Bucak İşletme Fakültesi Dergisi
Journal of Bucak Business Administration Faculty
BİFD
Cilt/Volume: 6 Sayı/Issue: 2 Ekim/October 2023 E-ISSN: 2687-3826

The Effect of Reverse Logistics on Re-Purchasing Intention in Electronic Commerce and the Mediating Role of the Perceived Risk Variable: A Research in the Apparel Sector[1]

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Geliş Tarihi/Received Date: 29.08.2023 Araştırma Makalesi/Research Article
Kabul Tarihi/Accepted Date: 29.09.2023

ABSTRACT

The increase in the use of information and communication technologies and the internet has led to an increase in the use of electronic commerce by consumers. The purpose of this article is to reveal how the service provided by the companies and the risk perceived by the consumers in the return process of the ready-to-wear products purchased by the consumers using electronic commerce affect the consumers at the point of repurchase. In this direction, 363 questionnaire forms were collected from consumers online and the collected data were analyzed with SPSS 26 and AMOS 24 package programs. First, reliability and explanatory factor analysis (EFA) were tested with SPSS program, then confirmatory factor analysis (CFA) and hypothesis tests were performed with AMOS program in accordance with the structural equation model. According to the analysis results of the hypothesis test, 5 of the 10 hypotheses were supported and the remaining 5 hypotheses were not supported. As a result, it has been determined that service procurement, one of the subcomponents of reverse logistics, and the mediating variable perceived risk have an effect on repurchase intention. It is also concluded that perceived risk has a mediating role between service purchase and repurchase intention.

Keywords: Electronic Commerce, Reverse Logistics, Perceived Risk, Structural Equation Modeling

[1] This study is derived from the Master's Thesis titled "The Effect of Reverse Logistics Activities in Electronic Commerce on Repurchase Intention and the Mediating Role of Perceived Risk Variable: A Research in the Apparel Sector"

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Elektronik Ticarette Tersine Lojistik Faaliyetlerinin Yeniden Satın Alma Niyetine Etkisi ve Algılanan Risk Değişkeninin Aracılık Rolü: Hazır Giyim Sektöründe Bir Araştırma

ÖZET

Bilgi ve iletişim teknolojilerinin ve internet kullanımın artması tüketicilerin elektronik ticareti kullanma oranlarının da artmasına neden olmuştur. Bu makalenin amacı tüketicilerin elektronik ticareti kullanarak satın aldıkları hazır giyim ürünlerine yönelik gerçekleştirdikleri iade işlemlerinde firmalar tarafından sağlanan hizmetin ve bu süreçte algıladıkları riskin tüketicileri yeniden satın alma noktasında nasıl etkilediğini ortaya çıkarmaktır. Bu doğrultuda tüketicilerden çevrimiçi olarak 363 adet anket formu toplanmış ve toplanan veriler SPSS 26 ve AMOS 24 paket programları ile analizleri gerçekleştirilmiştir. İlk olarak SPSS programı ile güvenilirlik ve açıklayıcı faktör analizi (AFA) test edilmiş daha sonra yapısal eşitlik modeline uygun olarak AMOS programı ile doğrulayıcı faktör analizi (DFA) ve hipotez testleri gerçekleştirilmiştir. Hipotez testinin analiz sonuçlarına göre toplam 10 hipotezin 5 tanesi desteklenmiş geriye kalan 5 tane hipotezin ise desteklenmediği ortaya çıkmıştır. Sonuç olarak tersine lojistik alt bileşenlerinden hizmet alımının ve aracı değişken algılanan riskin yeniden satın alma niyetine etkisinin olduğu tespit edilmiştir. Ayrıca algılanan riskin, hizmet alımı ve yeniden satın alma niyeti arasında aracılık rolü olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Elektronik Ticaret, Tersine Lojistik, Algılanan Risk, Yapısal Eşitlik Modeli

1. INTRODUCTION

Electronic commerce is becoming increasingly widespread both in the world and in Türkiye. In terms of offering cost advantages and offering a wider variety of products to the market, electronic commerce is shaping trade and pushing businesses to serve in this market. Taking advantage of these advantages, "amazon.com", which is at the top in the field of e-commerce in the world, started its activities in Türkiye in September 2018, indicating that Türkiye will continue to develop in this market (Dikkaya & Aytekin, 2018:85).

In countries with high economic prosperity, parallel increases are observed in consumer spending. The widespread use of information and communication technologies and the increase in the level of education of societies contribute to the change in consumption habits. In such societies, it is seen that the use of digital platforms is gradually increasing, especially in

consumption habits. For this reason, it is necessary for countries to take steps to improve their information and communication technologies infrastructure in order to keep up with the requirements of the age. Considering the trend of electronic commerce, it is thought that the volume of electronic commerce will increase further in both developed and developing countries and this situation is thought to offer new business opportunities and employment opportunities to the global market. (Terzi & Gökçe, 2017: 929).

The development and widespread use of electronic commerce causes consumption habits to change, which in turn leads companies to develop customer-oriented business processes. In particular, the most important factor affecting the loyalty and repurchase tendencies of consumers is the quality and appropriateness of their purchasing experiences and after-sales processes regarding the products they purchase through electronic commerce. At this point, especially logistics performance becomes an important issue in electronic commerce. Because the delivery of the product that consumers have purchased through electronic commerce on time, complete, undamaged and to the right place will positively affect the satisfaction levels of consumers. However, consumers who perform return transactions for any reason will be exposed to reverse logistics transactions and it should be known that consumers will develop attitudes according to how this process will be managed by the company as a result of the transactions realized by the companies.

Consumers have more dominant risk perceptions towards the product or service they will buy for the first time. Therefore, consumers who will use electronic commerce for the first time or who will buy a product or service from a company on this platform for the first time perceive risk simultaneously with their intention to purchase. If this perceived risk exceeds the level acceptable to consumers, they avoid the purchase or take actions to manage the risk. At this point, consumers seek more information about both the purchase and the product or service (Kim et al., 2009). In addition, the risk perception will be quite high in consumers who make a return transaction after the purchase. Consumers will expect good management from companies in terms of both finding an interlocutor and experiencing material and moral difficulties while performing return transactions. The performance of reverse logistics activities to be carried out by companies will affect the risk perceived by consumers. If consumers are positively affected by this process, it will make it inevitable for them to tend to buy products or services from the relevant company again.

According to the Republic of Türkiye Ministry of Trade Electronic Information System (ETBIS) 2021 data, when the volume of electronic commerce in Türkiye is analyzed by sector,

it is seen that the white goods and small household appliances sector ranks first with a volume of 52.9 billion TL. Following this sector, the apparel sector, which is the focus sector of our research, has a volume of 24.2 billion TL. Again, according to ETBIS (2021), when the distribution of return and cancellation transactions on sector basis is analyzed on sector basis, white goods and small household appliances have the largest volume with a rate of 46%, while the ready-to-wear sector has a share of 35% in second place. Since it is one of the sectors with the highest market volume in electronic commerce in our country, the apparel sector has been the focus of our research. The aim of this research is to reveal the effect of reverse logistics experiences of consumers who buy apparel products through electronic commerce and return them for any reason on repurchase intention and the role of perceived risk in this effect.

In the second part of this study, the concepts of electronic commerce, reverse logistics and perceived risk are explained. In the third section, information about the methodology of the research is given, while the fourth section includes the analysis of the data obtained through the questionnaire and the findings related to these analyzes.

2. CONCEPTUAL FRAMEWORK

2.1. Electronic Commerce

In contrast to traditional trade, which is expressed as the purchase and sale of goods or services, the realization of these purchase and sale transactions on electronic platforms and with the inclusion of the Internet reveals the concept of e-commerce (Elibol and Kesici, 2004: 305).

In its most basic expression, electronic commerce is the fulfillment of transactions for the purchase of goods or services with the help of the internet and other information technologies (Erkan, 2012:11). However, despite this definition, the increasing developments in today's information and technology age make it impossible to determine the boundaries of electronic commerce ("Electronic Commerce Guide", n.d.). For this reason, a wide variety of interpretations are brought by both national and international organizations for the definition of electronic commerce.

As a result of the widespread use of information communication technologies, especially the Internet, electronic commerce is developing in parallel and is referred to as the new economic model. Roger Cass states that the new economy is the result of the changes and progress that have taken place until today. According to Roger Cass, the first new economic period is the period that emerged with the Industrial Revolution in 1798-1848. The second new economic period represents the period of development of the railroad, which emerged in 1848 and

corresponds to a quarter of a century. Today, the third economic phase is being experienced with the development of information and communication technologies and the widespread use of the Internet (Demirel, 2013: 6).

