Article

Reverse Logistics Strategies and Their Effect on the Competitiveness of Fast-Moving Consumer Goods Firms in South Africa

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Abstract: *Background:* The fast-moving consumer goods (FMCG) sector contributes significantly to the gross domestic product (GDP) growth of a country. This has therefore led to the growth in importance of reverse logistics (RL) since the FMCG sector cannot avoid RL. It is therefore important for the sector to implement RL strategies that can lead to firm competitiveness. Through the implementation of RL strategies, this sector will achieve many goals as well as lead to firm competitiveness. This study mainly sought to investigate RL strategies and their effect on firm competitiveness. *Methods:* A positivist research philosophy was employed. Data were collected through two close-ended questionnaires via SurveyMonkey from 418 FMCG retailers and consumers. This is because customers and employees are the greatest asset for any sector. *Results:* The descriptive results revealed the following RL strategies as the highly implemented ones among FMCG retailers: integration of forward logistics (FL) and RL, the implementation of new technology, the adherence to environmental policies and regulations, knowledge management, eco-compatibility and strategic alliances. The structural equation modeling (SEM) analysis revealed that RL strategies have a positive and significant influence on firm competitiveness. *Conclusion:* The results offer insight into the RL strategies that must be carried out to achieve firm competitiveness.

Keywords: reverse logistics (RL); fast-moving consumer goods (FMCG); retail sector; South Africa (SA); strategies; firm competitiveness

1. Introduction

The FMCG sector is regarded as one of the largest and most rapidly growing sectors in the South African economy, contributing significantly to the gross domestic product (GDP) growth of the country [1,2]. Worldwide, the fast-moving consumer goods (FMCG) sector is one of the largest sectors, dominated by well-established brands such as Coca-Cola [3]. This sector also offers substantial employment for individuals, ranging from business sales, meat manager, baker, perishable traders and many more positions [3]. The FMCG sector is regarded as one of the most unpredictable and toughest sectors to succeed in due to intense competition, the passing of new regulations and rapid technological advancements which result in customers not easily forgiving any minor defects or problems in products [4].

This has led to the growth in importance of reverse logistics (RL). In this study, RL is used in accordance with [5], who defined it as the management of all the activities involved in the flow of goods in the opposite direction of the primary logistics flow, such as the disposal and recycling of waste in a way that maximises the long-term profitability of the business. RL has been in existence as far back as forward logistics (FL), and it has grown to be a critical area of supply chains (SC) [5]. Initially, products were not produced to be returned to the supplier, as manufacturers did not foresee product failures; they were only designed to flow in a forward direction [6]. However, if there is a problem with the product, RL will become, imminent especially because of the product recalls [7,8].

Organisations would normally instigate a product recall mainly because the product's quality, safety or packaging is compromised at any stage of the SC (e.g., at the source, during production, packaging, transportation, at the warehouse facility or even at the retailer's facility) [9]. In SA, there have been several FMCG recalled and returned for a variety of reasons. For instance, in 2017 there was an outbreak of listeriosis, which was announced in March 2018 by the South African Minister of Health. This led to the recall and return of polony and Vienna sausages of a company named Enterprise, since these products were identified as the sources of the outbreak [10]. These products were recalled as they threatened the lives of many individuals (as the products were exported to other countries), and the recall amounted to 415 million Rand [11]. In February of 2020, there was a recall of tinned fish products in SA. Pilchards in tomato sauce and pilchards in chilli sauce were recalled from stores across the country due to an investigation that discovered a deficiency in the canning process, which could affect the consumers' safety [12]. The Liqui Fruit Red Grape Still 330 mL can was also recalled in 2020 because three consumers found "small shards of glass" in their cans [13]. Recently, in 2021, the KOO as well as Hugo's canned vegetable products were recalled due to an "extremely small number" of defective cans supplied by a packaging supplier [14].

RL cannot be avoided as products can be damaged in transit, recalled, returned due to unsatisfied customers, turned into scrap material or due to the products having defects [15]. In such cases, there is need for an organisation to recover as much value as possible from the returned product by either repairing, repackaging, recycling or remanufacturing, or even reselling to company staff or to secondary markets at a lower price or reusing the product to recover its value [16]. More so, RL becomes unavoidable in situations where an organisation may regard a product as waste either because it sees no residual value in the product or it sees the product as obsolete, or its residual value is considered unrecoverable or the product is unsafe to consume, leading to the dumping of those items at landfills or even their incineration [16].

RL in the FMCG sector is worth a lot of money, as some of its products cannot be recycled, refurbished or remanufactured, but can only be disposed of; therefore, organisations need to take into consideration the policies, regulations and environment before disposing goods [7]. However, in cases where the product is still safe to consume but the organisation has no value for it, the organisation can donate it to charity, welfare organisations or to the communities at zero cost [16,17].

RL has been receiving a lot of attention recently both in research and in practice. Authors such as [18,19] have conducted research on the RL topic. According to Chebolu-Subramanian and Gaukler [9] (p. 342), "the pressure to reduce costs has triggered many food SCs to move to offshore production activities, making the logistics of recall events more challenging and costlier for SCs". However, Strategic RL network management can have a huge impact on a firm's overall operations [20]. Therefore, if there is an effective RL management system in an organisation, many goals will be achieved, such as increasing the cumulative value of the brand, decreasing operational costs, meeting the environmental protocols and increasing the satisfaction of customers [21]. Anne, Nicholas, Gicuru and Bula [22] (p. 678), in support of this, point out that RL allows firms to manage waste and improve their competitiveness through their improved environmental efficiency. A study by Sorkun and Onay [21] has associated RL with benefits such as absorbing customers, saving costs, improving environmental performance and improving company images.

Given this, the primary objective for this was to investigate RL strategies and their effect on firm competitiveness. To achieve this objective, the study had the following sub-objectives: SO_1: identify RL strategies that can enhance the competitiveness of FMCG retail firms; SO_2: assess the influence of RL strategies on the competitiveness of FMCG retail firms.

A positivist research philosophy, which combines descriptive and explanatory research, was employed to ensure that these objectives were addressed. Furthermore, a quantitative research approach was also employed because of the recent 2020 outbreak of the COVID-19

pandemic, where the researcher wanted to ensure the safety of both the researcher and the respondents. A quantitative approach further assisted in addressing the research aims, objectives and the research problem. Using a quantitative approach enabled the researcher to address the research problem through the quantitative results from the implementation of RL strategies that can be implemented in the FMCG retail sector that can better assist consumers, workers, supervisors and managers in Pretoria to gain competitiveness through enhancing customer satisfaction.

Data were collected through two close-ended questionnaires via SurveyMonkey, from 418 FMCG retailers and consumers. The data were analysed using the Statistical package for the Social Sciences (SPSS) version 27. Moreover, the study employed structural equation modeling (SEM) analysis conducted through AMOS version 27 to test the influence of RL strategies on firm competitiveness.

The findings of this study have indisputably contributed significantly to the theory development of future studies. The field of RL is dynamic, and there is dearth of research dealing with RL strategies in the FMCG sector in SA. Therefore, this study will play an important role in the field by providing new insights and contributing to the body of knowledge. Furthermore, RL strategies will also lead to an effective RL management system, which will lead to an achievement of many goals, such as improving the cumulative value of the brand, decreasing the operational costs, meeting the environmental protocols and increasing the satisfaction of customers. Thus, this current study will indisputably assist the FMCG retail sector, managers and practitioners in the successful implementation of RL—through enabling the FMCG retail managers in identifying the strategies which they need to achieve firm competitiveness.

The rest of this paper is structured as follows: Sections 2 and 3 provide the literature review and research methodology, respectively. Sections 4 and 5 provide the results and discussion, respectively. Lastly, Section 5 explains the concluding remarks.

2. Literature Review

RL has been receiving a lot of attention recently and has been frequently studied owing to its benefits. However, there is dearth of literature on RL strategies and how it can lead to a firm's competitiveness. This study's literature review will therefore focus on summarising literature on the FMCG sector in SA, reverse logistics strategies, reverse logistics and the firm's competitiveness and theoretical framework, and finally will describe the research gap.

2.1. FMCG in South Africa

There have been studies on the FMCG sector, however none that have focused on RL. Mbuvu's [1] (p. 133) study, listed in Table 1, indicated that "FMCG companies are the link between suppliers and customers and are therefore in a position to play an essential role in driving green SC initiatives in the total SC. Thus, in order to establish a database of greening practices, firms including those in the local FMCG sector should be encouraged to participate in similar studies on a specific basis". The results of Agigi, Niemann and Kotzé [23] (p. 11) explained that "multi-sourcing and strategic stock are two of the main redundant design strategies used by San FMCG grocery manufacturers. The strategies allow firms to maintain continuity of operations. The firms currently follow a mixed distribution model allowing them the flexibility of having numerous facilities in case one of the facilities is affected by a disruption". Meyer et al. [2] (p. 8) further indicate in their findings that "in SAs FMCG sector, buyer organisations now include environmental initiatives as a key requirement in their supplier selection criteria, while, buyer and supplier relationships are built on high standards of trust and quality". In their study, Meyer et al. [2] further suggest that a quantitative research could be used in future studies since it will encourage participants to be more open when disclosing negative experiences. Table 1 further tabulates studies that have been conducted in the FMCG sector in SA.

