santos et al., 2023). Greenwashing is the craft of actors camouflaging their unethical policies towards environment in favor of consumers who may purchase their products without being aware of the tall remaining tales (Netto et al., 2020). Meanwhile, too much of greenwashing is direct and insincere corporate social responsibility which adversely affects consumers and society in the long run (Yang et al., 2020).

Some of the researchers presented papers that analyzed the role of greenwashing in issues such as environmental problem and matter of circular consumption (Santos et al., 2023; De Jong et al., 2019; Ha et al., 2022). Research suggests that consumer perception of greenwashing practices can have a negative impact, both directly and indirectly (Santos et al., 2023; Jog & Singhal, 2020). The personal beliefs that pollute company greenwashing manifest themselves in the votes, which ultimately translates into sustainable behaviors amongst individuals (De Jong et al., 2019). Actually, this attitude carries over to the consumers of these companies who have a high level of concern to the environment because of greenwashing behaviors. The happen of it, in this case, leads to such behavior as referring to circular consumption. So, it is not that easy to link greenwashing with circular purchase intention. Sometimes consumers interpret this connection within the context of their environmental worries or separately from that (Zhang et al., 2018; (Sun & Shi, 2022). A research work by Braga et al. (2019), it was discovered that the greenwashing product loses its capacity to produce consumer loyalty, satisfaction, along with benefits perceived by the consumer as mentioned in the report. Instead of a guide or a helper, it is a sort of basis of bewilderment.

Another study by Bulut et al. (2021) revealed that seeing through greenwashing can diminish the power of environmental education in taking sustainable actions. The results of Zhang et al. (2018) study denoted that greenwashing was one of the facets in environmental purchasing behavior, and consumers perceiving this product type would become less inclined to make eco-friendly post-consumption decisions. Additionally, it was observed that this perception also indirectly affects consumers' willingness to spread positive word of mouth about green products. In addition, the practice of greenwashing may destroy trust in companies and their environmental claims, resulting in detrimental effects on the company's reputation and sales (Ha et al., 2022).

1. H1: Consumers who believe that the majority of companies engage in greenwashing practices may have a significant impact on circular consumption.
2. H2: Customers who believe that most businesses engage in 'greenwashing' may exhibit a significant variation in their level of concern about the environment.
3. H2a: Individuals who believe that many companies engage in deceptive environmental practices may exhibit a significant variation in their likelihood to prioritize sustainable consumption, influenced by their genuine environmental concerns.

As consumers become increasingly aware of environmental issues, some companies turn to misleading tactics by making exaggerated and false claims about their environmental practices (Netto et al., 2020). This unethical practice has become more prevalent, with far-reaching negative consequences for stakeholders, particularly consumers (Santos et al., 2023). Hence, those people who have the feeling that many firms have this ruling often end up researching more about the environment and its resources (Nguyen et al., 2019). Companies need to guarantee that the pertinent and true information is given to the consumers who are environmentally minded in order maintain consumer support.

Green voting can destroy the reliability between companies and customers who take part in circular consumption. If the trustworthiness of statements that indicate being environment friendly is doubtful, it might even reduce the interest customers want to play a role in waste reduction and resource recovery (Ha et al., 2022). It is worth emphasizing that when companies are transparent about their environmental standards; Green-Society will develop and, most probably, the consumers will be inclined to utilizing circular pattern of consumption. The subject of the capitalized academic research by De Freitas Netto et al. (2020) touched on an

alarming portrait of resource use given the greenwashing practice being a widely held one. Accordingly, research on the key motifs and consequences of greenwashing was performed, contributing to a shift on the emphasis put on the reliability and transparency of the methods used for describing environmental substances (Netto et al., 2020; De Jong et al., 2019)

Beyond that, the consumer will also be well-informed on environmental matters which in return will necessitate timely and transparent details about the use of natural resources (Yildirim, 2023). According to Leonidou and Skarmeas (2015), people who get the greenwashing of a company informed often are looking for other resources to verify and this perfectness of their practices, not being deceived. Testa et al. (2020) ascertains that if the clients are aware of the greenwashing hence, they become more interested in the green quality product features and services. In this manner, it contributes to the reduction of the negative effects which such technologies of logging have on the consumption of products with circular values. The greenwashing actions of companies can guide people's choice for circular consumption, now it is an active duty to peruse desirable promotional information. Furthermore, tests can be very distressful for students, feeling pressured, anxious and discontented (Testa et al., 2013).

4. H3: Consumers who believe that many companies engage in misleading environmental practices may show a significant interest in seeking further information about environmental resources.
5. H3a: Consumers who believe that many companies engage in deceptive environmental practices may exhibit significant variations in their intention to engage in circular consumption, influenced by their desire to gather information about environmental resources.

2.3.2 Environmental Concern in Circular Consumption

Environmental consciousness (EC) is a criterion for an individual who cares and deals with environmental issues depicting environmental conservation and conservation efforts (Moser, 2016). Purposeful, positive environment protection is the reason people's pro-environmental behavior is manifested as people's desire of protecting the environment is strong (McCarty & Shrum, 2001). Research's results have demonstrated that eco-conscious consumers' attention to the environment can work positively in influencing them to pay

premium price for the environmentally-friendly products (Kotchen & Reiling, 2000; (Bang et al., 2000; (Van Doorn & Verhoef, 2011). Circular economy model is looking at devising more productive and consumption patterns that will see a reduction of waste generation and resource effectiveness (Camacho-Otero et al., 2018). The emerging environmental concerns and circular demand for consumption are two current conceptual fields which are closest linked to the cause of this rational effort. The circular consumption intention of consumers is directly connected with their involvement in activity having a good influence on the circular economy for instance, reselling stuff, repairing items or recycling (De Los M Santos -Corrada et al., 2023). The focus of ecological issues is the degree someone's eco-anxiety is escalated as a result of the destruction they are caused to the environment.

Numerous scholars have shown that one's environmental views may impact the willingness to adopt circular habits (Szilagyi et al., 2022; Prados-Peña et al., 2022). Individuals who prioritize environmental sustainability are more inclined to engage in circular consumption (Szilagyi et al., 2022). A study has been published recently by Prados-Peña et al. (2022) showed that the consumer's awareness should be taken into account to achieve an organized consumption which also helps resolve environmental problems. As for another study by Camacho-Otero et al. (2018) it was established that circular consumption and sustainable consumption are linked very closely, circular economy being the man-made way to create harmony with the environment.

Different studies about consumers' behavior to circular economy on the other hand address the issues of green purchase intention, for example, ecological attitude (Bigliardi et al., 2022; Zhuang et al., 2021). In the study by Szilagyi et al. (2022) indicated in their study that a model synthesizing environmental protection factors when purchasing circular products should be implemented. Research by Bigliardi et al. (2022) showed that many green-minded people consider buying refurbished phones that are exposed to environmental conditions to be more responsible, and show such willingness. Because of that, it can be understood how environmental consideration play an important role in consumers' proactivity toward circular consumption.

6. H4: Customers who prioritize environmental sustainability may have a tendency towards circular consumption.

2.3.2 Gather Sustainable Information of Eco-friendly Resources in Circular Consumption

The respective authorities should allow the consumers who would like to participate in the circular economy mode to have adequate information about their impact on the environment at this stage. This task is done by minimizing wastage and making use of resources by changing methods of manufacturing and ways of using products which are (Camacho-Otero et al., 2018). There has been evidence that consumers are moved to circular consumption patterns if they come across additional information pointing to negative environmental effects of their consumption decisions (Szilagyi et al., 2022; De Los M Santos -Corrada et al., 2023). Thus, assuming good understand on the part of environmental resources, the circular economy can be publicized posited with good certainty. And the results also highlight that people who provided a higher importance to the factor of environmental concern are the ones who are involved in circular consumption role (G. M. Gomes et al., 2022). The following researchers, (Borrello et al., 2017; Da Silva Duarte et al., 2021; Hebrok and Boks, 2017; Aschemann-Witzel et al., 2015), also pointed the advantages of public involvement in waste minimization and the promotion. Hence, it provides confirmation of the importance of consumers' environmental concerns in circular tendencies in which consumers are involved into. Gaining trustful and quality data for environmental resources can be quite crucial in influencing the buying of the sustainable nature. It was established that people, who are actively seeking green info will be more likely to start the consumption of circular product (Camacho-Otero et al., 2018; Szilagyi et al., 2022; Testa et al., 2020; De Los M Santos -Corrada et al., 2023; G. M. Gomes et al., 2022; Berki-Kiss & Menrad., 2022).

Besides this, these research findings also bring out the rise in the sales of circular products among those consumers who prefer to choose from products that are offered in the line with environmental-oriented features. From the importance side, the right of environmental information available for all is recognized as a strategic approach to the promotion of circular consumption mindset.

7. H5: Consumers who seek information about environmental resources may exhibit significant differences in their intention to engage in circular consumption.

8. H6: Consumers who have Green Product Knowledge may have a significant difference in their attitude toward circular consumption, which could influence the impact of greenwashing.

As a result, consumers who possess green product knowledge are more relevant in assessing the environmental claims made by the firms. In the study done by Ahmad & Zhang (2020), social communication and positive eco-driven word-of-mouth can be powerful which have a role in consumer attitude about sustainable consumption. This increases the credibility of environmental claims and reduces the critiques of consumers falling for bad-faith 'Greenwashing' and then choosing products with falsely presented claims of environmental sensitivity. Thus, green product knowledge forms a virtuous circle between greenwashing and going circular consumption because consumers are equipped to respond appropriately to disinformation.