Electronic commerce has continuously increased positively in Türkiye as in the world due to the development of the Internet. Historically, the "infoshop.com.tr" website of Garanti Bank, where the POS system was used as a payment method in 1998, is known as the first electronic commerce project in Türkiye. In 2000, Doğan Group incorporated this site and continued its activities under the name "HepsiBurada.com". Later, "biletix.com" website started its activities. In 2001, "Yemeksepeti.com" brought a different dimension to electronic commerce with its unique payment system. In the same year, "Gittigidiyor.com" site started its commercial operations. These developments made many entrepreneurs realize the opportunity of the electronic commerce market and led to more investments. The development of experience on the problems experienced in the supply chain of electronic commerce has led to the continuous growth of the electronic commerce market in Türkiye until today and to reach high volumes (Erkan, 2012: 13).

Table 1. E-commerce comparison (2019)

Country	Online Retail / Total Retail	Online Shoppers	Mobile Shoppers	Per Capita Income (Thousand Dollars)	Population (million)
England	%18,3	%81	%50	46,8	66,8
USA	%15,2	%77	%49	65,1	329,2
Germany	%11,7	%82	%34	53,5	82,9
France	%9,8	%73	%31	47,2	64,8
Japan	%9,1	%69	%38	45,5	126,1
Spain	%5,4	%74	%45	41,5	46,6
China	%28,2	%83	%83	19,5	1.400,1
Poland	%7,8	%82	%42	33,8	37,9
India	%4,7	%74	%67	8,3	1.351,7
Brazil	%7,6	%70	%50	16,4	209,9
Russia	%7,2	%60	%36	29,6	146,7
Türkiye (2018)	%5,3	%67	%50	27,9	82,0
Türkiye (2019)	%6,2	%68	%51	28,2	83,1

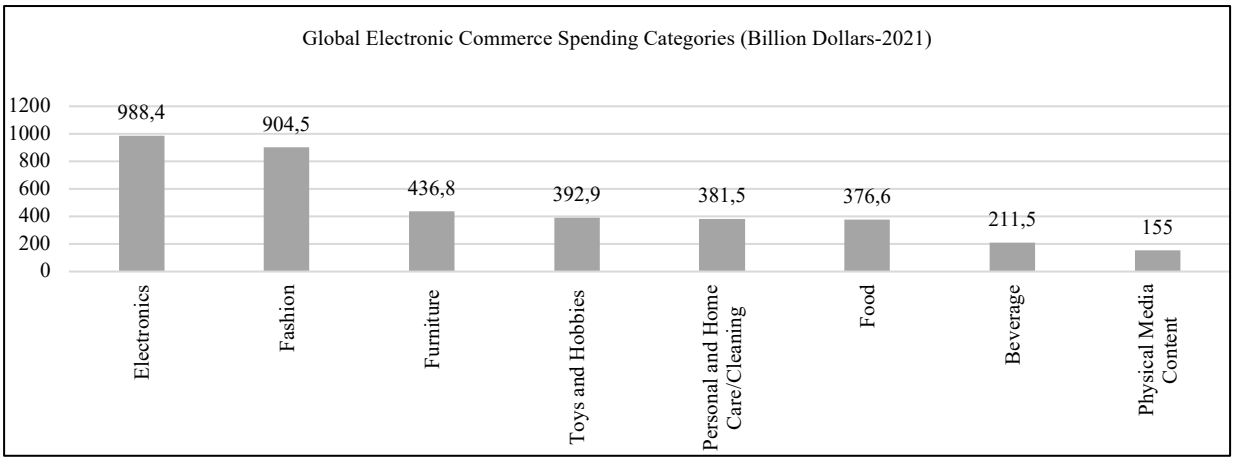
Source: TÜBİSAD, (2020), E-Commerce in Türkiye 2019 Market Size, 19.

The table above was created from the "E-Commerce in Türkiye 2019 Market Size" report published by TÜBİSAD in April 2020. The table consists of the shares of online retail levels of countries in total retail and numerical data on the proportion of mobile shoppers, per capita income and the proportion of online shoppers for the total population of the countries. The average share of online retail in total retail in developed countries (UK, USA, Germany, France, Japan and Spain) in 2019 was 12.3%. The same rate for developing countries (China, Poland, India, Brazil and Russia) was 6.7%. China ranks first in this respect, with 83% of the total population shopping online. In addition, China ranks first in terms of the share of online retail level in total retail level with a rate of 28.2%. In the USA, which has the highest per capita income

of 65.1 thousand dollars, the rate of online shoppers is 77% and the online retail level in total retail is 15.2% (TÜBİSAD, 2020).

It is known that the global COVID-19 pandemic has had a significant impact on world trade. As a matter of fact, approximately 80% of internet users in the world, that is, 4 out of every 5 people, have had the opportunity to experience electronic commerce due to the situation caused by the pandemic. This situation caused the global electronic commerce volume to increase by 26% from 3.4 trillion dollars in 2019 to 4.3 trillion dollars in 2020. Similarly, the volume of electronic commerce increased by 14% in 2021 compared to the previous year and reached 4.9 trillion dollars (TÜBİSAD, 2021).

Table 2. Global electronic commerce spending categories

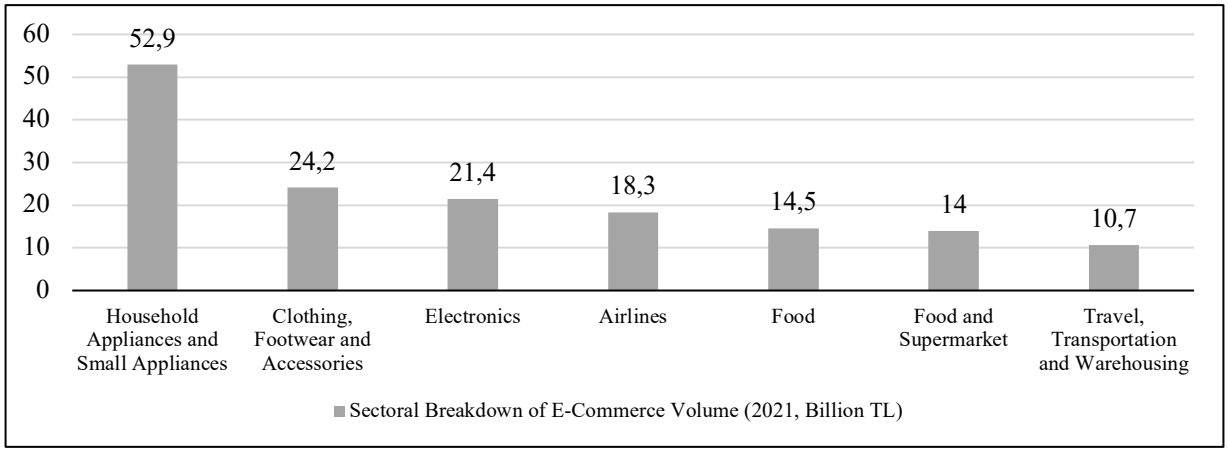


Source: Wearesocial, 2022.

When global electronic commerce expenditures are analyzed, as can be seen in the table above, the fashion sector (with an annual change rate of 17% and an increase of 134 billion dollars compared to the previous year) is gradually increasing its share in electronic commerce and emerges as the sector with the second largest market share with a share of 904.5 billion dollars. According to global electronic commerce expenditures, the electronics sector is seen as the sector with the largest share with a volume of 988.4 billion dollars.

According to the ETBIS (2021) report, when the sector-based volume of electronic commerce in Türkiye is analyzed, as can be seen in Table 3, the white goods and small household appliances sector ranks first with a volume of 52.9 billion TL. Following this sector, clothing, shoes and accessories, which is the focus sector of our research, has a volume of 24.2 billion TL. The other sectors and their volume value are shown in the table below.

Table 3. Sectoral breakdown of e-commerce volume



Source: ETBİS, 2021.

2.1.1. Differences between Classical Trade and Electronic Commerce

Developments in information communication and internet technologies also shape commercial life and cause changes from the ordering stage to the delivery of the product or service and even in the post-purchase process. In classical commercial processes, processes such as obtaining information about the product or service and comparing prices are carried out through written materials such as one-to-one contact with the seller and examining catalogs, while this process is carried out more widely and quickly in electronic commerce through the websites of the relevant sellers with the help of the internet. In addition, unlike classical commerce, where transactions such as ordering and purchasing are realized by filling out verbal requests and forms, electronic commerce is realized more quickly through the relevant company's website or e-mail. Apart from these examples, the differences between the transactions realized in electronic commerce and classical commerce are given in more detail in the table below (Elibol & Kesici, 2004: 309-310).

