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Strategic Behavior of E-Commerce Businesses in Online Industry of Electronics from a Customer Perspective

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Abstract: The issue of online shopping behavior is gaining importance with the continued development of e-commerce. E-commerce businesses that aim to be successful in the online market in the long run must consider the factors of online shopping behavior when creating and implementing their e-commerce strategy. This paper is focused on the strategic behavior of e-commerce from a perspective of the online customer. The aim of the paper is to evaluate the strategic position of e-commerce businesses that focus on online sales of electronics, based on their strategic behavior from the customer's perspective. The first objective is to identify the current factors of online shopping behavior in the industry of online electronics. The second obejctive is to identify the current economic performance and financial strategy of e-commerce businesses and their relevance to strategic behavior in e-commerce. The third objective is to identify the possible differences in strategic behavior of e-commerce SMEs and e-commerce large businesses. The research methods employed were: situation analysis, benchmarking, quantitative research, selected methods of financial analysis. The selected methods of statistical induction were chosen to verify the research hypotheses. A research sample of 89 e-commerce businesses selling online electronics was selected for this research. It was found that most e-commerce businesses apply a balanced e-strategy based on the assessed factors of online shopping behavior that does not correspond to the progressive growth of e-commerce. Fifteen factors were identified that influence customers when choosing and buying electronics online. It was also found that the strategic behavior of e-commerce businesses is influenced by factors of online shopping behavior. Finally, it was found that the current balanced e-strategy of e-commerce businesses does not correspond with conservative financial strategy.

Keywords: e-commerce; e-strategy; customer perspective; strategic behavior; online shopping behavior; electronics

1. Introduction

The issue of online shopping behavior in the online environment is gaining importance based on many studies (e.g., Pilík 2012; Pilík et al. 2017a, 2017b; Prashant 2009; Richard et al. 2010). With the development of e-commerce, the shopping habits of online customers on the Internet are also changing and evolving. Businesses in e-commerce that want to be successful in the long run must adapt their e-commerce strategy to the online shopping habits of their customers (Kim et al. 2009; Martín and Camarero 2009; Roca et al. 2009; Pereira et al. 2016; Svatošová 2018, 2019a; Wang et al. 2010). The basis for successful e-commerce strategy creation and implementation is the consideration of current factors of online shopping behavior identified by previous studies (Akman et al. 2015; Kim et al. 2018; Ke et al. 2017; Yanes-Estévez et al. 2018). One of the key elements of a successful e-commerce strategy is the implementation of the needs and current online habits of potential and existing customers.

Kunešová and Mičík (2015) point out the importance of providing the business information and maintaining business relationships as a part of e-commerce. The B2C model, where communication takes place directly between the company and the end customer, is widespread thanks to a rapid response and a wide range of products. Retail sales in e-commerce account for 11.5% of the total retail sales (APEK 2019). This share is rising every year. This presents opportunities for small domestic companies as well as for multinational companies (Hallikainen and Laukkanen 2018). Many small companies started operating an e-shop with the vision of saving marketing costs, thanks to which they could make products cheaper and thus be able to compete with others (Singh and Sailo 2013). According to the research (Pilík et al. 2017a), people shop online mainly for low prices, as well as for comfort and convenience. It could be said that the Czech Republic has caught up with other countries regarding the use of the Internet, and in particular online shopping.

E-commerce brings the traders certain positive and negative points (Pilík 2015). According to Kunešová and Mičík (2015), there are many obvious benefits that e-commerce brings, such as fast transactions with suppliers, cheaper advertising, lower communication costs, and new customer service options. These benefits lead to improved economic efficiency. Market forces are reflected in marketing and promotion. The negative relationship between e-shops and customers is then caused mainly by mistrust. Lack of trust is also a common reason why people hesitate to make an online purchase or not. Shoppers often question the security, return policies, or quality of information provided on the Internet (Kim and Park 2013).

According to Hallikainen and Laukkanen (2018), the reluctance to shop online may also be associated with an individual's personality, as buyers show different levels of trust in e-commerce. Some previous theoretical research has suggested that the level of trust was culture-related. Modern research partially confirms this theory. Evaluation helps to companies analyze customer preferences. Recommendations are influenced by past shopping behavior and customer demographics. Based on this information, future online shopping behavior can be predicted (Lu et al. 2015). Today, when social networks are a huge phenomenon, e-commerce has the potential to change into a customer-oriented environment instead of a product-oriented one (Huang and Benyoucef 2013). The next step, closely related to the previous communication, is to attract attention, which should lead to brand loyalty. The last step is collaboration (Roberts and Zahay 2013). Bandara et al. (2019) took a closer look at online shopping security. They said customers felt limited in protecting their privacy due to a lack of control, influence, and choice about how businesses use the information. According to them, companies should design systems that guarantee privacy, with an adequate control and consumer choice.

The paper focuses on the identification of current factors of online shopping behavior in the industry of online white electronics sales in the Czech e-commerce environment. The term 'white electronics' refers to home electrical appliances for the kitchen and bathroom (e.g., large appliances, such as washing machines, refrigerators, refrigerators, freezers, dishwashers, stoves, clothes dryers, hoods, ovens, microwave oven, hobs; and small appliances such as coffee makers, kitchen robots, whisks, mixers, juicers, kettles, slicers, frying pans, irons, grills, etc.). This technique is also often referred to as white goods. The reason for limiting research to the electronics industry is its high share in total turnover in retail sales in e-commerce (more than 7%, APEK 2019; CSO 2019). In terms of turnover, however, the first place is occupied by the sale of electronics and white goods, including computers, laptops, mobile phones, and accessories (APEK 2019). Typical customers of white electronics are people aged 30–59; men and women are equally represented. The most characteristic of this group is the fact that the members have very broad interests.

Retail sales in e-commerce in the Czech Republic is one of the fastest growing industrys in retail sales as the whole. At the moment, online retail accounts for 13% of total retail sales in the Czech Republic. With the development of online retail since 2000, we can see a steady increase in the popularity of online shopping in the Czech Republic. According to APEK (2019), in 2001 the annual turnover in online retail was CZK 1 billion and in 2019 this annual turnover was CZK 155 billion. The area of online retail is growing annually by an average of 15 percent each year. The main reason

for this steady growth is the seriousness, trust, and safety of Czech e-commerce and changing habits of customers. Nowadays (APEK 2019; CSO 2019), over 95% of customers have an experience with online buying and 56% of them buy online regularly. In online shopping in the Czech Republic, clothes and accessories industry (17%) dominates together with house and garden (11%) and electronics (7%) industries. The fastest growing online industry in the CR is food (by 10% per year)

The industry of online electronics sales represents a homogeneous market that offers series of opportunities for online customers and retailers, the offer of sales and after-sales services that some traditional brick-and-mortar stores do not offer. Based on the identification of factors of online shopping behavior in the industry of online electronic sales, the strategic behavior of e-commerce businesses is evaluated. It is also evaluated whether the identified e-commerce strategy corresponds to the economic performance and financial strategy of e-commerce businesses. However, no previous research has focused on identifying a strategy and strategic behavior based on considerations of factors of online shopping behavior from the customer's perspective. Research deals in isolation with the issue of e-strategy or factors of online shopping behavior, no research considers the synergy of these monitored areas (Darsono et al. 2019; Li et al. 2019). This paper therefore aims to fill this research gap based on the consideration of factors of online shopping behavior from the perspective of e-commerce businesses. Therefore, the main purpose of the paper is to provide a comprehensive view of the issues of online shopping behavior. The main research question of the paper is: do e-commerce businesses consider all factors of online shopping behavior when creating and implementing e-commerce strategy and what is their strategic behavior and e-commerce strategy based on these identified factors?

The aim of the paper is to evaluate the strategic position of e-commerce businesses that focus on online sales of electronics, based on their strategic behavior from the customer perspective. The first secondary objective is to identify the current factors of online shopping behavior in the industry of online electronics. The second secondary objective is to identify the current economic performance and financial strategy of e-commerce businesses and their relevance to the strategic behavior in e-commerce. The third secondary objective is to identify the possible differences in strategic behavior of e-commerce SMEs and e-commerce large businesses. To fulfill the main and secondary aims of this paper, a literature review of the issue of online shopping behavior and e-commerce strategy was conducted to identify all factors of online shopping behavior. Afterwards, the methodology of the paper was created to realize the research, including the main and secondary hypotheses identification based on literature review to fulfil main and secondary objectives, research methods (financial analysis, situational analysis, benchmarking, qualitative research) including the methodological procedure for identification and evaluation of factors of shopping behavior and creating the representative research sample of e-commerce businesses (details see Section 3). Finally, the results of the research are presented and discussed including the main findings, novelty, and possible limitations. The main novelty of this research is based on the identification of strategic behavior of e-commerce businesses based on the identification of factors of online shopping behavior and introduction of the methodological procedure for identification of factors of online shopping behavior and evaluating the strategic behavior of e-commerce businesses.