Table 1. Summary of literature in the fast-moving consumer goods sector.

Author	Year	Title of Study
[1]	2015	Green supply chain management challenges in the South African fast-moving consumer goods industry: a case of Unilever
[23]	2016	Supply chain design approaches for supply chain resilience: A qualitative study of South African fast moving consumer goods grocery manufacturers
[2]	2019	Environmental initiatives: A study of dyadic buyer and supplier relationships in the South African Fast-Moving Consumer Goods industry
[24]	2020	Conveniently healthy: The impact of health endorsements on brand trust, brand loyalty and brand equity in Fast Moving Consumer Goods convenience versus shopping goods

The literature review indicated that there is limited research conducted on RL and RL strategies in the FMCG sector as well as the link between retailers and buyers regarding achieving firm competitiveness, hence the gap which resulted in this study being conducted. The next section will thus discuss RL strategies.

2.2. Reverse Logistics Strategies

There are different RL strategies employed in different industries for different reasons. This study's RL strategies were identified through a literature review, and these includes studies from [25–28] amongst others. Gu, Wang, Dai, Wei and Chiang [25] based their research on the iron and steel industry in China. Their study employed a multi-criteria decision-making method to scrutinise dependency and feedback among the decision factors. The authors further suggested three RL construction strategies among the alternatives, which are: self-operation, joint-venture and outsourcing. These RL strategies were composed based on a review of the literature and in-depth interviews with experts and decision makers in the steel industry. From the RL strategies they mention, they have found the self-operation strategy to be the most suitable strategy to construct RL, bearing in mind the current state of the environment in China's iron and steel industry.

For Reeves' [26] study, the focus was on investigating strategies employed to manage risk by reducing the effects of disruptions on the SC of food and beverages. This was because SC managers in the food and beverage industry face substantial challenges concerning the usage of effective RL strategies to reduce SC disruptions, costs and control risks. The author listed communication, inspection and cost allocation as strategies that SC managers can utilise to alleviate risks within RL in the food and beverage industry SC. Additionally, it was suggested that SC leaders may use the findings to employ an effective inspection strategy to reduce damaged goods and enhance their communication flow with internal and external partners, and finally may employ a cost allocation strategy to reduce their financial exposure concerning returning products to the original source because of spoilage or damage.

Montemayor Leos [27] argues that recycling, reuse, energy recovery, repair, remanufacture, maintenance, refurbish and redistribution are RL strategies that can achieve circularity for curtain walls and window façade constructions. The author saw a need for a framework in which RL strategies need to be developed, with the assistance of appropriate stakeholders, to create cognisance. An investigation of the existing literature and circumstances applied to curtain walls and window façade constructions was conducted, which led to the proposed RL strategies to facilitate the RL process.

Pushpamali, Agdas and Rose [28] addressed key knowledge gaps in the environmental impact of RL strategies from a construction SC perspective. Their study, just like [27] employed recycling, reusing, landfilling and remanufacturing as RL strategies that can help recover material value, which is vital to reduce the social and environmental burden of industry. Their results indicated that "reuse" as an RL strategy has the least environmental impact, followed by remanufacturing, which has a lesser effect on the environment than

other options, with recycling being the second highest, and landfilling being measured as the least environmentally friendly end-of-life option. The RL strategies discussed by [28] are similar to those indicated by [27], but they differ from the ones mentioned by [25,26].

Therefore, in the current study, the integration of FL and RL, implementation of new technology, adherence to environmental policies and regulations, and knowledge management, eco-compatibility, and strategic alliances are RL strategies that were used, with the reasoning that implementing such strategies can assist FMCG retailers in improving firm competitiveness. FMCG retailers can implement these RL strategies to achieve a sustainable competitive advantage and increase revenues in a highly competitive market [25]. According to Waggoner [29], a firm can also gain a competitive advantage by offering customers greater value than its competitors, such as providing better quality services, offering lower prices or other benefits that justify a higher price.

2.3. Reverse Logistics and Firm Competitiveness

Oyewobi, Windapo and Cattell [30] highlight that the concept of competitiveness is deep-rooted in the early theories that surround comparative advantage. According to Schwab [31] (p. 11), "among the BRICS in 2019, China was by far the best performer, ahead of the Russian Federation, 32 places ahead of South Africa (60th) and some 40 places ahead of both India (68th) and Brazil (71st). Although the Global competitiveness report [31] showed that there was no improvement in SAs global competitiveness ranking, it was still ranked the 2nd most competitive economy in the Sub-Saharan Africa in the same year". Improved firm competitiveness can enhance supply chain (SC) competitiveness, which in turn contributes towards an industry and country's performance [32]. Although numerous firms are reported to make every effort to achieve a competitive advantage, a limited number of these firms understand what a competitive advantage is and how it can be attained and kept [29]. This study's variables for firm competitiveness were identified through a literature review, which included studies from [16,29,30,33,34], amongst others.

Previous studies by Kühn [33] focused on innovation and competitiveness, specifically focusing on competitive intelligence as an instrument to make better use of information in SA. The study found that SA was placed on position 41 out of 102 economies on the Global Competitiveness Index. It was also found that knowledge and its application were amongst the key sources and drivers of growth and development in the global economy. This therefore provides an opportunity for SA to improve its economic standing globally.

The study by Van Rooyen, Esterhuizen and Stroebel [34] concentrated on analysing the competitive performance of the South African wine industry. These authors also indicated the drop in SA's ranking, which was because of challenges ranging from inefficient government bureaucracy, inadequate supply of infrastructure, inadequately educated workforce, crime and theft, and restrictive labour regulations. Their findings also indicated that there is a low rating on government support.

Hove-Sibanda et al. [16] focused on the sustainability of RL practices as a source of competitive advantage for small and medium enterprises (SMEs). Their study viewed the effective implementation of RL as a source and fundamental capability of SMEs' competitive advantage. Oyewobi et al. [30] took it a step further by focusing on the competitiveness of construction organisations in SA. Corruption, problems related to trade unions, prolonged negotiation periods, leadership style and political instability were perceived by the authors as factors influencing an organisation's strategy and indirectly influencing its performance. Ali, Zalavadia, Barakat and Eid [35] measured the impact of RL performance indicators, specifically, cost, recycling efficiency, time, quality and waste, on sustainability performances in FMCG industries. It was found in their study that RL performance indicators have a significant positive impact on environmental performance. Economic performance was also positively influenced by recycling efficiency and quality. Finally, their results also indicated that recycling efficiency positively influenced social performance.

According to Barney [36] (p. 102), "a firm is said to have a competitive advantage when employing a value-creating strategy not concurrently being employed by another

firm or competitor". According to Mvubu and Naude [37], there are typically low-profit margins of goods and services in the FMCG sector; therefore, selling large volumes to FMCG retailers can lead to competitive advantages. It is therefore argued by [16] that for firms to improve their competitive advantage, they have to deliver distinctive final goods that cannot be easily imitated, or they need to lead in cost efficiency through their firm's practices compared to their rivals and further differentiate themselves from the rest. This is especially possible where a firm has policies and RL strategies in place and also complies with the environmental laws governing RL implementation, which will aid the firm in mitigating the adverse effects from both internal and external factors.

In the current study, the firm's competitiveness is assumed to be achieved through cost savings leadership or may take the form of value advantages that originate from the ability to implement RL strategies in a way that differentiates the FMCG retailer in an inimitable manner. Thus, the next section will develop an RL strategies and firm competitiveness conceptual framework and discuss it therein.

2.4. Conceptual Framework

Employing the correct RL strategies can have a positive impact on a firm, leading to the firm's competitiveness. This is evident in the studies conducted in the last five years, with the central objective being determining the effect of RL strategies on firm competitiveness. Da Silva, Dias and Gonçalves's [38] study indicated that there has been an increase in research conducted on RL strategies in the waste electrical and electronic equipment industry in the past few years. They indicate that the increase began in 2016. The objective of their work was to present a bibliometric review of the RL strategies applied in waste electrical and electronic equipment management. Furthermore, the study served as the basis of scientific evidence in RL strategies applied in different studies in the waste electrical and electronic equipment industry, which could be used in future works.

Reeves's [26] objective was to have a complete understanding of the RL strategies used by SC managers. Some of the sub-objectives included: (1) identifying RL strategies used to control cost through risk mitigation, (2) identifying strategies that support the internal and external resources that control cost in the RL process, (3) identifying resources for the successful implementation of RL strategies, (4) identifying the most effective RL strategy, (5) ascertaining how the RL strategies reduce cost, (6) assessing key challenges faced while implementing RL strategies, and (7) identifying how the key challenges faced could be addressed. Their results showed that SC managers use several RL strategies (namely: communication, inspection and cost allocation strategies) effectively to mitigate risk and disruption in the food and beverage industry.