Table 4. Comparison of classical trade and electronic trade

Purchasing Company	**Classical Trade**	**Electronic Trade**
Information Acquisition Methods	Interviews, Magazines, Catalogs, Advertisements	Web Pages
Demand Specification Method	Written Form	Electronic Mail
Request Approval	Written Form	Electronic Mail
Price Survey	Catalogs, Interviews	Web Pages
Order Placement	Written Form, Fax	Electronic Mail, EDI
Stock Control	Written Form, Fax, Telephone	Online Database, EDI
Shipment Preparation	Written Form, Fax, Telephone	Electronic Database, EDI
Waybill Cutting	Written Form	Online Database, EDI
Invoice Cutting	Written Form	Electronic Mail, EDI
Delivery Confirmation	Written Form	Electronic Mail, EDI
Payment Program	Written Form	Online Database, EDI
Payment	Bank Transfer, Mail, Collector	Internet Banking, EDI, EFT

Source: Elibol & Kesici, 2004: 310.

Table 4 clearly shows that the management of transactions and processes in electronic commerce is based on information and communication technologies. While in classical trade, the parties, i.e. the buyer and the seller, directly communicate and see each other in physical stores, in electronic commerce, product information collection, order processing, order placement and invoicing processes are based on information and communication technologies. As a result, while electronic commerce includes quite different processes compared to the classical commercial understanding, it fulfills the transactions between the company and the buyer based on technology (Jingxuan, 2015:19).

2.1.2. Tools of Electronic Commerce

The following table shows the traditional and modern tools used in the realization of transactions in electronic commerce (Çakırer, 2013: 107).

Table 5. Tools of electronic commerce

Traditional Tools	**Modern Vehicles**
Television-Radio	Internet
Telephone	FTP (File Transfer Protocol)
Electronic Payment and Money System: Credit Cards, ATM Systems, POS Machines)	Conference Systems: Teleconferencing, Data Conferencing, Video Conferencing
Computer Networks Closed to the Internet: EFT (Electronic Fund Transfer) EDI (Electronic Data Interchange)	Global System Technology for Mobile Communications: SMS (Short Message Service) WAP (Wireless Application Program Protocol)
Fax	Electronic Mail

2.1.3. Classification of Electronic Commerce

Although there are classification differences in many studies on electronic commerce, the parties providing services in electronic commerce benefit from similar infrastructure and technological facilities. Despite these differences, the most common classifications are business-to-business (B2B) and business-to-consumer (B2C) electronic commerce models. The classification of electronic commerce in European standards consists of the following four types. These are;

- Business to Business - B2B (Business to Business)
- Business to Consumer - B2C (Business to Consumer)
- Business to Government - B2G (Business to Goverment)
- Consumer to government - C2G (Consumer to Goverment) is electronic commerce.

However, in some classifications, the types of electronic commerce increase to nine with the inclusion of the state in the parties involved in electronic commerce (Erdem & Efiloğlu, 2005:5). Table 6 shows all types of electronic commerce within the framework of firm, customer and government components.

Tablo 6. Types of electronic commerce

	Company	**Customer**	**Government**
Company	B2B	C2B	G2B
Customer	B2C	C2C	G2C
Government	B2G	C2G	G2G

Source: Export import information platform- ihracat.co

In Table 7 below, there are some electronic commerce sites operating in Türkiye and the types of services they provide.

Table 7. Main types of services provided by firms in Türkiye by business models

Marketplace Examples in Türkiye	**C2C**	**B2C**	**B2B**
Amazon		Product	
Gittigidiyor		Product	
Trendyol		Product	
N11		Product	
N11 Pro			Product
Sahibinden	Service		
Yemeksepeti		Service	
Modacruz	Product		
BiTaxi	Service		
Armut.com	Service		

Source: TÜSİAD, 2019:78

2.1.4. Comparison of Traditional Logistics and Electronic Logistics

In terms of the functioning of classical logistics, product flow is carried out within the .framework of the "push" approach from production to final consumers. On the other hand, in electronic logistics, which entered our lives with electronic commerce, all activities are designed in line with the specific demands of end markets or consumers. While production planning, warehousing, distribution and delivery are all shaped on the basis of customer orders, capital and product/service flow are planned in line with the end markets. The difference between traditional and electronic logistics can be illustrated by the discrepancy between a large t-shirt manufacturer and a custom t-shirt manufacturer. One sends a variety of standard products to the market, while the other produces and delivers products for specific needs in line with customer demands. Therefore, the supply chain in electronic commerce, which is influenced by end-consumer demands, is typically conducted in a "pull" manner (Li et al., 2018: 116). Table 8 shows the differences in both classical logistics and electronic logistics.

Table 8. Differences between classical logistics and electronic logistics

	Classical Logistics	**Electronic Logistics**
Shipment Type	Collective	Parcel
Customer	Strategic	Unknown
Customer Service	Reactive, Hard	Responsive, Flexible
Distribution Model	Supply-driven - Push	Demand-driven - Pull
Inventory / Order Flow	One Way	Bidirectional
Destination/Place of Distribution	Specific Location	Quite Disorganized
Demand	Consistent - Constant	Highly Variable/ Seasonal
Order	Predictable	Variable

Source: Wang vd. 2004:186.

2.1.5. Electronics Logistics Activities

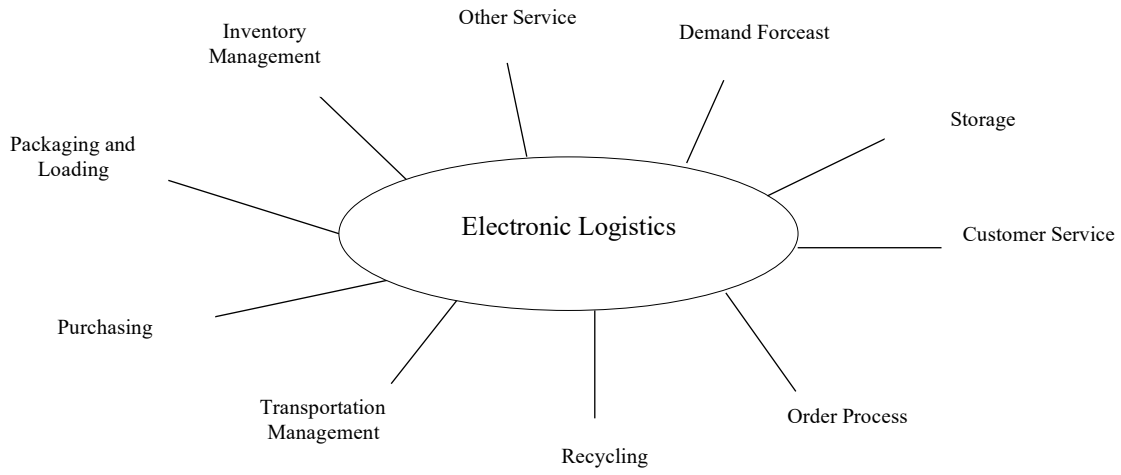


Figure 1. Electronic logistics activities

Source: Tekin vd., 2017: 365

The figure above shows the electronic logistics activities that emerged with the inclusion of information and communication technologies. The technological infrastructure used in electronic logistics, where logistics operations are redesigned, is as follows (Sarkis et al., 2004: 305):

- Personal computers,
- Barcoding and scanning technologies (RFID),
- Shipment and package tracking systems,
- Electronic data interchange (EDI) between carriers, senders and receivers,
- Satellite-based global positioning systems (GPS) and geographic information systems (GIS),
- Software and program tools; HTML, JAVA, XML,

- Internet, intranet and extranet,
- Decision support systems,
- Electronic signature technologies,
- Enterprise resource planning (ERP) systems,
- Customer relationship management (CRM), warehouse management system (WMS) and order management systems (Tekin, 2014: 70).

2.1.6. Repurchase Intention in Electronic Commerce

Repurchase intention refers to the customer's tendency to purchase a particular product or service from the same company again, taking into account current conditions and possible situations (Hellier et al., 2003:1764). Reitz defines repurchase intention as the customer's purchase intentions at the point of purchasing from a brand for the first time or again (2012: 59).

Hellier et al. (2003) revealed in their study how consumers' repurchase intention is affected by service quality, customer satisfaction, equity and value, loyalty, brand preferences and replacement cost. According to the results of the study, although perceived quality does not have a direct effect on repurchase, it has an indirect effect through customer perceptions of equity and value. The study also found that loyalty is not directly related to brand preference or customer satisfaction and that brand preference is a mediating factor between customer satisfaction and repurchase intention.