2. Literature Review

2.1. Factors of Online Shopping Behavior

Online shopping behavior is directly influenced by the payment methods offered. When considering payment trends, the Czech Republic faces a major obstacle in modernizing the payment environment. The Czech market is characterized by a high level of cash use. Cash on delivery is the most popular method of payment in the Czech Republic, it is used for 45% of transactions. However, this causes problems for sellers who face late payment, which is only accepted upon delivery and creates additional costs (GPTR 2019). Online customers are increasingly interested in other factors, such as security, trust, privacy and more (Pilík 2011). In the future, online shopping behavior will be

affected by new factors: price will no longer be the most important factor, the importance of additional services, quality information about the range, storage of goods, and the method of transporting goods to the customer will increase (Pilík 2015). Many authors agreed that trust is even more important than the price of a product. Gefen et al. (2003) stated that trust is the expectation that others will behave in a reliable, ethical, appropriate manner and abide by their commitments. The statement is also confirmed by Makwana et al. (2017), who discovered in their research the biggest problems that customers face when shopping online are a lack of trust, a guarantee, the need to pay by card, delays in delivery, and the risk of strangers hacking into personal or financial data.

A business can increase customer confidence in many ways. For example, the credibility and reliability of websites and the quality of the information provided are important (Dai 2012). Choshin and Ghaffari (2017) revealed four basic areas that directly influence success in e-commerce: customer satisfaction, which includes the customer trust, personal data security, purchase security, and easy access to information. Businesses have already begun to realize that changing online shopping behavior is an inevitable trend and must respond to it by changing marketing strategies (Kumar and Dange 2012). If marketers can identify the factors that affect online customers, as well as the relationships between these factors, they can create new effective marketing strategies and gain new customers (Singh and Sailo 2013). Hernández et al. (2010) state that online shopping behavior is also related to the customer's experience with online shopping.

Cetina et al. (2012) identified 10 factors that affect the customer when shopping online. The five factors are independent, they are the external environment, demographic factors, personal characteristics, the characteristics of the seller/service/product and the quality of the website. These factors directly determine access to online shopping. Influences on online shopping behavior are formed by a combination of external and internal factors (Kumar and Dange 2012). Safa and Ismail (2013) focused their research on customer loyalty. Due to the highly competitive environment, customer confidence, satisfaction, and loyalty are very important for the seller. However, gaining new loyal customers takes time and money. Hasan (2016) addressed aspects that do not suit to customers on the website and discourage them from buying. He believes that in the traditional way of purchasing, the customer can be influenced, for example, by an unpleasant confrontation with the staff or other customers, and the literature has already sufficiently addressed these aspects. Cetina et al. (2012) recommend that companies constantly develop their online marketing activities, which enable interactivity to communicate with each other at any time of the day. According to the authors, this is essential for the successful development of online business. Every organization should also work on its presentation on social media, as consumers are also part of social media and this environment directly influences their behavior.

2.2. Strategy and Strategic Behavior in E-Commerce

E-commerce strategy can be defined as the direction and framework of a company adopting e-commerce for long-term business management to increase competitive advantage in a modern environment. The creation and implementation of strategy is essential for operational planning, increases efficiency, and brings long-term benefits. Each company should determine its e-commerce strategy based on consideration of its portfolio and business environment, specifically concepts, principles, and detailed plans for its development. It is also important to define methods for evaluating strategy implementation (Chen et al. 2014; Svatošová 2015). The selection or creation of a strategy should consider online customer behavior, customer retention and growing customer value (Roberts and Zahay 2013). Wirtz et al. (2016) further point to the difference between strategy and business model. The strategy includes a vision, setting itself in a competitive environment and expressing an idea of the direction the company should take in the future. The business model can thus be understood as a link between planning (strategy) and operational implementation (process management).

Chen et al. (2014) recalled that traditional companies that have recently entered the online market and become e-commerce businesses must also implement e-commerce strategies. This is

a key to successful online trading. The e-commerce strategy also includes a unifying plan that improves organizational efficiency. Many traditional companies fail to implement this new strategy and unsuccessfully change their routine tasks. Most studies focus on emerging e-commerce businesses and its strategic behavior and ignore traditional e-commerce businesses and their needs in the context of their economic performance (Li 2017; Cui 2016; Svatošová et al. 2018; Tu 2016). The importance of the relevance of the financial strategy with the e-commerce strategy is also emphasized (Svatošová 2019b). Managers should be able to identify different types of their customers and choose a strategy of behavior towards the individual groups to strengthen their loyalty. This is especially important in more competitive sectors (Ballestar et al. 2018). Choshin and Ghaffari (2017) state it is important to identify key factors for a successful e-commerce influencing the customer when purchasing. Afterwards, it is possible to predict future demand with greater accuracy. Safa and Ismail (2013) stated that the advantages of switching to e-commerce are time savings, lower prices, and fewer mistakes for buyers and sellers.

3. Materials and Methods

3.1. Main and Secondary Objectives of the Research

As mentioned in Introduction, the main objective of the paper is to evaluate the strategic position of e-commerce businesses that focus on the online sale of electronics, based on their strategic behavior from the customer's perspective. The secondary objectives are following:

- The first secondary objective is to identify and evaluate the factors that affect customers when online shopping for white electronics in the Czech e-commerce environment.
- The second secondary objective is to identify the current economic performance and financial strategy of e-commerce businesses and the relevance to their strategic behavior.
- The third secondary objective is to identify the possible differences in strategic behavior of e-commerce SMEs and e-commerce large businesses.

3.2. Research Methods

The following research methods are used to fulfill main and secondary objectives of the research (inspired by the following Svatošová 2018, 2019b; Pilík 2011, 2015; Kumar and Dange 2012; Kim et al. 2018):

- Situational analysis—an important element of strategic planning and identifying the current situation of businesses. It will be used to identify, analyze and evaluate relevant factors of online shopping behavior related to individual e-commerce businesses and current situation of businesses. Situation analysis supports the qualitative research based on identification and qualitative data analysis and supports the fulfilling the first secondary objective.
- Benchmarking—a tool of strategic management. It will be used to compare a selected group of e-commerce businesses. This method will determine the position of e-commerce businesses and their characteristics. Finally, it will define the possibilities of development of individual e-commerce businesses. This is a supportive method for complementing the research results and for fulfilling the third secondary objective based on the situational analysis, financial analysis, and qualitative research to find out the possible differences between e-commerce SMEs and e-commerce large businesses.
- Quantitative research—a method by which the researched phenomenon is converted to numerical characters. This facilitates further data processing, comparison, evaluation, and subsequent verification of hypotheses. Within the quantitative research, the method of qualitative data analysis is used, based on which the strategic behavior of e-commerce businesses is evaluated, on the selected scoring scale 0–5. It is a main research method for fulfilling all the main and secondary objectives and is described in more detail in Results and Discussion (see Table 1).

- Financial analysis—to evaluate the strategic position of e-commerce businesses, it is necessary to evaluate their financial stability and financial strategy, which should correspond to the main e-commerce strategy. Methods of profitability, activity, indebtedness, and liquidity are used to evaluate the financial position and financial strategy. Financial analysis supports the comprehensive current situation of e-commerce businesses based on situational analysis and qualitative research. Financial analysis supports the fulfilling the second secondary objective.

Table 1. Factors influencing online shopping behavior in the industry of online sales of white electronics. Source: own research.