Pushpamali et al. [28] (p. 1) studied strategic decision making in the construction SC, comparing RL strategies. Subsequently, the study highlighted the significance of informed strategic SC decisions for RL to obtain the best outcome from environmentally friendly practices. The hypothesis of their study was that "alternative RL strategies provide more environmental benefits than recycling (the most common RL method), and traditional landfilling. The hypothesis was tested through assessment of the environmental impact of RL options in the construction sector". The research addressed a key knowledge gap in the construction industry on the environmental impact of RL strategies from an SC perspective. To some extent, refs. [25,27] also had an objective of showing how the successful implementation of RL and its strategies can lead to a firm's competitiveness.

Gu et al. [25] utilised a case study to demonstrate how industry experts in China can measure economic, social, environmental, governmental policy, internal management and external market conditions using the Analytic Network Process method to recommend the best RL strategy. This is depicted in Figure 1.
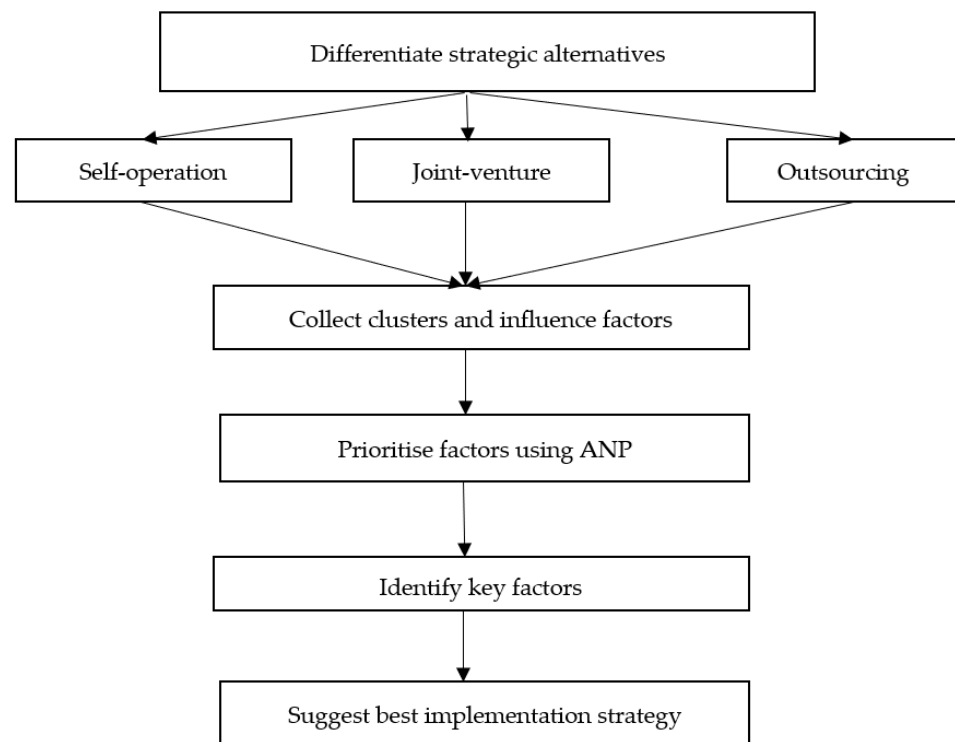
Figure 1. Framework for identifying the best RL strategy.

The framework in Figure 1 shows that self-operation, joint-venture and outsourcing are some of the RL strategies that firms can employ. Informed by Gu et al.'s [25] framework, the current study's conceptual framework proposed a relationship between RL strategies and the firm's competitiveness.

This current study hypothesised that H_{01}: Implementing RL strategies, has no significant influence on the competitiveness of FMCG retail firms; H_1: Implementing RL strategies, has a significant influence on the competitiveness of FMCG retail firms. These are depicted in Figure 2.
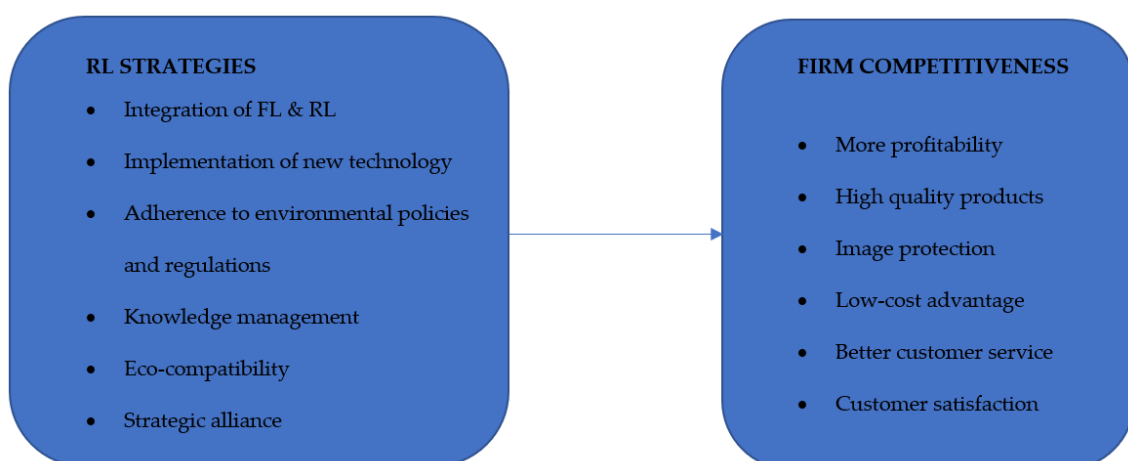

Figure 2. RL strategy conceptual framework.

2.5. Research Gap

An extensive search on Sabinet, ResearchGate and Google Scholar indicated that no research has been conducted on the RL of FMCG, RL strategies in the FMCG sector, RL strategy frameworks to achieve a firm's competitiveness and RL competitiveness frameworks for FMCG retailers, and such a gap therefore exists in literature.

The current study therefore tested the influence of RL strategies on the competitiveness of FMCG retailers. The study sought to develop an RL competitiveness framework for FMCG retailers.

3. Research Methodology

This section discusses the research approach, sampling design, data collection, data analysis, establishing validity and reliability of the study, as well as ethics.

3.1. Research Approach

A positivist research philosophy worldview was followed in this study because it "assumes an objective world"; "searches for facts"; "generalises results"; "uses scientific methods" and is "not interested in meaning, but only proven facts" [39] (p. 359). The positivist research philosophy also allows for generalising the results and is objective in nature. This study further employed a combination of descriptive and explanatory research. The descriptive research design helped the researcher to describe the FMCG retailers' and customers' profile and RL strategies in the FMCG retail sector.

The explanatory research design was used to explain hypothesised linear relationships between strategies and a firm's competitiveness using quantitative data. This study aimed to develop a framework that uses RL strategies to improve a firm's competitiveness, following a quantitative research design. Due to the 2020 outbreak of the COVID-19 pandemic, the researcher utilised a quantitative research approach to conduct this study to ensure the safety of both the researcher and the respondents. A quantitative approach assisted in addressing the research aims, objectives and the research problem. According to Quinlan, Babin, Carr, Griffin and Zikmund [40] (p. 129), a quantitative research approach "addresses the research objectives through empirical assessments involving numerical measurements and analysis approaches". Using a quantitative approach enabled the researcher to address the research problem through the quantitative results for the RL strategies that can be implemented in the FMCG retail sector that can better assist consumers, workers, supervisors and managers in Pretoria to gain competitiveness through enhancing customer satisfaction. The aim was that this would lead to the creation of a suitable competitive framework for RL in the FMCG retail sector.

3.2. Sampling Design

The population for this study was comprised of the FMCG retailers and consumers in Pretoria. This consisted of retail stores such as Pick n Pay stores, Woolworths stores, Checkers stores, Spar stores and Boxer stores because these retail stores are some of the biggest retailers that involve the reversal of FMCG. This population was inclusive of retail store managers, logistics managers/customer care managers, supervisors, third party RL service providers and shoppers or consumers of the FMCG. Any shoppers/customers above the age of 18 in Pretoria, SA, formed part of the targeted population in this study. The researcher is from this city, and since these retail stores are some of the biggest retailers that involve the reversal of FMCG, they indicated strengths of not being time consuming, not very costly, easy to administer and able to assist the researcher to acquire the information required to address the research questions formulated.

As part of this research, a non-probability purposive sampling method was used to enroll the respondents of this study because the researcher had a specific purpose in mind, which was to investigate the RL strategies for FMCG retailers in Pretoria and develop a firm competitiveness framework that can help the retailers to achieve a competitive advantage. A purposive sampling method was used since the sampling population was to be selected on purpose. The researcher recruited the FMCG retailers through the retailer's database and sent out personal emails with the link to the required personnel that deal with RL. A link was further provided to consumers through social media platforms, such as emails and LinkedIn. The retailers and consumers provided information-rich cases and addressed issues relating to the research objectives and questions.