2.2. Reverse Logistics

According to Rogers and Tibben-Lembke, reverse logistics is the planning, implementation and control of raw materials, in-process inventories, finished goods and related information from the point of consumption to the point of origin for the purpose of revaluation or disposal in an efficient, effective and cost-effective manner (1998:2).

CSCMP (The Council Supply Chain Management Professionals) defines reverse logistics as follows in their dictionary on their website; It is a special field of logistics that focuses on the stage after the transition of products and resources to the consumer, including repair, modification and refunds of products (2013: 168).

2.2.1. Comparison of Reverse Logistics and Forward Logistics

A distribution system consists of two basic supply chain systems: the forward supply chain and the reverse supply chain. The forward supply chain consists of strategies that manage the movement of goods and services from the point of production to final consumers, while the reverse supply chain consists of strategies for the movement of goods and services delivered to

consumers back to the point of origin for maintenance/repair, recycling or re-production (Jayaraman et al., 2003: 130).

According to Sarkis et al. (1995), three important features that distinguish reverse logistics from the classical supply chain are as follows;

- Many logistics systems are not adequately equipped to manage the movement of products in the reverse channel
- Reverse distribution costs may be higher than the costs of delivering the product to the final consumer in a conventional distribution system.
- The supply chain activities related to returned products (transportation, stocking, handling or management functions) are different than in a conventional supply chain.

2.2.2. Barriers to Reverse Logistics

According to Prahinski and Kocabasoglu (2006: 520), the factors that hinder the successful management of the reverse logistics process are as follows;

- Delays in returning products, especially time-sensitive products and technological products,
- Quantity difference in returned products,
- High rate and high severity of defective products,
- Product quality is not known by consumers and retailers due to the lack of accurate and timely information in the supply chain processes.

Firms with effective supply chains that address these challenges are found to increase revenues and profits and reduce costs associated with returned products.

Ravi and Shankar (2005), in their research in the Indian automotive industry, identified the obstacles faced by reverse logistics activities as follows;

- Lack of information and communication technologies,
- Problems arising from product quality,
- Problems arising from company policies,
- Resistance to the transition to reverse logistics,
- Lack of effective performance measurement,
- Inadequate training of human resources,
- Constraints on financial resources,
- Problems arising from top management,
- Lack of awareness of reverse logistics,

- Inadequacy in strategic planning
- Lack of effort from other stakeholders such as dealers, retailers and wholesalers.

2.3. Perceived Risk

The concept of perceived risk, which was first introduced by Bauer (1960) in psychology, has been used to explain consumer behavior since the 1960s. Bauer (1960) stated that purchasing behavior involves risks that may lead to some unpleasant situations that cannot be predicted with certainty (Cheng, Liu, & Wu, 2013: 19). Perceived risk refers to the losses that may arise despite the benefits that the consumer thinks to obtain from the product or service to be purchased. Within the scope of consumer behavior, perceived risk arises from the uncertainty of both the outcomes and outputs of the purchasing process (Boshoff, 2002: 291). Laroche et al. stated in their study that the intangibility of services is important in consumers' risk perceptions. They also stated that branding (to increase tangibility), warranty service (to reduce risks) and some other practices in marketing strategies are effective in eliminating uncertainties in consumer perceptions (Laroche et al., 2004: 374).

2.3.1. Types of Perceived Risk

Many research studies have been conducted in the literature to determine the types of perceived risk. The first study to determine the dimensions of perceived risk was conducted by Roselius (1971) and as a result, he categorized the risk dimensions under four headings. However, the researcher defined one of the risk dimensions as loss. According to Roselius, the four losses are as follows; (a) loss of time: defective or malfunctioning products require a certain amount of time for maintenance, repair and replacement, (b) loss of danger: a faulty, defective or problematic product may pose a health or safety hazard to consumers, (c) ego loss: consumers who receive a faulty or defective product may feel fooled by themselves or others, and (d) money loss: consumers who encounter faulty or problematic products may feel financially harmed or spend extra money to replace or maintain/repair the product in question.

Zhang et al. (2012) tried to determine the effects of perceived risk on consumers' online purchasing behavior. In the study, the researchers considered perceived risk in eight dimensions. These are social risk, time risk, economic risk, health risk, privacy/confidentiality risk, quality risk, delivery risk and after-sales risk. As a result of the study, they found that health risk, quality risk, delivery risk, time risk and after-sales risk significantly affect consumers' online purchasing behavior. Apart from these, the other three perceived risks, namely privacy risk, economic risk and social risk, have less influence.

3. METHODOLOGY

3.1. Purpose of the Study

With the development of information communication technologies and the widespread use of the internet, changes in consumer purchasing behavior have occurred and the rate of purchasing from online platforms, i.e. the use of electronic commerce, has gradually increased. The rapid development of electronic commerce has brought along many problems as well as positive aspects. Especially for consumers, receiving the right product at the right time without damage and complete delivery has been the most important issue. Apart from this, consumers who face the problem of returning for any reason after the sale will expect from the sellers and related companies to manage this situation in the best way.

For sellers, it is known that any problem that will arise especially after the sale or during the delivery process will cause customer loss. The aim of this research is to determine the risks perceived by customers who buy ready-to-wear products using electronic commerce in the reverse logistics process that operates in case of a return transaction for any reason and its effect on their repurchase intentions. In addition, it is to provide the opportunity to see reverse logistics activities from the customer perspective from the seller's perspective and as a result, to develop solutions to prevent possible customer loss due to these risks and to contribute to the literature by presenting an empirical study.

3.2. Scope and Limitations of the Study

There are some limitations in terms of being more specific in terms of the subject of the research. At the same time, there are some limitations in terms of time and cost in terms of the conduct of the research. The subject of the research is the mediating role of perceived risk in the effect of reverse logistics activities on the repurchase intention of customers who buy apparel products using electronic commerce for any reason. In the application part of the research, the scope of the research includes consumers who purchase ready-to-wear products (clothes, shoes, etc.) using electronic commerce and make returns for any reason (faulty, missing, wrong product, late delivery, etc.).

3.3. Research Methodology

A questionnaire form was created with the scales obtained from the literature in accordance with the purpose and model of the research. The research data were collected through "convenience sampling" and "snowball sampling" methods by sharing the questionnaire organized on Google Forms on various social and virtual platforms (WhatsApp, Facebook,

Instagram, Telegram). Prior to the application, pilot research (n=30) was conducted to finalize the questionnaire form and necessary arrangements were made.

3.4. Research Model

The research model was designed with scales whose reliability and validity were previously analyzed by examining the relevant literature in order to be appropriate for the subject. According to the research model, the relationships between the variables were tried to be defined. In the research model, reverse logistics (independent variable), repurchase intention (dependent variable) and perceived risk (mediating variable), which are assumed to be related, were used. Figure 2 shows the research model and the relationship between the variables in the model.

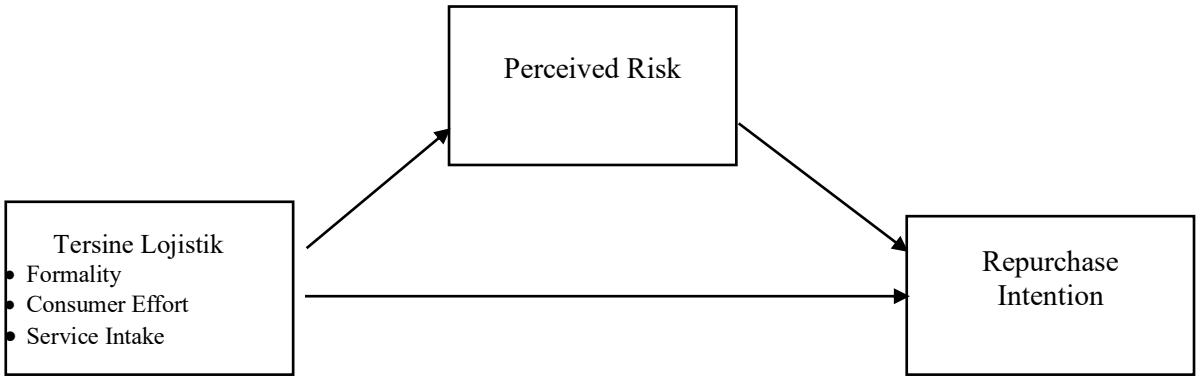


Figure 2. Research Model

3.5. Hypotheses and Assumptions of the Study

The research hypotheses and assumptions, which are developed in accordance with the purpose and model of the study and will be used to test the relationships between the variables, are as follows.

H_1: The formality dimension of reverse logistics has a significant effect on perceived risk.

H_2: The consumer effort dimension of reverse logistics has a significant effect on perceived risk.

H_3: The service intake dimension of reverse logistics has a significant effect on perceived risk.