Factor Identification	Factor Characterization	Way of Factor Evaluation
Pre-Shopping Phase		
Reviews of e-shops and complaints	The website dTest, Heureka.cz and Zboží.cz and possible complaints from VašeStížnosti.cz were used to compare e-shop reviews. When choosing a quality e-shop, customers are interested in the percentage of overall satisfaction and the number of complaints about the store.	Reviews of e-shops: 97–100% 5 p. 93–96% 4 p. 92–95% 3 p. 88–91% 2 p. 0–87% 1 p.
	There are the individual reviews, often supplemented by specific information and justification of the evaluation. The number of ratings and the timeliness of the ratings are also important.	Number of complaints: 0 –2 5 p. 3–10 4 p. 11–20 3 p. 21–30 2 p. 31–? 1 p.
Certificates and security	Certificates should demonstrate the seriousness of the business. All examined e-shops have at least a blue certificate verified by customers, so only the gold, highest certificate will be taken into account. APEK certification is also monitored and the presence of security using a SSL certificate was assessed according to the dTest website.	Number of certificates: Verified by customers (gold), APEK certificate, SSL/TLS 3x = 5 p. 2x = 4 p. 1x = 3 p. 0x = 1 p.
Advertising and communication—social network, chat, phone line	With the ever-increasing influence of social media, the importance of presentation in these places is also growing. Here, the activity on Facebook, Instagram, web chat, and telephone line is evaluated. The e-shop received the point for the presentation on Facebook and Instagram only if it published at least one contribution in 2019.	Number of activities on Facebook, Instagram, web chat and phone: 4x = 5 p. 3x = 4 p. 2x = 3 p. 1x = 2 p. 0x = 1 p.
Product price	One of the important factors in choosing goods is the price. Customers remain loyal to quality stores, which they can offer in comparison with others even advantageous prices. This is a washing machine type AEG ProSteam L7FBE48SC. Prices are valid as of 2019. Some stores offer a free gift to purchase this product. Comparing gifts is difficult because every customer will appreciate something different.	Price range for washing machine type AEG ProSteam L7FBE48SC: 13,200–13,500 CZK: 5 p. 13,500–13,800 CZK: 4 p. 13,800–14,100 CZK: 3 p. 14,100–14,400 CZK: 2 p. 14,400–14,700 CZK: 1 p.
Shopping phase		
Website—language possibilities, comparative possibilities, adaptation, disturbing elements	Pleasant design, appropriately chosen colors and easy orientation on the website can motivate the customer to stay and buy. We tracked whether sites automatically adapt to mobile display. The process of selecting the best product on a given site will greatly facilitate the possibility of comparison. Within this factor, the presence of up-selling and cross-selling activities was also examined. Disturbing elements of the website are also monitored, which result in leaving the e-shop (bad page layout, incorrectly chosen font, aggressive colors, pop-up ads, a large number of colors, general clutter, etc.)	(1) The evaluation is following: (2) Number of languages: 1 language: 0 p., 2–3 languages: 1 p., 4–6 languages: 2 p. (3) For customizing the web for mobile phone + 1 p. (4) For the possibility of comparison + 1 p. (5) For the up-sells and cross-sells + 1 p. (6) For the presence of disturbing elements −1 p.

Table 1. *Cont.*

Factor Identification	Factor Characterization	Way of Factor Evaluation
Organizational factors—width of the offer, orientation in the offer, unpacked goods	The breadth of the offer was compared, using the number of products within the category, i.e., the category of washing machines. It was examined whether the e-shops actively offered unpacked goods, second category goods, and other alternatives. These are, for example, an exhibited piece without packaging, a product with damaged packaging, returned goods or used goods that are fully functional. Sometimes such goods have a shortened warranty period. Furthermore, the number of filters and the possibility of sorting products in the category were examined. After finding the right category, the customer will see all the products offered. In the examined group, there were 28 to 359 products in one e-shop in the category of washing machines. Filtering can help you work more easily with product selection. The more filters the store offers, the more specific results we can get and thus save the total time when shopping. The possibility of sorting the product will also facilitate the work. It is most often by price, rating or alphabetical order.	Number of products in the category: 1–80 0 p. 81–160 1 p. 161–240 2 p. 241–320 3 p. 321–400 4 p. 401–480 5 p. 1 point was added for the offer of unpacked products. Number of filters: 1–10 1 p. 11–20 2 p. 21–30 3 p. 31–40 4 p. 41–50 5 p. Number of sorting options: 1–2 0 p. 3 1 b. 4 2 p. 5 3 p. 6 4 p.
Product description—parameters, photos, video	An important part of the online presentation of products is a clear and well-arranged description and complete information. Furthermore, clarity was evaluated. The decisive factor was whether the text of the product description and the parameters are clearly arranged and whether the bookmarks for the product are intuitively arranged and the customer simply finds the information he is looking for. The third evaluation variable was the published video, which will give the customer a better idea of the appearance and dimensions of the product.	Points were assigned according to the number of corresponding factors (attractive description, clarity, video): 0 0 p. 1 3 p. 2 4 p. 3 5 p.
Payment methods—purchase by installments, payment options, cash on delivery in CZK	Customers appreciate the wide range of payment options. Some sellers offer six or more payment options. Customers also use installment purchases, especially before Christmas, another important evaluation factor for purchasing white electronics. For the Czech Republic, the most popular method of payment is cash on delivery. Czech customers do not like to pay for the shipment in advance and prefer to pay extra for cash on delivery for a feeling of greater security of delivery of goods. All stores offer cash on delivery, differing only in the price for cash on delivery.	Number of payment methods: 1–2 1 p. 3–4 2 p. 5 3 p. 6 4 p. 7 5 p. Number of purchases by installments: 0 −1 p. 1–2 1 p. 3 2 p. 4 3 p. Cash on delivery in CZK: 61–80 −2 p. 41–60 −1 p. 31–40 0 p. 0–30 +1 p.
Store network—number, opening hours	An important factor for customers is the network of stores, where it is possible to view the goods, try them out, consult them in person, or pick up the goods there after the purchase. Stone shops also increase awareness of the e-shop and contribute to its credibility. Only stone shops were counted here, without dispensing points. Additional information is also the opening hours of e-shop and whether the stores provide above-standard opening hours on weekends.	Number of stores: 0 0 p. 1–2 1 p. 3–10 2 p. 11–50 3 p. 51–110 4 p. 111 and more 5 p.

Table 1. *Cont.*

Factor Identification	Factor Characterization	Way of Factor Evaluation
Transport—number of transport options	Within the transport factor, the number of offered transport options was examined. The possibility of personal collection was also included.	Number of transport options: 1 1 p. 2–3 2 p. 4–6 3 p. 7 4 p. 8 5 p.
Discounts—discounts for students, regular customers, companies and volume discounts	It was first assessed whether the e-shop actively offers benefits to registered customers and rewards them for more purchases. The benefits for students, which are usually conditioned by the ownership of the current ISIC card coupon due to simple verification, were also monitored. It was also monitored whether the offer of a discounted purchase for companies is listed on the website. The active offering of a quantity discount was also considered. The presence of this discount was marked only if the advantage of buying more products is mentioned on the website.	Number of discounts (discounts for students, regular customers, companies and volume discounts): 0 0 p. 1 2 p. 2 3 p. 3 4 p. 4 5 p.
After-Sale Service		
Additional service—installation, ecological disposal	In connection with white goods, the offer of installation of goods is important. The offer of removal and disposal of old appliances and removal of packaging material was also examined. The store guarantees ecological disposal. Some e-shops offer complete exclusive transport including removal of goods, installation, and removal of old appliances and packaging material in one package.	Additional service (installation, ecological disposal)—their number: 0 0 p. 1 3 p. 2 5 p.
Warranty—extended warranty and engine warranty	Each e-shop provides a statutory warranty period. It was therefore monitored whether e-shops offer to purchase a warranty extension for up to 3 years. The example of white goods is again an important step due to the higher price of goods and the level of household demand. For the researched specific product AEG ProSteam L7FBE48SC, the company AEG offers a lifetime warranty on the motor of the washing machine type eco-inverter. It was therefore monitored which e-shops point to this important information when viewing the product.	Warranty (extended warranty and engine warranty): 0 0 p. 1 3 p. 2 5 p.

3.3. Main and Secondary Hypotheses of the Research

To fulfill the main and secondary goals of the research, the following main research hypotheses are established, based on the results of a literature review:

- Main research Hypothesis 1 (MH1): Most of the selected e-commerce businesses use a progressive strategy related to the progressive growth of e-commerce market, based on their strategic behavior from a customer perspective.

    - This hypothesis is based on the studies confirming that the e-commerce strategy should relate to the steady progressive e-commerce area (Bandara et al. 2019; Kumar and Dange 2012; Safa and Ismail 2013; Svatošová 2019b; Chen et al. 2014; Ballestar et al. 2018).

- Main research Hypothesis 2 (MH2): The strategic behavior of e-commerce businesses is influenced by factors of online shopping behavior.

    - This hypothesis derives from the studies (based on Kim et al. 2009; Martín and Camarero 2009; Pereira et al. 2016; Roca et al. 2009; Pilík 2011, 2015; Svatošová 2018, 2019a; Wang et al. 2010) dealing with factor of online shopping behavior that highlight the impact of factors of online shopping behavior on the strategy of e-commerce businesses.

Rejection or confirmation of the main hypotheses is supported by verification of the following secondary hypotheses:

Hypothesis 1 (H1). *There is no relationship between the quality of factors of online shopping behavior and the economic performance of businesses primarily oriented on e-commerce (using multiple regression analysis).*

- This hypothesis derives from the previous studies (Pereira et al. 2016; Roca et al. 2009; Pilík 2011, 2015; Svatošová 2018, 2019a; Wang et al. 2010; Tu 2016) that declared the possible e-commerce factors influencing the economic performance of e-commerce businesses. This hypothesis supports the MH2 verification.

Hypothesis 2 (H2). *Strategic position of e-commerce businesses is not influenced by the quality of factors of online shopping behavior (using the Kruskal–Wallis test).*

- This hypothesis is based on the results of previous studies (Roberts and Zahay 2013; Cetina et al. 2012; Safa and Ismail 2013; Kumar and Dange 2012; Hernández et al. 2010; Svatošová 2018, 2019a; Pilík 2011, 2015; Bandara et al. 2019; Tu 2016; Huang and Benyoucef 2013) dealing with a possible relationship of e-commerce strategy and selected factors of online shopping behavior. This hypothesis supports the MH1 and MH2 verification.

