

Research on the Influence Mechanism of Plastic Restriction Policy Implementation Modes on Brand Image — A Multi-case Analysis Based on the Retail Industry

Wenqi Xiao

*Singapore Institute of Management, Royal Melbourne Institute of Technology University, Singapore,
Singapore
S4236731@student.rmit.edu.au*

Abstract. Plastic pollution has become a core issue of global ecological governance. China has continuously introduced and upgraded policies and regulations to govern the entire industrial chain of plastic production, circulation, and consumption. Against the backdrop of the carbon peaking and carbon neutrality goals and the prevailing trend of green consumption, the Plastic Restriction Policy (PRP) has become a critical variable affecting brand image. In particular, the catering and retail sectors, as two major consumer-facing industries, have seen rising public attention toward their enforcement of the PRP. Focusing on the retail industry, this study adopted a comparative multi-case research method and categorized corporate PRP implementation into three types: long-term sustained implementation, short-term perfunctory implementation, and environmental greenwashing, based on implementation sustainability and the congruence between promotion and practice, and selected three representative retail enterprises for comparative analysis. The findings show that the sustainability of implementation of PRP and the consistency between promotion and practice directly affect brand reputation, consumer trust, and social responsibility image. Retail brands with long-term and stable PRP implementation have a better brand image than those with perfunctory implementation or greenwashing behaviors. Irreversible reputation risks can be brought by environmental greenwashing. According to this research, authentic and long-term adherence to the PRP can positively empower brand image, while perfunctory and fraudulent implementation will hurt the credibility of retail brands.

Keywords: Plastic pollution, Plastic Restriction Policy (PRP), Brand image, Retail industry

1. Introduction

1.1. Research background

Global plastic output and consumption have grown very fast over the past few decades. Plastic pollution has impaired and even threatened ecological security and human health, and has become a serious challenge for global environmental governance [1]. After China issued the Plastic Restriction

Policy (PRP) in 2008, the policy underwent several rounds of improvement. A full-chain regulatory system gradually formed. It covers plastic production, circulation, use, and recycling. As environmental awareness spreads across the country, consumers now pay more attention to corporate environmental responsibility and green brand image [2]. Corporate PRP compliance is not only a mandatory policy requirement; it is also a driver for brand image building and stronger market competitiveness.

1.2. Research objectives

This research did a comparative multi-case study and found the core features of three PRP implementation modes: long-term sustained implementation, short-term perfunctory implementation, and environmental greenwashing. It then explored the different impacts of these modes on the brand image of retail enterprises, to provide references for them to standardize PRP practices and avoid brand reputation risks.

1.3. Research significance

Through a comparative multi-case study, three core features of PRP implementation modes were identified. They are long-term sustained implementation, short-term perfunctory implementation, and environmental greenwashing. This research then explored how these modes differently affect the brand image of retail enterprises. The goal was to give those enterprises references for standardizing their PRP practices and avoiding brand reputation risks.

1.4. Research methodology

This study adopted a comparative multi-case study method and focused exclusively on the retail industry to enhance research pertinence. Taking implementation sustainability and the consistency between promotion and practice as classification criteria, three representative retail enterprises were categorized into three groups: long-term sustained implementation, short-term perfunctory implementation, and environmental greenwashing. Based on secondary data collected from corporate official reports, media coverage, and industrial supervision announcements, this paper conducted horizontal cross-case comparisons to explore the influencing mechanism of plastic restriction implementation modes on brand image.

1.5. Research framework

This study constructed a three-stage framework of "data collection — cross-case comparison — theoretical refinement". In the first stage, case selection criteria were defined, and authoritative materials were collected through multiple channels. In the second stage, practical behaviors were compared among enterprises with different PRP implementation modes, and an analysis was conducted on the differential effects of implementation sustainability and the consistency between promotion and practice. In the third stage, conclusions were drawn based on comparative results, clarifying the paths through which plastic restriction practices affect brand image, and providing practical guidance for retail enterprises to build green brands.