2.4 Conceptual Framework

This paper integrates the Theory of Planned Behavior (TPB) and the Norm Activation Theory (NAT) to examine the relationships between greenwashing (GW), environmental concern (EC), sustainable information collection (SIC), green product knowledge (GPK), and circular consumption (CC). In this model, greenwashing (IV) affects circular consumption (DV) both directly and indirectly through the mediating roles of environmental concern and sustainable information collection. According to TPB, behavioral intention is shaped by attitude, subjective norms, and perceived behavioral control. Greenwashing influences attitudes via environmental concern and norms through sustainable information collection, ultimately shaping circular consumption intentions. Green product knowledge serves as a moderator, enhancing consumer confidence and mitigating the negative effects of greenwashing by enabling informed, sustainable choices. NAT complements this framework by demonstrating how awareness of greenwashing activates pro-environmental values, which, in combination with sustainable information collection, promote positive behavioral outcomes. This integrated approach underscores how these variables collectively drive sustainable consumption behaviors.

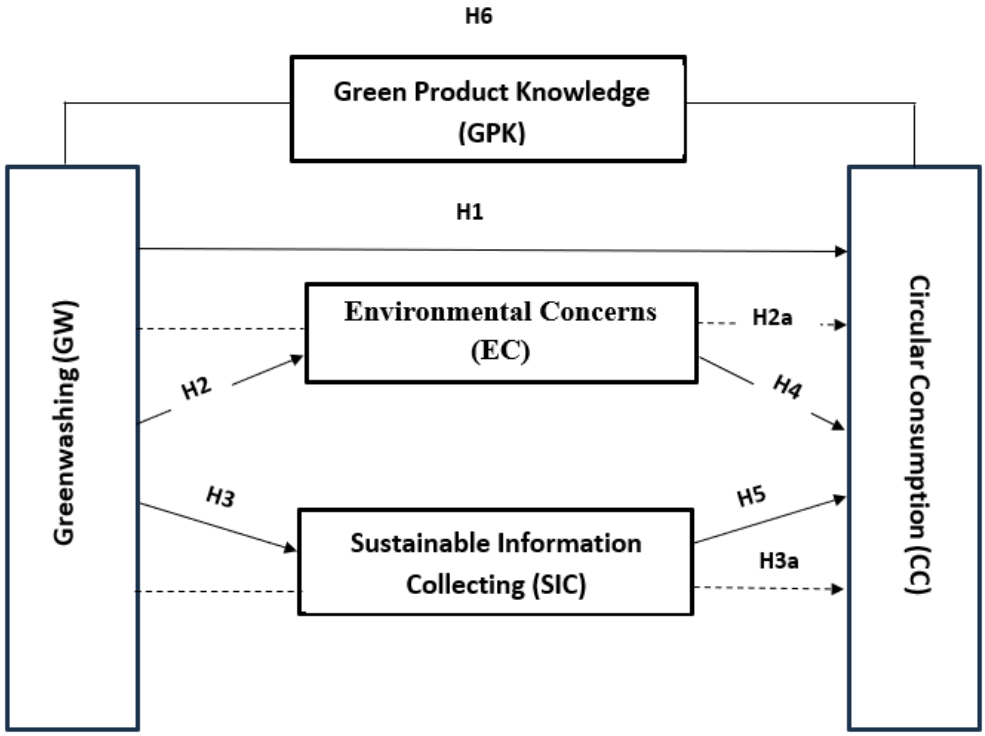


Figure 2. 1. Research model

Note: direct effects (⟶); indirect effects (- - ▶)

CHAPTER III
RESEARCH METHODOLOGY

The methodology employed in this research study is outlined below:

3.1 Population and Sample Size

The target of the study is Population of Pakistani citizens of 18 years and above; which can be selected from different groups from the population in terms of socioeconomic status. The sample will be collected only by using the questionnaires distributed through popular social networks. The purpose of this method is to obtain participants from all ages, occupations, educational backgrounds, and locations throughout Pakistan. Hence the use of web-based tools in the study, makes it possible to reach the targeted participants as well as cover a wider population hence giving the study a broader sample that contains a variety of views. This approach also improves the efficiency of data collection while making a balance between the participants in both urban and rural setting and people with different levels of education and workforce experience.

3.2 Sampling Methodology

Convenience sampling technique was adopted for this study because it helps to get a large number of participants within the shortest time possible. As survey will be conducted through social media platforms and through emails, it is fast way to reach out to a lot of people belonging to different age groups, professions, educational standards and residing in any part of Pakistan. Convenience sampling is particularly suitable in this case because it allows the researcher to reach participants who are readily available and willing to respond, making it a cost-effective and time-efficient approach.

3.3 Indicator Used and Measured

This study will use a total of 18 indicators Distributed across four constructs:

1. Greenwashing (GW): 4 Indicators
2. Circular consumption (CC): 4 indicators
3. Sustainable information collecting (SIC): 3 Indicators

4. Environmental Concerns (EC): 4 Indicators
5. Green Product Knowledge (GPK): 3 Indicator

These indicators will be measured through Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The **sample size** will comprise **300** randomly selected consumers**.**

The data for this study were collected through a Google Form Questionnaire, which was distributed across two social platforms: LinkedIn and WhatsApp. These platforms were selected to ensure a diverse and representative sample of respondents. We collected the data through the use of LinkedIn and WhatsApp. LinkedIn was selected due to the fact that it is a professional area where we managed to spread people who represent other industries and sectors. WhatsApp, on the other hand, helped to reach a larger audience using personal acquaintances and various group chats.

The survey lasted two months; February-March 2025. This allowed sufficient time to react and we also made various reminders so that we could raise the number of participants. The survey has been also sent out on the work-related forums and in individual conversations on both platforms. Such a strategy allowed us to achieve a range of people in terms of their ages, employment history, and geographical location.

The survey involved questions regarding the respondent perceptions of greenwashing as well as the perceptions influence their approach to circular consumption in everyday life. Only fully completed responses were considered for analysis to ensure the reliability and consistency of the data. Ethical considerations were prioritized throughout the data collection process. Respondents were assured of the confidentiality of their responses, which were anonymized to protect their privacy. Participation was entirely voluntary, with respondents fully informed about the study's purpose and reassured that their responses would be used exclusively for academic research.

3.3.1 Variables

1. Greenwashing: Independent Variable (IV)
2. Circular consumption: Dependent Variable (DV)SS
3. Sustainable information collection: Mediator
4. Environmental Concerns**:** Mediator

5. Green Product Knowledge**:** Moderator

3.4 Data Analysis Method

The data collected was analysed by data analysis techniques. As this study was quantitative, SPSS (statistical package of social sciences) was used for descriptive statistics and correlation analysis along with PLS 3 (partial least square) for SEM (structural equation modelling), boot strapping, regression, mediation, moderation, normality and further analyses, discussions and conclusions.

In (SEM) structural equation modelling, two models are included; measurement and structural model. Measurement model indicates the relations between variables and indictor constructs, known as outer models in PLS-SEM. In this model, loadings, Cronbach alpha, composite reliability and average variance extracted (AVE) were observed. They all represented the validity and reliability of the constructs. The Cronbach's Alpha value must be 0.7 (Hair JR. et al., 2010) or above and for composite reliability, it must be in between 0.6 and 0.7 or greater than 0.7 (Fornell & Larcker, 1981). The AVE value must be equal to 0.5 or greater (Henseler et al., 2016). The value of loadings must be 0.7 or greater as it shows that items of one variable are correlated with each other highly and not with other variables' items. In structural model, the relationships between latent variables were described. In this model, path coefficients, T-values, P-values, Beta values and R^2 were included. They showed that whether relationships between variables and constructs were positive or negative, significant or insignificant. The correlation's value ranges from -1 to +1 showing positive (strong or weak), negative (strong or weak) or no correlation. Descriptive statistics included frequencies, mean, standard deviation, kurtosis and skewness of the data.

3.5 Construct Operationalization

Table 3. 1 Variables Definition

Component	**Definition**	**Indicator**	**Source**
Greenwashing	Greenwashing refers to deceptive practices where companies convey a false	**GW1** - Most companies use misleading words	**Def. source:**

	or exaggerated impression of their products, services, or policies being environmentally friendly.	about the environmental characteristics of their products. **GW2** - Most companies use misleading images or graphics about the environmental characteristics of their products. **GW3** - Most companies provide vague or seemingly improbable environmental claims for their products. **GW4** - Most companies leave out or hide important information about the actual environmental characteristics of their products.	(TerraChoice Environmental Marketing, 2007) **Indicator/ Questions Source:** (Lopes et al., 2023)
Circular Consumption	A sustainable consumption model where consumers prioritize sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and	**CC1** - I buy organic products. **CC2** - I buy recycled products. **CC4** - I try to fix things before buying	**Def. Source:** (*Report on the Implementation of the Circular Economy Action Plan*, n.d.)

	products for as long as possible, thereby extending their lifecycle and reducing waste generation.	replacement parts of anything. **CC5** - I use recharge products (e.g. batteries, refillable containers, etc). **CC6** - I do not buy unnecessary products	**Indicator/ Questions Source:** (Lopes et al., 2023)
Sustainable information collection	The systematic acquisition and evaluation of environmental and social information about products and services to ensure informed, ethical, and eco-friendly decision-making by consumers and organizations.	**SIC1** - I would like to seek more information on the environmental attributes of products (e.g. performance, design, packaging characteristics). **SIC2** - I would like information about the environmental attributes of products from additional sources (e.g. websites, newsgroups, friends). **SIC3** - I would like to carefully review all information about the environmental attributes of products and their packaging	**Def. Source:** (S. Wang & Su, 2022) **Indicator/ Questions Source:** (Lopes et al., 2023)