Hypothesis 3 (H3). *All factors of online shopping behavior are evaluated as equally important (using the Friedman test).*

- The previous studies highlight the equal importance of factors of online shopping behavior when implementing successful e-commerce strategy (Akman et al. 2015; Ke et al. 2017; Prashant 2009; Kim et al. 2018, 2009; Richard et al. 2010; Wang et al. 2010; Yanes-Estévez et al. 2018). This hypothesis verification aims to support the findings of previous studies. This hypothesis supports the MH2 verification.

Hypothesis 4 (H4). *Type of financial strategy in e-commerce does not correspond to the strategic position of e-commerce businesses, respectively type of strategy in e-commerce (using the Kruskal–Wallis test).*

- This hypothesis derives from the previous studies (Cui 2016; Li 2017; Svatošová et al. 2018; Tu 2016; Tu 2016) dealing with the economic performance and financial analysis of e-commerce businesses that found out the relevance of the economic performance with the competitive and strategic position of e-commerce businesses. This hypothesis supports the MH1 and MH2 verification.

Hypothesis 5 (H5). *Factors of online shopping behavior are not influenced by the size of e-commerce businesses (using the Kruskal–Wallis test).*

- This hypothesis derives from the previous studies (Pereira et al. 2016; Roca et al. 2009; Pilík 2011, 2015; Svatošová 2018, 2019a; Wang et al. 2010; Tu 2016) that pointed out the possible relationship between the factors of online shopping behavior and the size of e-commerce businesses. This hypothesis supports the MH1 and MH2 verification.

The hypotheses are verified using situation analysis methods, benchmarking methods, methods of quantitative research and financial analysis. Research hypotheses are verified using strategic induction methods:

- Shapiro–Wilk test—this test verifies if the statistical methods can be in the research used—parametric or non-parametric, details see in Results and Discussion. The assumption of normality has been violated, so parametric tests for hypothesis testing cannot be used in research. Therefore Kruskal–Wallis test, Friedman test and multiple regression analysis is in this research used (these methods have been already used for example in the research (Svatošová 2018, 2019a)).
- Kruskal–Wallis test (ANOVA)—this test is also referred to as a one-factor nonparametric ANOVA; it tests for a compliance of distribution functions.
- Friedman test—this test is used to detect differences in treatments across the multiple test attempts; the procedure involves ranking each row together, then considering the values of ranks by columns.
- Multiple regression analysis—this test is an extension of simple linear regression. It is used when predicting the dependent value of a variable based on the value of two or more other independent variables.

The determination and verification of hypotheses are discussed in detail in the Results and Discussion.

3.4. Subject of the Research and Research Sample

The subject of the research is based on e-commerce businesses focused on the online sale of electronics, so-called 'white goods'. Electronics is one of the best-selling categories on the Internet. The reason for choosing this sales industry is the fact that this range is linked to more accompanying services, which are not used so much in other categories. This includes, for example, extended warranty, delivery of goods, connection of goods, installation, or the possibility of purchase in installments. For some types of products, the advantage is also the ability to view the goods in the store or try it out. The pre-shopping phase—i.e., the trade selection phase—is longer here for several reasons. We are looking for a store that is reliable, offers a good price, and shopping through it is safe. In the shopping phase, customers appreciate a well-arranged website, the possibility of comparing more products, perfect information about a specific product and its photos, or even reviews of other shoppers. For large appliances, emphasis is also placed on the issue of transport and delivery of goods. After-sales service is also important for the given category, specifically warranty and complaint procedure, post-warranty service. We use some appliances from the category of white goods daily (refrigerator, oven, microwave oven) and in the event of their failure, we require a fast and professional approach to trade.

White goods were further narrowed down to the category of washing machines, which are among the best-selling goods in the industry of online electronics sales (APEK 2019). Another selection of companies took place with the help of the most used goods comparator in the Czech Republic, Heureka.cz. The following selection parameters have been entered on the Heureka website: White goods—Large appliances—Washing machines—The most popular product (AEG ProSteam L7FBE48SC)—available in 207 stores. Furthermore, only stores with the "Verified by customers" certificate and APEK membership certificates were filtered. Another selection criterion was the legal form of business Limited Liability Company and Joint Stock Company, the registered office of the business in the Czech Republic and the period of establishment at least in 2013 (i.e., at least 5 years). Data from the financial statements of businesses from 2018 were selected for financial analysis (data from 2019 at the time of the research were not published by businesses yet). From the basic set of 207 e-commerce businesses in the range of white electronics, 89 e-commerce businesses meeting the above criteria were included in the research. According to Raosoft (2019), these 89 e-commerce businesses represent the industry of online retail sales of white electronics in the Czech Republic at the confidence level 92% and margin of error 8% (when basic size of potential e-commerce businesses in white electronics is 207, the recommended sample size should be at minimum 77 e-commerce businesses).

3.5. Identification of Factors of Online Shopping Behavior

Based on the above literature review, there is a list of factors that significantly affect customers when shopping online. This methodological procedure is a novelty for evaluating the strategic behavior of e-commerce businesses and is created by authors and uses qualitative data analysis from the qualitative research. This qualitative data analysis creates a baseline for research construction. For the identified factors evaluation, the rating scale 0–5 was used, details see Table 1. For an easier orientation, the factors are divided into three categories. Factors included in the pre-shopping phase are related to the selection of the store, evaluation of its quality and credibility. The shopping phase lists the factors that affect the purchasing process itself, which should be as easy as possible for customers and offer enough options to choose from. Customers are often also interested in the possibilities and rules of after-sales service, which include services directly related to the purchase of the product. They are interested in how the store acts in the event of a defect or other problems with the purchased goods, and some even appreciate additional services that they would otherwise have to arrange separately.

4. Results and Discussion

4.1. Summary and Findings of the Research

Based on the literature review (Bandara et al. 2019; Huang and Benyoucef 2013; Hallikainen and Laukkanen 2018; Lu et al. 2015; Pilík 2012; Pilík et al. 2017a, 2017b; Prashant 2009; Richard et al. 2010), the identified factors of online shopping behavior in the industry of online sales of electronics, which are then the subject of the research, are the following: (1) Reviews of e-shops; (2) Complaints; (3) Certificates and security; (4) Advertising and communication; (5) Product price; (6) Website; (7) Organizational factors: Part 1; (8) Organizational factors: Part 2; (9) Product description (10) Payment methods; (11) Store network; (12) Transport; (13) Discounts; (14) Additional services; (15) Warranty. These factors are evaluated on the scale 0–5 (details see Table 1 and Figure 1) using the qualitative data analysis for the selected group of e-commerce businesses. The selected group of 89 e-commerce businesses were divided according to their size, which derived from the European Commission Regulation no. 800/2008, which is as follows: micro (up to 10 employees, annual turnover up to EUR 2 mil., small (up to 50 employees, annual turnover up to EUR 10 mil.), medium (up to 250 employees, annual turnover up to EUR 50 mil.). In summary, in the research, there are 5 micro businesses, 36 small businesses, 43 medium businesses, and 5 large businesses. In the Appendix A, the average mean of evaluated factors of online shopping behavior divided according to the size of e-commerce businesses is presented, see Table A1. The results show the larger e-commerce business is, the higher the quality of identified factors is evaluated. This statement is supported by the secondary Hypothesis H5 verification (details see below), it is confirmed that there is a relationship between the quality factors identification and the size of e-commerce businesses.
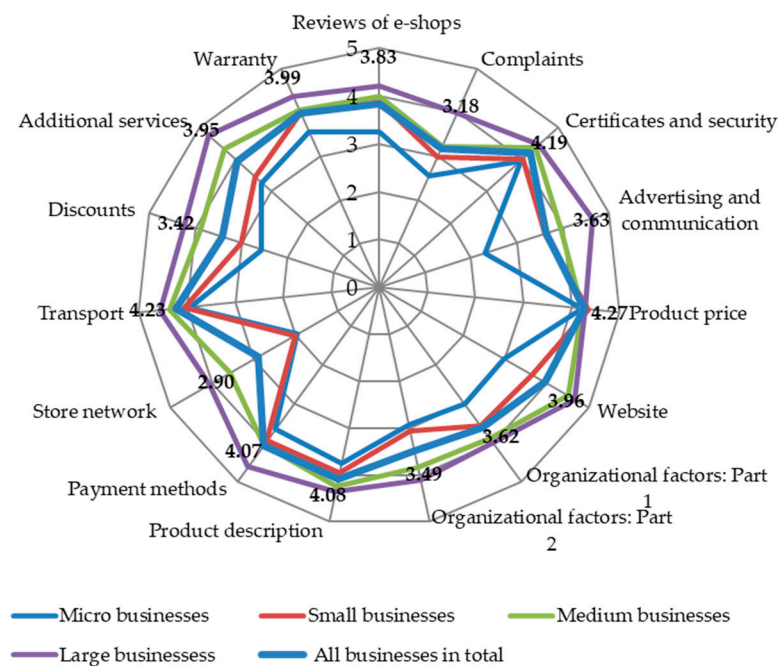
Figure 1. Quality of factors of online shopping behavior according to the business size. Source: own research.