2. Literature review

2.1. Historical development of research on the PRP and brand image

Research on the PRP and brand image originates from the development of corporate social responsibility and green marketing. Early studies abroad initially focused on green packaging and consumers' brand perception, laying a solid theoretical foundation in this field [3]. Domestic relevant research began in the 1990s, with initial attention concentrated on the influence of consumers' environmental awareness on brand selection [4]. After the implementation of China's first PRP in 2008, academic circles started to systematically explore policy implementation effects and changes in consumer behavior. Against the backdrop of the carbon peaking and carbon neutrality strategy and the upgrading of green consumption, contemporary research has shifted its focus to the transformation of enterprises' plastic restriction practices into brand value, forming a complete research context from policy compliance to brand value appreciation.

2.2. Main theories on the influence of the PRP on brand image

In the past ten years, a theoretical system has been built around how plastic restriction practices (PRP) affect brand image. According to Rahman and Blake, differentiated CSR practices, such as regular plastic restriction, enable firms to build a responsible brand image and thereby achieve competitive advantage [5]. The Theory of Planned Behavior explains how consumers' environmental attitudes and subjective norms drive their consumption decisions [6]. According to the signaling theory, genuine plastic restriction actions from enterprises can send positive green signals, whereas deceptive greenwashing behaviors will severely undermine brand credibility [7]. This theory has also been localized by domestic scholars. They have verified that it works in the context of green brand selection [8].

2.3. Research status and deficiencies of existing studies

Current academic research has explored the relationship between plastic restriction practices (PRP) and green governance in the retail industry, yet several deficiencies remain. Most studies examine the policy effects of plastic restriction from a macro perspective. However, as Milbreta et al. highlight, a key driver of policy success is the degree of retail sector engagement rather than the policy instrument itself [9]. Furthermore, no consensus has been reached regarding how perfunctory plastic restriction and corporate greenwashing behaviors affect brand image. In addition, the operational mechanisms and implementation pathways of plastic restriction within specific retail settings remain largely unexplored. These research gaps collectively limit the provision of useful guidance for industrial practice.

3. Research methodology

3.1. Research design

This study focused on the retail industry and used a comparative multi-case research design. Two things were taken as the main classification criteria: how sustainable the PRP implementation is, and whether promotion matches practice. Based on these, three PRP implementation modes were identified: long-term sustained implementation, short-term perfunctory implementation, and greenwashing behavior. Three retail enterprises were chosen for the study. To make sure the cases

could be compared, interfering variables were strictly controlled. These included enterprise scale, market positioning, and brand awareness. The differences in brand image across the different implementation modes and across different retail formats were then analyzed in a precise way. This ensured the research conclusions were rigorous and valid.

3.2. Sample selection

This study selected three authentic and traceable retail enterprises that strictly correspond to the three modes: long-term implementation, short-term perfunctory implementation, and environmental greenwashing.

The samples include the long-term implementation group (Hema Fresh), the short-term perfunctory implementation group (CU Convenience Store), and the greenwashing group (Walmart). All cases are based on official ESG reports, EU environmental announcements, and public opinion analysis from authoritative foreign media, ensuring traceable data and reliable conclusions.

4. Results presentation

4.1. Basic information of samples

Three retail enterprises were included in this study, covering domestic fresh food retail, overseas convenience retail, and international comprehensive retail formats. The influencing rules of three PRP implementation modes in the retail industry on brand image were summarized through comparative analysis of authoritative data.

4.1.1. Hema fresh

As a leading domestic new retail brand for fresh products, Hema Fresh adopts an online-offline integrated operation model and consumes large quantities of packaging materials due to its intensive business covering fresh food, prepared dishes, and food delivery. It has long prioritized green transformation and actively incorporated plastic restriction and reduction into daily operation and management, serving as a typical representative of long-term environmental practice in China's retail industry [5].

4.1.2. CU convenience store (South Korea)

As one of the leading chain convenience retailers, CU mainly offers ready-to-eat meals, beverages, and daily necessities, with extensive use of disposable plastic packages and food containers. It only makes passive rectifications during policy inspections and lacks a long-term plastic reduction plan, which represents typical perfunctory environmental implementation and reflects the prevalent industrial problems of short-term rectification and superficial measures.

4.1.3. Walmart

Walmart ranks as a global leader in the supermarket chain across the world. It has a wide distribution of stores and a full range of business categories. Its plastic packaging is distributed from stores. Large retailers are often driven by profit and outside pressure to engage in greenwashing, and this behavior can lead to adverse selection in the green market [10]. Walmart has long promoted its green and sustainable development concept. However, Green Century (2025) reports that the

company's use of virgin plastic for private brand packaging increased by 6% as of 2023, even after it set a goal to cut that use by 15% by 2025. The gap between Walmart's environmental claims and its actual practices makes it a typical case of environmental greenwashing in the retail industry [11].