		(eg eco-labels, certifications, recyclability, recycled content	
Environmental Concerns	The degree to which individuals prioritize environmental protection over other personal or social goals, reflecting their connection to nature and responsibility toward its preservation	**EC1** - I am concerned about the consumption of natural resources and the consequences for generations. **EC2** - Waste of resources is a serious problem. **EC3** - In our country we are not doing enough to encourage waste recycling. **EC4** - Protecting the natural environment is one of the most important issues facing the world.	**Def Source:** (Schultz, 2001) **Indicator/ Questions Source:** (Lopes et al., 2023)
Green Product Knowledge	Green Product Knowledge is consumers' awareness of a product's environmental attributes, such as sustainability, recyclability, and energy efficiency, which influences them to make more eco-friendly purchasing choices.	**GPK1** - I know products that use an environmentally friendly concept. **GPK2** - When I buy environmentally friendly products, I know information about the product.	**Def Source:** (K. Chen & Deng, 2016) **Indicator/ Questions Source:**

		GPK3 - I trust the authoritative agencies when identifying environmentally friendly products	(K. Chen & Deng, 2016)

3.6 Pilot Study

This pilot study was conducted to check if the questionnaire for the research titled "Examining Greenwashing's Impact on Circular Consumption: Role of Environmental Concerns, Sustainable Information, and Green Product Knowledge"* is reliable and effective. The main goal was to ensure that the questions used to measure the different aspects of the study—like Greenwashing, Circular Consumption, Environmental Concerns, Sustainable Information, and Green Product Knowledge—are clear and consistent. Confirmatory factor analysis (CFA) was conducted in Smart PLS 3, PLS Algorithm to evaluate the measurement model. To do this, we tested the internal consistency of the questions using two common methods: Cronbach's alpha (α) and Composite Reliability (CR).

The study aimed to see if the questionnaire items worked well together, to spot any confusing or unclear questions, and to make sure each concept was properly represented. We obtained data from 84 participants using convenience sampling technique. Such participants of the program the authors characterized as students, professionals, and consumers, who had certain knowledge of environmental problems and concern with sustainable development. The questionnaire was completed using Google Forms as an interface to make the questionnaire easily accessible. The purpose of the study and participant's anonymity were explained before the participants were asked to respond. It had 5 sections corresponding to the 5 major issues described above and each section contained 3-5 statements. Respondents scaled the above statements on 5 point Likert scale using labels: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree. These were derived from previous studies but were slightly tailored to fit this study context in Pakistan. The benchmark values for Cronbach alpha, composite reliability and AVE are 0.7, 0.7 and 0.5 respectively (Fornell & Larcker, 1981). The

test for reliability demonstrated that all parts of the questionnaire were coherent. Intersections of the sections from Cronbach's alpha were all above 0.70 that is ideal for reliability.

Similarly, Composite Reliability values were also above 0.70, confirming that the questions in each section worked well together. For example, the Greenwashing section had a Cronbach's alpha of 0.868, CR of 0.879 and AVE of 0.718. Other sections, like Circular Consumption had Cronbach's alpha of 0.720, and CR of 0.722 but AVE is 0.468 which is < 0.5, its acceptable because according to (Fornell & Larcker, 1981). Environmental Concerns, Sustainable Information, and Green Product Knowledge, also showed strong reliability, with Cronbach's alpha and CR values ranging from 0.72 to 0.89.

Table 3. 2 Pilot Study Results

	Cronbach's Alpha	**Composite Reliability**	**Average Variance Extracted (AVE)**
GW	0.868	0.879	0.718
CC	0.720	0.722	0.468
EC	0.751	0.806	0.573
SIC	0.873	0.892	0.796
GPK	0.754	0.842	0.656

The results suggest that the questionnaire is suitable for use in the main study. Participants did not report any major issues with the questions. However, based on some feedback, minor adjustments can be made to improve clarity further. Overall, the study confirms that the questionnaire is reliable and ready to be used, with just a few small changes.

3.7 Research Ethics

Ethical considerations are paramount in conducting research and data collection. Upholding ethical principles fosters respect, support, and trust among participants. The researcher's role primarily entails distributing the questionnaire and providing guidance on its completion, ensuring minimal interference.

Participants have the right to be informed about the research's purpose and benefits for themselves and their industries. They reserve the right to refuse participation if they so choose. Confidentiality of responses and participant information is imperative, with meticulous records maintained throughout data collection, interpretation, and analysis.

Decisions and conclusions must be reached ethically, with due regard for the well-being of participants. Ethical principles were also followed in the course of this study. The responses and the information of the participants were handled in a manner that ensured confidentiality and no harm or misdirection on the participants was meted out. The researcher only participated in distributing the questionnaire and one could withdraw at any given time during the course of the research.

CHAPTER IV
DATA ANALYSIS

This research was guided by two central questions:

1. How does greenwashing influence consumers' engagement in circular consumption?

2. How do environmental concerns, sustainable information collection, and green product knowledge influence the relationship between greenwashing and circular consumption?

To answer these questions, this chapter presents the findings derived from statistical analysis conducted using SmartPLS and SPSS. Various analytical techniques were applied, including descriptive statistics, correlation analysis, validity and reliability tests, PLS algorithm, and bootstrapping procedures. The Partial Least Squares Structural Equation Modeling (PLS-SEM) approach was purposefully chosen for its ability to model complex relationships involving multiple constructs simultaneously. This is particularly valuable in behavioral research, where theoretical models often include several independent, mediating, and moderating variables. The use of PLS-SEM enabled a more comprehensive understanding of the structural relationships among greenwashing, environmental concern, sustainable information collection, green product knowledge, and circular consumption.

The chapter is organized to first present the demographic and descriptive data, followed by the results of measurement and structural model assessments. Each section links back to the research questions, providing a clear pathway from data to interpretation.

4.1 Response Rate

The current study is quantitative in nature as well as cross-sectional and deductive i.e. data collection is done via questionnaire. 421 is the sample size of current study which includes the employees and students from different companies and universities of Pakistan. Among these 421 responses, 62.9% were male respondents and 37.1% were female respondents.

4.2 Descriptive Analysis

Descriptive analysis has been done in SPSS. It includes the descriptive statistics of gender, age, education, area, student employee ratio, monthly income, and variables of the study.

4.2.1 Descriptive Analysis of Gender

In this survey data collection, both male and female employees were included. 62.9% were male respondents who took part in survey i.e. number of males is 265, whereas 37.1% were female employees i.e. number of females is 156. Gender statistics is given below

Table 4. 1 Descriptive Analysis of Gender

Gender	Frequency	Percent	Valid percent	Cumulative percent
Male (1)	265	62.9	62.9	62.9
Female (2)	156	37.1	37.1	100.0
Total	421	100.0	100.0	

4.2.2 Descriptive Analysis of Age

All the employees/respondents belonged to different age categories. Among 421 respondents, 35.2% respondents fell in to range of 18-24 years i.e. 148 respondents, 46.3% respondents fell in to the range of 25-34 years i.e. 195 respondents, 12.4% respondents fell in to the range of 35-44 years i.e.52 respondents, 3.8% respondents feel in to the range of 45-54 years i.e. 16 respondents and remaining 2.4% respondents belonged to the age group of 51 years or above i.e. 10 respondents. Age statistics is given below:

Table 4. 2 Descriptive Analysis of Age

Age	Frequency	Percent	Valid percent	Cumulative percent
18-24 (1)	148	35.2	35.2	35.2
25-34 (2)	195	46.3	46.3	81.5
35-44 (3)	52	12.4	12.4	93.8
45-54 (4)	16	3.8	3.8	97.6

55 or above (5)	10	2.4	2.4	100.0
Total	421	100.0	100.0	

4.2.3 Descriptive Analysis of Area

All the respondents belonged to different areas. Among 421 respondents, 81.7% respondents belong to urban area i.e. 344 respondents, and 18.3% respondents belonged to rural area i.e. 77 respondents. Area statistics is given below:

Table 4. 3 Descriptive Analysis of Area

Area	Frequency	Percent	Valid percent	Cumulative percent
Urban (1)	344	81.7	81.7	81.7
Rural (2)	77	18.3	18.3	100.0
Total	421	100.0	100.0	

4.2.4 Descriptive Analysis of Student – Employee Ratio

Among 421 respondents, 35.9% respondents were students i.e. 151 respondents, and 64.1% respondents were employees i.e. 270 respondents. Student and employee ratio statistics is given below:

Table 4. 4 Descriptive Analysis of Student- Employee ratio

Std. – Emp.	Frequency	Percent	Valid percent	Cumulative percent
Student (1)	151	35.9	35.9	35.9
Employee (2)	270	64.1	64.1	100.0
Total	421	100.0	100.0	

4.2.5 Descriptive Analysis of Education

The 421 respondents of the study had different qualification/education levels. There were 17 respondents i.e. 4.0% respondents, who had done high school or equivalent, 194 respondents i.e. 46.1% respondents, who had done bachelors, 202 respondents with masters i.e. 48.0% and 8 respondents with PhD i.e. 1.9% of all respondents. Education statistics is given below.