Figure 1 shows the average evaluation (arithmetic mean) of each factor defined above divided according to the business size. On average, based on qualitative data analysis, large businesses are scored higher than the other groups of e-commerce businesses. Micro businesses are scored as the worst group. Based on these results, it can be concluded that the larger the business is, the better scoring of factors of online shopping behavior is reached. Similar results are reached in previous studies focused on SMEs in other industries (Svatošová 2018, 2019a). On average, the best scores were reached for: product price (4.27), transport (4.23), and certificates and security (4.19). The worst scores were reached for: store network (2.90), complaints (3.18), discounts (3.42), and organizational factors: part 1 (3.49). Based on these results, it can be concluded that the quality of factors of online shopping behavior are not evenly scored, however based on previous studies these factors should be equally prioritized (Bandara et al. 2019; Ke et al. 2017; Hallikainen and Laukkanen 2018; Huang and Benyoucef 2013; Kim et al. 2009, 2018; Wang et al. 2010).

Finally, the reached score in factors of online shopping behavior were summarized for each e-commerce business. This final score is then used for strategic position determination. For the strategic behavior of observed e-commerce businesses, the strategic position and e-commerce strategy is identified based on the previous literature research (Režňáková 2012; Svatošová 2018, 2019a), i.e., progressive strategy, balanced strategy, stabilization strategy; crisis strategy. This division is used for the e-strategy categorization as well as financial strategy of e-commerce business determination. A total of 15 factors were evaluated in the research. It was possible to get a maximum of 5 points for each area, a total of 75. Based on the points obtained from this part, the strategic positions of individual e-commerce business will be determined, according to the following evaluation:

- 51–75 points: Progressive strategy: This strategy is characterized by the ability to respond quickly to current customer needs and the ability to adapt to new trends. They invest in innovations and new technologies, expand their portfolio, try to penetrate foreign markets, or buy other companies and develop. High profitability and low liquidity is typical here.
- 39–50 points: Balanced strategy: Businesses with this strategy want to develop, but they do not have as much money to implement and do not take large risks.

- 26–38 points: Stabilization (conservative) strategy: These businesses are characterized by a conservative approach and do not have enough capital for further development. They focus on the stabilizing the online market and customer base. High liquidity is typical for this strategy
- 0–25 points: Crisis strategy: With this approach, the business tries to stay in the market. It does not invest in innovation and new technological possibilities. Business struggles with the low profitability and liquidity, low market share, and customer base.

The financial strategies of e-commerce businesses are identified on the principle on financial strategy modeling in software Vensim (Svatošová et al. 2018; Svatošová et al., 2019b). For the financial strategy determination, the following variables are used: WACC (weighted cost of capital), ROE (return of equity), ROA (return of assets), current liquidity, and long-term coverage (level of capitalization). Variable WACC was used as a complex variable for cost and capital efficiency evaluation (based on the formula, see Dluhošová 2006). The possible limitations of WACC variable could be founded in setting the cost of equity and cost of debt in the variable WACC. Costs of capital are expenditures of the business that have to be paid to obtain different forms of capital (Billett et al. 2007, p. 113). Cost of equity is usually set by several methods (Dluhošová 2006, p. 110). In case of this research, the modular model was selected, because it is more universal for businesses that are not trading on capital market and that is more suitable in Czech companies (based on INFA methodology, details see MPO CR 2018). Based on evaluation of each variable, the final scoring on the scale 1–5 is given. Financial strategy is determined as arithmetic mean of observed variables in model (based on the principles of previous studies published in Svatošová et al. 2018; Svatošová 2019b):

- 4–5 points: Progressive e-strategy: Maximizing the profitability, low or negative value of working capital, possibilities of high volume to long-term investments, potential of the company to be expanded and be progressive, the opportunity for absolute innovations.
- 3–3.9 points: Balanced strategy: Reaching the reasonable value of working capital and acceptable profitability, the short-term investments or long-term investments with lower volumes could be realized, the expansion of company is possible, but only moderate.
- 2–2.9 points: Stabilization (conservative) strategy: High volume of working capital, low profitability, conservative approach to the managing the long-term investments (no long-term expanding the company, focusing on operational issues of the business).
- 1–1.9 points: Crisis strategy: the effort to be rescued from bankruptcy, bad values of financial analysis (liquidity, profitability, indebtedness, etc.), i.e., no comprehensive financial strategy is in the company realized, change of corporate and business strategy, the change of company conception.

The following Table 2 shows the evaluation of strategic position of e-commerce businesses divided according to their size. The trades scored points in the range of 24–58. There is therefore a difference of 34 points between the best rated and worst rated business overall. Based on these, findings, a balanced strategy dominates (51.69%) in all categories of e-commerce businesses. The second most used strategic approach in e-commerce is a stabilization (conservative) strategy (33.71%). These results do not correspond to the previous studies (Ballestar et al. 2018; Chen et al. 2014; Safa and Ismail 2013; Svatošová 2015; Roberts and Zahay 2013; Wirtz et al. 2016) that highlighted the constant progressive growth of e-commerce and a related progressive e-commerce strategy. Based on this research, only 8.98% of e-commerce businesses use a progressive strategy. Finally, crisis strategy is applied by only 3.37% of e-commerce businesses.

Table 2. Strategic position of e-commerce businesses and e-commerce strategy determination. Source: own research.

Strategic Position of E-Commerce Businesses and E-Strategy Determination	Progressive Strategy	Balanced Strategy	Stabilization (Conservative) Strategy	Crisis Strategy
Micro businesses	1	2	2	0
Small businesses	1	25	9	1
Medium-sized businesses	4	19	18	2
Large businesses	2	2	1	0
Businesses in total (89)	**8**	**46**	**30**	**3**
Businesses in total (in %)	**8.98%**	**51.69%**	**33.71%**	**3.37%**

This research also investigates the current financial strategy of e-commerce businesses in relation with the current e-commerce strategy based on selected variables of financial analysis and financial strategy modeling (details see Table 3). The results of financial analysis and financial strategy modeling are based on financial statement results in 2018. This research has revealed that conservative financial strategy among e-commerce businesses dominates. The second most used financial strategy is a balanced strategy (24.72%). Progressive financial strategy is used among 16.85% of e-commerce businesses and crisis strategy in 15.73% cases. The current financial strategy in e-commerce does not correspond to the e-commerce strategy that is focused in most cases on a balanced strategic approach and does not correspond to the progressive long-term growth of e-commerce. This result is also confirmed with the help of hypothesis verification (for further details, see the next chapter). This research did not confirm the previous results (Li 2017; Cui 2016; Svatošová 2019b; Svatošová et al. 2018; Tu 2016) that businesses apply a strategy related to the level of industry growth. The other explanation of this result could be based on incoherent economic results reached among e-commerce business and identified in their financial statements, i.e., in most cases e-commerce businesses do not apply systematic and coherent financial strategy in their business activities.

Table 3. Financial strategy of e-commerce businesses determination. Source: own research.

Financial Strategy of E-Commerce Businesses Determination	Progressive Strategy	Balanced Strategy	Stabilization (Conservative) Strategy	Crisis Strategy
Micro businesses	0	2	2	1
Small businesses	7	9	15	5
Medium-sized businesses	7	9	19	8
Large businesses	1	2	2	0
Businesses in total (89)	**15**	**22**	**38**	**14**
Businesses in total (in %)	**16.85%**	**24.72%**	**42.69%**	**15.73%**

4.2. Hypothesis Verification

Hypothesis testing is performed at the significance level of $\alpha = 0.05$. The rejection or non-rejection of the verified hypothesis is decided by comparing the *p*-value, which is the minimum significance level for which the null hypothesis can be rejected and the significance level α. The Shapiro–Wilk test confirmed that the selection did not come from a normal probability distribution at the significance level of $\alpha = 0.05$, since $p \leq \alpha$ (based on software Statistica results). Therefore, the following non-parametric tests are selected for hypothesis testing: multiple regression analysis, the Kruskal–Wallis test, and the Friedman test. The following information summarizes the procedure for the main and secondary hypotheses verification. The verification of all hypotheses (H1–H5) is performed at the significance level $\alpha = 0.05$, i.e., the minimum significance level for which the null hypothesis can be rejected, because $p \leq \alpha$.