H_4: The formality dimension of reverse logistics has a significant effect on repurchase intention.

H_5: The service intake dimension of reverse logistics has a significant effect on repurchase intention.

H_6: The consumer effort dimension of reverse logistics has a significant effect on repurchase intention.

H_7: Perceived risk has a significant effect on repurchase intention.

H_8: Perceived risk has a mediating role in the effect of the formality dimension of reverse logistics on repurchase intention.

H_9: There is a mediating role of perceived risk on the effect of service intake dimension of reverse logistics on repurchase intention

H_{10}: Perceived risk mediates the effect of consumer effort dimension of reverse logistics on repurchase intention.

3.6. Data Collection Tool and Variable

In order to collect data for the research, the survey technique prepared through "Google Forms" was utilized. The questionnaires created on Google Forms were delivered to the appropriate people through various social and virtual channels (WhatsApp, Facebook, Instagram and Telegram) with "convenience sampling" and "snowball sampling" methods. At the beginning of the questionnaire form, in order to select the participants in accordance with the research purpose, a filter question was included to determine whether they had previously purchased a ready-to-wear product from any shopping site and made a return transaction for this product. In the second part of the questionnaire, there are questions belonging to three different scales to measure the levels of reverse logistics, perceived risk and repurchase intention. At the end of the questionnaire form, there are questions to determine the demographic characteristics of the participants and questions to determine the frequency of online shopping, the frequency of return transactions and the reasons for returning.

The dimensions of reverse logistics scale prepared by Liu (2007) and revised by Ergan (2017) was used to evaluate reverse logistics activities. The reverse logistics scale has 3 dimensions and consists of 18 questions. The dimensions of reverse logistics activities are as follows (Ergan and Akyol, 2018);

Formalization: It includes the rules and regulations of reverse logistics transactions, how the process will take place, and the guide for the transactions between the seller and the consumer.

Service intake: It evaluates the vendor/site from which the customer receives reverse logistics service, which will affect the customer's satisfaction and indirectly the purchase intention.

Consumer Effort; It determines the level of effort that consumers put into the reverse logistics process that occurs when they want to return the product they have purchased for any reason.

The dimensions of perceived risk scale developed by Zhang et al. (2012) was used to measure perceived risk. The perceived risk scale questions were revised and reduced to a single dimension after the pilot study in order to be suitable for the research logic and consist of 4 items.

In order to measure repurchase intention, the scale developed by Tsai and Huang (2006) and revised by Altıngül (2015), which consists of a single dimension and 4 items, was used.

The statements related to the above 3 scales in the questionnaire form were evaluated by the participants with a 5-point Likert-type scale ranging from "Strongly Disagree" to "Strongly Agree". The dimensions and number of statements of the 3 scales in the questionnaire form are given in Table 9 below.

Table 9. Dimensions and number of statements in the scales

Scales	Dimensions	Number of Statements
Reverse Logistics	Formality	5
	Consumer Effort	6
	Service Procurement	7
Perceived Risk		4
Repurchase Intention		4

3.7. Sample of the Study

The research; In terms of time, cost and accessibility, in order to be faster and easily accessible in terms of time, cost and accessibility, it was carried out through convenience and snowball sampling to people who bought ready-to-wear products online through various channels between 01.03.2021 and 31.04.2021 and made a return transaction for any reason. A total of 444 questionnaire forms were completed by the participants and 363 of them were included in the research and subjected to analysis. According to Bollen (1989), in structural equation modeling, a sample size of 200 or more is considered to be a statistically sufficient sample size in structural equation model analysis. In our research, the structural equation model is also available and it is concluded that 363 survey data is sufficient sample size for analysis.

3.8. Applied Statistical Methods

In order to obtain valid and reliable findings as a result of the research and to analyze the data, the data analysis of the 363 questionnaires collected was carried out by means of "SPSS 26.0" and "AMOS 24" package programs. Firstly, out of the 444 questionnaires collected, the responses of 68 participants who were found to have filled out the questionnaire even though

they answered "No" to the filter question and 8 blank questionnaires that would negatively affect the results of the research even though they answered "Yes" were excluded from the scope of the analysis. Later, as a result of the extreme value analysis, 5 more questionnaire responses were excluded from the analysis due to suspicious values. A total of 363 questionnaires remained and the research analysis was carried out with these data. Frequency analyses, reliability analyses, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) were performed with the statistical programs used, and then hypotheses were tested and findings were revealed.

4. FINDINGS

4.1. Demographic Findings

The frequency and percentage distributions of the findings regarding the demographic characteristics of the participants included in the study are presented in Table 10:

Table 10.General characteristics of participants

Demographic Characteristics		**Frequency**	**Percentage**	**Demographic Characteristics**		**Frequency**	**Percentage**
Age	14-24	164	45,2	**Gender**	Male	**Age**	38,3
	25-35	144	39,7		Woman	223	61,6
	36-46	30	8,3	**Marital Status**	Married	74	20,4
	47-57	24	6,6		Single	289	79,6
	58 and above	1	,3	**Monthly Income**	1500 TL and less	138	38,0
Education Status	High school and below	22	6,1		1501-3000	**Educatio n Status**	25,3
	University	231	63,6		3001-4500	47	12,9
	Master's degree and above	110	30,3		4501-6000	39	10,7
					6001 and above	45	12,4

According to the table above, it is seen that 45.2% of the participants in the research are 14.24 years old, 39.7% are 25-35 years old, 8.3% are 36-46 years old, 6.6% are 47-57 years old and 0.3% are 58 and over. Accordingly, limited to our research, it has been determined that young people buy more ready-to-wear clothing products using electronic commerce. 6.1% of the participants have high school education and below, 63.6% have university education and 30.3% have master's degree and above. This shows that the increase in the level of education increases the rate of using electronic commerce. It is seen that 38.3% of the 362 participants are male and 61.6% are female, except for 1 person who did not answer the gender question. It is concluded that women buy more ready-to-wear clothing products. In terms of marital status, 20.4% of the participants are married and 79.6% are single. In the last category, the distribution of the participants in terms of monthly income is as follows (2 people left the monthly income

question unanswered); 38% of the participants have an income of 1500 TL and less, 25.3% have an income between 1501-3000 TL, 12.9% have an income between 3001-4500 TL, 10.7% have an income between 4501-6000 TL and 12.4% have an income of 6001 TL and above.

Table 11. Findings regardings online shopping experiences

Feature		Frequence	Percentage	Feature		Frequence	Percentage
Frequency of online sshopping	Every day	1	1,9	**Reason for return**	No size	238	28,6
	Once a week	64	17,6		Defective product arrived	85	10,2
	Once a month	162	44,6		Wrong product arrived	91	10,9
	Quarterly	117	32,2		It wasn't what it looked like	140	16,8
	Once a year	13	33,6		I don't like it	151	18,2
Frequency of return transaction	Everday	1	0,3		I gave up on the purchase	38	4,6
	Once a week	5	1,4		Didn't arrive on time	28	3,3
	Once a month	38	10,5		Wrong information was given about the product	26	3,2
	Quarterly	105	28,9		The packaging came open	15	1,8
	Once a year	213	58,7		Problem with the supplier	20	2,4

According to Table 11, 1.9% of the participants stated that they shop online every day, 17.6% once a week, 44.6% once a month, 32.2% once every three months and 33.6% once a year. Again, as can be seen in the table, 0.3% of the participants state that they make returns every day, 1.4% once a week, 10.5% once a month, 28.9% once every three months and 58.7% once a year.

According to the reasons for returning, which were prepared by reviewing the relevant literature, a total of 832 responses were received from 363 participants with multiple response options. When we look at the rate of the reasons for returning the participants; the size did not fit 28.6% (238), defective product came 10.2% (85), the wrong product came 10.9% (91), the product was not as it appeared on the internet 16.8% (140), I did not like the product 18.2% (151), I gave up buying 4.6% (38), the product did not arrive at the promised time %, 3.3% (28), misinformation about the product was given 3.2% (26), the product packaging was open 1.8% (15) and finally, there was a problem with the supplier company 2.4% (20).

4.2. Findings Related to Reliability Analysis

Reliability analysis reveals whether the measurements made by a measurement tool are consistent. Many different reliability analyses are used in researches in accordance with their purpose. In this study, internal consistency reliability analysis, which is the most preferred

reliability analysis in social sciences, was preferred. Internal consistency analysis is used to determine the consistency of the measurement tool used to analyze the conceptual structure (Gürbüz & Şahin, 2018:331).