Table 4. 5 Descriptive Analysis of Education

Education	Frequency	Percent	Valid percent	Cumulative percent
High school or equivalent (1)	17	4.0	4.0	4.0
Bachelors (2)	194	46.1	46.1	50.1
Masters (3)	202	48.0	48.0	98.1
PhD (4)	8	1.9	1.9	100.0
Total	421	100.0	100.0	

4.2.6 Descriptive Analysis of Monthly Income

The 421 respondents of the study had different monthly income levels in PKR. There were 98 respondents i.e. 23.3% respondents, who had below 25000 income, 52 respondents i.e. 12.4% respondents feel into the range of 25000 - 49999, 72 respondents i.e. 17.1% respondents fell into 50000 – 74999, 44 respondents i.e. 10.5% respondents feel into range of 75000 – 99999 and 155 respondents i.e. 36.8% respondents were in the range of 100000 and above. Monthly income statistics is given below:

Table 4. 6 Descriptive Analysis of Monthly Income

Monthly Income	Frequency	Percent	Valid percent	Cumulative percent
Below 25000 (1)	98	23.3	23.3	23.3
25000 – 49999 (2)	52	12.4	12.4	35.6
50000 – 74999 (3)	72	17.1	17.1	52.7
75000 – 99999 (4)	44	10.5	10.5	63.2
100000 or above (5)	155	36.8	36.8	100.0
Total	421	100.0	100.0	

4.3 Correlation Analysis

Correlation is a technique, a statistical relationship between variables either causal or not, used for the measurement of strength between variables. It has been done in SPSS. The threshold value of correlation is from -1 to +1. The negative sign indicates that the relationship between variables is negative or inverse i.e. increase in one variable and decrease in the other variable, whereas positive sign indicates a positive or direct relationship between variables i.e. increase or decrease in both at same time. The value of correlation near to 1 shows a high correlation whereas value of correlation below 0.3 shows a low correlation and value between 0.3 and 0.5 shows moderate correlation between variables. The correlation analysis is given in the table below.

The value of correlation between EC and GW is (r=0.451) showing a moderate correlation. The correlation between EC and CC is (r=0.383) showing a moderate to high correlation whereas correlation between EC and SIC is (r=0.282) showing low correlation. The correlation between EC and GPK is (r=0.242) showing a weak/low correlation. The correlation between GW and CC is (r=0.345) showing moderate correlation whereas GW and SIC shows (r=0.418), and GW and GPK correlation is (r=.472), both relations indicate moderate correlation.

The correlation between CC and SIC is (r=0.328) showing moderate correlation, whereas CC and GPK shows (r=0.230) means a low correlation. Lastly, SIC and GPK shows (r=0.426) indicating Moderate correlation. Furthermore, all the correlations are positive.

Table 4. 7 Correlation Analysis

	EC	**GW**	**CC**	**SIC**	**GPK**
EC	1				
GW	.451**	1			
CC	.382**	.345**	1		
SIC	.282**	.418**	.328**	1	
GPK	.242**	.472**	.230**	.426**	1

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.4 Common Method Bias (Multicollinearity and VIF)

This has been assessed in Smart PLS 4 using PLS Algorithm. In the regression of data, if the problem of collinearity exists then it gives rise to high errors of coefficients making the inference biased and tough. Correlation matrix and Variance Inflation Factor (VIF) are the two methods to detect and resolve the collinearity problem. According to Garson (2016), if the VIF score is greater than 5, it can be said that the indicator exhibits multicollinearity. From the table, it is evident that all VIF indicator values are below 5, indicating no multicollinearity. The case of collinearity exists indicating that there is common method bias problem if the VIF is not less than 5 (Ho, 2013). It is also mentioned that the VIF value should be 3.3 or less than that. The values of VIF of all the variables' items are below 3.3. All VIF values given in the table below shows that all values are less than 3.3 indicating no problems of multicollinearity and common method bias.

Table 4. 8 Common Method Bias

	VIF
CC1	2.668
CC2	3.084
CC3	2.164
CC4	1.829
SIC1	1.182
SIC2	1.507
SIC3	1.461
EC1	1.383
EC2	2.008
EC3	1.736
EC4	1.852
GW1	2.418
GW2	2.930
GW3	2.376
GW4	1.086
GPK1	1.938
GPK2	2.264
GPK3	1.367
gpk x gw	1.000

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.5 Structural Equation Modeling (SEM)

Smart PLS 4 has been used for this analysis. Two models are included in SEM; measurement and structural model. Former model specifies the relations between variables and indictor constructs. It is also known as outer models in PLS-SEM. Factor/item loadings, Cronbach alpha, composite reliability and average variance extracted (AVE) are observed in it. All of them represent the validity and reliability of the constructs. In latter model, the relationship between latent variables is described. This model includes path coefficients, T-values, P-values, Beta values and R^2. They indicate that whether relationships between variables and constructs are positive or negative, significant or insignificant.

4.5.1 Measurement Model

In this model, loadings, Cronbach alpha, composite reliability and AVE are analysed which are representing the constructs' reliability and validity.

4.5.1.1 Construct Reliability and Validity

Confirmatory factor analysis (CFA) was conducted in Smart PLS 4, PLS Algorithm to evaluate the measurement model. The table of construct reliability and validity is given below. As per (Fornell & Larcker, 1981) study, benchmark values of Cronbach alpha, composite reliability and AVE are 0.7, 0.7 and 0.5. The Cronbach's alpha value of SIC is 0.676 almost near to 0.7 and it is acceptable because the composite reliability and AVE of the variable is up to the mark So as per the values given in the table below, the data is valid and reliable (Hair, Jr. et al., n.d.).

Table 4. 9 Construct reliability and validity

	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
CC	0.880	0.918	0.736
EC	0.811	0.876	0.639
GPK	0.773	0.867	0.688
GW	0.788	0.870	0.638

SIC	0.676	0.823	0.609

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.5.1.2 Discriminant Validity

The discriminant validity is assessed by using the average variance extracted in PLS Algorithm. It was a concept evaluated by (Fornell & Larcker, 1981) also known as Fornell-Larcker criterion. It means that to what extent two concepts are distinct which are similar conceptually. Each construct's AVE must be greater than largest squared correlation of any other variable. The square root of each AVE in the diagonal must be higher than the rest i.e. off diagonals (Izdihar, Maryono, Widjonarko, & Rahayu, 2018). The table of discriminant validity is given below showing that the diagonal values are greater than the off-diagonals indicating that model is acceptable.

Table 4. 10 Discriminant Validity

	CC	**EC**	**GPK**	**GW**	**SIC**
CC	0.858				
EC	0.392	0.800			
GPK	0.238	0.263	0.829		
GW	0.343	0.479	0.467	0.799	
SIC	0.330	0.291	0.433	0.397	0.780

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.5.1.3 HTMT Ratio

HTMT ratio is another measure to assess discriminant validity in PLS Algorithm. HTMT means heterotrait-monotrait and it tells discriminant more accurately. The threshold value for HTMT ratio must be less than 0.9 (Henseler, Ringle, & Sarstedt, 2015) which shows that discriminant validity has been established. The HTMT ratio table is given below which has all the values below 0.9 indicating that model is totally fine.

Table 4. 11 HTMT Ratio

	CC	EC	GPK	GW	SIC	GPK x GW
CC						
EC	0.454					
GPK	0.279	0.307				
GW	0.413	0.567	0.603			

SIC	0.425	0.384	0.591	0.569		
GPK x GW	0.163	0.437	0.217	0.324	0.117	

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.5.1.4 Factor Loadings

These loadings were analysed in PLS Algorithm. The benchmark value for factor loadings is 0.7 and above. The values of all loadings were equal to more than 0.7 except the few ones who were below the cut of value i.e. 0.7, but none of the items were removed from the data because the value of average variance extracted of all the variables was equal to or more than 0.5 and that of composite reliability was equal to 0.7 or above than that so no need to remove loadings below 0.7.

Table 4. 12 Factor loadings

	cc	ec	gpk	gw	sic	gpk x gw
CC1	0.877					
CC2	0.899					
CC3.	0.846					
CC4	0.818					
GPK1			0.883			
GPK2			0.905			
GPK3			0.681			
SIC1					0.715	
SIC2					0.832	
SIC3					0.789	
EC1		0.714				
EC2		0.831				
EC3		0.791				
EC4		0.855				
GW1				0.877		
GW2				0.902		
GW3				0.872		
GW4				0.458		
gpk x gw						1.000

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

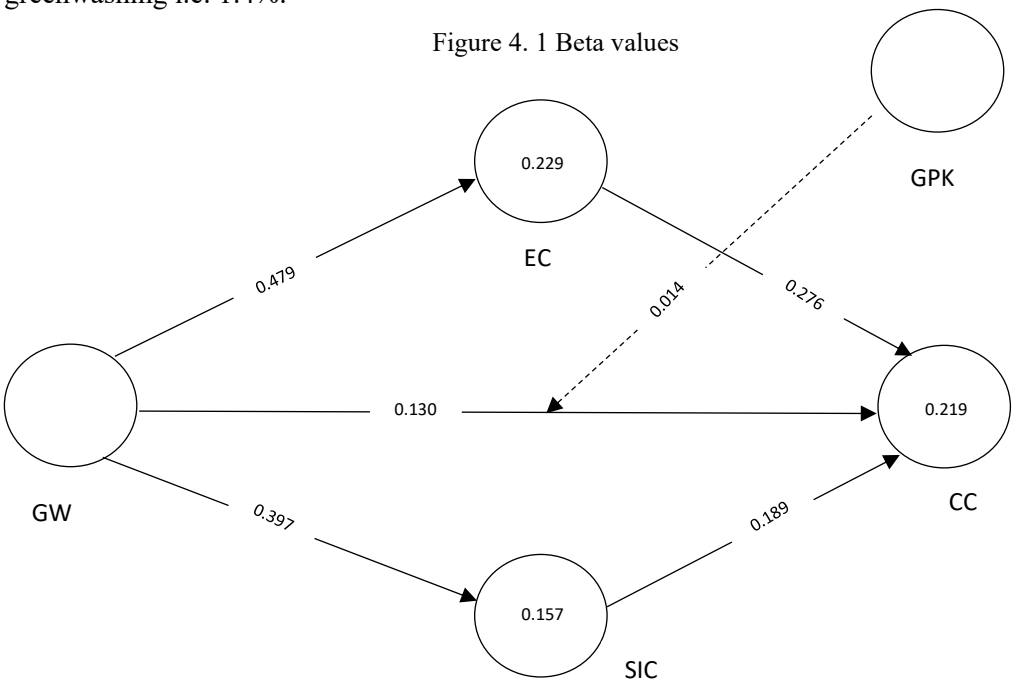
4.5.2 Structural Model

This model describes the relationship between latent variable and includes path coefficients, T-values, P-values, Beta values and R^2 indicating whether relationships between variables and constructs are positive or negative, significant or insignificant.