Hypothesis (H$_0$). *There is no relationship between the quality of factors of online shopping behavior and the economic performance of businesses primarily oriented on e-commerce.*

Hypothesis (H$_1$). *There is a relationship between the quality of factors of online shopping behavior and the economic performance of businesses primarily oriented on e-commerce.*

Economic performance is assessed according to the main indicators of profitability, liquidity, indebtedness and cost of capital, i.e., using WACC, ROA, ROE, current liquidity, long-term coverage. All *p*-values of economic performance indicators were evaluated as statistically significant, so we do not reject the null hypothesis. It can therefore be stated that there is no relationship between the quality of factors of online shopping behavior and the economic performance of businesses primarily oriented on e-commerce. The following Table 4 demonstrates the example for the procedure for Hypothesis H1 verification in Statistica software using the multiple regression analysis (WACC as dependent variable and factors of online shopping behavior as independent variables). The remaining and detailed results of the multiple regression between variables ROE, ROA, current liquidity, and long-term coverage is given in the Appendix A (see Tables A2–A5 including R, R2, F or standard deviation values).

Table 4. Example: Multiple regression between WACC and factors of online shopping behavior. Source: own processing (in the Statistica software).

N = 89	Regression Results with Dependent Variable: WACC (Factors of Online Shopping Behavior) R = 0.06061281 R2 = 0.00367391 Modified R2 = —— F = 0.76330 $p < 0.0562$ Standard Error of Estimation: 1.0215					
	b*	Standard Error from b*	b	Standard Error from z b	t	*p*-Value
(1) Reviews of e-shops			2,566,581	1,191,596	2.15390	0.032488
(2) Complaints	−0.036585	0.070447	−54,437	104,821	−0.51933	0.604128
(3) Certificates and security	−0.156566	0.069373	−241,075	106,818	−2.25687	0.025137
(4) Ad and communication	0.019067	0.072459	28,474	108,205	0.26315	0.792718
(5) Product price	−0.055461	0.070960	−87,221	111,595	−0.78159	0.435414
(6) Website	0.115928	0.069409	176,549	105,704	1.67022	0.096496
(7) Organizational factors: Part 1	−0.046391	0.081997	−70,778	125,101	−0.56577	0.572209
(8) Organizational factors: Part 2	−0.121233	0.070395	−191,641	111,278	−1.72218	0.086638
(9) Product description	−0.078449	0.069589	−127,887	113,443	−1.12732	0.261006
(10) Payment methods	0.081013	0.070211	119,233	103,335	1.15385	0.249987
(11) Store network	−0.031178	0.082093	−45,842	120,704	−0.37979	0.704520
(12) Transport	0.071924	0.073428	108,200	110,462	0.97952	0.328549
(13) Discounts	−0.096215	0.074495	−146,227	113,218	−1.29155	0.198056
(14) Additional service	−0.096312	0.069564	−146,312	105,678	−1.38451	0.167801
(15) Warranty	−0.073996	0.073391	−112,944	112,020	−1.00824	0.314599

Hypothesis (H$_0$). *Strategic position of e-commerce businesses is not influenced by the quality of factors of online shopping behavior.*

Hypothesis (H$_2$). *Strategic position of e-commerce businesses is influenced by the quality of factors of online shopping behavior.*

This hypothesis is verified using the Kruskal–Wallis test. The following Table 5 gives an example of verifying the determinants of online shopping behavior in relation to the strategic position of e-commerce businesses, an example is the variable reviews of e-shops solved using Statistica software. Summary: Since some *p*-values of determinants are not statistically significant (details see Table 5, we cannot confirm the null hypothesis and it can be stated that strategic position of e-commerce businesses is influenced by the quality of factors of online shopping behavior.

Table 5. Kruskal–Wallis ANOVA founded on order; Example: Reviews of e-shops according to type of e-commerce strategy. Source: own processing (in the Statistica software).

Dependent Variable: Type of E-Commerce Strategy	Kruskal–Wallis ANOVA Founded on Order; Reviews of e-Shops (Determinants of Online Shopping Behavior) Independent (Group) Variable: Type of E-Commerce Strategy (Strategic Position), Kruskal–Wallis Test: H (4, N = 89) = 8.925624, p = 0.6275		
	Number of Valid	**Sum of Order**	**Average Order**
Progressive strategy	8	5147.000	100.9216
Balanced strategy	46	8537.500	100.4412
Conservative strategy	30	3990.000	97.3171
Crisis strategy	3	1558.000	129.8333

Hypothesis (H$_0$). *All factors of online shopping behavior are evaluated as equally important, i.e., all distribution functions are equal.*

Hypothesis (H$_3$). *All factors of online shopping behavior are not evaluated as equally important, i.e., all distribution functions are not equal.*

This hypothesis is verified by the Friedman's test at the significance level of α = 0.05, for which the null hypothesis can be rejected, i.e., $p \leq \alpha$. Since p = 0.0000, therefore, the null hypothesis cannot be confirmed, i.e., all factors of online shopping behavior are not evaluated as equally important. Detailed calculations are shown in Table 6 calculated using the Statistica software.

Table 6. Friedman's ANOVA and Kendall's compliance coefficient: Factors of online shopping behavior (source: own processing in the Statistica software).

Variables of Factors of Online Shopping Behavior	Friedman's ANOVA and Kendall's Compliance Coefficient (Factors of Online Shopping Behavior) ANOVA Chi-Qu. (N = 89) = 95.7615 p = 0.0000 Compliance Coefficient = 0.04155, r = 0.03694			
	Average Order	**Sum of Order**	**Average Mean**	**Standard Deviation**
(1) Reviews of e-shops	11.33971	2370.000	2.444976	1212152
(2) Complaints	12.13397	2536.000	2.583732	1.338743
(3) Certificates and security	15.10287	3156.500	3.100478	1.422501
(4) Ad and communication	14.84450	3102.500	3.071770	0.369172
(5) Product price	11.02392	2304.000	2.373206	1.111327
(6) Website	12.19617	2549.000	2.593301	1.268006
(7) Organizational factors: Part 1	15.12201	3160.500	3095694	1.441297
(8) Organizational factors: Part 2	14.48565	3027.500	3.033493	1.408705
(9) Product description	14.29426	2987.500	2.947368	1.394393
(10) Payment methods	11.94737	2497.000	2.559809	1.292550
(11) Store network	14.88517	3111.000	3.052632	1.441856
(12) Transport	14.65072	3062.000	3.038278	1.347529
(13) Discounts	15.09330	3154.500	3.124402	1.391536
(14) Additional service	15.10287	3156.500	3.057416	1.389021
(15) Warranty	14.69617	3071.500	3.043062	1.411853

Hypothesis (H$_0$). *Type of financial strategy in e-commerce does not correspond to the strategic position of e-commerce businesses, respectively type of strategy in e-commerce.*

Hypothesis (H$_4$). *Type of financial strategy in e-commerce corresponds to the strategic position of e-commerce businesses, respectively type of strategy in e-commerce.*

This hypothesis is verified using the Kruskal–Wallis test. The following Table 7 gives of the relation of type of financial strategy on the type of e-commerce strategy. Since $p > \alpha$, we do not reject the null hypothesis. Therefore, we can conclude type of financial strategy in e-commerce does not correspond to the strategic position of e-commerce businesses, respectively type of strategy in e-commerce.

Table 7. Kruskal–Wallis ANOVA founded on order; Example: Type of financial strategy according to type of e-commerce strategy. Source: own processing (in the Statistica software).

Dependent Variable: Type of E-Commerce Strategy	Kruskal–Wallis ANOVA Founded on Order; Type of Financial Strategy (Determinants of Online Shopping Behavior) Independent (Group) Variable: Type of E-Commerce Strategy (Strategic Position), Kruskal–Wallis Test: H (4, N = 89) = 0.926321, p = 0.05987		
	Number of Valid	Sum of Order	Average Order
Progressive strategy	8	4744.500	100.9468
Balanced strategy	46	4407.500	107.5000
Conservative strategy	30	3377.000	108.9355
Crisis strategy	3	5778.000	107.0000

Hypothesis (H$_0$). *Factors of online shopping behavior are not influenced by the size of e-commerce businesses.*

Hypothesis (H$_5$). *Factors of online shopping behavior are influenced by the size of e-commerce businesses.*

This hypothesis is verified using the Kruskal–Wallis test. The following Table 8 gives an example of verifying the determinants of online shopping behavior in relation to the strategic position of e-commerce businesses, an example is the variable reviews of e-shops solved using Statistica software. Summary: Since some p-values of determinants are not statistically significant (details see Table 9, we cannot confirm the null hypothesis and it can be stated that factors of online shopping behavior are influenced by the size of e-commerce businesses.

Table 8. Kruskal–Wallis ANOVA founded on order; Example: Reviews of e-shops according to enterprise size Source: own processing (in the Statistica software).