Due to COVID-19, it was impossible to track the number of retail store managers, logistics managers/customer care managers, supervisors, third party RL service providers and shoppers in Pretoria; however, as the researcher used purposive sampling, a large number of completed questionnaires were obtained, and all the targeted respondents in Pretoria, SA, had some degree of chance to be included in the sample of data collection. The total population for this study was not known, and therefore the scholar-practitioner determined the sample size of 520 respondents, which comprised 500 FMCG consumers and 20 respondents from the FMCG retail employees. The FMCG retailers' employees, which comprised store managers, logistics managers/customer care managers, supervisors and third-party RL service providers from retail stores such as Pick n Pay stores, Woolworths stores, Checkers stores, Spar stores and Boxer, were appropriate. According to Gay, Mills and Airasian [41], with a population size (N) = 5000 or more, the population size is irrelevant, and therefore a sample size of 400 will suffice. Therefore, as per Gay et al. [41], the sample size of 520 was sufficient. The unit of analysis encompassed retail store managers, logistics managers/customer care managers, supervisors, third party RL service providers and consumers because they deal with returns at some stage.

Furthermore, the inclusion criteria used for consumers were participants over the age of 18 and below the age of 65 who buy FMCG and reside in Pretoria because they are information-rich with regard to returning products, recycling, re-using and suitable disposal, amongst others. The inclusion criteria for the FMCG retailers were store managers, logistics managers/customer care managers, supervisors and third-party RL service providers that work at Pick n Pay stores, Woolworths stores, Checkers stores, Spar stores and Boxer, amongst others in Pretoria. Therefore, consumers under the age of 18 and over the age of 65 were excluded because of ethical reasons. Furthermore, the consumers that do not reside in Pretoria and FMCG retailers that were not store managers, logistics managers/customer care managers, supervisors and third-party RL service providers that did not reside in Pretoria were excluded. The SurveyMonkey web-based research platform was instructed to exclude participants that fall within the exclusion criteria.

3.3. Data Collection

Data collection was completed through two close-ended questionnaires. The questionnaires were converted into SurveyMonkey web-based research platform questionnaires, and one questionnaire was used to collect data from the FMCG consumers, while the other questionnaire was used by retailers because it is less expensive. The FMCG retailers' questionnaire had three sections (A–C). Section A of the questionnaire consisted of a nominal scale based on the demographic information of the respondents. Sections B to C consisted of multi-term measures on the firm's competitiveness and RL strategies, respectively, and these measures were anchored to a five-point Likert ordinal scale.

The FMCG customers' questionnaire had four sections (A–D). Section A of the questionnaire consisted of a nominal scale based on the demographic information of the respondents. Section B of the questionnaire consisted of descriptive questions based on RL. Sections C to D consisted of multi-term measures on the firm's competitiveness and RL strategies, and these measures were anchored to a five-point Likert ordinal scale. The link was distributed through email and through the LinkedIn and WhatsApp social media platforms to the participants. This allowed the researcher to gather data from a large group of FMCG customers and retailers. The researcher ensured the safety of both the researcher and respondents given the current COVID-19 pandemic. Quantitative data were collected and then used to deliver an inclusive analysis of the research problem. The questionnaire items were adapted from previous questions from other researchers and literature in this field.

3.4. Data Analysis

The Statistical package for the Social Sciences (SPSS) version 27 from Osmoz consulting in Johannesburg, South Africa, was used to perform descriptive analysis on RL strategies

and firm competitiveness. The reliability, convergent validity and discriminant validity tests were also performed in SPSS version 27. Furthermore, a correlation test was used because, as mentioned by [40] (p. 366), it is "a single number that can describe the degree of relationships between any two variables and will further measure the extent to which an independent variable predicts a dependent variable".

This study also performed a confirmatory factor analysis (CFA) and structural equation model (SEM) analysis (standardised regression path analysis) in the Analysis of Moment Structures (AMOS) software version 27. This was because SEM represents a flexible and comprehensive methodology for representing, estimating and testing a theoretical model with the objective of explaining as much of their variance as possible [42]. The purpose of this analysis was to evaluate the structural relationships of the variables. The current study performed SEM path analysis in AMOS version 27 to test the influence of RL strategies on the competitiveness of FMCG retailers. In this study the CFA confirmed already existing and tested questionnaire items, adopted and adapted from previous studies, such as [43–45]. Furthermore, frequency tables and diagrams and charts were used to discuss the results [46].

3.5. Establishing Validity and Reliability

A Cronbach's alpha coefficient test performed in SPSS version 27 was used to test reliability. To ensure the validity of the research questionnaire, the researcher conducted a pilot test. Through the pilot test, the data collection instrument was measured for both its face and content. To test construct validity, this study performed both the convergent and discriminant validity tests in SPSS version 27.

3.6. Ethics

The researcher received approval for ethical clearance (ethical clearance reference number: H21-BES-LOG-050) from the Faculty of Business and Economic Sciences Research Ethics committee at the Nelson Mandela University. Moreover, the researcher adhered to all ethical guidelines relevant to the rights of the participants, as required by the Research Ethics Committee at the Nelson Mandela University. During enrolment and data collection, the purpose of the study was clearly communicated to the study's respondents through a cover letter which further requested respondents' participation.

The questionnaire made a provision for consent to participate where respondents were asked to voluntarily sign an informed consent form. The respondents were further asked to confirm their consent by agreeing to the terms and conditions of the study through a tick box on the SurveyMonkey web-based research platform, ensuring that there was no invasion of privacy and deception involved. Participation in the study was completely voluntary, and participants were informed of their right to withdraw from the survey at any time if they wished to do so. Respondents were not exposed to unnecessary physical or psychological harm (unusual stress, embarrassment or loss of self-esteem). Under no conditions was the report, either oral or written, presented in such a way that others became aware of how other participants responded.

The study did not collect any personal information in order to ensure the respondents' right to remain anonymous. The data collected were kept in strict confidence. The study complied with the Protection of Personal Information Act by ensuring that no personal information gathered for the purposes of sharing the online survey link were shared. More so, the database created for data collection purposes in this study was deleted. The researchers and supervisors' contact details were provided to participants in case they wished to make contact at any stage of the research. The Harvard reference style was employed to ensure that all sources consulted are acknowledged, both in-text and in the reference list.

4. Results

Data collection was conducted in a period of two months, and Table 2 gives a summary of the response rate.

Table 2. Response rate.

Sample Size	Response Rate	Percentage
520	418	80.38%

Table 2 indicates that from the initial targeted sample size of 520 (500 for the customer survey and 20 for the retailers' survey), a total of 418 questionnaires (402 for the customer survey and 16 for the retailer's survey) were completed in full, thus yielding an 80.38% response rate. According to Mugenda and Mugenda [47], a 50% response rate is adequate, a 60% response rate is good and a 70% and above response rate is very good. Therefore, based on this statement, the 80.38% response rate obtained in this current study is very good. The empirical results obtained in this study are discussed and presented as means in tables and graphs, and are reported in the three phases (Descriptive analysis, normality assessment and SEM).

4.1. Phase 1: Descriptive Analysis Results

4.1.1. Reverse Logistics Firms' Competitiveness

This section illustrates and discusses the results from the retail managers and customers based on the extent to which they agreed or disagreed with statements on FMCG retail firms' achievement of competitiveness. In measuring the RL firm's competitiveness, a five-point Likert scale where the value 1 corresponds to "Strongly disagree" and the value 5 corresponds to "Strongly agree" was employed. The mean point of the five-point Likert scale is 2.5 (5/2); thus, any mean scores below 2.5 indicate that most respondents tend to either Disagree or Strongly Disagree with the statements measuring the constructs, while mean scores between 2.5 and 3.4 indicate that most respondents neither agree nor disagree with the statements measuring the constructs. All the mean scores equal to or above 3.5 indicate that the majority of respondents tend to either agree or strongly agree with the statements measuring the construct. The results are illustrated in Table 3 and Figure 3. The next paragraphs focus on the results from retail managers' insights.

Table 3. RL firms' competitiveness based on retailers.

Our fast-moving consumer goods (FMCG) retail firm is more profitable compared to our competitors				
	Frequency	**Percentage**	**Mean**	**Std.Dev**
Disagree	1	6.3		
Neither agree nor disagree	4	25		
Agree	5	31.3	4.00	0.966
Strongly agree	6	37.5		
Total	16	100		
Our FMCG retail firm provides products of higher quality as compared to our competitors				
Neither agree nor disagree	2	12.5		
Agree	4	25	4.50	0.730
Strongly agree	10	62.5		
Total	16	100		

Table 3. *Cont.*

Our fast-moving consumer goods (FMCG) retail firm offers products of lower cost as compared to our competitors				
Strongly disagree	1	6.3		
Disagree	2	12.5		
Neither agree nor disagree	4	25	3.56	1.209
Agree	5	31.3		
Strongly agree	4	25		
Total	16	100		

Recycling waste has enabled our FMCG retail firm to offer products of better value than that of our competitors				
Strongly disagree	1	6.3		
Disagree	2	12.5		
Neither agree nor disagree	3	18.8	3.75	1.291
Agree	4	25		
Strongly agree	6	37.5		
Total	16	100		

Dumping waste in a legally controlled and safe ground has helped us to protect our image				
Strongly disagree	1	6.3		
Neither agree nor disagree	1	6.3		
Agree	8	50	4.13	1.025
Strongly agree	6	37.5		
Total	16	100		