4.5.2.1 Beta Values

Smart PLS 4 was used to measure the beta values of all constructs. Beta values are given in the figure below along with R square value which is 0.219 which shows that model is good, acceptable and has considerable explanatory power. Beta values along with their signs are shown. The beta value of the relationship between greenwashing and circular consumption is 0.130 indicating a positive relationship and implies that impact of greenwashing on circular consumption is13.0%. Beta value for proposed relationship between greenwashing and environmental concerns is and 0.479 showing a positive impact of 47.9%, whereas, between greenwashing and sustainable information collecting is 0.397 showing positive impact of 39.7%. The relationship between environmental concerns and circular consumption is positive and 0.276 indicating 27.6% impact, whereas, between sustainable information collecting and circular consumption is 0.189 positive indicating 18.9% impact. Beta value is 0.014 for the proposed relationship between green product knowledge, circular consumption and greenwashing i.e. 1.4%.

Figure 4. 1 Beta values

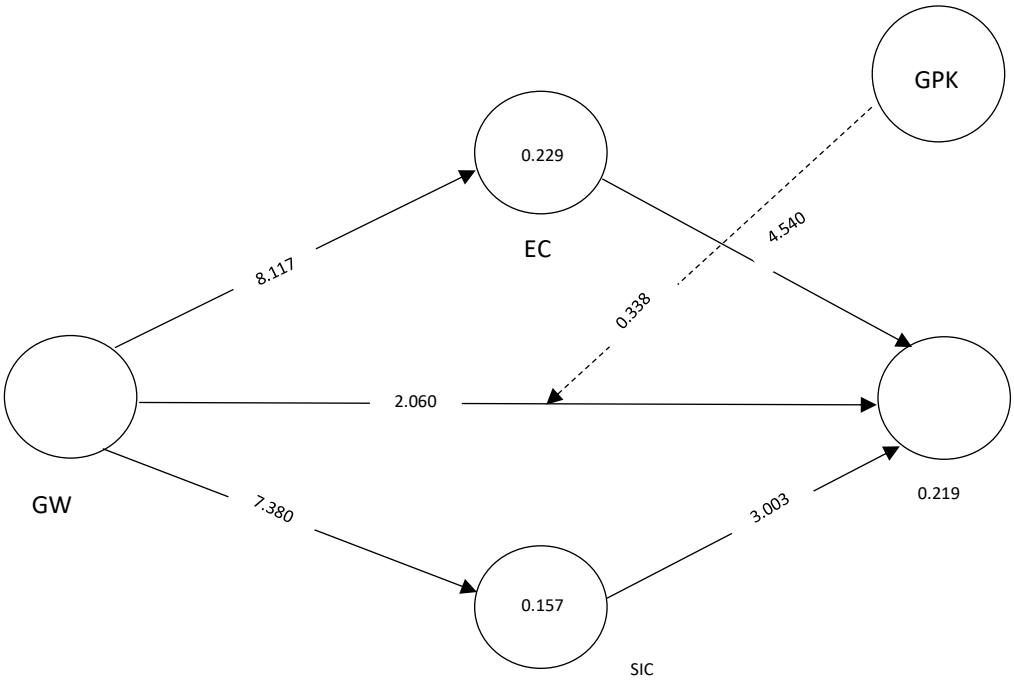


Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.5.2.2 T-Values

All the T-values are reported in the figure below using Smart PLS 4. The threshold T-value is 1.96 and above (Hair, Sarstedt, & Ringle, 2019). All the T values in the figure are above 1.96 indicating significant relationships.

Figure 4. 2 T values



Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.5.3 Bootstrapping

Bootstrapping is done in Smart PLS 4 to assess path coefficients and specific indirect effects.

4.5.3.1 Path Coefficients

All the path coefficients are given below in the table. The cut off value for T statistics is 1.96 and above whereas cut off value of P is 0.05 and below than this (Hair, Sarstedt, & Ringle, 2019). In the table given below, it can be seen that all the T-values are above 1.96 and all the P-values are below 0.05 indicating the significant relationships. Hence,

H1: Consumers who believe that the majority of companies engage in greenwashing practices may have a significant impact on circular consumption. T value 2.060 and P value 0.039, hence accepted.

H2: Customers who believe that most businesses engage in 'greenwashing' may exhibit a significant variation in their level of concern about the environment. T value 8.117 and P value 0.000, hence accepted.

H3: Consumers who believe that many companies engage in misleading environmental practices may show a significant interest in seeking further information about environmental resources. T value 7.380 and P value 0.000, hence accepted.

H4: Customers who prioritize environmental sustainability may have a tendency towards circular consumption. T value 4.540 and P value 0.000, hence accepted.

H5: Consumers who seek information about environmental resources may exhibit significant differences in their intention to engage in circular consumption. T value 3.003 and P value 0.003, hence accepted.

Table 4. 13 Path Coefficients

	Coefficient-Beta	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
EC -> CC	0.276	0.061	4.540	0.000
GW -> CC	0.130	0.063	2.060	0.039
GW -> EC	0.479	0.059	8.117	0.000
GW -> SIC	0.397	0.054	7.380	0.000
SIC -> CC	0.189	0.063	3.003	0.000

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.5.3.2 Specific Indirect Effects

The results of specific indirect effects i.e. mediations, are given in the table below. The T-values and P-values of both proposed specific indirect effects are insignificant.

H2a: Individuals who believe that many companies engage in deceptive environmental practices may exhibit a significant variation in their likelihood to prioritize sustainable consumption, influenced by their genuine environmental concerns. T value 3.677 and P value 0.000, hence accepted.

H3a: Consumers who believe that many companies engage in deceptive environmental practices may exhibit significant variations in their intention to engage in circular consumption, influenced by their desire to gather information about environmental resources. T value 2.745 and P value 0.006, hence accepted.

Table 4. 14 Specific Indirect Effects

	Coefficient-Beta	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
gw -> ec -> cc	0.132	0.036	3.677	0.000
gw -> sic -> cc	0.075	0.027	2.745	0.006

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

4.5.3.3 Moderating Effects

The table of moderating effect is given below showing the proposed moderation. The effect is Not-significant as the T value is 0.338, lower than the standard value i.e. 1.96. Also, the P-value i.e. 0.0.735, is higher than the standard range i.e. 0.05. So, this implies that moderating effect is Not significant and has no impact.

Table 4. 15 Moderating Effects

	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
gw -> gpk -> cc	0.014	0.041	0.338	0.735

Note: EC (environmental concerns), CC (circular consumption), GW (greenwashing), GPK (green product knowledge) and SIC (sustainable information collecting).

H6: Consumers who have Green Product Knowledge may have a significant difference in their attitude toward circular consumption, which could influence the impact of greenwashing. T value 0.338 and P value 0.735, hence Rejected.

4.5.3.4 Predictive Relevance Test (Q-Square)

The Q-Square (Q^2) test is conducted to assess whether the research model has predictive relevance and is valid. According to (Garson, 2016) a Q^2 value greater than 0 indicates that the model is able to make predictions about the related variables. The Q^2 values from this study are presented in the table below:

Table 4. 16 Predictive Relevance Test (Q-Square)

	SSO	**SSE**	**Q^2 (=1-SSE/SSO)**
EC	1684.000	1463.892	0.131
GPK	1263.000	1263.000	0.000
SIC	1263.000	1150.286	0.089

Based on the table above, the Q^2 values for Environmental Concerns and Sustainable Information Consumption are greater than zero, indicating that the model has the ability to predict these variables to some extent. On the other hand, the Q^2 value for Green Product Knowledge is 0.000, which shows that it does not have predictive relevance in this study. This supports the earlier finding where the hypothesis involving Green Product Knowledge was rejected, suggesting it does not play a significant role in explaining variation within the model.