Dependent Variable: Reviews of E-Shops	Kruskal–Wallis ANOVA Founded on Order; Reviews of E-Shops (Determinants of Online Shopping Behavior) Independent (Group) Variable: Enterprise Size Kruskal–Wallis Test: H (4, N = 89) = 0.8981780, p = 0.0125		
	Number of Valid	Sum of Order	Average Order
Micro businesses	5	5388.500	105.6569
Small businesses	36	8985.500	105.7118
Medium businesses	43	4174.500	101.8171
Large businesses	5	1293.000	107.7500

The following Table 9 summarizes the main results of the research and the conclusions from the verification of the research hypotheses. The Table 1 also deals with the final p-value of identified hypotheses, i.e., the minimum significance level for which the null hypothesis can be rejected and the significance level α. The first hypothesis confirmed there is no relationship between the selected indicators of economic performance (WACC, ROE, ROA, long-term coverage, current liquidity) and quality of factors of online shopping behavior. This hypothesis did not confirm the relationship between financial situation and health of e-commerce businesses and intensity and quality of applied factors of online shopping behavior, such as in previous cases (Cui 2016; Li 2017; Tu 2016). It was not confirmed that the strategic position of e-commerce businesses is influenced by quality of factors of online shopping behavior. However, on the other hand, the third hypothesis verification confirmed all factors of online shopping behavior are not evaluated as equally important. However, the previous studies highlight the equal importance of factors of online shopping behavior when implementing successful e-commerce strategy (Akman et al. 2015; Ke et al. 2017; Prashant 2009; Kim et al. 2009, 2018; Richard et al. 2010; Wang et al. 2010; Yanes-Estévez et al. 2018). Based on the descriptive statistics and hypothesis verification the type of conservative financial strategy in e-commerce does not correspond to the balanced strategic position of e-commerce businesses, as discussed above. Finally, it was confirmed that factors of online shopping behavior are influenced by the size of e-commerce businesses as based

on previous studies (Pereira et al. 2016; Roca et al. 2009; Pilík 2011, 2015; Svatošová 2018, 2019a; Wang et al. 2010; Tu 2016). This statement was confirmed above, i.e., the larger business is the higher quality of applied factors of online shopping behavior is given.

Table 9. Hypothesis verification. Source: own research in the software Statistica.

Secondary Research Hypothesis	Method of Hypothesis Verification	*p*-Value Based on Results of Software Statistica	Conclusion of Hypothesis Verification
H1: There is no relationship between the quality of factors of online shopping behavior and the economic performance of businesses primarily oriented on e-commerce.	Multiple regression	WACC: $p = 0.0562$ ROA: $p = 0.6987$ ROE: $p = 0.0541$ Current liquidity: $p = 0.6587$ Long-term coverage: $p = 0.8476$ (detail results see Tables 4 and A2, Tables A3–A5 in Appendix A)	Not rejected
H2: Strategic position of e-commerce businesses is not influenced by the quality of factors of online shopping behavior.	Kruskal–Wallis ANOVA	(1) Reviews of e-shops $p = 0.6275$; (2) Complaints $p = 0.7792$; (3) Certificates and security $p = 0.1256$; (4) Ad and communication $p = 0.4993$; (5) Product price $p = 0.7384$; (6) Website $p = 0.0258$; (7) Organizational factors: Part 1 $p = 0.6358$; (8) Organizational factors: Part 2 $p = 0.1256$; (9) Product description $p = 0.0015$; (10) Payment methods $p = 0.0365$; (11) Store network $p = 0.0123$; (12) Transport $p = 0.9654$; (13) Discounts $p = 0.7792$; (14) Additional services $p = 0.0365$; (15) Warranty $p = 0.9576$.	Rejected
H3: All factors of online shopping behavior are evaluated as equally important.	Friedman's ANOVA and Kendall's compliance coefficient	$p = 0.0000$	Rejected
H4: Type of financial strategy in e-commerce does not correspond to the strategic position of e-commerce businesses, respectively type of strategy in e-commerce.	Kruskal–Wallis ANOVA	$p = 0.05987$	Not rejected
H5: Factors of online shopping behavior are not influenced by the size of e-commerce businesses.	Kruskal–Wallis ANOVA	(1) Reviews of e-shops $p = 0.0125$; (2) Complaints $p = 0.3214$; (3) Certificates and security $p = 0.0214$; (4) Ad and communication $p = 0.5689$; (5) Product price $p = 0.0147$; (6) Website $p = 0.3214$; (7) Organizational factors: Part 1 $p = 0.3654$; (8) Organizational factors: Part 2 $p = 0.1478$; (9) Product description $p = 0.9547$; (10) Payment methods $p = 0.4125$; (11) Store network $p = 0.4785$; (12) Transport $p = 0.3654$; (13) Discounts $p = 0.3657$; (14) Additional services $p = 0.9654$; (15) Warranty $p = 0.0147$	Rejected
Main research hypothesis (verification is based on secondary hypotheses verification)			**Conclusion of hypothesis verification**
Main research hypothesis MH1: Most of the selected e-commerce businesses use a progressive strategy related to the progressive growth of e-commerce market, based on their strategic behavior from a customer perspective.			**Rejected**
Main research hypothesis MH2: The strategic behavior of e-commerce businesses is influenced by factors of online shopping behavior.			**Rejected**

Based on the results of secondary hypotheses verification and results of descriptive statistics above, we can conclude the most of the selected e-commerce businesses do not use a progressive strategy related to the progressive growth of e-commerce market, based on their strategic behavior from a customer perspective based on the results of previous studies (Bandara et al. 2019; Kumar and Dange 2012; Safa and Ismail 2013; Svatošová 2019b; Chen et al. 2014; Ballestar et al. 2018). However, balanced strategy among businesses in the industry of online sales of electronics dominates. It was also confirmed that the strategic behavior of e-commerce businesses is not influenced by factors of online shopping behavior, i.e., e-commerce businesses do not prioritize factors of online shopping behavior

when implementing e-commerce strategy such as the findings of previous studies (based on Kim et al. 2009; Martín and Camarero 2009; Pereira et al. 2016; Roca et al. 2009; Pilík 2011, 2015; Svatošová 2018, 2019a; Wang et al. 2010).

5. Conclusions

Factors of online shopping behavior belong to the key elements of successful implementing e-commerce strategy. This research confirmed the strategic behavior of e-commerce businesses is influenced by factors of online shopping behavior. This means e-commerce businesses in the industry of online sales of electronics take into account the factors of online shopping behavior when implementing e-commerce strategy. Factors of online shopping behavior are considered as important; however, these factors are not considered as equally important. The other results confirmed the relationship between the size of e-commerce businesses and quality of factors of online shopping behavior, i.e., the larger the business is, the higher the quality of applied factors of online shopping behavior are given. A relationship between the economic performance of e-commerce businesses and quality of factors of online shopping behavior was not confirmed, i.e., quality of factors of online shopping behavior are not the only element of positive economic results.

It was not confirmed that e-commerce businesses use a progressive strategy that should correspond to the steadily progressive growth of e-commerce. The progressive strategy is used only among 8.98% of e-commerce businesses. In the industry of online sales of electronics, the balanced strategy (51.69%) dominates. However, this e-commerce strategy does not correspond to the conservative strategy (42.69%) that dominates among the selected e-commerce businesses. There is a discrepancy between the stable growth of e-commerce and the applied e-commerce strategy or financial strategy and strategic behavior of e-commerce businesses.

The possible explanation lies in no coherent strategic approach of e-commerce business when implementing e-commerce strategy. Even though the main and secondary goals of this paper are met with the help of hypothesis verification, several limitations have to be pointed out. The research sample is limited to e-commerce businesses in the industry of online sales of electronics. Therefore, other research should be focused on the other fields of e-commerce to confirm or contest this statement.

The paper employed its own methodology in qualitative data analysis when evaluating the quality of factors of online shopping behavior. Other research activities should be focused on the other methods of evaluation and compare them with the methodology used in this paper. Finally, this paper focuses on strategic behavior of e-commerce businesses from the customers' perspective. Other research will focus on this issue from the businesses' perspective. The main theoretical and empirical benefits of this paper are: identification of the current factors of online shopping behavior in the industry of online sales of electronics, the implemented methodology of their implementation, and identification of relationship between strategic behavior of e-commerce businesses and quality of factors of online shopping behavior.

Appendix A

Table A1. Evaluation of the factors of online shopping behavior according to the size of the e-commerce businesses. Source: own research.