Internal consistency is determined by reliability analysis and at this point, the alpha coefficient, also referred to as Cronbach's alpha, is most commonly used. The alpha coefficient takes a value between 0 and 1 and this value is expected to be at least 0.70 for a reliable scale. However, some researchers state that 0.50 can also be accepted as a reasonable level. (Altunışık et al., 2010: 124).

Table 12. Reliability analysis of the scale

Scales	Total Number of Statements	Overall Internal Consistency (Cronbach's Alpha)
Perceived Risk	4	,884
Formality	4	,840
Service Procurement	5	,893
Consumer Effort	4	,826
Repurchase Intention	4	,938

Table 12 shows the Cronbach's alpha values for the scales used in our research and it is seen that these values are above 0.70 in each scale. Accordingly, it is seen that the scales measure in accordance with the theory and the internal consistency coefficient values of the scales are sufficient for this research.

4.3. Findings Related to Factor Analysis

In our research, firstly, EFA (Exploratory Factor Analysis) was conducted with the SPSS program and then CFA (Confirmatory Factor Analysis) was conducted with the AMOS program to explore the construct validity of the variables in the model. The details of these factor analyses are given in the sub-headings.

4.3.1.Findings Related to Exploratory Factor Analysis

Factor analysis is defined as the analysis that enables the collection of similar expressions of a measurement tool consisting of a large number of expressions in the subgroup to which they should belong. Two types of factor analysis are generally used: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) (Seçer, 2013: 117). Although scales whose validity and reliability have been proven in the literature and generally accepted by researchers are used, in order to reveal whether the participants perceive the dimensions of the survey

questions correctly, the explanatory factor analysis should be examined with the SPSS program and then the CFA model should be established with the AMOS program (Civelek, 2018: 33).

Before conducting factor analysis, KMO and Barlett Test should be performed to determine whether the data are suitable for factor analysis. The KMO test indicates the suitability of the data for factor analysis. If the value obtained as a result of the KMO test is between 0.5 and 1.0, it is an acceptable value, while if it is below 0.5, the relevant data set is not suitable for factor analysis. The KMO value generally accepted by researchers is 0.70 and above. The Barlett test is the test of the hypothesis that assumes that there is no relationship between the variables in the population. In other words, while the relationship of the variable in the universe with itself is perfect, its correlation with other variables is zero (Altunışık et al., 2010: 265-266).

Table 13. KMO ve Barlett Test

KMO and Barlett's Test		
Kaiser- Meyer- Olkin Measure Sample Fit Test		,930
Barlett Test	Approximate Chi-Square	5402,259
	Df	210
	Sig.	.000

According to the results of KMO and Barlett's test in Table 13, the KMO value is 0.930, which means that the data set we used in the research is suitable to be subjected to factor analysis. When we look at the Barlett's test result, it is seen that the approximate Chi-Square value is 5402,259 and the Sig. value is significant at the level of ,000. After determining that the statements in the questionnaire are suitable to be subjected to factor analysis with KMO and Barlett tests, factor analysis was performed to determine the dimensions in which the statements in the research are collected and the number of these dimensions. The values related to the analysis are presented in Table 14 below.

Table 14. Rotated factor test

Variables	**Factor Loadings**	**Eigenvalues**	**Variance Explained**
Repurchase Intention 1	,810	9,836	46,840
Repurchase Intention 2	,841		
Repurchase Intention 3	,837		
Repurchase Intention 4	,866		
Perceived Risk 1	,834	1,814	8,639
Perceived Risk 2	,852		
Perceived Risk 3	,821		
Perceived Risk 4	,654		
Formality 1	,823	1,588	7,563

Formalism 2	,763		
Formality 3	,787		
Formality 4	,598		
Service Intake 2	,535		
Service Intake 3	,809		
Service Intake 4	,753	1,242	5,913
Service Intake 5	,602		
Service Intake 7	,694		
Consumer Effort 2	,776		
Consumer Effort 3	,772	1,031	4,910
Consumer Effort 4	,773		
Consumer Effort 5	,488		

The items belonging to the 5-dimensional model in Table 14 were found to be greater than the generally accepted threshold value of 0.30. Since the final version of the model in the table above was below the threshold value, question 5 of the formality sub-dimension of reverse logistics, questions 1 and 6 of the service procurement dimension, and questions 1 and 6 of the consumer effort sub-dimension were excluded from the scope of the analysis and the model was finalized. It is seen that the factor loadings for the remaining questions in the model have values in the range of minimum 0.488 and maximum 0.866.

With Varimax rotation, Factor 1 explains 46.840% of the total variance, Factor 2 explains 8.639%, Factor 3 explains 7.563%, Factor 4 explains 5.913% and Factor 5 explains 4.910% of the total variance. Thus, after the EFA analysis, 73.865% of the total variance was explained by the model consisting of 5 dimensions and the 5 factor model structure was deemed appropriate.

4.3.2. Confirmatory Factor Analysis Findings

Confirmatory factor analysis contributes to the scale development and adaptation process by verifying a model previously determined by explanatory factor analysis (Seçer, 2013: 118). In the literature, various fit values of confirmatory factor analysis are used to test the fit values of the data of the measurement tool. The most commonly used ones are the root mean square root of approximate errors (RMSEA), the comparative fit index of the model (CFI), Chi-Square, the standardized root mean square root of errors (SRMR), which shows the average of the differences between the explained covariance and the observed covariances of the model, and the normalized fit index (Non-Normed Fit Index / Tucker-Lewis Index - NNFI) (Acun, 2013: 79).

Table 15. Values related to fit ındices

Compliance Indices	Perfect Fit Indices	Acceptable Fit Indices
x2/sd	0 ≤ χ2/sd ≤ 2	2 ≤ χ2/sd ≤ 3
AGFI	.90 ≤ AGFI ≤ 1.00	.85 ≤ AGFI ≤ .90
GFI	.95 ≤ GFI ≤ 1.00	.90 ≤ GFI ≤ 95
CFI	.95 ≤ CFI ≤ 1.00	.90 ≤ CFI ≤ .95
NFI	.95 ≤ NFI ≤ 1.00	.90 ≤ NFI ≤ .95
NNFI (TLI)	.95 ≤ NNFI (TLI) ≤ 1.00	.90 ≤ NNFI (TLI) ≤ .95
RFI	.95 ≤ RFI ≤ 1.00	.90 ≤ RFI ≤ .95
IFI	.95 ≤ IFI ≤ 1.00	.90 ≤ IFI ≤ .95
RMSEA	.00 ≤ RMSEA ≤ .05	.05 ≤ RMSEA ≤ .08
SRMR	.00 ≤ SRMR ≤ .05	.05 ≤ SRMR ≤ .10
PNFI	.95 ≤ PNFI ≤ 1.00	.50 ≤ PNFI ≤ .95
PGFI	.95 ≤ PNFI ≤ 1.00	.50 ≤ PNFI ≤ .95

Source: İlhan, Mustafa; Çetin, Bayram (2014). Comparison of the Results of Structural Equation Model (SEM) Analyses Performed Using LISREL and AMOS Programs. Journal of Measurement and Evaluation in Education and Psychology, 5 (2), 31.

Table 16. Model fit values calculated as a result of confirmatory factor analysis

Index	Values
Chi-square/df (cmin/df)	384,864/176= 2,187 **(Acceptable fit)**
CFI	**,**961 **(Perfect Fit)**
GFI	,912 **(Acceptable fit)**
AGFI	,884 **(Acceptable fit)**
RMSEA	**.**057 **(Acceptable fit)**
NFI	**,**930 **(Acceptable fit)**
SRMR	,487 **(Perfect fit)**

According to the CFA results of our research model, the fit values of the model are above the threshold values generally accepted in the literature (see Table 15). It was determined that the fit test results of the model were appropriate to accept and test the model in its final form.