4.5.4 Determination Coefficient Test (R-Square)

The value of R squared ranges from 0 to 1, with the closer it is to one, the better it is. There are three categories of R squared values, which is strong, moderate, and weak, R squared value of 0.75 and above falls into the strong category, values from 0.25 to 0.75 fall into the moderate category, and values below 0.25 fall into the weak category (Hair et al., 2011). The

adjusted R squared value functions to address a common issue with R squared, which is its tendency to increase as more independent variables are added to the model. In contrast, the adjusted R squared can accurately measure the confidence level in adding independent variables to enhance the model's predictive power. The R-Square score of this research are presented in the following table:

Table 4. 17 Determination Coefficient Test

	R-square	**R Square Adjusted**
Circular Consumption	0.219	0.209
Environmental Concerns	0.229	0.227
Sustainable information Collecting	0.157	0.155

The R-squared values presented in the table indicate how well the independent variables explain the variance in the dependent constructs. For Circular Consumption, the R-squared value is 0.219, which, according to Hair et al. (2011), falls under the weak explanatory power category (i.e., below 0.25). This suggests that the predictors in the model account for approximately 21.9% of the variance in consumers' circular consumption behavior. The adjusted R-squared value, slightly lower at 0.209, supports the robustness of the model after accounting for the number of predictors used. For Environmental Concerns, the R-squared value is 0.229, with an adjusted value of 0.227. This also falls within the weak explanatory category, suggesting that approximately 22.9% of the variance in environmental concern is explained by the independent variables. In the case of Sustainable Information Collecting, the R-squared is 0.157, and the adjusted R-squared is 0.155, indicating that only about 15.7% of the variance in information-seeking behavior is explained by the model, which is again considered weak. But According to Ozili (2023), low R^2 values can still be acceptable in social science research, as long as some of the explanatory variables are statistically significant. Specifically, an R^2 value of at least 0.10 is considered acceptable in empirical modelling. In this context, the R^2 values of 0.219 for Circular Consumption, 0.229 for Environmental

Concerns, and 0.157 for Sustainable Information Collecting are within a reasonable range. Although these values are relatively low, they indicate that the model still explains a portion of the variation in the dependent variables. The paper emphasizes that models should not be discarded solely based on a low R^2. Instead, the focus should be on whether the explanatory variables are statistically significant. Therefore, despite the low R^2 values, the model remains valuable if the predictors are meaningful and statistically significant.

4.6 Summary of Hypotheses

Table 4. 18 Summary of Hypotheses

Hypothesis	Decision
H1: Consumers who believe that the majority of companies engage in greenwashing practices may have a significant impact on circular consumption.	Accepted
H2: Customers who believe that most businesses engage in 'greenwashing' may exhibit a significant variation in their level of concern about the environment.	Accepted
H2a: Individuals who believe that many companies engage in deceptive environmental practices may exhibit a significant variation in their likelihood to prioritize sustainable consumption, influenced by their genuine environmental concerns.	Accepted
H3: Consumers who believe that many companies engage in misleading environmental practices may show a significant interest in seeking further information about environmental resources.	Accepted

H3a: Consumers who believe that many companies engage in deceptive environmental practices may exhibit significant variations in their intention to engage in circular consumption, influenced by their desire to gather information about environmental resources.	Accepted
H4: Customers who prioritize environmental sustainability may have a tendency towards circular consumption.	Accepted
H5: Consumers who seek information about environmental resources may exhibit significant differences in their intention to engage in circular consumption.	Accepted
H6: Consumers who have Green Product Knowledge may have a significant difference in their attitude toward circular consumption, which could influence the impact of greenwashing.	Rejected

These findings carry broader implications for the field of sustainable finance, as they highlight how consumers' awareness of greenwashing may actually drive more intentional engagement with circular consumption practices supporting the integrity of sustainable market transitions and ESG-aligned financial strategies.

Discussion

1. **H1: Consumers who believe that the majority of companies engage in greenwashing practices may have a significant impact on circular consumption.**

The results show that when people believe many companies are not honest about helping the environment, it can still influence their actions in a positive way. This belief may lead people to think more seriously about environmental problems and feel the need to take action themselves. Lopes et al. (2023) support this by suggesting that greenwashing perception may

trigger personal norms and reflection, leading consumers to adopt more responsible consumption habits. Camacho-Otero et al. (2018) further explain that consumers who detect inconsistencies between green claims and actions often re-evaluate their own behavior and align it with sustainable practices. Szilagyi et al. (2022) reinforce that skepticism can increase pro-circular behavior. Zhang et al. (2018) also indicate that perceived greenwashing impacts consumers' purchase intentions and word-of-mouth, showing that negative perception can influence positive behavior change. In this case, even though people may not trust companies, they try to make better choices on their own. So, believing that greenwashing is common may actually encourage people to live more responsibly and make more environmentally friendly choices, which supports this study's finding.

2. **H2: Customers who believe that most businesses engage in 'greenwashing' may exhibit a significant variation in their level of concern about the environment.**

The findings of this study show that when people believe many companies are not being honest about their environmental actions, it can make them more concerned about the environment. This is supported by Lopes et al. (2023), who state that greenwashing can activate environmental concern by making consumers more alert and critical of misleading corporate behavior. Pagiaslis and Krontalis (2014) found that concern for the environment is shaped by underlying beliefs and becomes more salient when consumers experience deception. Kilbourne and Pickett (2008) identified a positive relationship between environmental concern and responsible behavior, especially when driven by distrust. Bulut et al. (2021) emphasized that consumers' perception of greenwashing can intensify environmental concern. Liobikienė and Poškus (2019) also observed that concern for the environment affects behavior both directly and indirectly. As a result, people become more interested in protecting the environment and paying closer attention to sustainability. These results support the idea that when people see greenwashing as a common problem, it can lead them to care more deeply about environmental issues.

3. **H2a: Individuals who believe that many companies engage in deceptive environmental practices may exhibit a significant variation in their likelihood to prioritize sustainable consumption, influenced by their genuine environmental concerns.**

This study also found that when people believe companies are not honest about being environmentally friendly, they are more likely to care about how their choices affect the environment. This concern leads them to make more thoughtful decisions about what they buy. Lopes et al. (2023) highlight that environmental concern mediates the relationship between perceived greenwashing and circular consumption by activating personal responsibility. Minton and Rose (1997) found that environmental concern is a key driver of eco-friendly behavior. Prados-Peña et al. (2022) also emphasized that awareness of sustainability issues encourages consumers to prioritize sustainable consumption choices. Their concern for the environment pushes them to be more careful and to support businesses they believe are truly sustainable. This means that environmental concern plays an important role in guiding how people consume. It helps explain why some individuals are more likely to reuse, recycle, or buy products that are better for the planet. These findings support the idea in this study that environmental concern influences sustainable or circular consumption.

4. **H3: Consumers who believe that many companies engage in misleading environmental practices may show a significant interest in seeking further information about environmental resources.**

This study found that when people believe companies are not honest about their environmental efforts, they are more likely to look for trustworthy information on their own. Instead of simply accepting what companies say, they start to double-check environmental claims and try to understand which products are truly better for the environment. Lopes et al. (2023) confirm that greenwashing stimulates consumers' interest in sustainable information as they try to distinguish between authentic and misleading claims. Testa et al. (2020) also found that perceived deception increases information-seeking behavior before purchasing. Netto et al. (2020) emphasize that greenwashing often leads to proactive consumer research, driven by the need for clarity. Nguyen et al. (2019) support this by showing that green skepticism, triggered by greenwashing, results in higher efforts to verify environmental information. Leonidou and Skarmeas (2017) further explain that green skepticism, arising from frequent exposure to superficial or misleading green claims, can motivate consumers to seek independent, credible sources of environmental information. They show that skepticism is not inherently negative—it often functions as a critical thinking tool that prompts consumers to search more deeply for the truth behind marketing claims. This supports the idea in this study

that the perception of greenwashing leads people to seek out more information about environmental issues.

5. **H3a: Consumers who believe that many companies engage in deceptive environmental practices may exhibit significant variations in their intention to engage in circular consumption, influenced by their desire to gather information about environmental resources.**

This study found that when people believe many companies are not being honest about their environmental practices, they often respond by becoming more cautious and curious. Lopes et al. (2023) observed that the more consumers seek information due to greenwashing perception, the stronger their intention to engage in circular consumption. Consumers begin to question claims, look for third-party certifications, and rely on independent sources. Testa et al. (2015) found that clear eco-labels and trustworthy information guide purchasing decisions and encourage sustainable behavior. Gomes et al. (2022) showed that consumers with strong ethical motivations rely on information-seeking to support circular habits. Berki-Kiss and Menrad (2022) demonstrated that informed consumers are more likely to purchase fair and sustainable products. These findings support the idea in the present study that when people recognize greenwashing, they are more likely to seek out environmental information to guide their decisions.

6. **H4: Customers who prioritize environmental sustainability may have a tendency towards circular consumption.**

This study found that people who care more about the environment are also more likely to make choices that support circular consumption. When individuals prioritize environmental sustainability, they are more aware of how their actions affect the planet and try to reduce waste in their daily lives. Lopes et al. (2023) support this by showing that consumers with high concern for the environment tend to reuse, recycle, and repair more frequently. Camacho-Otero et al. (2018) explain that sustainability awareness is closely linked to circular behaviors. Szilagyi et al. (2022) developed a model in which environmental concern plays a significant role in circular product purchase decisions. Bigliardi et al. (2022) found that those with strong sustainability values are more likely to buy refurbished smartphones, illustrating the influence of environmental concern on product choices. Their concern leads them to choose products and behaviors that help reduce pollution and resource use. These results confirm that when people

place a high value on protecting the environment, they are more likely to act in ways that support circular consumption.

7. **H5: Consumers who seek information about environmental resources may exhibit significant differences in their intention to engage in circular consumption.**

This study found that people who actively search for information about the environment are more likely to engage in circular consumption. Lopes et al. (2023) state that increased information-seeking strengthens consumer intention to act sustainably by increasing awareness and perceived behavioral control. When individuals take the time to learn about how their choices affect the planet, they feel more confident and motivated to act in ways that are better for the environment. Duarte et al. (2021) highlight that informed consumers are more inclined to reduce food waste through circular behaviors. Hebrok and Boks (2017) emphasized that education and awareness shape household-level waste reduction and reuse practices. Aschemann-Witzel et al. (2015) found that access to clear sustainability information empowers consumers to avoid waste and make greener choices. These findings support the idea in this study that information-seeking plays an important role in encouraging people to take part in circular consumption.