4.2. Presentation of main results

4.2.1. Description of cases under three implementation modes

(1) Long-term sustained implementation — Hema Fresh. Plastic reduction has been put into the company's long-term business strategy. It focused on two areas with high plastic use: fresh food and food delivery. Lightweight packaging, unpackaged fresh food sales, and the use of paper instead of plastic were promoted. According to a report by China National Radio, the use of plastic wrap and plastic trays was cut by a large amount, and degradable takeaway packaging materials have been fully adopted. Phased plastic reduction results are disclosed on a regular basis [12]. These measures could be seen in actual operations and match the company's public claims. A pragmatic environmental label was formed based on real plastic reduction without exaggerated promotion, and this label continues to improve the brand's green reputation. Such practices are in line with the national administrative measures on single-use plastic products [13].

(2) Short-term perfunctory implementation — CU Convenience Store (South Korea). Only partial rectifications were made during local PRP inspection periods, with only some eco-friendly lunch boxes replaced. Although carbon reduction effects were publicized externally, high plastic-consumption categories such as laminated ready-to-eat food, sealed beverage packaging, and disposable shopping bags have not been optimized or reduced [14]. The enterprise lacks a long-term plastic reduction plan and only selectively discloses fragmented rectification data. After the inspection ended, the enterprise gradually resumed the use of conventional plastic materials, making its plastic reduction efforts unsustainable [15]. Having been publicly criticized by local media and environmental groups for perfunctory rectification, it merely meets basic compliance requirements and fails to generate positive brand benefits [16].

(3) Environmental Greenwashing — Walmart. Walmart has long promoted the concepts of green retail, low-carbon plastic reduction, and eco-friendly packaging in its ESG reports and brand marketing. It deliberately shapes the image of a socially responsible multinational enterprise. However, third-party tests and regulatory data show that the use of non-degradable plastic trays and fresh food laminated packaging in its stores has stayed above the industry average for a long time. Its publicly disclosed completion rate of plastic reduction targets is less than 60 percent of the promoted figure. This reflects clear exaggeration and selective disclosure [17]. According to a shareholder proposal filed by Green Century Capital Management, Walmart set a goal to reduce its use of virgin plastic in its private brand packaging by 15% by 2025 from 2020 levels, but as of 2023, its use of virgin plastic for private brand packaging had increased by 6% [11]. This gap between its environmental claims and actual practices directly erodes brand credibility, triggers the spread of negative public opinion, and causes irreversible reputational losses. Relevant studies also show that greenwashing consistently harms consumer trust and brand reputation [18]. The core characteristics of the three enterprises' PRP implementation modes are summarized in Table 1.

Table 1. Core characteristics of PRP implementation modes of the three enterprises

Enterprise	Business Sector	Implementation Type	Implementation Sustainability	Consistency between Promotion and Practice	Core Implementation Characteristics
Hema Fresh	Retail	Long-term sustained implementation	Implemented as formal corporate strategy with continuous optimization and upgrading	Highly consistent	Plastic reduction for fresh food & food delivery; packaging simplification
CU Convenience Store (South Korea)	Retail	Short-term perfunctory implementation	Ad hoc rectification only; lax compliance after inspections	Low consistent	Only partial replacement of meal containers; no adjustment to high plastic-consumption product lines
Walmart	Retail	Greenwashing behavior	No substantial implementation; only marketing hype	Seriously inconsistent	Exaggerated plastic reduction data; misleading environmental promotion

Table 2. Comparison of core brand image indicators

Enterprise	Reputation Level	Consumer Trust	Social Responsibility Image	Main Public Opinion Trend
Hema Fresh	Excellent	High	Pragmatic low-carbon positioning with consumer-friendly and environmental reputation	Consistently receive positive customer feedback
CU Convenience Store (South Korea)	Medium	Moderate	Passive compliance with no environmental premium	Criticized for superficial rectification
Walmart	Poor	Low	False environmental performance and credibility loss caused by greenwashing	Frequent negative public opinions impair brand reputation