Table 17. Confirmatory factor analysis results

Variable Expressions	Unstandardize d Value	Standard Error	t value	B (standardized regression coefficient)	Variance Explained (R^2)	P
Perceived Risk 1	1,000			,846	.450	0.000
Perceived Risk 2	1,093	,051	21,480	,900	,315	0.000
Perceived Risk 3	1,002	,051	19,788	,848	,442	0.000
Perceived Risk 4	,727	,053	13,684	,656	,793	0.000
Repurchase Intention 4	1,000			,842	,507	0.000
Repurchase Intention 3	1,096	,047	23,208	,911	,305	0.000
Repurchase Intention 2	1,059	,048	21,902	,882	,397	0.000
Repurchase Intention 1	1,076	,045	23,943	,927	,234	0.000
Formality 1	1,000			,665	,657	0.000
Formalism 2	1,072	,085	12,595	,783	,379	0.000
Formality 3	1,224	,093	13,104	,827	,361	0.000

Formality 4	1,129	,092	12,265	,757	,498	0.000
Consumer Effort 5	1,000			,783	,541	0.000
Consumer Effort 4	,775	,070	11,096	,602	,905	0.000
Consumer Effort 3	,965	,067	14,404	,790	,480	0.000
Consumer Effort 2	1,012	,074	13,688	,873	,274	0.000
Service Intake 7	1,000			,835	,370	0.000
Service Intake 5	1,116	,056	20,101	,871	,339	0.000
Service Intake 4	1,032	,060	17,178	,782	,579	0.000
Service Intake 3	,893	,067	13,289	,646	,950	0.000
Service Intake 2	1,067	,067	15,988	,813	,498	0.000

Unstandardized value, standard error, t value, β value (standardized value), variance explained (R2) and P (sig) significance values obtained as a result of confirmatory factor analysis are given in the table above, respectively. As a result of CFA analysis, standardized regression coefficients were found for the variables of perceived risk (0.656-0.900), repurchase intention (0.842-0.927), formality (0.665-0.827), consumer effort (0.602-0.873) and service reception (0.646-0.871). In addition, it is seen that the explained variance coefficients are within the range of perceived risk (0.315-0.793), repurchase intention (0.234-0.507), formality (0.361-0.657), consumer effort (0.274-0.905) and service purchase (0.339-0.950) variables. As a result, the factor structure identified by EFA was confirmed by CFA and its appropriateness was accepted. Figure 9 shows the values of the measurement model with CFA on the model in detail.

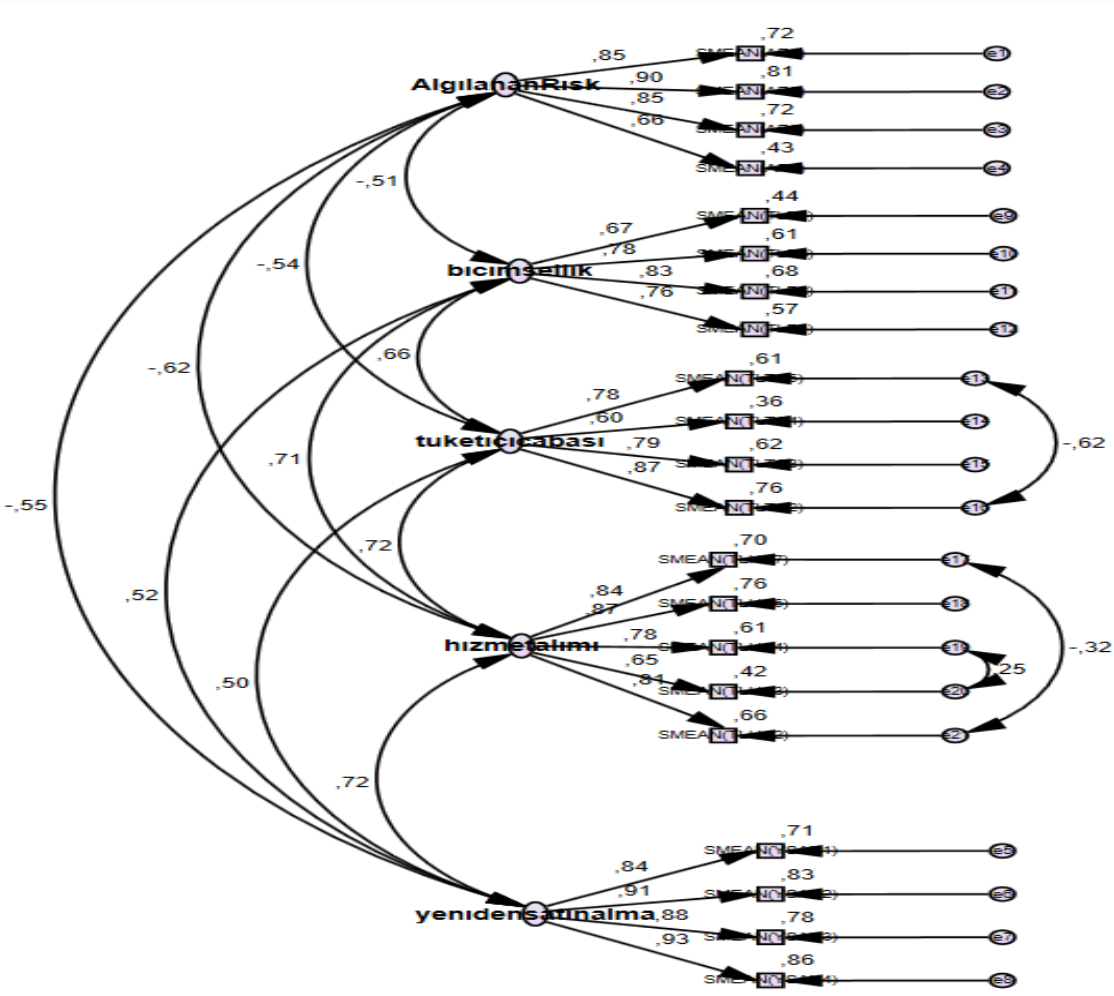


Figure 3. Confirmatory factor analysis (CFA) measurement model

4.4. Testing the Research Hypotheses

In this part of our research, the analysis of the model and the hypotheses of the model, which were finalized through validity and reliability analyses, with the AMOS program and the findings obtained as a result of this analysis are presented.

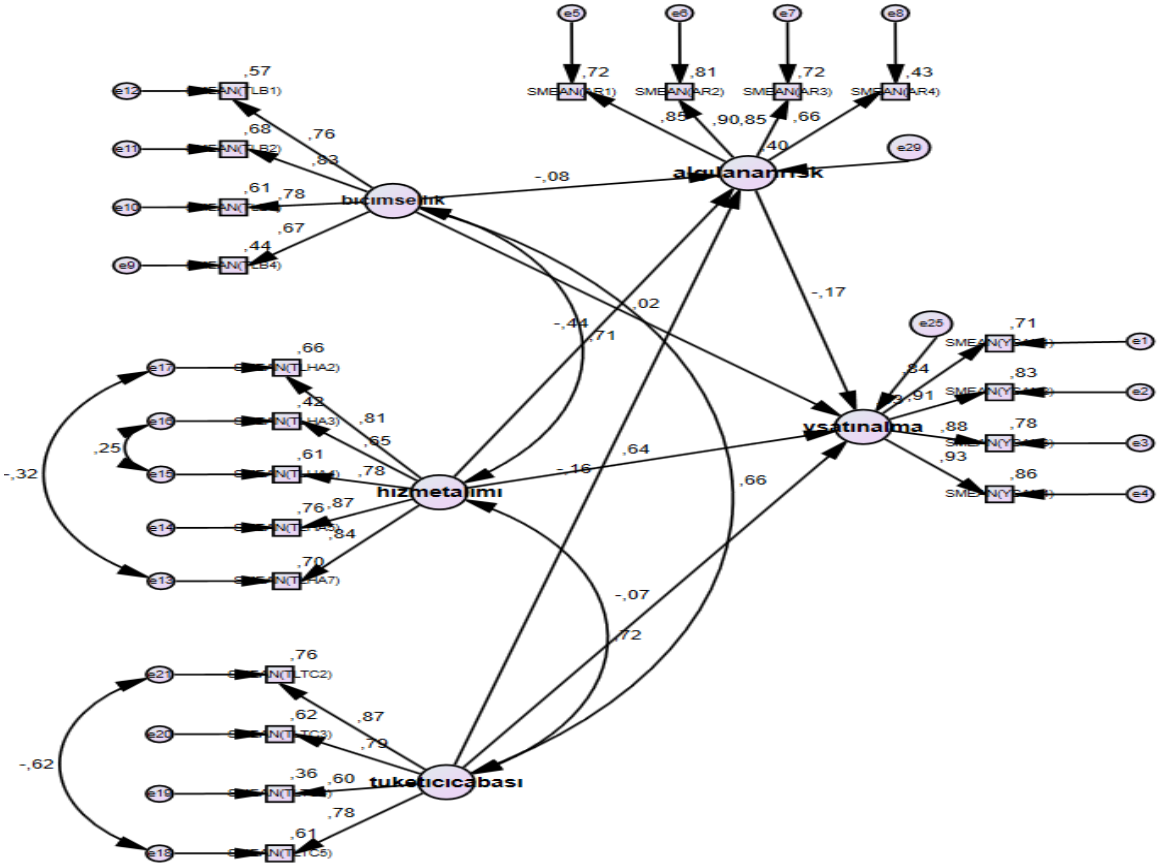


Figure 4. Structural equation model path analysis

As can be seen in Figure 10, details regarding the path analysis of the model are included in the AMOS program. Test fit values were examined to reveal the significance of the relationships between the data obtained with the structural equation model analysis (SEM) and the variables in the model. The test fit values of the SEM are presented in Table 18.