8. **H6: Consumers who have Green Product Knowledge may have a significant difference in their attitude toward circular consumption, which could influence the impact of greenwashing.**

Previous studies have found that Green Product Knowledge (GPK) influences consumer behaviors, particularly in terms of green purchase intentions (Putri & Hayu, 2024). However, this influence does not seem to extend to moderating the relationship between greenwashing and circular consumption. Instead, other factors, such as environmental concern and attitudes toward sustainability, have been identified as more influential in promoting circular consumption behaviors (Szilagyi et al., 2022). These findings suggest that GPK does not significantly moderate the relationship between greenwashing and circular consumption, which leads to the rejection of the hypothesis in this study.

4.7 Relevance of the Findings to Business and Investment Practice

This study provides not only an academic insight into the responses of consumers towards greenwashing but also extensive implications to businesses and investors. Greenwashing, when perceived by consumers as deceptive or manipulative, undermines corporate credibility and diminishes long-term brand loyalty, regardless of short-term marketing gains (Delmas & Cuerel Burbano, 2011). As a business, deceptive sustainability claims may attract legal implications, regulatory enforcement or investor retribution, as well exhibited by depth cases such as the Volkswagen emissions scandal (W. L. Lin et al., 2025). To the investor, greenwashing adds firm-level uncertainty and clouds the actual sustainability performance of any company, resulting in the misallocation of capital, ESG stocks being overpriced, and enduring a financial risk in the long term (Gregory, 2024; Dempere et al., 2024). Since non-financial disclosures are increasingly the norm in investing screening, their credibility directly reflects in the investor trust and decision-making. Moreover, studies show that companies involved in greenwashing tend to have lower return on assets (ROA) and more volatile stock performance over time, undermining the rationale for ESG-based investment (GRASFI, 2024). Thus, for both business leaders and institutional investors, understanding and mitigating the risks of greenwashing is not just a reputational concern, it is a strategic imperative with measurable financial outcomes.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

This study began with two core research questions:

1. How does greenwashing influence consumers' engagement in circular consumption?
2. How do environmental concerns, sustainable information collection, and green product knowledge influence the relationship between greenwashing and circular consumption**?**

Drawing from the analysis in Chapter 4, this chapter now presents clear and direct answers to these questions. The findings show that greenwashing, while generally seen as a deceptive marketing tactic, can paradoxically raise environmental awareness and promote circular consumption behaviors, particularly when consumers are already concerned about the environment or actively seek sustainable information. However, the influence of green product knowledge was found to be statistically insignificant as a moderating factor.

These results carry important implications for the field of Sustainable Finance. Greenwashing undermines transparency and trust, both of which are critical to ethical financial decision-making, investment evaluations, and sustainable product development. By showing that greenwashing can still trigger positive consumer responses under certain conditions, this research adds complexity to the discourse and offers new perspectives for both academia and industry.

Beyond answering the research questions, this study contributes to the literature by highlighting how consumer behavior in emerging markets where sustainability is still developing and differs from that in mature economies. It fills a critical gap by exploring the nuanced impacts of greenwashing in Pakistan, where consumers face limited access to reliable environmental information and labeling.

The study also offers practical recommendations for businesses to improve the credibility of their sustainability claims and for policymakers to enforce stronger standards on product labeling and environmental transparency. For researchers, this work opens new avenues for inquiry. Future studies could investigate the long-term effects of greenwashing on consumer trust, the role of digital media in spreading sustainability misinformation, or how financial

institutions can integrate anti-greenwashing metrics in ESG (Environmental, Social, Governance) evaluations.

5.1 Discussion of the Key Findings

This chapter addresses the research questions by interpreting the study's key findings in the context of previous literature. The relationships between greenwashing, environmental concerns, sustainable information collection, green product knowledge, and circular consumption are discussed below.

1. **RQ1**: How does greenwashing influence consumers' engagement in circular consumption?

The findings show a positive and significant relationship between greenwashing (GW) and circular consumption (CC), with a beta coefficient of 0.130 ($p = 0.039$). This means that, contrary to expectations in some prior literature, consumers exposed to greenwashing messages were more likely to engage in circular consumption behaviors.

This leads to the concept of the greenwashing paradox, a situation where companies make false or exaggerated environmental claims that, despite being dishonest, may still encourage people to care more about the environment (Lopes et al., 2023; Lyon & Montgomery, 2015). When consumers see these kinds of claims, many become more concerned about environmental issues and actively search for reliable information to verify if the claims are true (Lopes et al., 2023). This behavior can be explained by Norm Activation Theory, where identifying a problem like greenwashing triggers personal responsibility and encourages pro-environmental behavior. Similarly, the Theory of Planned Behavior suggests that greenwashing influences consumers' attitudes, social pressures, and control over their choices, which together shape their decisions to engage in circular consumption, such as recycling, reusing, or purchasing sustainable products. In developing countries like Pakistan, where environmental awareness may still be limited, even misleading messages can initially encourage some positive environmental actions. However, over time, these dishonest practices can create serious problems for many stakeholders. Consumers may lose trust and become skeptical about all environmental claims. Investors may face financial losses and legal consequences due to reputational damage. Employees might struggle with ethical concerns at work, while suppliers and partners may avoid associations with companies involved in

greenwashing to protect their own reputations. Governments may respond by introducing stricter regulations to control such deceptive behavior. In short, while greenwashing may sometimes raise short-term interest in sustainability, it risks damaging trust and slowing down true progress toward real environmental responsibility. This finding aligns with De Jong et al. (2019) and Gatti et al. (2021), who noted that greenwashing can raise short-term awareness and influence behavior, although in a way that can backfire once deception is uncovered.

However, this paradox is fragile. According to Parguel et al. (2015), once consumers realize they have been misled, their trust is eroded, and they become skeptical of all green claims potentially withdrawing from sustainable behaviors entirely. Thus, the positive link found in this study must be interpreted with caution.

2. **RQ2**: How do environmental concerns, sustainable information collection, and green product knowledge influence the relationship between greenwashing and circular consumption?

Environmental Concerns (EC → CC): A strong positive relationship was found ($\beta = 0.276$, $p = 0.000$). This confirms that individuals with higher environmental concerns are more likely to engage in circular consumption. It supports earlier research by Szilagyi et al. (2022), which emphasized the role of personal values in sustainable consumer behavior.

Sustainable Information Collection (SIC → CC): A significant relationship was found ($\beta = 0.189$, $p = 0.000$). Respondents who seek information are better positioned to interpret green claims and are more likely to make sustainable choices. Rourke and Ringer (2015) similarly observed that informed consumers are more selective and resilient to greenwashing.

Green Product Knowledge (GPK): While hypothesized as a moderator, GPK did not show a significant moderating effect. This might reflect the generally low level of consumer education about environmental products in Pakistan. Unlike developed markets, consumers here may not have sufficient knowledge to evaluate sustainability claims critically.

These findings suggest that while greenwashing may initially trigger circular behaviors, it is environmental concern and proactive information-seeking that truly sustain such behaviors over time. This is in line with the Norm Activation Theory (Schwartz, 1977), in that perceived environmental problems trigger the individual to act responsibly and the Theory of Planned Behavior (Ajzen, 1991) that focuses on the importance of attitudes and perceived control in

behavioral direction. Lopes et al. (2023), De Jong et al. (2019), Szilagyi et al. (2022) and Testa et al. (2020) have reported similar results and discovered that environmental concern and information seeking is the biggest influencer of sustained circular consumption.

5.2 Conclusion

The purpose of the study was to clarify how greenwashing affects circular consumption behavior in Pakistani consumers and how environmental concern (EC), sustainable information collection (SIC), and green product knowledge (GPK) influences this process. The relevance of the research was influenced by the necessity to address a large research gap in the literature, especially on greenwashing among the emerging economies such as Pakistan where the sustainability awareness and circular consumption activities remain under development.

Key Findings

1. The Paradox of Greenwashing: A key finding from this study is the paradoxical role of greenwashing. While greenwashing erodes consumer trust and leads to consumer confusion, it also increases environmental awareness. Consumers who identified greenwashing in products were more likely to seek reliable information and become more environmentally conscious. This paradoxical effect shows that greenwashing can inadvertently encourage consumers to engage in circular consumption, as it motivates them to verify environmental claims and adopt more sustainable behaviors, such as recycling and reusing products.

2. Environmental Concern and Information Seeking: The study found that environmental concern and sustainable information collection were key drivers of circular consumption. Consumers who are more environmentally concerned and actively seek reliable sustainability information are more likely to engage in sustainable behaviors. This supports the Theory of Planned Behavior (TPB) and Norm Activation Theory (NAT), which highlight how awareness and information-seeking behaviors significantly influence pro-environmental actions.

3. Green Product Knowledge: Despite the importance of green product knowledge, the study found that it did not significantly moderate the relationship between greenwashing perception and circular consumption. This suggests that knowledge of

eco-friendly products is not enough to overcome the misleading effects of greenwashing. In Pakistan, clearer product labeling and stronger environmental education are needed to help consumers translate their knowledge into actionable, sustainable choices.

By focusing on Pakistani consumers, this study contributes to the literature by addressing the gap in understanding how greenwashing affects circular consumption behaviors in emerging markets. While much of the existing research has focused on developed markets, this study provides fresh insights into how greenwashing influences consumer behaviors in Pakistan, where circular consumption is still an emerging but crucial practice for sustainable development.

5.3 Future Directions

While this study focused on the Pakistani context, several valuable directions can be explored in future research to enrich understanding of greenwashing and circular consumption. One promising avenue is to conduct comparative studies across countries or regions, as differences in culture, policy enforcement, and environmental awareness may significantly influence how consumers perceive and react to greenwashing. For instance, countries with stricter sustainability regulations, such as Germany or the Netherlands, may yield different behavioral patterns compared to those in emerging markets. Such comparisons could help develop more globally applicable insights and policy responses.