Reusing our expired products that are safe for use has made us gain a low-cost advantage over our competitors				
Strongly disagree	1	6.3		
Disagree	2	12.5		
Neither agree nor disagree	7	43.8	3.19	0.981
Agree	5	31.3		
Strongly agree	1	6.3		
Total	16	100		

Changing the packaging of returned damaged products and selling them to second-hand markets have helped us improve our product image				
Strongly disagree	5	31.3		
Disagree	1	6.3		
Neither agree nor disagree	1	6.3	3.06	1.611
Agree	6	37.5		
Strongly agree	3	18.8		
Total	16	100		

Having a product returns policy has helped us to improve our image in the market				
Neither agree nor disagree	1	6.3		
Agree	3	18.8	4.69	0.602
Strongly agree	12	75		
Total	16	100		

Table 3. *Cont.*

Having a separate unit that deals with the returned products has helped us improve our service or to our customers				
Neither agree nor disagree	7	43.8		
Agree	7	43.8	3.69	0.704
Strongly agree	2	12.5		
Total	16	100		
Having dedicated staff to handle customers complaints have helped us improve customer satisfaction with our service				
Neither agree nor disagree	5	31.3		
Agree	6	37.5	4.00	0.816
Strongly agree	5	31.3		
Total	16	100		
Mean: 3.86 Std.Dev: 0.515				

RL Firm competitiveness

N=16

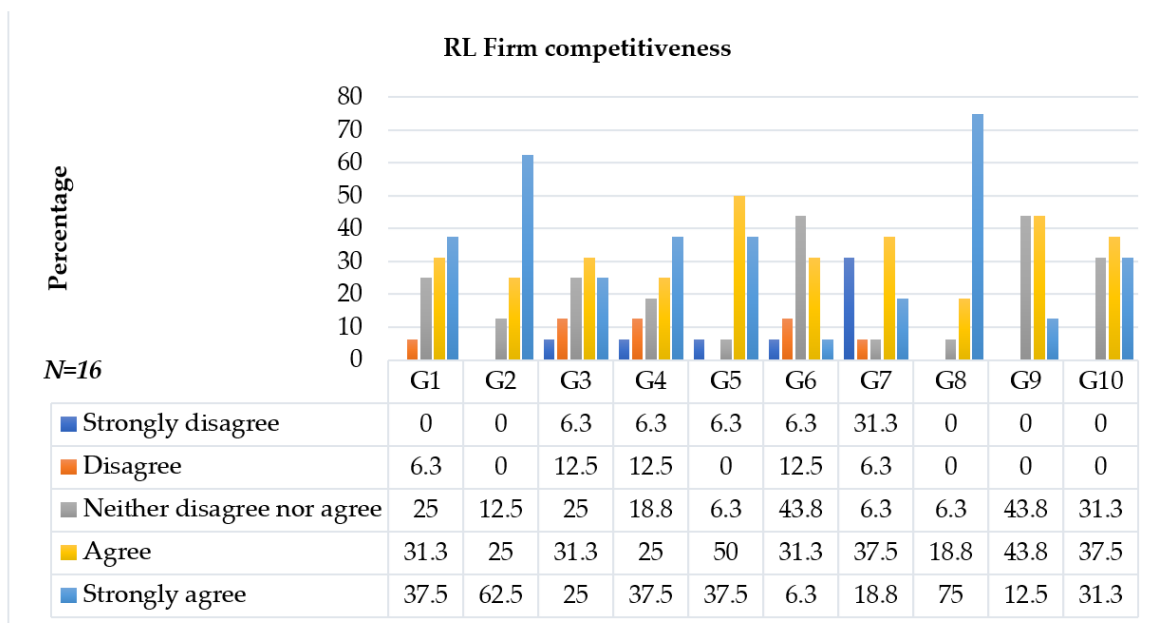|	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Strongly disagree	0	0	6.3	6.3	6.3	6.3	31.3	0	0	0
Disagree	6.3	0	12.5	12.5	0	12.5	6.3	0	0	0
Neither disagree nor agree	25	12.5	25	18.8	6.3	43.8	6.3	6.3	43.8	31.3
Agree	31.3	25	31.3	25	50	31.3	37.5	18.8	43.8	37.5
Strongly agree	37.5	62.5	25	37.5	37.5	6.3	18.8	75	12.5	31.3

Figure 3. RL firms' competitiveness based on retailers. G1 = Our FMCG retail firm is more profitable compared to our competitors; G2 = Our FMCG retail firm provides products of higher quality as compared to our competitors; G3 = Our FMCG retail firm offers products of lower cost as compared to our competitors; G4 = Recycling waste has enabled our FMCG retail firm to offer products of better value than that of our competitors; G5 = Dumping waste in a legally controlled and safe ground has helped us to protect our image; G6 = Reusing our expired products that are safe for use has made us gain a low-cost advantage over our competitors; G7 = Changing the packaging of returned damaged products and selling them to second-hand markets has helped us improve our product image; G8 = Having a product returns policy has helped us to improve our image in the market; G9 = Having a separate unit that deals with the returned products has helped us improve our service to our customers; G10 = Having dedicated staff to handle customers complaints has helped us improve customer satisfaction with our service.

Based on the overall mean value (M = 3.86) in Table 3, a majority of the retail managers said they agree with the statements pertaining to RL firms' competitiveness. According to the results in Table 3, most (75%) of the retail managers strongly agreed and agreed

(18.8%) that having a product returns policy has helped their FMCG retail firms to improve their image in the market. In addition, 62.5% of the retail managers strongly agreed and agreed (25%) that their FMCG retail firm provides products of higher quality as compared to their competitors.

The results from Table 3 also show that 50% of the retail managers agreed and strongly agreed (37.5%) that dumping waste in a legally controlled and safe ground has helped them to protect their image. Furthermore, 43.8% of these managers agreed that having a separate unit that deals with the returned products has helped improve their service to their customers. However, 43.8% of the retail managers neither agreed nor disagreed that reusing their expired products that are safe for use has made them gain a low-cost advantage over their competitors. More results are depicted in Figure 3.

The results in Figure 3 further reveal that 37.5% of the retail managers agreed and strongly agreed (31.3%) that having dedicated staff to handle customers' complaints has helped them improve customer satisfaction with their service and outsourcing RL. Moreover, 37.5% of the retail managers strongly agreed and agreed (31.3%) that their FMCG retail firm is more profitable than their competitors' firms (G1). Additionally, 37.5% of the retail managers revealed that changing the packaging of returned damaged products and selling them to second-hand markets has helped them to improve their product image (G7). Moreover, 31.3% of these managers agreed that their FMCG retail firm offers products at a lower cost than their competitors (G3). Lastly, 31.3% of the retail managers from the FMCG retail firms in Pretoria suggested that recycling waste has enabled their FMCG retail firm to offer products of better value than that of their competitors.

This study further sourced for customer insights on the competitiveness of the surveyed FMCG retail firms. The results are illustrated in Figure 4 and Table 4. These results are also compared with those of Table 3 and Figure 3, based on retailers.
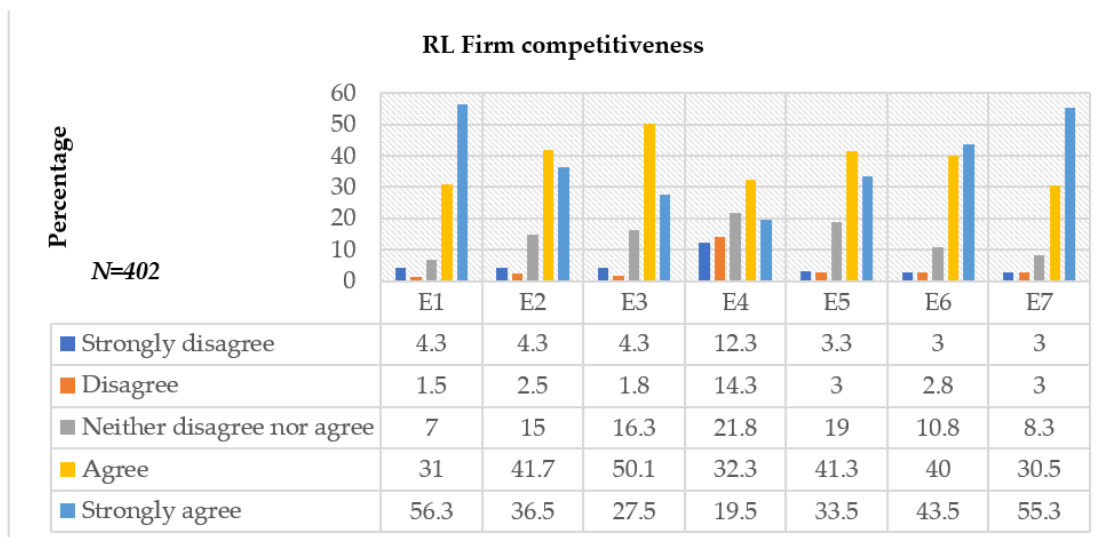

RL Firm competitiveness

N=402

	E1	E2	E3	E4	E5	E6	E7
Strongly disagree	4.3	4.3	4.3	12.3	3.3	3	3
Disagree	1.5	2.5	1.8	14.3	3	2.8	3
Neither disagree nor agree	7	15	16.3	21.8	19	10.8	8.3
Agree	31	41.7	50.1	32.3	41.3	40	30.5
Strongly agree	56.3	36.5	27.5	19.5	33.5	43.5	55.3

Figure 4. RL firms' competitiveness based on customers. E1 = The FMCG retailers should provide products of high quality; E2 = The FMCG retailers should provide lower and affordable product prices; E3 = We could get better product value from our FMCG retail firms' ability to recycle products; E4 = Changing the packaging of returned damaged products and selling them to second-hand markets can help the FMCG retailers improve their product image in the market; E5 = Having a product returns policy has helped the FMCG retailers improve their image in the market; E6 = Having a separate unit that deals with the returned products could help the FMCG retailers improve their service to customers; E7 = Having dedicated staff to handle customer's complaints can help the FMCG retailers improve customer satisfaction.