4.2.2. Comparative analysis of cross-case influence mechanisms

Comparing the brand image indicators of the three enterprises from three dimensions—implementation sustainability, consistency between promotion and practice, and greenwashing behavior (see Table 2), it is found that: From the perspective of implementation sustainability, Hema Fresh has incorporated plastic reduction into its long-term corporate strategy and pursued continuous optimization, earning the highest level of brand trust. CU Convenience Store (South Korea) only adopted ad hoc rectification during regulatory inspections and reverted to its prior practice afterward, achieving moderate brand trust. Walmart has taken no substantive measures for implementation and was repeatedly exposed to data fraud, leading to the lowest level of brand trust. In terms of the consistency between promotion and practice, the promotional claims of Hema Fresh

fully aligned with its daily operational measures, establishing a reputation for substantial plastic reduction and attaining an excellent brand image. CU Convenience Store promoted eco-friendly meal containers yet failed to reduce other high plastic-consumption product lines, leading to a medium reputation level. Walmart extensively advocates green packaging while maintaining a persistently high utilization rate of non-degradable plastics, resulting in a poor brand reputation.

Further examination of the amplification effect of greenwashing on negative public opinion revealed that Hema Fresh exhibited no greenwashing behavior, with nearly zero negative environmental public opinions. Although CU Convenience Store had no active greenwashing conduct, its "superficial rectification" has been publicly criticized by local media, triggering mild negative public opinions. Walmart engaged in systematic greenwashing, including data exaggeration, concealment of material usage, and misleading environmental promotion. The negative public opinion has erupted across regions and persisted over time, severely damaging its brand credibility. In summary, the impact of plastic reduction implementation modes on brand image is jointly determined by three variables: implementation sustainability, promotion-practice consistency, and greenwashing behavior. Higher implementation sustainability corresponds to stronger consumer brand trust; higher promotion-practice consistency leads to a better brand reputation; greenwashing behavior exponentially amplifies negative public opinion and causes irreversible reputational damage.

4.3. Comparison with other studies

This study adopted a mixed sample of Chinese and foreign cases, covering leading domestic brands and typical overseas enterprises. It verifies the differential effects of three implementation modes, supplements the research on the correlation between plastic restriction behaviors and brand image in the retail industry [19], and enhances the reference value of the conclusions.

4.4. Significance and implications of the results

Genuine and long-term plastic reduction actions are the core of building green brands [20]. Formalistic rectification fails to bring brand value appreciation. Research shows that corporate greenwashing behavior negatively affects consumers' green trust through the mediating roles of green brand image and green brand association [21]. Greenwashing behaviors, such as exaggerating environmental promotion and concealing actual material usage, will seriously erode consumer trust. A systematic review also finds that decoupling between corporate environmental commitments and actual practices systematically undermines long-term brand trust [18]. The findings provide clear benchmarks and risk avoidance references for retail enterprises at home and abroad.

5. Discussion

5.1. Consistency with existing research

The research findings support the CSR theory, according to which enterprises can shape a responsible brand image and gain differentiated competitive advantages by taking on environmental responsibilities [20]. In this study, Hema Fresh has made plastic reduction part of its long-term strategy and carried it out in a steady way, receiving the highest evaluation for its social responsibility image and building a strong brand reputation among consumers; this outcome matches what CSR theory would expect. In contrast, CU Convenience Stores in South Korea only

followed the rules when forced, and Walmart engaged in greenwashing, with neither achieving any positive gain in brand value. This contrast further shows the usefulness of CSR theory from a negative angle. At the same time, the results also confirm signaling theory, which suggests that genuine and effective environmental practices send positive green signals to consumers, while false claims weaken the credibility of those signals [21, 22]. Hema Fresh sends real pro-environmental signals through consistent and transparent plastic reduction efforts, and this way, it wins consumer trust. Walmart, however, showed a large gap between its environmental promotion and its actual practices; it sent false green signals, and that eventually caused its brand credibility to collapse. The comparison of these two cases clearly shows that signaling theory has strong explanatory power in the context of plastic restriction.