Additionally, industry-specific studies may provide deeper insights, particularly in sectors like fashion, food, or electronics each with its own sustainability pressures and consumer expectations. While this study included data from both urban and rural consumers, future research could also adopt a longitudinal design to assess how public perception and purchasing behavior evolve over time in response to sustainability campaigns or regulatory shifts.

Lastly, it would be useful to examine how government policies, financial incentives, and public trust influence consumer decisions related to greenwashing. These factors could shape not only purchasing choices but also support the development of more effective

sustainability strategies, contributing to both academic knowledge and practical solutions in the fields of environmental communication and sustainable finance.

5.4 Implications

This research offers several important implications based on the results obtained from 421 respondents. By studying how greenwashing, environmental concern, sustainable information collection, and green product knowledge affect circular consumption, the findings provide meaningful insights for companies, policymakers, and the general public, especially within the context of Pakistan.

1. Implications for Research and Understanding Consumer Behavior

This study offers important insights into the factors that influence sustainable consumer behavior. By combining the Theory of Planned Behavior (TPB) and the Norm Activation Theory (NAT), the research provides a more holistic understanding of how intentions are shaped not only by attitudes and perceived control, but also by personal values and a sense of moral obligation. The findings indicate that environmental concern and the collection of sustainable information play a critical role in encouraging actions such as recycling, reusing, and choosing environmentally friendly products. However, the study also highlights that while greenwashing may trigger skepticism, it can, in some cases, lead individuals to take more proactive steps toward sustainable consumption. When consumers perceive misleading environmental claims, it may prompt them to critically evaluate their own consumption behaviors and make more informed eco-conscious choices. This underscores how a heightened awareness of greenwashing can drive positive actions, encouraging individuals to adopt more responsible and circular consumption habits.

Interestingly, green product knowledge did not demonstrate a strong moderating effect in this study. This suggests that awareness alone may not be sufficient to drive sustainable action. Consumers appear to require not just information, but also clarity, trust, and practical guidance to feel confident in their decisions. These findings address critical gaps in the existing literature, particularly the limited research on greenwashing and circular consumption within emerging economies like Pakistan. By exploring these relationships in a context where environmental awareness is still developing, this study contributes valuable knowledge for

academics, marketers, and policymakers seeking to foster genuine sustainable behavior and build consumer trust in an era of increasing environmental claims.

2. Implications for Companies and Marketers

The results of this study clearly show that companies need to be more responsible when communicating about the environment. If businesses exaggerate or misrepresent their environmental efforts, they risk losing the trust of consumers. This can harm not just individual brands, but also public support for sustainability in general. As a researcher, I suggest that companies focus on being honest, transparent, and specific in their environmental claims. They should also provide clear and simple explanations about what makes their products sustainable.

Businesses also have an opportunity to play a more active role in educating consumers. By sharing useful information through packaging, advertising, or social media they can help people better understand how to support circular consumption. This includes promoting habits like buying reusable items, choosing recyclable packaging, and reducing waste.

3. Implications for Policymakers

This study highlights the need for stronger rules and monitoring around environmental marketing. Policymakers should consider developing clear standards for eco-labels and green claims, so that companies cannot easily mislead the public. There should also be stronger efforts to verify claims and take action against businesses that engage in greenwashing.

At the same time, the government can support consumers by making sustainable information easier to access. Public campaigns, school programs, and partnerships with media or influencers could help spread awareness about the importance of circular consumption and how to spot misleading claims. When people feel informed and supported, they are more likely to make choices that protect the environment.

4. Implications for Environmental Educators and Consumers

This study also shows that people are willing to act in environmentally friendly ways if they feel concerned about environmental issues and have access to good information. Environmental educators and community organizations can help by teaching practical steps for

sustainable living. These can include simple actions like repairing instead of replacing items, separating waste, and reducing single-use plastics.

For consumers, the results are a reminder that their choices do matter. People should try to stay informed, ask questions, and be careful about believing every green claim they see. While this can be difficult especially when there is so much information it is one of the most effective ways to support real sustainability and avoid falling into the trap of greenwashing.

5. Implications for Financial Institutions and ESG Stakeholders

The results of this study indicate that financial institutions and ESG stakeholders must prioritize the integration of consumer trust and environmental awareness into sustainable finance frameworks. Doing so is essential to strengthen the legitimacy and effectiveness of green investment initiatives, especially in overcoming challenges such as information asymmetry and greenwashing. To achieve this, it is necessary to develop reliable measurement tools that can evaluate consumer trust in environmental claims alongside the level of environmental knowledge among stakeholders. These tools provide valuable data that can inform investment decisions and enhance the transparency and accountability of sustainability reporting.

Integrating consumer trust and environmental awareness into investment evaluation processes is likely to increase investor confidence, thereby promoting the allocation of capital to projects with demonstrable environmental benefits. This approach not only improves the credibility of ESG strategies but also supports the broader transition toward sustainable economic systems. Consequently, this study emphasizes the critical role of consumer-focused metrics in establishing accountable and impactful pathways for green investments within sustainable finance.

6. Implications for the Pakistani Context

This research is especially relevant for Pakistan, where sustainability awareness is growing but still faces many challenges. Many people may care about the environment but do not always know what actions to take, or how to tell which products are truly eco-friendly. The results show that while knowledge is still developing, concern and curiosity are already present

in many consumers. This means there is a strong foundation to build on, through better information, supportive policies, and responsible business practices.

5.5 Recommendations

As the researcher, I propose the following recommendations to support circular consumption and address the challenges caused by greenwashing, based on the findings of this study involving 421 respondents.

For Businesses and Marketers

Companies should avoid using vague or misleading environmental claims, as greenwashing has been shown to negatively impact consumer trust and discourage sustainable behavior. Instead, businesses are encouraged to adopt transparent communication strategies, clearly explain what makes their products environmentally friendly, and use verified eco-labels. Marketing efforts should focus not just on promoting "green" images, but on sharing honest information and encouraging responsible consumer actions. Offering options such as recyclable packaging, product take-back programs, or repair services can also help support circular consumption in practice.

For Policymakers and Government Agencies

There is a need for stronger regulation of environmental advertising in Pakistan. The government should establish clear guidelines for green product claims and ensure that companies are held accountable when those claims are misleading. In addition, national efforts should be made to raise public awareness about sustainability and help consumers understand how to identify and respond to greenwashing. Public campaigns, school programs, and digital tools can be effective in making this knowledge widely accessible.

For Environmental Educators and NGOs

Since environmental concern and information-seeking behaviors were found to positively influence circular consumption, targeted educational efforts should be developed to promote these values. Environmental organizations and schools can help by teaching simple, practical actions that individuals can take such as reducing waste, reusing items, and making

mindful purchase decisions. Special attention should be paid to reaching communities with less access to environmental information, especially in rural areas.

For Consumers

Consumers have an important role in supporting sustainability. People are encouraged to stay informed, ask questions, and be cautious of products that make environmental claims without clear proof. Even small changes in daily habits like bringing reusable bags, choosing products with minimal packaging, or avoiding unnecessary purchases can contribute to circular consumption. Consumer pressure also plays a role in shaping business practices, so making thoughtful choices sends a message to the market.

Recommendations for CEOs and Investors

As scrutiny of corporate sustainability intensifies, CEOs and investors must treat greenwashing not just as a reputational risk, but as an opportunity to improve transparency and accountability. Businesses should adopt third-party ESG audits, real-time sustainability reporting tools, and align executive incentives with verified environmental outcomes (Dempere et al., 2024). These actions can rebuild trust and reduce exposure to greenwashing-related fallout.

From an investor perspective, greenwashing inflates ESG scores, leading to overvaluation of stock prices, reputational risk, and misallocation of capital (Gregory, 2024). To mitigate this, investors should move beyond superficial ESG ratings and incorporate indicators like past controversies, disclosure consistency, and stakeholder sentiment (GRASFI, 2024). Active engagement through proxy voting and governance reform can help ensure ESG claims reflect genuine sustainability. In this way, greenwashing crises can be transformed into catalysts for long-term value and credibility.

For Future Researchers

This study recommends future research to explore differences in circular consumption behavior between urban and rural consumers, since access to sustainable products, awareness levels, and trust in green claims may vary by region. It would also be helpful to examine the role of cultural values, social influence, and trust in institutions to better understand how these

factors affect behavior. Additionally, future studies could test the effectiveness of educational or awareness campaigns in improving consumer understanding and reducing the impact of greenwashing**.**

5.6 Limitations of the Study

This study is subject to several limitations. First, the research was conducted exclusively in Pakistan, which may limit the generalizability of the findings to other cultural and regulatory contexts. Consumer perceptions of greenwashing and circular consumption can vary significantly across countries, especially between developed and emerging economies. Second, the researched data were gathered using a self-administered survey, which can create certain biases like social desirability or personal inaccurate interpretation of sustainability terms. Third, employing a cross-sectional design implies that it is not possible to precisely determine the causal relationships; a longitudinal study would provide some more information about the changes of consumer attitudes along the way. Also, the study did not consider inter-industrial changes as to possible differences in greenwashing tactics or consumer anticipation relating to different sectors, e.g., fashion, the food industry, or energy. Pricing strategies also did not fall under the scope of influence a key factor, since price sensitivity might define the reaction of consumers towards green claims. Lastly, as a moderating variable, green product knowledge was included but no other potentially relevant variables, like environmental trust, corporate transparency, or influence of digital media were explored. The remaining gaps might be filled by future research that would achieve a more comprehensive and context-sensitive picture of how greenwashing is influencing sustainable consumption behaviour.

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