Table 4. RL firms' competitiveness based on customers.

Variable	Mean	Median	Std.Dev.
RL firm competitiveness	4.02	4.1429	0.707

The results in Figure 4 demonstrate that 56.3% of the customers strongly agreed and 31% agreed that the FMCG retailers should provide products of high quality. These results are supported by those from retail managers presented in Figure 3 because 62.5% of the retail managers also strongly agreed that their FMCG retail firms provide products of higher quality than their competitors.

The results in Figure 4 also show that 55.3% of the customers strongly agreed and 30.5% agreed that having dedicated staff to handle customers' complaints can help the FMCG retailers improve customer satisfaction. The results from Figure 3 suggest that 37.5% of the retail managers also agreed that having dedicated staff to handle customers' complaints has helped them improve customer satisfaction with their service.

More so, a total of 50.1% of the customers agreed that the FMCG retailers could get better product value from their FMCG retail firms' ability to recycle products. The results from the retail managers in Figure 3 have also revealed that they do recycle and this has enabled their FMCG retail firm to offer products of better value than those of their competitors.

Furthermore, 43.5% of the customers, as shown in Figure 4, strongly agreed and agreed (40%) that having a separate unit that deals with the returned products could help the FMCG retailers improve their service to customers. This agrees with the responses from the retailers in Figure 3, where the retail managers indicated that having a separate unit that deals with the returned products has helped them improve their service to their customers.

In addition, 41.7% of the customers agreed that the FMCG retailers should provide lower and more affordable product prices. This is in line with the retail managers' responses in Figure 3, which indicated that their FMCG retail firm does offer products at a low cost compared to their competitors. Moreover, 33.5% of the customers strongly agreed that having a product returns policy has helped the FMCG retailers improve their image in the market. The retail managers' responses in Figure 3 indicate that they do have a product returns policy and this has helped their retail firm to improve their image in the market.

Only 32.3% of the customers agreed that changing the packaging of returned damaged products and selling them to second-hand markets can help the FMCG retailers improve their product's image in the market. This confirms the retail managers' responses in Figure 3, which indicated that changing the packaging of returned damaged products and selling them to second-hand markets has helped them to improve their product image.

Given the results in Figure 4 and Table 4 above, most of the customers agreed with the statements about the firm's competitiveness because the overall mean score (M = 4.01) is above 3.5. From the results of both retail managers and customers' insights provided in Tables 3 and 4 and Figures 3 and 4, it is evident that implementing RL practices can help FMCG retailers to achieve firm competitiveness.

4.1.2. Reverse Logistics Strategies

The current study also sought to identify RL strategies that can enhance the competitiveness of FMCG retailers. To address this objective, literature on RL strategies was reviewed, and primary data were also gathered from retail managers and customers on RL strategies used in FMCG retail firms by means of a close-ended questionnaire. To measure the RL strategies, a five-point Likert scale where the value 1 corresponds to "Strongly disagree" and the value 5 corresponds to "Strongly agree" was employed. The mean point of the five-point Likert scale is 2.5 (5/2), and any mean scores below 2.5 suggest that most respondents tend to either disagree or strongly disagree with the statements measuring the constructs. Any mean scores between 2.5 and 3.4 suggest that most respondents neither

agree nor disagree with the statements measuring the constructs. All the mean scores equal to or above 3.5 suggest that the majority of respondents tend to either agree or strongly agree with the statements measuring RL strategies. The results are presented in Table 5 and are discussed in the next paragraphs. The results based on the retail managers' responses are discussed first, followed by those from the customers' responses.

Table 5. RL strategies implemented by FMCG retailers based on retailers.

The integration of forward and reverse logistics				
	Frequency	**Percentage**	**Mean**	**Std.Dev**
Disagree	1	6.3		
Neither agree nor disagree	3	18.8		
Agree	6	37.5	4.06	0.929
Strongly agree	6	37.5		
Total	16	100		
Implementing new technology				
Agree	11	68.8		
Strongly agree	5	31.3	4.31	0.479
Total	16	100		
Adherence to environmental policies and regulations				
Agree	7	43.8		
Strongly agree	9	56.3	4.56	0.512
Total	16	100		
Outsourcing reverse logistics				
Disagree	2	12.5		
Neither agree nor disagree	5	31.3		
Agree	3	18.8	3.81	1.109
Strongly agree	6	37.5		
Total	16	100		
Sharing of reverse logistics information				
Neither agree nor disagree	5	31.3		
Agree	8	50	3.88	0.719
Strongly agree	3	18.8		
Total	16	100		
Eco-compatibility using RL practices such as recycling, reusing, and not dumping products in landfills				
Disagree	1	6.3		
Agree	8	50	4.31	0.793
Strongly agree	7	43.8		
Total	16	100		
Strategic alliances with supply chain partners for fostering successful reverse logistics practices implementation				
Neither agree nor disagree	1	6.3		
Agree	10	62.5	4.25	0.577
Strongly agree	5	31.3		
Total	16	100		

Table 5. *Cont.*

Product value recovery through recycling and repackaging				
Strongly disagree	1	6.3		
Agree	7	43.8	4.31	1.014
Strongly agree	8	50		
Total	16	100		
Mean: 4.19 Std.Dev: 0.538				

The results presented in Table 5 show that a majority of the retail managers agreed with the statements measuring RL strategies because of the overall mean score (M = 4.19). According to the results shown in Table 5, 68.8% of the retail managers agreed and strongly agreed (31.3%) with implementing new technology. The results also show that 62.5% of the surveyed managers agreed and strongly agreed (31.3%) that strategic alliances with SC partners foster successful RL practice implementation in the FMCG retail firms. More so, 56.3% of the respondents strongly agreed and agreed (43.8%) to adherence with environmental policies and regulations as an RL strategy. According to Prakash and Barua [48], one of the top solutions to overcome the operational challenges of RL is to invest in state-of-the-art technology for RL. This therefore means that retail firms can achieve competitiveness by implementing new technologies.

Furthermore, 50% of the retail managers strongly agreed and agreed (43.8%) with product value recovery through recycling and repackaging as an RL strategy for FMCG firms. Moreover, 50% of these managers strongly agreed and agreed (43.8%) with eco-compatibility that utilises RL practices such as recycling, reusing and not dumping products in landfills as an RL strategy to help FMCG retail firms to achieve competitiveness. Similar to these results, 50% of the retail managers agreed with the sharing of RL information as an RL strategy for FMCG retail firms. In addition, 37.5% of these managers agreed and strongly agreed (37.5%) with the integration of forward and RL as an RL strategy for FMCG retail firms. Lastly, 37.5% strongly agreed to outsourcing RL as an RL strategy for FMCG retail firms. It is further suggested that FMCG retailers outsource RL because, as mentioned by Samson [43], outsourcing can further assist a firm in focusing on its core competencies, reducing costs (which leads to economies of scale), reducing a firm's asset base, and deploying the capital released for other productive uses.

As previously mentioned, data were also collected from customers to determine if they collate with the retailers' responses. The results are tabulated in Tables 6 and 7 below. As per Table 6 below, 46% of the customers agreed that strategic alliances with SC partners as an RL strategy for FMCG retailers can foster successful RL practice implementation. In addition, 62.5% of the retail managers indicated (Table 5) that this strategy is implemented in their FMCG retail store. The customers (44.8%) also agreed that the FMCG retailers in Pretoria are eco-compatible, which correlates with the results from retail managers' perspectives presented in Table 5, which revealed that FMCG retailers in Pretoria use eco-compatibility as an RL strategy in their firms.

A total of 44.5% of the customers indicated that FMCG retailers in Pretoria implement new technology as an RL strategy. This is in line with Ravi and Shankar [44], who stressed the need for information and communication technologies for supporting RL activities during the stages of the product life cycle and to enable the firm to remain competitive ahead of other firms.

Table 6. RL strategies implemented by FMCG retailers based on customers.

		Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	TOTAL %
	The Extent to Which the Following Reverse Logistics (RL) Strategies Are Followed in the Fast-Moving Consumer Goods (FMCG) Retail Firms in Pretoria (N = 402)	1	2	3	4	5	
F.1	The integration of forward and reverse logistics	2.8%	4.8%	29.3%	42.3%	21%	100%
F.2	Implementing new technology	3.3%	5.5%	14.5%	44.5%	32.3%	100%
F.3	Adherence to environmental policies and regulations	2.5%	4.5%	17.8%	42.3%	33%	100%
F.4	Outsourcing reverse logistics	3.5%	9%	32.3%	38.3%	17%	100%
F.5	Sharing of reverse logistics information	2.5%	5.8%	19%	41.3%	31.5%	100%
F.6	Eco-compatibility e.g., recycling, reusing, and not dumping products in landfills	2.5%	3.5%	16.3%	44.8%	33%	100%
F.7	Strategic alliances with supply chain partners for fostering successful reverse logistics practices implementation	3%	2%	19.5%	46%	29.5%	100%
F.8	Product value recovery through recycling and repackaging	2.3%	5.3%	16.3%	43.8%	32.5%	100%

Table 7. RL strategies implemented by FMCG retailers based on customers.

Variable	Mean	Median	Std.Dev.
RL Strategies	3.90	4.00	0.743

Moreover, 43.8% of the customers indicated that FMCG retailers in Pretoria utilise product value recovery through recycling and repackaging as an RL strategy. This correlates with the 50% of the retail managers' responses that indicated that their FMCG retail firm uses product value recovery through recycling and repackaging as an RL strategy. This resonates with the fact that environmental laws should be taken into consideration by firms, manufacturers and even retailers in order to partake in RL, as environmental complications may occur when dealing with RL [45].

Based on Table 6, 42.3% of the customers suggested that FMCG retail firms in Pretoria use adherence to environmental policies and regulations as an RL strategy. This is followed by 42.3% of the customers that agreed that FMCG retailers in Pretoria use the integration of forward and RL as an RL strategy. This is in line with the 37.5% of the retail managers who strongly agreed that their FMCG retail firms do integrate forward and RL and use it as an RL strategy. Moreover, 41.3% of the customers suggested that FMCG retail firms use the sharing of RL information as an RL strategy, which correlates with the results from 50% of the retail managers who agreed that their respective FMCG retail firms share RL information as an RL strategy (see results presented in Table 5).

Lastly, Table 6 indicates that 38.3% of the customers do agree that the FMCG retailers in Pretoria outsource RL, which correlates with the 37.5% of the retail managers' responses in Table 5 that indicated that their retail firms do outsource RL.

Based on the results in Table 7, most of the customers tended to agree with the statements about RL strategies because the overall mean score (M = 3.89) is above 3.5. This correlates with the results presented in Table 4 that revealed that a majority of retail managers agreed with the statements measuring RL strategies because of the overall

mean score (M = 4.19). The next section presents the normality assessment in Phase 2 of the analysis.

4.2. Phase 2: Normality Assessment

As recommended by Byrne [49] (p. 104), prior to examining the framework fit indices, a normality test should be conducted to confirm if the framework can be estimated using the maximum likelihood method. The skewness and kurtosis coefficients of all the items appearing in the framework are tabulated in Table 8. The indicators' skewness and kurtosis values should be below ±3 and ±10, respectively [50].

Table 8. Skewness and kurtosis coefficients.

Variable	Skewness	Kurtosis
Firm's competitiveness	−1.714	4.701
Strategies	−1.088	2.114

According to Table 8, the assumption of univariate normality was met. Since the normality is supported, the study's confidently used the maximum likelihood method to evaluate the framework fit.

4.3. Phase 3: Structural Equation Modelling Analysis

The purpose of this analysis is to assess the structural relationships of the variables. This section provides details on CFA, reliability, convergent validity, discriminant validity and the structural equation model analysis (standardised regression path). As mentioned in Section 3.4, the CFA was employed to confirm already existing and tested questionnaire items, adopted and adapted from previous studies, such as [43–45]. Thus, this sub-section discusses the reliability, convergent validity and statistical evidence of discriminant validity.

4.3.1. Reliability and Convergent Validity

These tests were conducted to measure if the results are consistent and whether the concepts that should be related are indeed related.

According to Taherdoost [51], reliability is the extent to which the measurement of a phenomenon provides stable and consistent results. This is further supported by Pietersen and Maree [52], who posit that reliability is the extent to which a measuring instrument is consistent and repeatable. Field [53] mentions that Cronbach's alpha and composite reliability are commonly employed to measure a scale's reliability. The required cut-off value of both the Cronbach's alpha and composite reliability is 0.8 and above [46]. The results in Table 9 suggest that the Cronbach's alpha ranges from 0.820 to 0.931, signifying an overall good level of internal consistency. Moreover, these Cronbach's alpha results are supported by composite reliability coefficients which extended from 0.821 to 0.929. Based on both the Cronbach's alpha and the composite reliability, all constructs involved in this study are considered reliable. For example, the overall alpha for the RL strategies was 0.913. In addition, the composite reliability for the RL strategies was 0.912, thus confirming that all the constructs are internally consistent.

Convergent validity is "the extent to which a set of items only measure one latent variable in the same direction" [54]. The visual representation of the measurement framework results reveals a convergent validity since all the factor loadings are above or equal to 0.5. The statistical evidence of discriminant validity is presented and discussed through the matrix of correlations and average variance extracted square root coefficients, which are tabulated in Table 9.

Table 9. Statistical evidence of reliability and convergent validity.

Construct	Items	Factor Loadings	*p*-Value	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	Final Number (Initial Number of Items)
Firm's competitiveness	FC1	0.686	***				
	FC2	0.694	***				
	FC3	0.727	***	0.846	0.824	0.484	5(7)
	FC6	0.717	***				
	FC7	0.652	***				
Strategies	S1	0.756	***				
	S2	0.758	***				
	S3	0.764	***				
	S5	0.757	***	0.913	0.912	0.598	7(8)
	S6	0.77	***				
	S7	0.838	***				
	S8	0.768	***				

*** Indicates the significance of the factor at 99% confidence interval.

4.3.2. Statistical Evidence of Discriminant Validity

Quinlan et al. [40] explain that discriminant validity signifies how diverse or unique a measure is. Taherdoost [51] explains that it is the degree to which a latent variable or construct discriminates amongst other latent variables. In this study, to measure discriminant validity, the square roots of AVE values of each research construct were compared against the inter-construct correlation coefficients (see Table 10 below) [55]. The square root of the AVE is expected to be above the inter-construct correlation coefficients.

Table 10. Correlation matrix to assess the discriminant validity.

Variable	Firm's Competitiveness	Strategies
Firm's competitiveness	0.696	
Strategies	0.555	0.773

All correlations that are greater than the square root of AVE suggest a poor discriminant validity between the constructs involved. As shown in Table 10, generally, the square root of the AVE values of 0.698 and 0.773 for the main research constructs (firm's competitiveness and RL strategies) are greater than their inter-construct correlation coefficient value of 0.555, thus confirming that the items used to measure these constructs are not correlated and are unique from each other.

4.3.3. Hypothesis Test Results

As mentioned earlier, there is limited research on RL strategies and their influence on firm competitiveness, particularly in the FMCG retail sector. Thus, in this current study, firm competitiveness was assumed to be achieved through cost savings/leadership or may take the form of value advantages that emanate from the ability to implement RL strategies in a manner that distinguishes the FMCG retailer in an inimitable manner.

This sub-section discusses this study's tested hypothesis and addresses the SEM path analysis coefficient used to test the direction of the relationship between the two variables, as well as the significance of the relationship, which was measured using a *p*-value below 0.05. The results are presented in the table below. This establishes the projected effects of the independent variable on the dependent variable. The Beta values indicate the direction and strength of the relationship, while the *p* value (Sig) estimates the significance of the predictive effect [56].

Hypothesis 1 (H1). *Implementing RL strategies has a positive influence on competitiveness of FMCG retail firms.*

It was important for this study to assess the influence of RL practices on the competitiveness of FMCG retail firms. The results are tabulated in Table 11.

Table 11. Standardised regression weights and H_1 conclusion.

Dependent Variables		Independent Variables	β Values	*p*-Values
H_1: Implementing RL strategies has a significant influence on firm's competitiveness of FMCG retail firms.				
Firm's Competitiveness	<—	Strategies	0.500	0.000

Table 11 above reveals that RL strategies have a moderately positive (β = 0.500) and significant (*p* = 0.000) effect on firm competitiveness as the *p*-value is lower than 0.05. These results suggest that effectively implementing RL strategies can significantly boost the competitiveness of retail firms, through improved firm image, reduced costs and increased firm profits. These findings concur with Gu et al. [25], who suggested that FMCG retailers can implement RL strategies to achieve a sustainable competitive advantage and increase revenues in a highly competitive market. According to Waggoner [29], a firm can also gain a competitive advantage by offering customers greater value than its competitors, such as providing better quality services, offering lower prices or other benefits that justify a higher price. This will require FMCG retailers to form strategic alliances with supply chain partners, outsourcing RL and integrating FL with RL among other strategies, in order for a firm to enjoy cost leadership and value advantages over their rivals in the market. Therefore, the current study confirms and accepts the hypothesis that suggests that implementing RL strategies has a positive influence on the competitiveness of FMCG retail firms (H_1). Moreover, the null hypothesis (H_{01}) which claims that implementing RL strategies has no influence on the firm's competitiveness of FMCG retail firms was rejected.