Factors of Online Shopping Behavior	Micro Businesses	Small Businesses	Medium Businesses	Large Businesses	All Businesses in Total
(1) Reviews of e-shops	3.25	3..87	3.98	4.21	**3.83**
(2) Complaints	2.56	2.97	3.21	3.99	**3.18**
(3) Certificates and security	3.95	4.01	4.36	4.45	**4.19**
(4) Ad and communication	2.31	3.62	3.95	4.63	**3.63**
(5) Product price	4.21	4.36	4.23	4.29	**4.27**
(6) Website	2.98	3.65	4.52	4.67	**3.96**
(7) Organizational factors: Part 1	3.01	3.56	3.89	4.01	**3.62**
(8) Organizational factors: Part 2	2.93	3.06	3.85	4.12	**3.49**
(9) Product description	3.75	3.96	4.25	4.36	**4.08**
(10) Payment methods	3.65	3.95	4.06	4.63	**4.07**
(11) Store network	1.95	2.02	3.56	4.05	**2.90**
(12) Transport	3.95	4.05	4.36	4.55	**4.23**
(13) Discounts	2.56	2.99	3.89	4.23	**3.42**
(14) Additional service	3,27	3.45	4.32	4.75	**3.95**
(15) Warranty	3.56	3.99	4.05	4.36	**3.99**

Table A2. Multiple regression between ROA and factors of online shopping behavior. Source: own processing (in the Statistica software).

N = 89	Regression Results with Dependent Variable: ROA (Factors of Online Shopping Behavior) $R = 0.25490558$ $R2 = 0.06497686$ Modified R2 = —— $F = 0.89413$ $p < 0.6987$ Standard Error of Estimation: 0.26890					
	b*	Standard Error from b*	b	Standard Error from z b	t	*p*-Value
(1) Reviews of e-shops			−0.242139	0.154890	−1.56330	0.119620
(2) Complaints	0.008149	0.072443	0.001533	0.013625	0.11249	0.910553
(3) Certificates and security	0.066888	0.071339	0.013019	0.013885	0.93762	0.349612
(4) Ad and communication	0.105914	0.074512	0.019993	0.014065	1.42145	0.156801
(5) Product price	0.056775	0.072970	0.011286	0.014506	0.77806	0.437489
(6) Website	0.004400	0.071375	0.000847	0.013740	0.06164	0.950912
(7) Organizational factors: Part 1	0.131053	0.084320	0.025274	0.016261	1.55423	0.121767
(8) Organizational factors: Part 2	−0.009753	0.072390	−0.001949	0.014464	−0.13473	0.892962
(9) Product description	0.131700	0.071561	0.027138	0.014746	1.84040	0.067245
(10) Payment methods	−0.029234	0.072200	−0.005439	0.013432	−0.40490	0.685999
(11) Store network	−0.126712	0.084419	−0.023550	0.015690	−1.50099	0.134992
(12) Transport	0.049055	0.075508	0.009328	0.014358	0.64967	0.516681
(13) Discounts	−0.003718	0.076606	−0.000714	0.014717	−0.04853	0.961343
(14) Additional service	0.099596	0.071535	0.019125	0.013737	1.39227	0.165442
(15) Warranty	−0.000351	0.075470	−0.000068	0.014561	−0.00465	0.996298

Table A3. Multiple regression between ROE and factors of online shopping behavior. Source: own processing (in the Statistica software).

N = 89	Regression Results with Dependent Variable: ROE (Factors of Online Shopping Behavior) $R = 0.28070129$ $R2 = 0.07879321$ Modified R2 = 0.00719683 $F = 1.1005$ $p < 0.0541$ Standard Error of Estimation: 6.7233					
	b*	Standard Error from b*	b	Standard Error from z b	t	*p*-Value
(1) Reviews of e-shops			1.175190	3.872649	0.30346	0.761867
(2) Complaints	−0.021211	0.071906	−0.100490	0.340666	−0.29498	0.768327
(3) Certificates and security	−0.063459	0.070810	−0.311119	0.347156	−0.89619	0.371266
(4) Ad and communication	−0.087717	0.073959	−0.417080	0.351663	−1.18602	0.237071
(5) Product price	−0.143167	0.072429	−0.716889	0.362679	−1.97665	0.049506
(6) Website	0.034894	0.070846	0.169203	0.343534	0.49254	0.622900
(7) Organizational factors: Part 1	0.032561	0.083695	0.158173	0.406574	0.38904	0.697676
(8) Organizational factors: Part 2	0.005176	0.071853	0.026050	0.361650	0.07203	0.942652
(9) Product description	−0.039110	0.071030	−0.203001	0.368687	−0.55061	0.582540
(10) Payment methods	−0.104060	0.071665	−0.487645	0.335835	−1.45204	0.148114

Table A3. *Cont.*

N = 89	Regression Results with Dependent Variable: ROE (Factors of Online Shopping Behavior) R = 0.28070129 R2 = 0.07879321 Modified R2 = 0.00719683 F = 1.1005 *p* < 0.0541 Standard Error of Estimation: 6.7233					
	b*	Standard Error from b*	b	Standard Error from z b	t	*p*-Value
(11) Store network	0.079668	0.083793	0.372975	0.392285	0.95078	0.342907
(12) Transport	0.119365	0.074948	0.571747	0.358997	1.59262	0.112881
(13) Discounts	−0.033050	0.076038	−0.159932	0.367955	−0.43465	0.664302
(14) Additional service	−0.048665	0.071004	−0.235392	0.343450	−0.68538	0.493930
(15) Warranty	0.036103	0.074911	0.175461	0.364062	0.48195	0.630385

Table A4. Multiple regression between Current liquidity and factors of online shopping behavior. Source: own processing (in the Statistica software).

N = 89	Regression Results with Dependent Variable: Current Liquidity (Factors of Online Shopping Behavior) R = 0.25955260 R2 = 0.06736755 Modified R2 = —— F = 0.92941 *p* < 0.6587 Standard Error of Estimation: 34.548					
	b*	Standard Error from b*	b	Standard Error from z b	t	*p*-Value
(1) Reviews of e-shops			−28.6645	1989967	−1.44045	0.151360
(2) Complaints	0.082369	0.072351	1.9929	1.75052	1.13847	0.256334
(3) Certificates and security	0.085039	0.071247	2.1292	1.78387	1.19357	0.234111
(4) Ad and communication	−0.046803	0.074416	−1.1365	1.80702	−0.62894	0.530134
(5) Product price	0.072827	0.072877	1.8624	1.86363	0.99932	0.318891
(6) Website	0.020725	0.071284	0.5132	1.76525	0.29073	0.771567
(7) Organizational factors: Part 1	0.031469	0.084213	0.7807	2.08919	0.37369	0.709046
(8) Organizational factors: Part 2	0.108097	0.072297	2.7786	1.85835	1.49518	0.136500
(9) Product description	0.064413	0.071469	1.7075	1.89450	0.90127	0.368567
(10) Payment methods	0.062598	0.072108	1.4981	1.72569	0.86811	0.386413
(11) Store network	0.023030	0.084311	0.5506	2.01576	0.27316	0.785023
(12) Transport	−0.070092	0.075412	−1.7146	1.84471	−0.92946	0.353811
(13) Discounts	−0.105026	0.076508	−2.5955	1.89074	−1.37275	0.171425
(14) Additional service	−0.044079	0.071443	−1.0888	1.76483	−0.61697	0.537981
(15) Warranty	0.113648	0.075374	2.8207	1.87074	1.50780	0.133242

Table A5. Multiple regression between Long-term coverage and factors of online shopping behavior. Source: own processing (in the Statistica software).

N = 89	Regression Results with Dependent Variable: Long-Term Coverage (Factors of Online Shopping Behavior) R = 0.17296584 R2 = 0.02991718 Modified R2 = —— F = 0.39681 *p* < 0.8476 Standard Error of Estimation: 0.38072					
	b*	Standard Error from b*	b	Standard Error from z b	t	*p*-Value
(1) Reviews of e-shops			0287682	0.219298	1.31183	0,.191136
(2) Complaints	0.058179	0.073789	0.015210	0.019291	0.78845	0.431402
(3) Certificates and security	0.061986	0.072664	0.016770	0.019659	0.85305	0.394691
(4) Ad and communication	−0.010980	0.075896	−0.002881	0.019914	−0.14468	0.885116
(5) Product price	0.059260	0.074326	0.016375	0.020538	0.79730	0.426258
(6) Website	0.045867	0.072701	0.012273	0.019453	0.63090	0.528855
(7) Organizational factors: Part 1	−0.038613	0.085887	−0.010351	0.023023	−0.44958	0.653521
(8) Organizational factors: Part 2	0.017738	0.073734	0.004927	0.020479	0.24057	0.810145
(9) Product description	0.062948	0.072890	0.018030	0.020878	0.86361	0.388875
(10) Payment methods	0.018566	0.073542	0.004801	0.019017	0.25246	0.800956
(11) Store network	0.012766	0.085987	0.003298	0.022214	0.14847	0.882130
(12) Transport	0.014863	0.076911	0.003929	0.020329	0.19325	0.846964
(13) Discounts	0.005617	0.078029	0.001500	0.020836	0.07199	0.942688
(14) Additional service	0.027707	0.072864	0.007396	0.019449	0.38026	0.704168
(15) Warranty	−0.052442	0.076872	−0.014064	0.020616	−0.68219	0.495937

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