5.2. Theoretical explanation

5.2.1. Why is continuous implementation more effective

The reason can be explained from two theoretical perspectives. First is signal accumulation: consumer trust is built on long-term and consistent corporate behaviors. Hema Fresh has been pushing forward with plastic reduction for many years. This allows consumers to form stable expectations and helps the brand gradually build up a green reputation. Another is habituation and organizational learning. Continuous implementation not only shapes a positive external brand image but also helps form green operational routines inside the enterprise. As a result, marginal costs go down, and implementation efficiency goes up. This creates a positive cycle. In contrast, short-term and perfunctory implementation fails to build consumer trust. Consumers can easily see that such practices are just empty responses to regulatory checks.

5.2.2. Why does greenwashing cause greater harm

The negative effects of greenwashing are worse than those of doing nothing. This can be explained by a trust violation mechanism. According to psychological contract theory, consumers have reasonable expectations about the environmental claims made by enterprises. When they see a large gap between promotion and practice, a strong sense of betrayal appears. Trust then collapses more severely than in a case where the enterprise never made any environmental promise. There is also an amplification effect from negative information asymmetry. In the social media era, greenwashing behaviors are easily exposed by third parties and the media. Negative public opinion spreads very fast. At the same time, consumers will doubt any later environmental claims from the same enterprise. This leads to a "reputation lockin" problem.

5.3. Managerial implications

This study gives retail enterprises several clear lessons. One lesson is to stop formalistic fixes and build a long-term plastic reduction system. Enterprises should put plastic restrictions into their strategy, set clear step-by-step goals, and report progress regularly. They should not take temporary action only when policy inspections happen. Another lesson is to remove greenwashing and keep environmental claims in line with real actions. Any environmental claim that overstates, hides, or covers up actual material use must be banned. Enterprises should set up an internal check for environmental data. This makes sure public information can be traced and checked. A third point is to turn real plastic reduction work into brand value. Long-term and steady plastic restriction

practices can positively support brand image. Enterprises may talk with consumers about their plastic reduction results and turn environmental investment into a market advantage. Also, regulators can use the research findings to apply different supervisions to retail firms. Policy rewards should be given to those with long-term compliance. Stricter punishment and public disclosure should be used for formalistic fixes and greenwashing. Such measures can further push the retail industry toward a green, low-carbon, and sustainable change.

6. Conclusion

6.1. Overall research findings

Case analysis of three retail enterprises verifies that the implementation mode of plastic restriction is the core variable affecting the brand image of retail enterprises. Long-term, stable, and consistent plastic restriction practices can continuously strengthen consumer trust and CSR image. Short-term formalistic rectification only meets policy requirements and fails to realize brand appreciation. By contrast, greenwashing triggers cross-regional negative public opinion and results in irreversible reputation damage. Both domestic and overseas cases confirm that consumer supervision over the authenticity of corporate environmental practices continues to grow in the retail industry, regardless of market context.

6.2. Research contributions

This study constructed a two-dimensional analytical framework for the plastic restriction implementation mode in the retail industry. It further clarified and improved the internal mechanism among plastic restriction policies, corporate environmental practices, and brand value, and enriches the theoretical system of green governance and brand image research.

6.3. Limitations and future research directions

This study only selected three leading benchmark enterprises without covering small and medium-sized retailers. Future research may expand the sample coverage to include retail enterprises of different scales, business formats, and regions. Meanwhile, follow-up studies can combine consumer questionnaires and empirical investigation to systematically measure perceptual differences and attitudinal responses of diverse consumer groups toward plastic restriction implementation, formalistic rectification, and greenwashing. Such efforts can more comprehensively reveal the underlying mechanism and further deepen and extend the conclusions of this study.

References

- [1] Wang, Z. Q., Zhang, Y. L., Kang, S. C., Yang, L., & Gao, T. G. (2021). Research progress of microplastic pollution in global rivers. *Chinese Journal of Nature*, 43(4), 251-258.
- [2] Xu, X. H., Qi, Z. W., & Li, C. (2025). The impact of consumers 'green cognition on green purchasing behavior: The mediating role of green self-efficacy. *E-Commerce Letters*, 14(5), 2057-2068. <https://doi.org/10.12677/ecl.2025.1451490>
- [3] Steenis, N. D., van Herpen, E., van der Lans, I., Ligthart, T. N., & van Trijp, H. C. M. (2017). Consumer response to packaging design: The role of packaging materials and graphics in sustainability perceptions and product evaluations. *Journal of Cleaner Production*, 162, 286-298.
- [4] He, Z. Y., & Yang, S. Q. (2004). A study on the lifestyle characteristics of green consumers. *Nankai Business Review*, 7(3), 7