Table 18. SEM fit values

Index	**Values**
Chi-square/df (cmin/df)	384,864/176= 2,187 **(Acceptable fit)**
CFI	**,**961 **(Perfect Fit)**
GFI	,912 **(Acceptable fit)**
AGFI	,884 **(Acceptable fit)**
RMSEA	**.**057 **(Acceptable fit)**
NFI	**,**930 **(Acceptable fit)**
SRMR	,487 **(Perfect fit)**

The fit values for the structural equation model in Table 18 show that the factor structures formed as a result of the factor analyses are compatible with the model. According to this result, the values obtained prove that the model has compatible values and works in accordance with the data.

While conducting hypothesis tests, firstly, the effect of the reverse logistics variable (independent variable) consisting of the sub-dimensions of formality, service reception and consumer effort on repurchase intention (dependent variable) and perceived risk (mediating variable) was tested. In addition, the effect of perceived risk variable on repurchase intention was also tested and the results are given in Table 19.

Table 19. Model parameter estimates (regression coefficients)

	Standard Coefficients	Non-Standard Coefficients	Standard Error	Structure Reliability (C.R.)	P
repurchase<-formality	,040	,062	,113	,549	,583
repurchase<-serviceintake	,716	,862	,102	8,473	***
repurchase<-consumereffort	-,042	-,051	,082	-,616	,538
perceivedrisk<-formality	-,088	-,129	,118	-1,089	,276
perceivedrisk<-serviceintake	-,436	-,496	,098	-5,077	***
perceivedrisk<-consumereffort	-,166	-,192	,087	-2,190	,029
repurchase<-perceivedrisk	-,545	-,568	,057	-9,920	***

***=0

The table above includes the degree of influence and regression coefficients of the variables that make up the model. Accordingly, it is seen that only the service reception dimension of the independent variable has a significant effect on repurchase intention (dependent variable) ($p< 0.05$). The other two sub-dimensions, formality and consumer effort, were found to have no significant effect on repurchase intention ($p > 0.05$). Apart from this, it was observed that service intake and consumer effort, which are sub-dimensions of the independent variable, had a significant effect on perceived risk (mediator variable) ($p< 0.05$). The other sub-dimension, formality, was found to have no significant effect on perceived risk (mediator variable) ($p > 0.05$). As a result of this analysis, before proceeding to the mediating effect analysis, although consumer effort has a significant effect on perceived risk, it will be ignored in the mediation effect since it does not have a significant effect on repurchase intention. Accordingly, in the mediation effect analysis, only the mediation effect will be taken into account since the service intake dimension has a significant effect on both the dependent and mediator variable. Finally, the analysis revealed that perceived risk (mediating variable) had a significant effect on repurchase intention (dependent variable) ($p<0.05$). According to these results, before moving on to the mediation effect, the analysis findings regarding the other hypotheses 1, 2, 3, 4, 5, 6 and 7 are presented in Table 20 below.

Table 20. Results of the research hypotheses

Research Hypotheses	Findings
H_1 : The formality dimension of reverse logistics has a significant effect on perceived risk.	Not supported
H_2 : The consumer effort dimension of reverse logistics has a significant effect on perceived risk.	Supported
H_3 : The service intake dimension of reverse logistics has a significant effect on perceived risk.	Supported
H_4 : The formality dimension of reverse logistics has a significant effect on repurchase intention.	Not supported
H_5 : Service intake dimension of reverse logistics has a significant effect on repurchase intention.	Supported
H_6 : Consumer effort dimension of reverse logistics has a significant effect on repurchase intention	Not supported
H7: Perceived risk has a significant effect on repurchase intention.	Supported

4.5.Testing the Mediation Effect in Structural Equation Modeling

According to Baron and Kenny (1986), three conditions must be fulfilled in order to talk about the mediation effect. According to the researchers, if the independent variable that the mediator variable is not included in has an effect on the mediator variable, if the independent variable that the mediator variable is included in has an effect on the mediator variable, and finally, the effect of the mediator variable is tested by taking into account the effect of the mediator variable and the independent variable on the dependent variable. However, if the first condition is not met, that is, if there is no significant effect between the independent variable and the dependent variable, the mediator effect is not taken into account. In this direction, according to the hypothesis tests we obtained in the previous section, the only variable that meets the first two conditions is the service procurement sub-dimension of the reverse logistics variable and only this variable will be taken into account in the mediation effect analysis. The mediation test conducted based on these conditions is presented in Table 21.

Table 21. Mediation relationships analyzed

Influencing	Mediating Variable	Affected	P
Service Intake	Perceived Risk	Repurchase Intention	,006

According to the method proposed by Baron and Kenny (1986), the mediating role of the perceived risk variable in the effect of the service reception sub-dimension that meets the first two conditions on repurchase intention was tested and as a result, it was determined that there was a significant effect according to the two-tailed significance test of indirect standardized effects. The result regarding the mediation effect is presented in the table above. Accordingly, the findings of the analysis for hypotheses 8, 9 and 10 based on the mediation effect assumption are shown in Table 22 below.

Table 22. Findings related to mediation hypotheses

Research Hypotheses	Findings
H_8 : Perceived risk mediates the effect of formality dimension of reverse logistics on repurchase intention.	Not supported
H_9 : There is a mediating role of perceived risk in the effect of service intake dimension of reverse logistics on repurchase intention.	Supported
H_{10} : Perceived risk mediates the effect of consumer effort dimension of reverse logistics on repurchase intention.	Not supported

5. CONCLUSION

In today's world where the use of electronic commerce is increasing and developing, companies must adapt to changing consumer purchasing behaviors and guarantee business processes that can meet customer expectations. Increasing competition conditions compel companies to retain their customers and develop contemporary strategies to win potential customers. For this, a customer profile that is satisfied with their purchasing experience is a desirable situation for companies. Satisfaction with the purchasing experience alone will not be sufficient in today's electronic commerce market, and satisfaction with after-sales experiences is also an important factor to be considered.

The risk perception that consumers feel in the purchasing process is effective in their preferences. As a matter of fact, various risk perceptions that may arise in the consumer regarding the product or service they have purchased may negatively affect the purchase intention.

Firms should minimize the level of risk they perceive by preventing consumers from having difficulties in the service they receive in the process of return transactions in terms of form (access to information and documents is fast, easy and documents are correct) by realizing the relevant regulations and correct practices. As a result, it is inevitable that there will be a positive development in consumers' repurchase intentions;

- Providing a meaningful guarantee,
- Fast handling of returns,
- Reimburse you for the cost of the return,
- Send a new product/money for the returned product as soon as possible,
- The site facilitates the return process,
- The cargo company recommended for the realization of the return process should facilitate the return process and the problem should be solved.

The relevant website and/or the companies selling on the website should prevent consumers

from spending unnecessary effort in return transactions, ensure that they receive meaningful service in return for their efforts, and make the necessary improvements to avoid difficulties and ensure that consumers prefer them again when they use electronic commerce. For this;

- Filling out the online form for the return process should be quick and easy,
- It should be easy to prepare (pack) the product for return,
- The materials needed for packaging should be easily available,
- The shipping company should be easy to reach,
- It should be easy to reach people on the support line during the return process,
- Consumers should not spend too much effort for the return process.

In addition to these suggestions; companies should be in one-to-one contact with consumers in reverse logistics transactions, share continuous, accurate, up-to-date and reliable information and data, give due importance to consumers, especially in after-sales services, and provide an appropriate warranty service. By employing qualified and experienced personnel in these transactions, it should ensure that return transactions are carried out in a higher quality, more efficient and more effective manner. Because the personnel that the consumer will deal with in return transactions will also affect the profitability and corporate image of the company with the work (reverse logistics activity). Measures to minimize the losses of consumers (repair, repair, renewal, refund, etc. of damaged and defective products) should be offered by companies. In the return process that occurs after the first purchase, consumers' trust should be regained, especially their concerns about the risk they perceive in this process should be eliminated. As a matter of fact, the effect of reverse logistics transactions will be important for the consumer who has a risk perception towards the return process to prefer the company again. With the effect of these reverse logistics transactions, the level of risk perceived by the consumer will be minimized or eliminated and the company will be preferred again.

It is also one of the recommendations of our research for other researchers to adapt the subject to different sectors such as food, electronics, personal care. Another research suggestion is to study directly on cargo companies. It is thought that the study will contribute to the related field, companies in the logistics sector, organizations doing business in the e-commerce market, and marketers.

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