5. Conclusions

This section will include the discussions, implications, contributions, recommendations and limitations of the study.

5.1. Discussions

Over the past 10 years (2011–2021) RL practices have been identified mostly by manufacturing firms and not necessarily FMCG retailers. However, there was limited research on the impact of RL strategies on firm competitiveness. Most previous studies focused on RL practices [16,22,44,57–59]. Furthermore, Makaleng [45] and Dominic, Orji and Okwu [60] focused on RL challenges/barriers. The current study sought to identify the RL strategies that can enhance the competitiveness of FMCG retail firms (SO_1). This was achieved through the literature review in Section 2. The integration of FL and RL, the implementation of new technology, the adherence to environmental policies and regulations, knowledge management, eco-compatibility and strategic alliances were some of the identified RL strategies that can enhance firm competitiveness. This was also achieved through the descriptive results in Section 4, which indicate that all of the above-mentioned RL strategies are implemented in FMCG retail firms. These results are similar and supported by studies conducted by [45–48]. This study discussed RL strategies and firm competitiveness in the FMCG retail sector. There are great opportunities for South African FMCG retailers to enhance and grow their RL operations. Employee motivation and awareness of change are important for successful integration. Firms willing to adopt RL will have to develop their expertise through training and numerous education programmes for promoting environmental awareness in their firm. This study showed that there are benefits of implementing RL. Globally, RL is receiving attention because of its integral advantages for reducing the impact of hazardous materials on the environment and human life.

The study also sought to assess the influence of RL strategies on the competitiveness of FMCG retail firms (SO_2). This objective was achieved through the SEM path analysis results,

which reported a positive and significant influence of RL strategies on competitiveness in FMCG retail firms. Therefore, this study concludes that effective RL strategy implementation significantly enhances firm competitiveness. These results were also supported by [25,29].

Evident in this study is that RL is relatively new for the SA FMCG retail sector, and limited studies are available on the sector's RL strategies and firm competitiveness. From this study, it can be implied that the competitiveness of a firm is affected by RL strategies. The identification of RL strategies was an important part of this research, since they would determine the specific factors for the FMCG retail sector.

5.2. Implications

The operations of RL definitely contribute to the firm competitiveness. Similar to other firms, FMCG retailers can also attain competitiveness by accepting product returns, having a liberalised product returns policies, complying with environmental laws and efficiently handling product returns. Successful retailers recognise that managing RL effectively will have a positive impact on their triple bottom line and are realising the importance of RL. It is not possible to implement all solutions to achieve competitiveness at the same time in the same firm; therefore, there is the need to prioritise solutions according to their highest impact on a firm. Firm competitiveness can be achieved through the management of waste in RL and waste exchange, and further lead to cost savings. Therefore, for RL to have a competitive advantage for a firm, it must integrate all aspects of RL into its corporate decision-making processes.

An operative, consistent RL process that can be successfully measured and managed is vital for FMCG retailers to attain competitiveness and can award a firm the necessary competitive advantage to move above its competitors. This will probably command a larger market share within their industry because of their superior process and its ability to meet the ever-changing demands of their customers. This has therefore led most firms to consider the importance of RL in being a competitive advantage. RL will soon become an impossible area to be overlooked and will require capabilities and skills that are not core to most firms.

FMCG retailers in Pretoria, SA were thus targeted because of their supposedly low implementation of RL strategies. However, there are different experiences from firms in other countries across the globe that highly implement and adopt the RL strategies from which the SA FMCG retail firms can benchmark and learn. It is therefore expected that this current study will make a substantial contribution towards the current body of literature on this topic by prompting future research. Additionally, this study is anticipated to assist the FMCG retail sector in understanding the benefits of adopting and implementing the RL strategies that can lead their firm/s towards achieving competitiveness. Thus, the recommendations from this study are expected to benefit the FMCG retail sector as a whole, as well as researchers. The results can assist the FMCG retailers in achieving competitiveness, which in turn can lead to returns in their investments and more customer satisfaction.

The research was undertaken using a hypothesised framework adapted from the various conceptual frameworks. The adapted hypothesised framework includes two main variables, namely, RL strategies and firm competitiveness. This will further assist retailers when deciding on which RL strategies to prioritise in order to improve their competitiveness. Moreover, this will assist the FMCG retail sector in mitigating risks associated with poor planning or no planning at all.

5.3. Contributions

As mentioned previously, there is a dearth of literature on RL competitiveness in the FMCG retail sector. Unquestionably, this current study contributes significantly to literature for future studies. This study has created a theoretical groundwork for future studies in this country and globally. The confirmation of H1 was the main contribution to the literature. Thus, this study has recognised that FMCG retailers implement RL strategies to achieve

the firm competitiveness. Since the SEM and regression empirical analysis have tested and established the hypothesised linear relationships, this study proposed the conceptual framework (Figure 2) for acceptance in research. The contributions of this study are also summarised briefly below as follows:

- The study provided insight into previous research on RL strategies and firm competitiveness.
- The study identified the RL strategies and benefits based on a literature review for successful RL implementation that can lead a firm towards achieving competitiveness.
- The field of RL is dynamic, and there is a dearth of research dealing with RL in the FMCG sector in SA. Therefore, this study will play an important role in the field by providing new insights and contributing to the body of knowledge.
- Many people can also make a living through RL practices by recycling and selling the recycled products from waste delivery.
- It will also lead to an effective RL management system which will lead to an achievement of many goals, such as increasing the cumulative value of the brand, decreasing the operational costs, meeting the environmental protocols and increasing the satisfaction of customers.
- This current study will thus indisputably assist the FMCG retail sector, managers and practitioners in the successful implementation of RL—through enabling the FMCG retail managers in identifying the RL strategies and benefits which they need to achieve the firm's competitiveness.

5.4. Recommendations

The study also suggests the following recommendations to retailers for practice. The recommendations of this current research are anticipated to provide the FMCG retail firms with ways to improve their RL performance in order to achieve the firm's competitiveness. This was only probable after defining the relationship between RL strategies and firm competitiveness. The recommendations are as follows:

5.4.1. Enhance RL Strategies to Improve RL Practice Implementation Success

The enhancement of RL strategies is important for FMCG retailers. This is because the results revealed that the implementation of RL strategies has a positive and significant influence on firm competitiveness. These RL strategies include the integration of FL and RL, the implementation of new technology such as e-retailing to limit contact and to enhance the customer experience, especially now because of the current COVID-19 pandemic, as well as adhering to environmental policies and regulations. Firms also need to invest in the appropriate technologies and systems to promote effective and profitable RL knowledge management, and for enhanced eco-compatibility. Investing in the appropriate RL technologies and infrastructure will also help these firms to improve their implementation of RL practices such as recycling, re-using, re-selling and incineration. The enhancement of these RL practices and strategies' implementation can therefore lead to a firm's competitiveness.

Moreover, in cases where the firm has no capacity or little resources to effectively implement the RL strategies, it is recommended that they consider forming strategic alliances with their SC partners. They can also outsource their RL function to third parties for RL implementation success. Outsourcing will enable the firm to focus on its core business, minimise costs and transfer RL technology.

5.4.2. Enforce Formal Policies

The results in this study indicated that having formal policies does not amount or lead to a firm's competitiveness. This, therefore, means that the managers in the FMCG retail firms need to harness formal RL policies with RL strategies mentioned in the previous subsection towards the achievement of the firms' competitiveness. Firms will also need to ensure the availability and effective coordination of resources, and capitalise on the efficient

use of available support structures such as the RL recovery centres. This will enable them to effectively enforce formal RL policies and adherence to RL-related regulations, which will in turn improve their corporate image, lead to more profitability, the manufacturing of high-quality products, low-cost advantages, and better customer service, and ultimately improve customer satisfaction. It is thus recommended that FMCG retailers globally should enforce formal policies through harnessing RL strategies to achieve these benefits that lead to firm competitiveness.

5.5. Limitations

Just like any other study, this study is not without limitations. As already mentioned, RL has been studied by many researchers in countries all over the world; however, RL in the FMCG sector in Pretoria, SA has not been researched. Therefore, this made it difficult but not impossible for the researcher to find relevant literature. In addition, this study was conducted in Pretoria, SA, and could not cover SA as a whole due to time constraints. Therefore, future studies may be carried out in other sectors, provinces and countries.

This study employed a quantitative research method due to the recent 2020 outbreak of the COVID-19 pandemic; thus, the study only collected data through an online survey to ensure the safety of both the researcher and the respondents. That also became more challenging in July 2021 when the Protection of Personal Information (POPI) Act was implemented. Thus, future studies can consider using other research methods of collecting data such as a qualitative research method and or a mixed method to get more insight on RL strategies that can lead to firm competitiveness to compare the results. Moreover, since this study only focused on specific variables, namely, RL strategies and firm competitiveness, only one hypothesis was validated in this study. This could be because of the limited variables included in the framework. Future research can investigate other variables that can lead to firm competitiveness. The unsupported hypotheses may be a result of the sample size and sample composition. As such, future studies should increase the sample size of both retailers and customers when assessing the influence of RL strategies on firm competitiveness.

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