- [5] Rahman, N., & Blake, L. (2025). Loud in the crowd: Differentiated CSR as a source of competitive advantage. *Corporate Social Responsibility and Environmental Management*, (2), 2588–2600.
- [6] Ajzen I. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 1991, 50(2): 179-211.
- [7] Yu, F., Su, C. Y., & Lu, W. (2020). Impact of green innovation on enterprise stakeholder support: Based on panel data of listed companies in China. *Science and Technology Management Research*, (15), 252-258.
- [8] Zhao, S., Li, C., Zhang, H., Wu, L., & Liao, N. (2019). Explaining consumers 'intentions towards purchasing green food in Qingdao, China: The amendment and extension of the theory of planned behavior. *Appetite*, 133, 414-422.
- [9] Milbreta, U., Milich, L., Andže, L., & Gušča, J. (2025). Some countries can say "No!" to single-use plastics, others cannot: Why do seemingly similar policies have different outcomes? *Journal of Sustainability Research*, 7(1), e250004.
- [10] Yang, B. (2010). The harms, causes, and governance of greenwashing by large retailers. *Journal of Guangdong University of Business Studies*, 25(2), 12-16.
- [11] Green Century. (2025). Walmart shareholders call for less plastic, more truth in recycling
- [12] Fang, H. (2024, April 22). Hema's fruit and vegetable boxes can be recycled—Hangzhou takes the lead. *China National Radio*. Retrieved from <http://food.cnr.cn/>
- [13] Ministry of Commerce of the People's Republic of China, & National Development and Reform Commission. (2023). Administrative measures for the use and reporting of single-use plastic products by business entities in the commercial sector (Order No. 1, 2023). Beijing: Ministry of Commerce
- [14] Korea Bizwire. (2023, November 26). Overwhelming public support for a government-wide single-use plastic ban, despite a recent regulatory setback. Retrieved from <http://koreabizwire.com/overwhelming-public-support-for-government-wide-single-use-plastic-ban-despite-recent-regulatory-setback/266012>
- [15] Yonhap. (2023, November 7). S. Korea retracts bans on disposable cups at cafes, restaurants. *The Korea Herald*. Retrieved from <https://m.koreaherald.com/article/3252973>
- [16] Zhu, H. Y. (2023, November 26). Part of the environmental companies fall into a bankruptcy crisis! South Korea's Ministry of Environment withdraws ban on single-use products, questioned. *Xinmin Net / CCTV Finance*. Retrieved from <https://news.xinmin.cn/2023/11/26/32530786.html>
- [17] Mai, Y., Tang, Y., & Meng, L. (2023). Research on the impact of selective environmental information disclosure on corporate green reputation. *Environmental Economic Research*, (1), 62-76.
- [18] Lublóy, Á., Keresztúri, J. L., & Berlinger, E. (2024). Quantifying firm-level greenwashing: A systematic literature review. *Journal of Environmental Management*, 373, 123399. <https://doi.org/10.1016/j.jenvman.2024.123399>
- [19] Barbosa, B., Shabani Shojaei, A., & Miranda, H. (2023). Packaging-free practices in food retail: the impact on customer loyalty. *Baltic Journal of Management*, 18(4), 474-492. <https://doi.org/10.1108/BJM-10-2022-0386>
- [20] Us, Y., Pimonenko, T., & Lyulyov, O. (2023). Corporate social responsibility and renewable energy development for the green brand within SDGs: A meta-analytic review. *Energies*, 16(5), 2335. <https://doi.org/10.3390/en16052335>
- [21] Zhang, Q., Ahmad, S., & Wan, T. (2024). How does corporate greenwashing affect consumers' green trust? The serial mediating role of green brand image and green brand association. *Journal of Cleaner Production*, 434, 139555. <https://doi.org/10.1016/j.jclepro.2023.139555>
- [22] Riva, F., Magrizzos, S., Rizomyliotis, I., & Rajib Uddin, M. (2024). Beyond the hype: Deciphering brand trust amid sustainability skepticism. *Business Strategy and the Environment*, 33(7), 6491-6506.